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Pasturing the Farm Woodlot By W. I. GILSON Forestry Department M. A. C.

THE farm woodlot of today has a value which is manifold. It is drawn upon for supplies of material for home use or for sale in the form of cordwood, construction timbers, lumber, ties, piling, etc. If it contains a sufficient number of trees of the right species, it may be used as a maple sugar grove, or the farmer's family and the community may find a common recreation and picnic ground beneath its trees. These many uses combined give to the woodlot not only a considerable direct money value but also an aesthetic or sentimental value that cannot be capitalized. These uses are all desirable, but the pasturing of live stock in the woodlot is a use of an entirely different character. It is this use that is bringing serious consequences to the future of the farm woodlots, for a wooded area cannot properly serve both the functions of a woodlot and a pasture.

It is more difficult to put the serious effects of pasturing such an area into concrete form, as a lesson for the future management, than it would be in the case of a crop that matures annually. If an impoverished condition of the soil causes the annual yield of crops of the usual rotation to decrease one-half, the effect is quickly felt and the cause and remedy are sought out. With the woodlot crop, the amount that is produced annually is not harvested the same year but at irregular intervals, so many years pass before it is noticeable that it does not produce wood in such quantities as in the past.

A natural wooded area is self-fertilizing and has processes similar to those of drainage and tillage in open fields performed naturally by the trees themselves. A crop of leaves is borne each year and returned to the soil to decay and furnish nourishment to be used again in the growth of the same or other nearby trees. The expansion by growth of the roots beneath the soil keeps it loosened so that water seeps readily to lower strata. Germans realized the soil building power of forests centuries ago and practiced the growing of crops of trees upon impoverished soil in order to build it up before turning it back for future generations to put to agricultural use.

Natural forest conditions gradually disappear from a pastured woodlot and it becomes in the course of time a shaded pasture with the trees finally giving way entirely to grass. Natural wood-

lands of the type common in Michigan have all ages of trees represented from tiny seedlings to veteran trees in the stage of decay.

The first result of pasturing is the destruction of the young growth, which a generation or two hence should be forming valuable trees on the area. The older trees gradually become mature and are removed for various uses or die, and there is no young growth beneath to fill up the gaps made by their absence. The exposed areas of soil soon lose their cover of leaves, and sod over, so by this method of

handling woodlots, man is gradually, and often unconsciously, substituting areas of pasture for groups of trees.

One of the symptoms of premature decadence caused by pasturing and which continues as long as trees remain, is the unusual rate of death of the uppermost branches, or the condition which is termed "stag-headedness." This condition becomes more pronounced as pasturing continues, and a great number of trees must be removed each successive year for a long period to prevent their utter decay in the woods. The best woodlots

will not produce grass because the forest canopy shades the ground so completely that grass cannot get a foothold.

There are several classes of injuries caused by pasturing which combine to give the results previously cited. The first of these is the browsing of seedlings and young trees. The relative severity of browsing depends upon the succulence of the foliage and the self-protective properties of the various species. Some trees have foliage with an acrid taste which animals avoid as long as more palatable forage is available. Other trees and shrubs produce thorns and spines which give partial protection to the foliage from the ravages of live stock, until a dearth of grass forces them to the less desirable food.

Goats do the most damage and are the least fastidious of any class of live stock. Their diet consists of almost any kind of foliage or bark and many other materials, but because of the very few grazed in Michigan they are not a serious menace to our woodlots.

Sheep eat a great variety of plants and feed closely, destroying all foliage near the ground. They cannot reach as high as other animals and deserve some credit for destroying many weeds that horses and cattle would leave untouched. Where horses and cattle graze in woodlots very little tree foliage remains within seven feet of the ground. They are more fastidious than sheep and goats, but there is usually a time each season when pasture is short and stock will resort to tree foliage for food.

Injuries to the bark are most numerous on young trees with thin and tender bark. Bark abrasions do not result in the immediate death of the trees unless girdling is complete, but harm lies in the diminished rate of growth, and in the presence of ragged wounds susceptible to infection, and a cause of decay or insect attack.

During the warm portions of the day, live stock seek out the most desirable shade and the damage from their congregating in groups as they have the tendency to do, is principally in compacting the soil and bruising the surface roots. The packing of the soil is a force in opposition to that of the tree roots striving to loosen it by their natural growth and development. The open passageways by which water reaches the low-



Pasturing Destroys all Young Growth, and Lessens Vigor of the Older Trees.



Plenty of Seedling and Sapling Reproduction to Perpetuate the Stand of Timber is Found in Unpastured Woodlots.

(Continued on p. 380).

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DETROIT, MARCH 18, 1916

CURRENT COMMENT.

Recently several subscribers have applied to the Michigan Farmer for suggestions as to the selection of names for their farms. The idea of naming the farm is a good one which we believe might be profitably put into practice by a very much larger percentage of farm owners. It would be quite impractical, however, to publish a list of possible farm names which would fit even a small percentage of individual requirements, so great is the range of possibilities in this matter of the selection of farm names.

Very often the selection of a name for the farm is made with a view to some peculiarly attractive feature of the farm itself and sometimes with quite as much reason, the name is made to illustrate some noteworthy accomplishment of the owner in its improvement. We are all familiar with farm names suggested by some local peculiarity of the farm itself, as "Lone Elm Farm," "The Oaks," "Pinehurst," "Willow Dale," etc.

Similar examples of the selection of a name which illustrates effective work in improvement by the owner might be cited as "Maple Row Farm" chosen by a man who has seen a beautiful row of hard maples of his own planting grow up along the roadside in front of his farm home, or "Pick Stone Farm," a designation selected by a man who had expended a large amount of labor in clearing off originally stony fields.

Still another class of names which merits careful consideration are those having a trade significance, as "Thousand Maples Farm," so named by a man whose possessions include a large and productive sugar bush, the product of which is marketed directly to consumers, a factor which is becoming of increasing importance in augmenting the revenue from many farms.

Such a list of possible names in any of these classes might be continued indefinitely, but these few have been mentioned only as illustrations of names which have the combined advantage of utility and attractiveness. Others will suggest themselves to the reader who devotes some thought to this important question of giving the farm home a distinctive name.

Recently one subscriber has asked for information as to the possible means of protecting such a name from duplication or infringement by others. Application to Federal authorities brought the information that the names designating farms cannot now be so protected by either patent or copyright. Possibly when the time shall come that naming the farm is a more common practice provision will be made for the registration and pro-

tection of farm names. A bill providing for the registration of farm names was considered by the last Legislature, and only failed of passage because of the press of business incidental to the close of the session.

Farm Management Demonstrations.

On the succeeding page of this issue appears an article which should be carefully read by every Michigan Farmer reader. It is a summary of the deductions made from a farm management survey of a typical section of Kent county made by the farm management demonstrator of the Agricultural College and the county agricultural agent for Kent county. This information in substantially this form has been generally circulated among the farmers of the county, and is here presented for the reason that it contains many valuable lessons for the farmers of the entire state, as well as for those of the immediate locality in which the demonstration was made.

The gathering and analysis of data of this kind is but one of the beneficial lines of work undertaken in counties where agricultural agents have been employed, in fact this is special work done through the co-operation of the farm management demonstrator employed jointly by the United States Department of Agriculture and the Agricultural College and the county agent. The work of the county agent in the beginning must of necessity consist largely of extending aid both in person and through the Agricultural College in the solution of the individual problems of the farmers within his territory. Later as the work becomes better organized the group method of consultation and demonstration is employed wherever practicable in order that the work and time of the county agent may be employed in such a manner as will result in the greatest good to the greatest number of farmers within the county.

In view of the fact that approximately one-half of the expense of maintaining the county agent is paid jointly by the Federal government and the state through the Agricultural College, the counties which are improving the opportunity to have the county agent are getting a very large return on the required investment. This fact is becoming better appreciated every day in the counties where agricultural agents are now operating, which fact will unquestionably hasten the time when every locality in the state will have the benefit of the services of such an agricultural agent. It is quite possible that in some of the less developed counties of the northern part of the state it may be necessary to include several counties in a single district at the beginning, but with the development of agriculture in these localities there will unquestionably be enough work of this kind for one man in every Michigan county. The county agricultural bureau is no longer an experiment, and its work should receive the active support of the farmers of every county as it is possible to supply this service.

State Taxation.

Taxation is one of the vexed questions of modern government for which there seems to be no satisfactory solution. Viewed from the standpoint of the average man, the only just tax is the one that the other fellow has to pay. Among methods of taxation for state and municipal purposes, the property tax has been in general favor throughout the country and has been almost the only form of taxation applied in our own state. Glaring inequalities in the method of administering the property tax which grew up under changed conditions relating to industrial development have been and are being corrected so that a greater share of what we have come to call "equal taxation" now prevails. Still the weakness and limitations of our present system of taxation for state purposes are the subject of frequent comment and discussion. Upon

various occasions the desirability of the separation of local and state taxation has been discussed by public men in both private and official capacities. Just a few years ago a special commission appointed to consider the matter of taxation in Michigan favored in their reports such separation by applying the proceeds from the taxation of corporations of certain classes to state purposes in lieu of a general property tax.

In another column of this issue appears an article written by one of Michigan farmer students of taxation in which the state income tax is proposed as a substitute for the present property tax for state purposes. This article is well worthy of a careful reading by every subscriber, whether they may conform to the opinions expressed in same or not. Unquestionably modern changes in social and industrial life require changed methods of taxation as well as administration in general. In the past changes of this kind have not kept pace with changed conditions. This is probably a matter for congratulation rather than otherwise, since it is best to make haste slowly in the trying out of new principles or new methods in the administration of government.

There are sound arguments in favor of the idea that a property tax is better adapted to the support of the minor municipality than of the state which many believe should, like the nation, secure its revenue either by indirect taxation or by some method of direct taxation other than the property tax. Since this is a question which will receive ever increasing attention, it is the part of wisdom for every farmer to keep posted on the latest ideas relating to taxation, in order that he may form intelligent opinions which will be of weight with members of the Legislature whenever the subject of taxation may be under consideration by that body.

Co-operative Marketing.

The discussions at the marketing session of the Country Life Conference held during Farmers' Week, which are briefly reported in another column of this issue, reveal the fact that the idea of co-operative marketing is not only gaining strength in the matter of increased public opinion in its favor, but also in the successful examples of co-operative marketing which are afforded by more than two score Michigan organizations which are now engaged in successful work along this line.

The fact that successful co-operative organizations doing business in any community will prove the nucleus for other organizations of the kind in surrounding territory is well illustrated by the groups of co-operative organizations which have rapidly grown up in different sections of the state, notably the live stock associations and other co-operative selling organizations in Hillsdale county and the fruit selling organizations of southwestern Michigan.

Possibly the live stock shipping organizations afford the simplest and most practical form of co-operative selling in a majority of Michigan rural communities. For this reason some space will be devoted in future issues to a report of the work which is being done by some of these organizations. Also the State Director of Markets has announced that a bulletin giving information of value to those who would organize an association of this kind is in progress of preparation, and will be available for circulation in the not distant future.

Wherever the co-operative spirit becomes evident among farmers of any neighborhood to the needs of which the live stock shipping association is adapted, the public spirited leaders in that neighborhood should seize the opportunity of making public by every means at hand the advantages and benefits to be derived from co-operating along this line. The experience

will not only be profitable from the standpoint of immediate results, but will be valuable as an education toward undertaking more difficult co-operative organizations.

HAPPENINGS OF THE WEEK.

Foreign.

The European War.—After 21 days of the most intense fighting in the world's history, Verdun the important French position against which the Germans have made attack after attack is still in the hands of the French who appear more confident of defending the position than at any time since the first big drive was launched. It is expected, however, that another effort will be made by the Kaiser's soldiers to break the French lines at that point. During the past few days minor gains have been claimed by both sides. Artillery actions of great intensity have occurred along the whole Belgian front and at other points outside of Verdun in northern France. The movement of troops on the European Russian front has been insignificant and nothing of importance is reported from the Italian lines and the Balkan district. Russian forces in Asia Minor continue to advance and are now within 125 miles of Kut-el-Amara, where a British force has been surrounded by the Turks since last December. Kirind, Persia, in the direction of Bagdad, was captured by the Russians late last week. Persistent reports came out last week that the German fleet had put to sea; nothing of an official character has been published in this connection however.

An agreement has been reached between Roumania and Russia which permits Roumania to purchase war materials in and transport them through Russian territory. The agreement indicates the definite decision of Roumania to adhere to the cause of the entente allies.

An Alpine avalanche buried several houses in the Agordo district of Italy and 25 persons have been reported killed.

A shortage in the supply of potatoes has caused the German authorities to issue potato cards the same as has already been done for bread and butter.

National.

Mexican Affairs.—Interest in our relations with Mexico was aroused again last week by the invasion of United States territory by a band of Mexican bandits under the leadership of Gen. Villa, and the killing of eight American civilians and seven soldiers at Columbus, New Mexico. United States troops have been rushed to points along the entire border and it is probable that with the approval of Carranza's provisional government American troops will pursue Villa into Mexican states. A general belief prevails that the Carranza government is tottering and that a general intervention into Mexican politics is sure to follow an American invasion.

Announcement has been made that the United States naval training cruise for civilians will start August 15. Reserve battleships will be detailed and apportioned among the coast districts according to the number of applicants accepted in each.

A large fertilizer plant in Buffalo was destroyed by fire Sunday, entailing a loss estimated at \$550,000. The fire resulted from a dust explosion. Seven employees were slightly burned.

An effort is being made in Congress to authorize the establishment of game sanctuaries in national forests, where wild animals, excepting those of a predatory nature, will be safe-guarded throughout the year.

A conference of ministers representing the Scandinavian countries in session at Copenhagen has agreed that the wisest course of these countries in connection with present European political disturbances is to co-operate in maintaining a strictly neutral position.

The Michigan Public Domain Commission is holding a two-days' congress at Lansing this week to standardize methods of preventing and fighting forest fires in the northern part of the state.

Sunday night a mile or more of paved streets in western Detroit were torn up by the explosion of gasoline in sewers, which had escaped there from a tank car. The damage done is estimated at half a million dollars.

Last week the Detroit Y. W. C. A. succeeded in raising a fund of over \$300,000 with which to erect and equip a new building.

Members of the Michigan Grand Army Posts will be pleased to learn that Col. L. H. Ives, of Mason, has yielded to the solicitations of many old comrades and friends to allow his name to appear as a candidate for the office of Department Commander of the G. A. R. His splendid military record and his efforts in every movement for moral and social uplift make him a deserving candidate.

Farm Management Demonstrations In Kent County

AMONG sixty farms selected at random around Cedar Springs we find farms that are prospering and farms that are not; farms that are making money and farms that are losing money for their owners. Every farmer should get interest on every dollar invested and pay for every hour of labor spent on his farm. In the following discussion we will show why some of these farms are not making a good income, and why other farmers are making good pay for their own work after paying all farm expenses and five per cent interest on the investment.

Very few farmers know whether the farm pays interest and wages or not but most farmers have in mind the things necessary to use in figuring this out. Any farmer can easily keep accounts enough to summarize his business as shown in the following chart. The Agricultural College will furnish

Income from capital and operator's labor, (receipts minus expense)\$931.00
Income from capital (five per cent interest) 508.00
Labor income (operator's) 423.00

This chart shows the total investment on the farm, the expenses, the receipts and the net returns the farmer received for his work. It is to be noted that \$150 cash was paid for hired help and in addition to this the help was boarded, which is estimated to cost \$2 a week over and above the portion of the food which the farm furnished. The boys in the family did work which, if paid for at usual rates would have cost \$45. Repairs on buildings, machinery and fences cost \$66 and in addition to these repairs the buildings and machinery depreciated during the year an estimated amount of \$164. Buildings usually depreciate two to 10 per cent a year, depending upon care and use given them. Farm

known as his labor income. In addition to this, he received such portion of his living as the farm furnished for himself and family, house rent, fire wood, milk, eggs, poultry meat, potatoes, and other garden stuff. These things probably represented about half of the living for the family.

This farm is a highly successful farm and has three characteristics which make it successful. These are good size, good quality and good diversity. Let us consider these characters separately.

Size of Business.

The figures on sixty farms in Kent county show that the larger farms enable the farmer to get more pay for his work than do the smaller. There are several ways to measure the size of farm business: One way is by the number of acres in crops. The following chart shows how the number of crop acres affects the Kent county farmers' incomes.

Chart A.

No. acres in crops.	No. of farms.	Average Labor Income.	No. having Labor Income above \$500.
Less than 50	22	\$ 57	0
50-65	20	167	2
More than 65	18	415	9

The larger farms enable the farmer to keep more stock, use more machinery and put in his own time at a better advantage. Along with a large number of acres usually goes a large investment in other farm property. The following table shows how a large investment in farm property other than real estate helps the Kent county farmer to get good returns for his own time.

Chart B.

Farm Property not Real Estate.	No. of farms.	Average Labor Income.	No. having Labor Income above \$500.
Less than \$1,500	34	\$ 96	1
\$1,500-\$2,000	13	297	4
More than \$2,000	13	383	6

These charts have shown how desirable it is for the general purpose farm-

large business and help him to get good pay for his year's work as shown in the following chart:

Chart C.

No. days of productive Work.	No. of farms.	Average labor income.	No. having labor income
Less than 315	21	\$ 31	0
315-460	21	237	4
Above 460	18	357	7

The figures here are based on productive work which the farm furnishes and the time required by the average farmer to do that work and not upon the time required by the particular farmer. Often times a farmer has not proper equipment or has his work so poorly planned that it takes him one and a half days to do a day's work. In cases like that the farmer works the whole year but does not do a year's work and is rated on the amount of work done. From the chart we see that out of 21 farms furnishing less than 315 days' work not one paid the owner over \$500 for his year's work; out of 21 farms furnishing 315 to 460 days of productive work, four paid the owner over \$500 for his year's work; out of 18 farms furnishing over 460 days of productive work, seven paid the owner over \$500 for his work.

In each of these different groups we find several farms which do not pay the farmer anything for his work and not even interest on the investment. This shows that farm business needs something besides size if it is to be uniformly profitable. In the following paragraph we will show how quality affects the income of the Kent county farmers around Cedar Springs.

Quality of Farm Business.

In the following chart farms are classified according to the relation of the yields of crops on each farm to the average yield of the 60 farms for the crop year of 1914 and shows in figures what we already know, that good crops are essential to the welfare of the farmer. It also shows that good crops alone do not make the farm prosperous as the very highest yield farms are not the most profitable farms and there are unprofitable farms in each group.

Chart D.

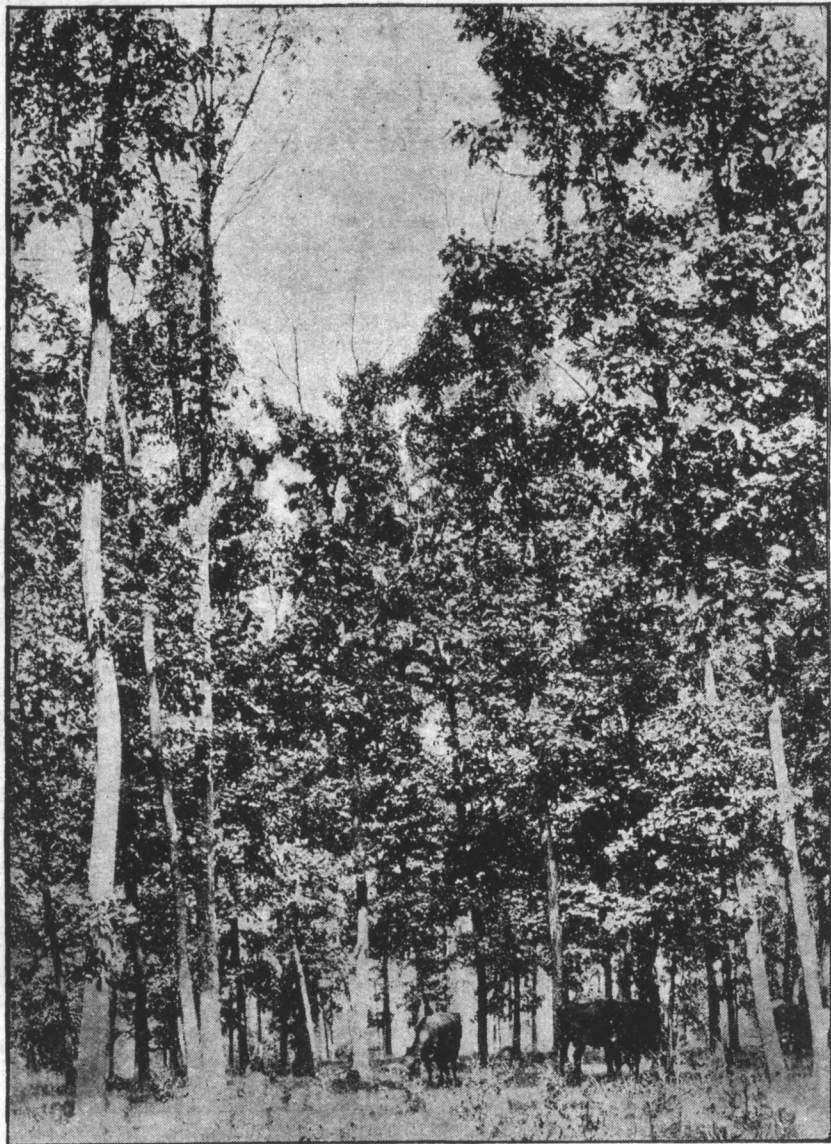
Crop Yields. Compared to Average Yields.	No. of Farms.	Average Labor Income.	No. having Labor Income Above \$500.	No. Not Making a Labor Income.
Less than 90%	26	\$109	2	9
90-110%	23	303	5	5
More than 110%	11	205	4	3

er to have a fairly large farm. With a small number of acres it is impossible for a farmer to make a good income raising the general farm crops, but he can raise some of the more intensive crops, such as potatoes, cabbages, onions, beets, apples, small fruit, or by raising more poultry, increasing the dairy, and make a good income if he has a market for those products and his farm is adapted to any of these enterprises. The staple farm crops, such as hay, corn, oats, wheat, barley, rye with some live stock, require a large acreage if the farmer is to get man's wages for his work. A farmer without a large farm can have a large business by raising the more intensive crops and thereby get good wages for his work. A farmer without a large business cannot have a large income. Some combination of farm enterprises that furnishes him a large number of days of productive work will make a

This chart can be further emphasized by dividing each of the three groups in Chart A into two classes; those having less than average yields and those having better than average. In each of these groups we find the good yield farms average a much better labor income than those farms having poor yields. A small acreage of poor yielding crops gives the farmer little pay for his year's work, but a large acreage of good yielding crops gives a farmer a large labor income. Space does not permit of a chart to show this. The quality of the stock has a more important influence on the wages a farmer gets for his year's work than does the crop yields and is charted below. We have here Chart A with each group of farms divided on the basis of the receipts from each animal unit. (An annual unit is a horse or cow or their equivalent in other stock, as seven sheep, five hogs, or 100 chickens.

Chart E.

No. of Acres in Crops.	Average Labor Income.	Quality of Stock.	No. of Farms.	Average Labor Income.	No. Having Labor Income Above \$500.	No. not Making a Labor Income.
Less 50	\$ 57	Ordinary	13	\$ 41	0	0
		Good	9	199	0	0
50-65	195	Ordinary	7	69	0	4
		Good	14	241	3	2
Over 65	415	Ordinary	9	254	0	4
		Good	8	558	8	0



Stock has Destroyed all Foliage within Reach. Dead Topped or "Stagheaded" Trees are seen in the Center.

an account book, on request to your county agent.

Capital at Beginning of Year.

Real estate\$ 8,100
Live stock 1,407
Machinery 438
Feed and supplies..... 172
Cash 40

Total\$10,158

Current Expenses.

Hired labor\$150.00
Board for help 50.00
Family labor 45.00
Repairs of buildings, machines, etc 66.00
Feed 5.00
Miscellaneous 115.00
Taxes 63.00
Decrease in feed and supplies... 15.00
Depreciation of buildings, machines, etc. 164.00

Total\$673.00

Receipts.

Milk and butter\$135.00
Cattle, net 272.00
Hogs 204.00
Poultry and eggs, net..... 47.00
Potatoes 329.00
Wheat 430.00
Beans 187.00

Total\$1,604.00

machinery depreciates faster, eight to 12 per cent, as a rule. These figures show that this farmer had less hay and grain on hand at the end of this year than at the beginning. This loss is included with other expenses. If he had had more feed, it would have been entered in the receipts column. The receipts are figured for each class of stock separately. If any stock is purchased during the year the amount of that purchase is subtracted from sales and in case less stock is on hand at the end than at the beginning of the year the difference in value is subtracted from total sales. If the value of stock on hand increased during the year that increase is added to the sales.

Labor Income.

Subtracting \$673, the total expense, from \$1,604, the total receipts, we have \$931. This amount is the net income for the farm investment and the farmer's labor. Subtracting \$508, which is five per cent of the total investment, we have \$423. This is what this farmer received for his year's work and is



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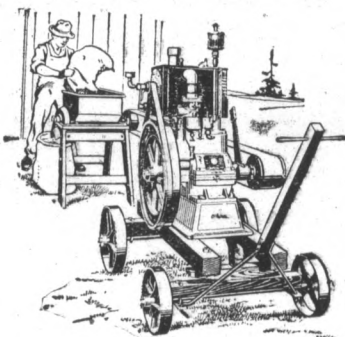


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Professor I. W. Dickerson, of the Farm Mechanics Department, University of Illinois says—"By all means purchase engines for general purpose work in future, of such design as to work properly on grain and corn binders, manure spreaders, potato diggers,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



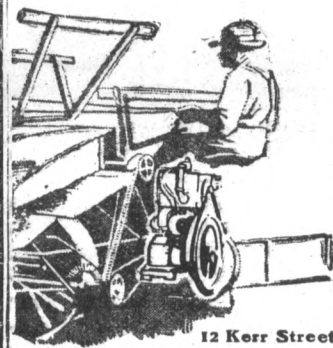
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Pedigreed Oats:

Worthy, Alexander and other varieties, bred by the Michigan Agricultural College, best of hundreds of varieties tested. Grown in Michigan and adapted to Michigan conditions. Reported upon by farmers as follows: "The oats produced 85 bushels per acre, best yield in township." "Your pedigreed oats have a very stiff straw and are good yielders." "Were far better than my own variety." "Best crop we have had in ten years." "Best we ever grew." Etc. Write to Secretary Mich. Experiment Association, East Lansing, Mich.

It is seldom wise to have all the eggs in one basket. Often times a farmer has special conditions that render one crop or one farm enterprise especially profitable, but without special conditions three or four important sources of income are better than more and better than less. It is also better to have sales of crops and stock than to be entirely live stock or entirely cash crop farmer. Live stock keeps up the fertility of the farm but the prices for live stock are not high enough so that everything raised on the farm can be fed to the live stock. The wise farmer raises all the cash crops he can and still maintain the fertility of the soil. In doing this he will keep only enough stock to consume the clover, cornstalks and other roughage raised. The following chart shows that this profitable combination results in more income from crops than from animals with the type of farming in vogue around Cedar Springs.

PASTURING THE FARM WOODLOT.

(Continued from first page.)

er root system are largely clogged up and the leaf cover which prevents the escape of soil moisture is trampled into dust and scattered by numerous agencies.

The damage to trees caused by grazing varies considerably with the species. All hardwood or broad-leaved species compose the general class most susceptible to injury. The evergreen or coniferous species are subject to trampling but their foliage is not so palatable, and as they are much in the minority in Michigan woodlots they do not concern us so vitally.

There is no conceivable case where the pasturing of a farm woodlot is to be recommended, unless it is desired to ultimately convert it into a pastured field or one fit for cultivation. The pastured woodlot of today may not be

Chart F.

Per Cent of Income from Live Stock.	No. of Farms.	Average Labor Income.	No. Having Labor Income Above \$500.	No. of Farms Not Making a Labor Income.
Less than 30%	10	\$180	3	4
30-50%	24	314	5	4
50-60%	12	127	2	5
More than 60%	14	84	1	4

Here we see that the farms having one-third to one-half of their income from live stock and the balance from crops, or one-half to two-thirds of their income from crops are the farms which pay the farmer the best wages for his labor. We also see that while the proper proportion of income from crops and animals helps the average farmer to get good wages for his work, it does not guarantee him any pay for his work as in each of these groups there are farms which do not make a labor income.

The conditions which these charts show exist in Kent county around Cedar Springs are quite similar to conditions in other parts of the United States where the same type of farming prevails. The factors which we have discussed here, as size of business crop yields, quality of live stock, and diversity of business are indeed factors which largely affect the incomes of the farm in Kent county in the same manner as they are known to affect the farmer's income in other parts of the United States. The following chart shows how these four factors combined in part and in whole affect the labor income.

Chart G.

No. of Farms.	Average Labor Income.	No. Having Labor Income Above \$500.	No. Farms Not Making a Labor Income.
8 good in 4 factors	\$733	6	0
3 good in 3 factors	246	0	0
20 good in 2 factors	234	5	6
19 good in 1 factor	104	0	4
8 good in 0 factor	148	0	7

We have seen that these factors taken separately have a material effect on the incomes of these farmers and we now see that when all are taken together they practically control the income of the farmer.

Study this carefully and determine if possible, which group your farm can be placed in. The county agent will be glad to help you with such a study of your farm business. Be sure and call on him if your income is not as large as you think it should be. This kind of an analysis may suggest some change which will enable you to get better wages for your work.

You should at least be able to summarize your farm business as shown in the first part of this article. Be sure and get the account book. If you will keep accounts as indicated for one year and send the book to your county agent at the end of the year, your farm business will be summarized by the Farm Management Demonstrator of the Agricultural College, and a statement given you which will show how your farm stands in these important factors and will suggest what can be done to increase the pay you are getting for your work.

H. G. SMITH, County Agent.

The first is that very little reproduction will come in until the trees have had a good seed year. Our common tree species have prolific seed years only at intervals varying from two to seven years. A rule suggests itself of reversing the pasture areas just before the ripening of a good crop of seed on the most desirable species. The second variable factor is the rate of growth of the young trees. This depends largely upon the soil, the natural rate of growth of the particular species, and the extent to which the growth is suppressed by older trees. A general rule to follow in regulating this time is to allow a large enough proportion of the young trees to lift their foliage above the reach of live stock to sufficiently restock the area. A woodlot cannot be used for both pasture and timber production with satisfactory results for either purpose. If the production of timber or wood is not the chief consideration, but shade in the pasture is desired, it can be provided by planting desirable shade tree species where they are most needed. These methods are suggested only as a compromise for those who, for various reasons, feel the necessity of pasturing the farm woodlot.

Farm Notes

Lime on Muck and Clay Land.

I have a piece of muck land on which I want to plant fodder corn, which was plowed last summer and kept worked like a summer fallow. I have ordered a carload of lime to use on this land, and am thinking of using some on a piece of heavy land which will be planted to corn this year with the idea of fall plowing and seeding to alfalfa the next spring. Would it be better to sow this lime just before seeding? It is ground limestone containing 53.35 per cent of calcium carbonate and 43.27 per cent of magnesium. I would like to know how much of this lime to sow on muck and high land, and when to sow it.

Clinton Co.

T. B.

It is quite impossible to advise definitely how much lime would give best results on either muck or the heavy land. Quite a liberal application should be made on the muck soil, as it is always deficient in lime. On the high, heavy land which is intended for alfalfa, it would be much better to sow same after land is plowed and work it into the soil when it is being fitted for corn. Ground limestone acts slowly, and when a soil is very deficient in lime it will not always give immediately beneficial results when the lime is sown just previous to sowing the alfalfa. A good many of the clay soils of the state do not seem to need lime for fair success with alfalfa, but there are probably few soils of any character except on limestone formations which will not give better success with alfalfa for liming. It will therefore practically always prove profitable to apply lime as a preparation for alfalfa.

Varying quantities of lime are sown with equally good results by farmers who have to deal with different soil conditions. From two to four tons of ground limestone per acre should ordinarily be applied, depending upon soil conditions, although much heavier applications are made in some sections. We advise these amounts respectively for the high land and muck soil sown this spring.

Eradicating Quack Grass.

Can you tell us how to rid a field of grass, known to us as quack grass? So far it is only in small patches.

Genesee Co.

M. W.

Where quack grass is present only in a few small patches, perhaps the best way to rid the field of same is by smothering it out by covering these patches with tar paper, weighting the same down with stones during the growing season. This will effectually destroy the plants, since it will prevent them from sending up new leaf growth into the air and sunlight.

Where it has become well distributed, there is no certain method of exterminating same except by such thorough cultivation as to accomplish the same purpose.

Will Sweet Clover Become a Weed?

I have been much interested in sweet clover but have not heard from anyone in regard to the result of plowing down sweet clover for green manure. Will it come up in a cultivated crop and become a weed pest? I have 80 acres mostly light sandy soil, which has been run on which I am thinking of trying sweet clover to build it up.

Livingston Co.

M. J. M.

Owing to the persistency with which sweet clover clung to the roadside wherever it became seeded, farmers generally gained the idea that it had the habits of a noxious weed, and should be avoided for this reason. The writer knows one farmer who for many years persistently pulled every spear which appeared along the road adjacent to his farm in an effort to eradicate it, but finally became convinced that it was a valuable plant instead of a weed, and now has a field seeded to it along this same highway from which he sought to eradicate it.

Sweet clover is a biennial, that is, it produces seed the second year after it is sown, and then dies. The future stand must come from seed matured from these plants, so that the perpetuation of this plant is entirely within

the control of the farmer sowing it. Even if permitted to mature seed and same becomes scattered on the land, it would not, however, be a bad weed, for the reason that it would be easily subdued in cultivated crops, while in grain crops it would make only a small growth the first season, and would not detract from the hay or pasture crop the following year.

On poor, light land of the character described it is a valuable soil improver for the reason that it will successfully grow on a soil with a lower content of humus than will any of the other clovers.

Applying Marl Before or After Plowing.

I have a piece of land here which has lain idle for the last 22 years. A year ago last summer I planted cowpeas and cut it for hay and the same fall I sowed it into rye. When I harvested the rye it was very ripe and a goodly portion of the seed fell on the ground and I harrowed it in and it came up again thickly mixed with bluegrass. I am going to give it a topdressing of marl this spring and then plow the rye and marl under. Do you think this would make a good seed bed for alfalfa? Would it be better to leave the marl on top and not plow it in?

Muskegon Co.

M. A.

As a general proposition, it is considered better to apply lime to the plowed surface of the soil and work it in when fitting the seed bed for alfalfa where the alfalfa is to be sown soon after the application is made. Where marl is available and is applied liberally, however, this might not be as necessary as where lime is applied in minimum quantities as is usually the case when a supply is not available close at hand. In any event, if a good liberal coating of marl is applied to this land and same is plowed and a firm seed bed is prepared after plowing, it should be in very good condition for growing alfalfa. If it is deficient in available fertility, it might pay to apply mineral fertilizer, particularly phosphate, at time of seeding.

Apple Pomace as a Fertilizer.

We have been readers of your most valuable paper for a long time and get a great deal of good advice from it. Would like to ask your advice on using apple pomace for fertilizer. I can get quite a lot of it for the hauling. Would like to know your opinion of it, whether it would be good only on light sandy soil. The pomace is from one to three or four years old. Also, do you think new sawdust used in stable for bedding would be good for land?

Wayne Co.

E. F. D.

According to chemical analysis one ton of apple pomace would contain 5.2 pounds of nitrogen, 1.6 pounds of phosphoric acid and 4.4 pounds of potash. Expressed in percentages these amounts of actual plant food would be rather small. They would be worth at normal prices for fertilizing materials about \$1 per ton of apple pomace. In addition to this, a ton of apple pomace contains something over 200 lbs. of dry matter, which would add some vegetable matter to the soil.

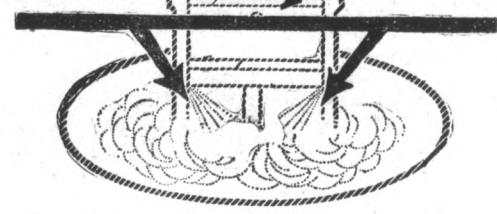
On the other hand, it is apt to be in a very acid condition, and might tend to check favorable bacterial development in the soil, thus counteracting to some extent the value of the fertilizing ingredients and vegetable matter added to the soil.

Only one experiment of this kind was ever brought to the writer's attention, in which case a considerable application of old apple pomace was made to a piece of light, sandy land which had been used quite continuously for growing truck crops. No marked effect, either beneficial or deleterious, was noted on this soil.

Sawdust used in a stable for bedding will not injure the value of the manure for applying to the soil. It is a fairly good absorbent and will, like other organic matter, be converted into humus in time.

W. N. Scarff, New Carlisle, Ohio, sends upon request his 1916 year book listing a large line of small fruit plants, fruit trees and farm and garden seeds.

How the Wrong Oil wastes power



Suppose the oil is too light in body for your motor:

It then fails to seal-up the clearance between the piston, piston rings and cylinder walls. Part of the compression and part of each explosion then escape down past the rings. The result is weakened power.

Or: The oil may be too heavy in body. It then fails to maintain the proper oil film or to reach all friction points. Excess friction results with its attendant power loss.

Motorists are now finding a safe-guard against these power

losses in our complete Chart of Automobile Recommendations, printed, in part, below.

The body of the grade of Gargoyl Mobiloils specified for your car, in this Chart, insures the proper sealing of the clearance between the pistons, piston-rings and cylinder walls.

The superior quality or lubricating efficiency of the oil specified—its ability to give full lubrication under the heat of service—is too well-known to need discussion.



Mobiloils

A grade for each type of motor

In buying Gargoyl Mobiloils from your dealer, it is safest to purchase in original packages. Look for the red Gargoyl on the container. For information, kindly address any inquiry to our nearest office.

CORRECT AUTOMOBILE LUBRICATION

Explanation: The four grades of Gargoyl Mobiloils for gasoline motor lubrication, purified to remove free carbon, are:

Gargoyl Mobiloil "A"
Gargoyl Mobiloil "B"

Gargoyl Mobiloil "E"
Gargoyl Mobiloil "Arctic"

In the Chart below, the letter opposite the car indicates the grade of Gargoyl Mobiloil that should be used. For example, "A" means Gargoyl Mobiloil "A," "Arc" means Gargoyl Mobiloil "Arctic," etc. The recommendations cover all models of both pleasure and commercial vehicles unless otherwise noted.

MODEL OF CARS	1911	1912	1913	1914	1915
Abbott Detroit	A	Arc	Arc	Arc	Arc
American	A	Arc	Arc	Arc	Arc
Apperson	Arc	Arc	Arc	Arc	Arc
Auburn (4 cyl.)	A	A	A	A	A
Avery (6 cyl.)	A	E	A	A	A
(Model C) 1 Ton	A	A	A	A	A
Buick	A	Arc	Arc	Arc	Arc
Cadillac	Arc	Arc	Arc	Arc	Arc
Case	A	A	Arc	Arc	Arc
Chalmers	A	Arc	Arc	Arc	Arc
Chandler	A	A	A	A	A
Chase (air)	B	B	B	B	B
(water)	A	A	A	A	A
Chevrolet	A	A	A	A	A
Cole	A	Arc	Arc	Arc	Arc
Detroit	A	Arc	A	A	A
Dodge	A	A	A	A	A
E. M. F.	Arc	Arc	Arc	Arc	Arc
Empire	A	Arc	Arc	Arc	Arc
Flanders	E	E	E	E	E
Ford	E	E	E	E	E
Franklin	A	Arc	Arc	A	A
Grant	B	A	Arc	A	A
Haynes	A	Arc	Arc	Arc	Arc
Hudson	A	Arc	Arc	Arc	Arc
Hupmobile	Arc	Arc	Arc	Arc	Arc
(Model 20)	Arc	Arc	Arc	Arc	Arc
I. H. C. (air)	A	Arc	Arc	Arc	Arc
(water)	B	B	B	B	B
International	A	Arc	Arc	Arc	Arc
Interstate	A	Arc	Arc	Arc	Arc
Jackson	A	Arc	Arc	Arc	Arc
Jeffery	A	A	A	A	A
(6 cyl.)	A	A	A	A	A
King	A	E	E	E	E
(8 cyl.)	A	Arc	Arc	Arc	Arc
Kissel	A	Arc	Arc	Arc	Arc
Karl	A	Arc	Arc	Arc	Arc
(Com'l)	Arc	Arc	Arc	Arc	Arc
(Model 48)	A	A	A	A	A
Krit	A	A	A	A	A
Lozier	Arc	Arc	Arc	Arc	Arc
Marion	A	E	Arc	Arc	Arc
Marmont	A	Arc	Arc	Arc	Arc
Maxwell	Arc	Arc	Arc	Arc	Arc
Mets	B	Arc	Arc	Arc	Arc
Mitchell	A	Arc	Arc	Arc	Arc

MODEL OF CARS	1911	1912	1913	1914	1915
Moline	A	Arc	Arc	Arc	Arc
Knigh	A	Arc	Arc	Arc	Arc
Moon (4 cyl.)	Arc	Arc	Arc	Arc	Arc
(6 cyl.)	A	A	A	A	A
National	A	A	A	A	A
Oldsmobile	A	Arc	Arc	Arc	Arc
Overland	Arc	Arc	Arc	Arc	Arc
Packard	Arc	Arc	Arc	Arc	Arc
Pais	A	A	E	E	E
(6 cyl.)	A	A	A	A	A
Pathfinder	A	Arc	Arc	Arc	Arc
Premier	A	Arc	Arc	Arc	Arc
Regal	A	Arc	Arc	Arc	Arc
Reo	A	Arc	Arc	Arc	Arc
Saxon	A	Arc	Arc	Arc	Arc
Studebaker	A	Arc	Arc	Arc	Arc
Stutz	A	Arc	Arc	Arc	Arc
Vette (4 cyl.)	A	Arc	Arc	Arc	Arc
(6 cyl.)	A	Arc	Arc	Arc	Arc
White	Arc	Arc	Arc	Arc	Arc
Winton	Arc	Arc	Arc	Arc	Arc

TRACTORS

Model of Tractor	Summer	Winter
Aultman-Taylor (4 cyl. horizontal)	A	Arc
Avery (2 cyl. horizontal)	A	Arc
Best	B	A
Big Four (20)	A	Arc
Bull	A	A
Bulley (Model A1)	A	A
Holt Caterpillar	A	A
C. O. D.	A	A
(2 cyl. horizontal)	A	A
Denning (Models B & C)	A	A
Eagle	A	A
E. B. Farm	A	A
Emerson Brantingham (Model L—Big 4-20)	A	Arc
Fairbanks Morse	A	Arc
Farquhar	A	A
Flour City	A	A
(Heavy Duty)	B	A
Gray	A	A
Hackney Auto Plow	A	A
Model of Tractor	Summer	Winter
Hart Parr-Her	B	A
I. H. C.	A	Arc
Imperial (40)	A	A
Lambert (Model X)	A	A
Leader (Heavy Duty)	A	A
Lion	A	A
M. & M.	A	A
Nichols & Shepard	A	A
(2 cyl. horizontal)	A	A
Ohio	Arc	Arc
Reeves (40)	A	A
Rumely	A	A
Russell	A	A
Simplex (4 cyl. horizontal)	A	Arc
Straight	A	A
Twin City	A	A
Universal	A	A
(Models A & B)	Arc	Arc
Walls (Type D)	A	Arc

Stationary and Portable Engines

Your oil must meet the heat conditions in your engine. Many oils thin out too much under engine-heat. Three troubles result: (1) Compression escapes and power is lost. (2) The cylinder walls are exposed to friction. (3) Excess carbon is deposited. The oils specified below will prove efficient.

Water-cooled engines—Use Gargoyl Mobiloil "A" in summer; use Gargoyl Mobiloil "Arctic" in winter. **Air-cooled engines**—Use Gargoyl Mobiloil "B" the year 'round.

Tractors

The design of your engine must determine the correct oil. Send for booklet containing Gargoyl Mobiloils Chart of Recommendations for tractors.

Mobilubricant—In the patented Handy Package. The correct grease for transmissions, differentials and compression cups of automobiles. The spout fits the filling plug opening of the Ford and all other cars. Mobilubricant is just the thing for farm machinery. Simply turn the key. No dirt, no waste, no trouble.

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Specialists in the manufacture of high-grade lubricants for every class of machinery. Obtainable everywhere in the world.

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THE RAINY SEASON CONQUERED BY THE TOWER SYSTEM OF CORN CULTURE

Tower Cultivators went into the fields three days earlier than the shovels after a rain. Earlier maturity of the corn was the result.

V. H. Peck, Hull, Ill., writes: "We can use surface cultivators after a rain three days sooner than a shovel plow and do a better job."

H. L. Chapman, Jerseyville, Ill., writes: "It was a wet season—with your two-row Tower Cultivator, corn had only 3 plowings, but was remarkably clean."

Adams Co. Agric. Extension Ass'n, Decatur, Ind., reports:—"Tower Cultivator greatly increased the yield of corn per acre, even in an extremely wet season."

Spares All Corn Roots



These Corn Roots within Five Inches of the Surface.

Each of the following extensive corn farms of Illinois use 25 to 50 Tower Cultivators: Ill. Canning Co. and Hoopeson Canning Co., both of Hoopeson, Ill.; Iroquois Canning Co., Onarga, Ill.; Bloomington Canning Co., Bloomington, Ill.; Chenoa Canning Co., Chenoa, Ill.; LeRoy Canning Co., LeRoy, Ill.—because they have proved the best.

Many thousands of farmers of the country use the "Tower" exclusively. Nearly every grower of Seed Corn uses the Tower System because it is proved the best known. Reader, be sure your Cultivator this season has the name "TOWER" on the tongue. Write us for free literature.

J. D. TOWER & SONS CO.
37th Avenue, Mendota, Illinois.
(Original manufacturers of Surface Cultivators.)

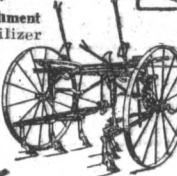
No Tired Legs at Supper Time

When you use the KRAUS Pivot Axle CULTIVATOR because there is no tugging and pushing to guide the machine and shift the shovels. Just a touch of the foot moves the shovels and wheels sidewise simultaneously. Every farmer knows what this means. The

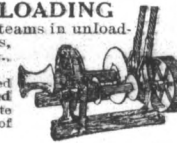
KRAUS Original Pivot Axle Cultivator is a quick dodger in crooked rows and a perfect hillside worker. Built of steel and malleable iron. Costs only a third as much for repairs and depreciation as the average riding cultivator. Our printed matter contains government statistics to prove this claim.

The Akron Fertilizer Attachment for applying commercial fertilizer while cultivating can be used only on the KRAUS. Write for free booklet explaining KRAUS up-to-date cultivating methods. Learn how to get bigger crops at less expense.

The Akron Cultivator Co.
Dept. 63, Akron, Ohio



SAVE MONEY UNLOADING
Save the expense of men and teams in unloading hay, grain, pulling timbers, elevating ice, drilling, digging, etc., with an **IRELAND HOIST**. 100 uses on each farm. Guaranteed every way. Free circulars. **Ireland Machine & Foundry Co.**, 33 State St., Norwich, N.Y. Also makers of drag and wood saws, mills, etc.



ALFALFA \$9.60 BU.

Best Hardy Non-irrigated Seed 99.6% Pure 96% germination, \$12.60. Government tested. Absolutely guaranteed Northern grown, extremely hardy. No seed better. Have Furkistan Alfalfa; Sweet Clover; 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 481, CLARINDA, IOWA.**



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To Boys and Girls
We have given away 364 ponies, most of them with a four-wheeled pony buggy, harness, saddle and riding bridle.

Now, we are going to Give Away More Ponies—some of the finest we could pick.

If you are a Boy or Girl send in your name. If you are a Father or Mother, send in your child's name. You may get one of our ponies. Every child has the same chance. Send your name right away.

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I want one of the Ponies you are giving away.

My name is _____
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Factors In Farm Failures

SO many young men in the writer's locality have quit farming in the last two or three years, that the question naturally arises: Are there more failures among farmers than formerly? These young men, probably without exception, have quit farming because they were not able to make it pay. Generally speaking, we stick to the work that pays; and as a rule, we are apt to like the task that yields a cash profit. Some of the men who leave the farm, doubtless feel that some other work would be more to their liking, but if analyzed closely, in almost every case, failure to get ahead financially will be found to be at the bottom of the matter.

In studying the question as an observer, during several years and in a variety of instances, the writer has settled on a few chief factors which seem to him to explain for the most part, this notable lack of success among farmers. In the small cities and villages in the locality under consideration, it is hard to find a laboring man who does not look with longing eyes toward the farm. He thinks he would like to try his hand as a tiller of the soil, but is kept from realizing his dreams by a variety of obstacles. Now and then, a man from this class gets to the farm, and sometimes he succeeds. But it is not these farmers who grew up in the towns, alone, who come under consideration in this article. Farmers' sons who have never followed any other occupation, are quitting the farm after a few years' experience on their own account.

An analysis of the situation would seem to indicate that modern farm conditions make the road to success a more difficult one than formerly. First and foremost, comes the cost of getting started. In the old days, a team, a plow, a drag, a cultivator, and a wagon constituted the assets, for successful farming operations. Cheap labor could always be obtained. But today a startling aggregation of expensive and complicated farming implements is considered essential to successful farming. Labor is scarce and expensive and hard to get, and these modern machines are not only labor-savers, they take the place of the day laborer who can no longer be obtained at any price.

And right here comes the first great factor in unsuccessful farming. Too many young men jump head over heels into the farming proposition. They want to start where their fathers left off. They are not willing to wait until they are even in a small measure prepared. In the old days, the prospective farmer was willing to work by the month or the year, till he had saved enough to start farming on his own account. But now this is a distasteful and antiquated process. The expensive machinery may be purchased on time, at least at first, and the young farmer, counting his chickens before they are hatched, plans to pay his numerous debts with profits from crops as yet unsown. So many are the debts and so uncertain are the seasons, that too often the first year's experience in farming is a disastrous one, and throws a wet blanket over all the years that follow. The debts increase, the unpaid-for machinery which is often unhoused in winter, rusts out and wears out, and crop failures come much more often than was expected. In the midst of all this the young farmer throws up the sponge, has an auction to pay his debts, and leaves the farm for some other line of employment.

Another factor which beyond doubt enters into farm failures, is the increased cost of living. This cost is partly genuine and unavoidable, and partly superficial and unnecessary. Here, too, the children wish to begin where their parents left off. They are unwilling to deny themselves for the sake of future prosperity and stability.

They spend lavishly and recklessly, for luxuries. Many temptations enter in—temptations of which the fathers and grandfathers knew nothing. But after all, they, too, had their temptations in their day, and had not the farm mortgage and other debts have come first, they would never have succeeded.

It is with some hesitation that this third item in farm failures is mentioned. But is it not true that there is, these days, a little less hustle, a little less willingness to do downright hard work, among many farmers? This is said with the knowledge that there are hustlers in plenty, hard workers without number. But we are dealing primarily with farm failures, and in some cases, at least, the hard work element is lacking. The grandfather who cleared the forest with his toughened sinews, knew more about hard work in a week than his grandson experiences in a year.

In conclusion, it is but just to say that there have always been since the beginning, misfits and failures on the farm as well as in all other walks of life. But granting this, the fact still remains that farm failures among the young men are far too common. Indeed, they seem to be much more common than in former years. Conditions mentioned, without doubt, enter very largely into the failures. Other factors there may be, for in the nature of the case the question is a complicated one. It may be that the grandfathers and fathers would have done no better, under the same conditions. The fact, however, remains to be reckoned with, not only today, but in the coming days. Land costs more, labor costs more, farm equipment cost more, and it is increasingly more difficult for the young man without means to become a land owner.

Hillsdale Co.

J. A. KAISER.

BETTER HIGHWAYS IN MICHIGAN.

Dayton township, Newaygo county, has voted to expend \$50,000 for good roads this year.

Cass county will vote at the April election on a bond issue of \$200,000 for highway improvement. It is planned to issue 20-year bonds.

Eaton county will build over 11 miles of good roads this season.

Grand Traverse county will build eight miles of state reward road this summer, making 35 miles of improved roads in the county. Taxpayers of Garfield township, Grand Traverse county, have authorized the township board to borrow \$3,000 for immediate use in road construction.

Saginaw county will build about 20 miles of new highway this season, in addition to repair work.

Houghton county will expend \$100,000 in road work this year, the roads to be built including those between Dollar Bay and Lake Linden, Lake Linden and Laurium and between Calumet and the north county line. Plans are also being worked out for maintaining 32 miles of road, with two systems in view. One is the patrol plan of placing four to eight miles of road in charge of one man, who must cover his section daily and repair all cuts, make small patches, trim shoulders, cut weeds and keep ditches cleared. The other maintenance plan is to have a single gang of men working out from a central point, making use of a motor truck. The patrol plan has been tried in this county and has not seemed to work well on account of difficulty in getting dependable men.

Petitions have been filed at Lansing for construction of a stone road connecting Saginaw and Midland, a distance of almost 20 miles, to be built under the new Covert law.

Calhoun county appropriated \$55,000 for road work last fall and the money will be expended this year at different places in the townships.

Wayne county will continue its pro-

gram of concrete road building. One crew of men will start laying concrete on Canton Centre road connecting Plymouth with Michigan avenue, another on the Seven-mile road, working between Woodward and Grand River roads, and a third crew on the Fort road, which will be completed soon to the Eureka road west of the city of Wyandotte. The assessed valuation of property outside of Detroit has increased over 117 per cent since the county road system was adopted in 1906, as against a gain of less than 57 per cent in Detroit, which Commissioner Hines attributes to the building of concrete roads.

Jackson county has awarded contracts for building 10 miles of gravel road, including three and one-fifth miles in Blackman township, two miles in Pulaski, and a mile each in Spring Arbor, Tompkins and Springport, Leoni and Waterloo.

Kent Co.

ALMOND GRIFFEN.

STATE CONFERENCE ON TAXES.

Under the auspices of the Michigan State Tax Association the fifth state conference on taxation was held March 1 and 2 at Grand Rapids. For some reason the attendance was light, even though the subject is near the heart of every property owner. Nearly all interests were considered, the farmer, the timber man, the corporation, the mine owner, the life insurance company and the public utilities. Then near the close of the convention Secretary George Lord of Detroit, read some figures that were interesting. It was shown that from a tax levy of \$9.37 per capita in 1906, the levy had increased to \$21.56 in 1915. Closer analysis of this tax money shows that the county road tax leads, the percentage of increase being 489, with other departments as follows: State tax 181; school tax 162; village 118; city 117; county 98; township 83; highway 70, and drain tax 24 per cent.

In the state department only one office, that of auditor general, shows a decrease in the tax levy during the past ten years. The state highway department shows increase of 2,773 per cent, and other high percentages follow: Game warden 451; insurance commissioner 303; bank commissioner 209; superintendent of public instruction 167; railroad commission 164; tax commission 155; state treasurer 115; dairy and food department 113.

President A. B. Williams, of Battle Creek, in his opening address said that the amount of money raised by taxation in Michigan has increased in the past ten years from \$26,000,000 to \$60,000,000 but that the ability to pay taxes had not advanced in proportion.

One remedy as proposed by D. E. Heineman, of Detroit, is a budget system, which would permit the Legislature to start work on the state appropriations as soon as the session opens, when the law makers are usually marking time.

J. N. McBride, of Burton, discussed the subject from the farmer's viewpoint, in an excellent paper which is reproduced in another column of this issue.

The resolutions as adopted favor a tax limitation bill, a provision that specific taxes on mortgages shall apply for five years and be relieved at the end of that period, a state budget system and that the state tax commission be made the board of equalization, or a majority of that board.

A committee of seven members was appointed to make a survey of tax conditions in the state and to publish results in the form of bulletins, showing legislators and the general public existing conditions. Prof. David Friday, of the U. of M., of Ann Arbor, is the new president of the association. George E. Lord and John A. Russell, of Detroit, were re-elected as secretary and treasurer respectively.

See Club list on page 413

THE HUNTING NUISANCE.

The article, "The Farmer vs. the Sportsman," in your issue of February 19, is one to which every farmer should say amen. My only excuse in writing further is because "the half has not been told."

In this section of Michigan, about 30 miles from Detroit, there are two classes of so-called sportsmen, those who come out from the city in automobiles and those who live in the country and whose sole property is usually a dog. It is hard to say which of these is more of a nuisance. All through the fall, after the season opened, auto loads of hunters came out here every Sunday and made life unsafe for the stock on the late pasture. A friend of mine reported the loss of two young cattle, shot in this way, but never found out who did it. Between times the local hunter ranges over the farms, killing everything in the line of game and ruining the fences. In one forenoon, I counted that hunters climbed my fence in one place 13 times, an unlucky number for me, as the wires now sag and several are broken.

If the hunters could be kept off the farm, the owner and his friends might be able to get a rabbit now and then, which is almost impossible now. And worse than that, no matter how carefully the quail have been encouraged during the summer, with the coming of the autumn, they are all pretty much killed off, which is a real calamity to the farm.

Posting the property seems a waste of time. Evidently law-observing citizens do not hunt, for your real hunter will either sneak in behind a hill or come in openly in the owner's absence. We hesitate to prosecute these people as they deserve, for in so doing we incur the enmity of a class who may do still more harm.

Perhaps someone may suggest a remedy. Until then, let us petition for a closed season on game and an open one on hunters.

Livingston Co.

C. R. Ross.

INOCULATING ALFALFA AND CLOVER.

A report from a foreign agricultural society gives results of the effect of different methods of inoculation on the crop as shown in the harvest two years after seeding. The methods employed included no inoculation, commercial culture applied to the seed, commercial culture applied to the soil, soil from an old alfalfa field, soil from an old alfalfa field plus two tons of limestone per acre, and no inoculation but two tons of limestone. The yields of dry matter per acre in three cuttings by the different methods were, respectively, 7,343, 7,750, 7,533, 7,969, 7,969, and 7,934 pounds, and the average protein content as 16.34, 14.4, 16.97, 17, 18.02, and 16.67.

The effect of inoculation of alfalfa with soil from a sweet clover field is shown in yields per acre as follows: No inoculation, 1,417 pounds; with sweet clover soil, 3,028 pounds; and with alfalfa soil, 3,022 pounds. The protein contents were 12.7, 15.79, and 15.55 per cent, respectively.

The effect of inoculation of sweet clover with soil from alfalfa and sweet clover fields was to produce enormous increases in the yield of dry matter and to reduce slightly the percentage of protein. There was a large increase in the yield of both tops and roots of alfalfa and sweet clover as a result of inoculation, and the gain in weight was an actual increase in dry matter per plant and not an increase in the number of plants growing upon a given area of soil.

"The Care and Repair of Tires," is a handsomely printed and finely illustrated booklet of 48 pages published by the Firestone Tire & Rubber Co., of Akron, Ohio. It contains information of value to every user of pneumatic tires, and pointers which will aid materially in the reduction of tire expense.

John Deere

John Deere Corn Planter
The Accurate "Natural Drop" Planter

ACCURATE—because it has the "Natural-Selection" drop—an improvement over all other methods.

Kernels do not have to be tipped on edge to enter the cells. Surface of hopper bottom and openings to seed cells are oblique, or sloping. The kernels naturally move toward and fill the cells.

A full—variable drop planter. Plants two, three or four kernels as desired—all you do to change number in the hill is to move foot lever.

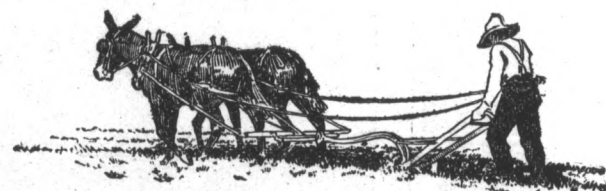
Drilling distances varied, and change from hilling to drilling or back to hilling made just as easily.

All corn plates for this planter have 16 cells. Therefore, the same drilling distances are obtained with one plate as can be secured on other planters that require 8, 12 and 16 cell plates.

The gears are always in mesh and can be shifted at any time (even when in operation) to change drop or drilling distances.

Investigate the John Deere tip-over hoppers, quick detachable furrow openers, underhung reel and disc marker without rope.

Write for free booklet, "More and Better Corn."

John Deere Syracuse Plows
The Plows with Perfect Fitting Parts

SYRACUSE shares fit perfectly—extra shares go on easily. A smooth joint is formed between share and moldboard and share draws up snugly to its place.

Remember that Syracuse cast shares are chilled throughout their entire cutting edge and point. The under side of point and cutting edge is also chilled—of vital importance in preserving the proper pitch and extending the period of usefulness.

Two bolts in the share instead of one and there is a rib on back of share that strengthens share and standard. Lug holds moldboard and share closely together.

In addition John Deere Syracuse Plows are built with long handles, which produce steady running qualities and make the plow handle easily in the furrow.

Write for free literature on the 31 series, combination plows, for use where land is somewhat rolling or where it is desired to turn furrows smoothly up or down on sloping land.

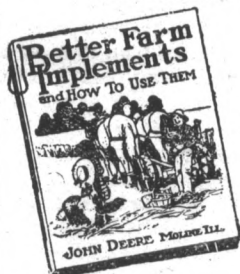
Also the 342 series, combination plows, for use in sandy or gravelly soil, turf or stubble; the 26 series hillside plows, light weight, clean turning plows that do excellent work in hillside or level land.

John Deere Dealers Everywhere

Better Farm Implements and How to Use Them

BOOK FREE—168 page reference book—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. Describes and illustrates: Plows for Light Tractors; Steel and Chilled Walking and Riding Plows; Disc Plows; Cultivators; Spring Tooth and Spike Tooth Harrows; Lister Plows and Cultivators; Disc Harrows; Alfalfa and Beet Tools; Farm and Mountain Wagons; Teaming Gears; Manure Spreaders; Inside Cup and Portable Grain Elevators; Corn Shellers; Hay Loaders, Stackers, Sweep Rakes, Mowers, Self-Dump Sulky and Side Delivery Rakes; Hay Presses; Kaffir Headers; Grain Drills and Seeders; Grain Binders; Corn Binders; Gasoline Engines. This book sent free to every one who states what special implements he is interested in and asks for Package No. X-5.

John Deere, Moline, Illinois

Just Drive—Let The Aspinwall
Do All Your Potato Planting

ONE man and the Aspinwall plant 5 to 8 acres of potatoes a day—and plant them right. Machine opens furrow, drops seed—any size—any distance, covers, marks next row, and if desired, sows fertilizer all in one operation. Corn, Pea, and Bean planting attachment furnished when wanted.

Aspinwall Potato Planter

60,000 Users. World's Oldest and Largest Makers of Potato Machinery. Will answer personally any questions on Potato Growing. Write for free booklet.

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439 Sabin Street Jackson, Michigan
Cutters, Planters, Sprayers, Diggers, Sorters.



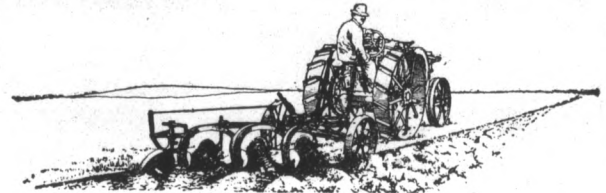
Use NATCO Drain Tile—Last Forever

Farm drainage needs durable tile. Our drain tile are made of best Ohio clay, thoroughly hard burned. Don't have to dig 'em up to be replaced every few years. Write for prices. Sold in carload lots. Also manufacturers of the famous NATCO IMPERISHABLE SILO, Natco Building Tile and Natco Sewer Pipe.

National Fire Proofing Company

1115 Fulton Building, Pittsburgh, Pa.

Implements

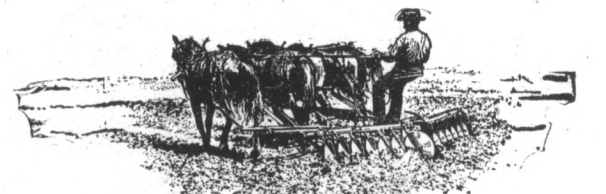
John Deere Plows for Light Tractors
High and Level Lift

PRACTICAL—the right size for the average farm. Work with any standard tractor. Controlled by the man on the tractor.

Pull the rope and all bottoms raise high and level. Another pull lets them down. Plows do not clog or gather trash on the turn.

Extra beam and bottom, readily attached, increases regular two bottom plow to three, or regular three bottom to four, as desired.

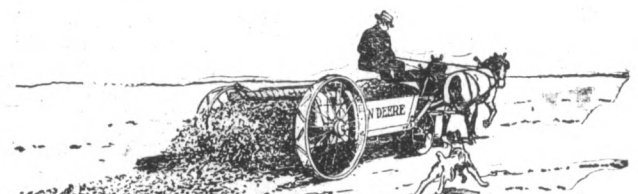
Equipped with Quick Detachable Shares—save 80% time changing shares. Write for free booklet.

John Deere Disc Harrow
The Flexible Spring Pressure Disc

MODEL B—the only disc that cuts at even depth its entire width. It has a patented spring pressure lever. With this lever, pressure can be regulated at inner ends of gangs to cut out dead furrows or disc ridges without burying the harrow.

The Model "B" does not crowd toward the bottom on hillsides or in overlapping. The gangs are independent of each other and can be given the proper angle to work right under such conditions.

Write for free booklet, "Bigger Crops from Better Seed Beds."



John Deere Spreader

The Spreader with the Beater on the Axle

ONLY hip high to the top. Wheels out of way when loading. Mounting the beater on the axle is patented. Write for Spreader booklet.

Three exclusive John Deere Spreader features:

- [1] Beater on the axle—nothing else like it. [1]
- [2] Revolving Rake—load moving back to beater revolves the rake. Draft actually less. Even spread certain—no bunching. [2]
- [3] Ball Bearing Eccentric Apron Drive—requires no attention. Performs wonders in the working of the spreader. [3]

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CLOVER 5 Per Bu.

BIGGEST MONEY-MAKER KNOWN—INVESTIGATE
The greatest forage plant that grows. Superior to all as a fertilizer. Equal to Alfalfa for hay. Excels for pasture. Builds up worn-out soil quickly and produces immense crops, worth from \$50 to \$125 per acre. Easy to start, grows everywhere, on all soils. Write today for our Big 100-page free catalog and circular about unhusked and scarified hulled sweet clover. We can save you money on best tested, guaranteed seed. Sample Free.

A. A. BERRY SEED CO., BOX 931, CLARINDA, IOWA

PLANT MICHIGAN GROWN CORN

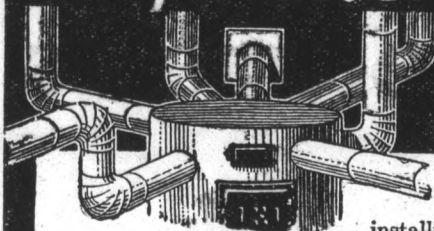
I have a limited stock grown right here of fine dried seed corn, Madison Yellow Dent, germination about 98 per cent. Price while it lasts, per bushel, on ears, (70 lbs., net) \$6.00, shelled from choice ears \$5.00 per bushel. No discount. 5 sample ears by express 25c. Cash with order. This is the best Yellow Dent grown in Michigan. H. C. OVEN, Ovid, Clinton Co. Mich. Near Owosso.

WHITE SWEET CLOVER

Specialty treated for quick germination. Also Fancy Medium Mammoth, Alsike and Alfalfa Clovers, Timothy Seed, Winter Vetch, etc. Ask for samples and special price list. Young-Randolph Seed Co., Owosso, Mich.

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

Why Clutter Your House With Pipes and Flues?



(Copyright 1915 by The Monitor Stove & Range Co.)

Make your house comfortable. Many farm home owners are deterred from installing a furnace through unwillingness to mutilate the house in order to put in pipes. This trouble and expense are now unnecessary because we offer you

A Patented One Register Furnace

Our wonderful invention makes this possible. You cut just one hole for a register immediately above our furnace and the warm air circulates through the house. No pipes or flues. Your house is cozy from top to bottom. Can be installed in any house, new or old, almost as easily as a stove. By digging a pit you can even put it in a house that has no cellar. The

Easy To Install

PIPELESS CALORIC FURNACE

Saves You Money

is guaranteed to use 35% less fuel. Special ribbed firepot gives 600 square inches greater heat radiation than the average firepot. There are no pipes running through the house and cellar to waste heat. The ribbing provides a free air circulation which permits thorough burning of coal without wasteful clinkers. No ashes clinging to firepot to retard circulation.

The Caloric Pipeless Furnace burns coal, coke or wood equally well. It does away with the disagreeable task of carrying fuel upstairs and ashes down stairs. It keeps the upstairs rooms and halls uniformly heated at all times.

It is safe for children because there are no hot registers in upstairs rooms to burn them. This is the one furnace that will not spoil your produce in the basement.

Takes less cellar room than an ordinary furnace and saves stove room through the house.

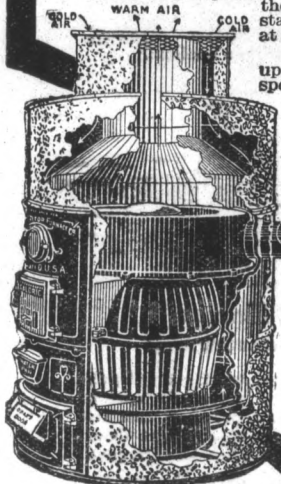
Our Liberal Guarantee

Put this furnace in your home and give it a thorough try-out. If it is not perfectly satisfactory we'll make it so any time within one year from date of purchase. You can't go wrong when you fit your house with the Caloric Pipeless Furnace because we absolutely guarantee it.

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Don't Pot Your Trees



Spade-dug holes, like pots, confine and cramp the roots. Set your trees out in blasted holes. Stop the big percentage of early losses. Make them grow sturdy, hearty and fast. Cash in on your investment quicker by getting earlier yields.



Red Cross Farm Powder

lightens labor and increases profits. It loosens the earth, makes better rootage and provides increased nourishment for young trees. It rejuvenates old trees and makes them bear.

GET THIS BIG BOOK FREE

Describes the use of Red Cross Farm Powder for tree planting, land clearing, subsoiling, ditching and many other things. Tells what this modern method has done for hundreds of orchardists and farmers. Write to-day for this interesting 188-page

Handbook of Explosives No. 100-F

E. I. du Pont de Nemours & Co. Wilmington, Delaware

Drawn from actual photo.—Note marked difference in growth between tree planted in blasted hole and tree planted in spade-dug hole.

Practical Proofs

E. J. BARKER, Beech Bluff, Tenn., says: "I would not set trees without first subsoiling with explosives, even if it cost four times the amount."

J. C. SAYLOR, Penna., says: "Blasted trees the finest in the orchard."

O. C. LANGFIELD, Calif., says: "Planted 14,000 trees with dynamite—advanced value of land from \$15 to \$200 per acre in less than a year."

Write to the Men Who Know

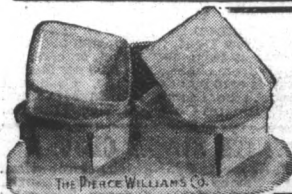


There is a great difference in spray pumps and spraying apparatus. One kind is made by practical orchardists and has been improved through over 20 years of orchard success. Write a letter or post card to Morrill & Morley Mfg. Co. Find out about

Eclipse Spray Pumps

In use in more successful orchards than all other makes. Used by U.S. Department of Agriculture. Find out what Eclipse offers in more profits for orchards, vineyards or potato fields. Address Morrill & Morley Mfg. Co., Box 6, Benton Harbor, Mich. Send for Free Catalogue

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OF ALL KINDS. Specialties—Bushel Baskets, Climax Baskets for Peaches, Grapes, Melons, Etc. Berry Boxes, Baskets and Crates. Best of quality and service. Catalog sent on request.

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FRUIT TREES and FRUIT PLANTS, ORNAMENTAL TREES and SHRUBS of all kinds. Send for Catalog. T. B. WEST, MAPLE BEND NURSERY, Lock Box 108, PERRY, O.

Spring Work In the Peach Orchard

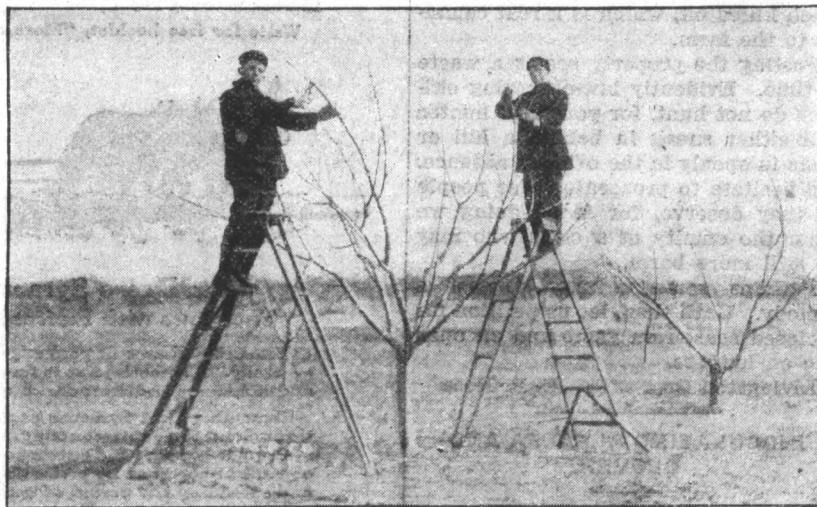
LAST year peach prices were low and many commercial orchardists lost money. It will soon be time for the annual round of pruning, spraying, cultivation, etc., and many growers are apt to wonder if the time and money spent in caring for a commercial peach orchard will bring its reward in the fall. No prediction can be made concerning this year's peach crop, but last year the growers learned a lesson, and possibly better methods of distribution will be devised before another harvest. In either case, the grower with a well cared for orchard will be the one to profit, and like all other farmers, peach growers will have to be optimistic and live on hope for another year or get out of the business. Kicking on last year's profits will never grub any trees, fill up vacant spots, or smother the scale. Possibly next year the peach market will be good and the work this spring will largely determine the quality of the crop from your farm.

Annual Pruning Necessary.

Pruning the peach is an annual job. It requires some skill which can be developed by constantly observing well-formed trees and trying to make every tree you touch with the pruning tools correspond to the ideal form as near as possible. When pruning remember

removed because of severe breaking or old age. In filling in these places the orchard map is necessary to determine the missing varieties so that the fillers may be selected of the same variety. Careless planting of varieties gives the grower a mixed-up orchard which is expensive to harvest as different varieties ripen at different times and it is extra work to pick the trees in a mixed orchard and many trees may be neglected and harvested when the fruit is too ripe for shipment.

The site for an orchard is important, especially if you are trying to make peaches commercially profitable. If peach trees have consistently refused to do well in any certain location, and they are all dead, it means low altitude, poor drainage, etc. It scarcely pays to replant peaches in such a locality and it is better to try some other fruit or use the land for another purpose. All through the state there are small peach orchards sold by nursery agents who sell their product on beautiful yellow pictures. Many of these trees may thrive and produce crops, a good many of them will just naturally freeze out some cold winter night and the farmer will find that time and money have been wasted. There are very few locations in the state suitable for peach growing out-



For Good Results Give Peach Trees Annual Prunings.

the direction of the prevailing winds and prune the young trees so that their growth will be directed in the direction of the wind. This will assist in preventing lop-sided trees. Leave an outside bud where the twig is nipped by the shears so that the growth of the tree will be continued outward. Three or four strong branches should form the framework of a young peach tree, these branches should not cross and should not form dangerous crotches if it can be avoided. The tree with all of its branches starting from a common point is more apt to break down in a strong wind, especially at a time when the tree is carrying a heavy crop of fruit.

Careful pruning prevents over-production and reduces the thinning bills later in the season. There is no money in raising a crop of culls and over-bearing means a devitalized tree and a cull crop. The first year of pruning the general form of the year is started, the second year the new shoots should be shortened about half and after that the annual pruning off of about one-half to one-third of the previous year's growth will keep the tree headed back and in good condition for fruit production. Keep the heads of the trees open to allow the light to penetrate the foliage, remove all injured branches and broken wood and you soon have an orchard that will require just a little pruning for each tree and the trees will be easy to spray and harvest.

Filling the Vacancies.

An important feature of the spring orchard work is the ordering of varieties to fill in the vacant places where trees have died of disease or have been

side of the fruit belt, and while the home peach orchard in any section does not risk much money, peaches are risky enough in the land where everything is in their favor.

Plant Only in Suitable Locations.

In considering the spring orchard work as far as peaches are concerned, it should mean, plant something else unless your site is good for peaches. The peach grower on a poor site must compete with the grower who is producing the fruit under conditions as ideal as they can be found and this means that the grower working on land unsuited for peach production must suffer a severe handicap.

Spraying of the peach is necessary.

The winter spray of lime-sulphur is practically always used by commercial orchardists. This may be applied at any time before the leaf buds begin to swell. The summer spraying of peaches for brown rot and curculio is rapidly becoming necessary in many sections of the state. Bulletins of great value to peach growers are published by the Michigan Experiment Station and the United States Department of Agriculture. Spring work in the peach orchard is important and expensive; it means that the grower must invest money which will not be returned until marketing time; it means that the grower with a half-dead orchard of mixed varieties on a poor site is carrying on a risky business and will be safer in producing some other crop. It also means that the grower with a good orchard has no reason to lose his nerve at this time. Peaches are the best of dessert fruits and the demand can hardly fail to increase.

R. G. KIRBY.

A Practical Greenhouse for Farmers

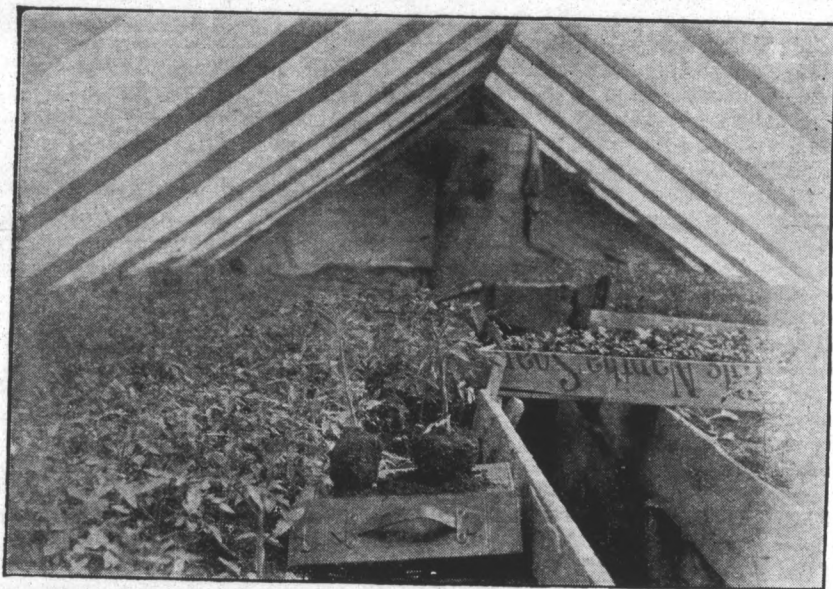
WHILE waiting till the erection of a more expensive and substantial structure is advisable, we are using a forcing bed that cost little outside of the sash and glass. With the thought in mind that the plan may be of interest to others in like situations we describe it for their possible benefit.

First, in heating after this plan it is necessary that there be perfect drainage for the first three feet of soil. The location of our forcing bed provides for ample drainage, and there is an inclination of the surface of about eighteen inches, in fifty feet, sufficient to provide for ample draft in the flues. Entrance to flues is about two-thirds of the way up in each back corner. These run the length of the bed about eighteen inches from outside.

For heating we built a furnace of concrete, 3x3x3 feet, level with the surface, or nearly so. The walls are protected on the outside with dirt, which is necessary for the reason that the

is used in our irrigating outfit when needed. Connection is made at the tank. (We use the cooling tank from our gasoline engine, having substituted a bucket there, but a barrel would answer the purpose quite as well). By using a piece of pipe, long threaded on one end and projecting into the tank, with a lock-nut on both inside and outside and leather or rubber washers, it is easy to get a water-tight joint.

The walls are of inch boards twelve inches wide. Stakes driven in the ground hold the boards upright. The sash bars and ridge pole are of hemlock 2x1 1/4 inches. The bars are beveled and toe-nailed both to the wall board and ridge pole. Mortising would have made a more satisfactory and workman-like job. A trench through the center provides a passageway. Boards secured to stakes along the upper edge of this trench protects the edge of the bed and the plants nearest. Our bed is only ten feet wide. It



This Cheaply Constructed Forcing House is Ideal for Early Plants.

heat will crack the concrete. For this reason we keep a little dirt on the top, which is also of concrete.

The Heating Arrangements.

For a door we had a piece of heavy sheet iron cut 2x1 1/2 feet, with an opening 4x6 inches provided with a hinged door for adjustable draft. A narrow strip of iron riveted to this provides means for handling the door. In building, the form was made so that the door fits the concrete casing, but this door is not hinged. In each back corner, about two-third way up openings were left for flues, which consist of six-inch concrete tile, home-made. These tiles also answer for chimneys. Experience has shown that this size of flue is not sufficient. Then, too, they soon fill in with soot. This spring we shall use concrete blocks laid over a trench 8x12 inches. For obvious reasons the soil over the flues at the furnace end must be deeper than at the upper end. Six inches at the upper end increasing to sixteen inches at the furnace will be about right.

The plants may be grown in the ground soil proper, or in flats, as preferred. To get the plants nearer the glass we have been using flats at the furnace end. After the ground has become thoroughly warmed the temperature of the soil is quite evenly maintained.

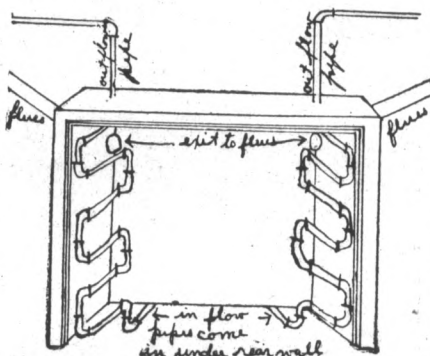
The Hot Water Coils.

To assist in heating, we have two coils of inch pipe in the furnace connecting with a supply tank at the upper end. The outgoing pipes go up on the outside of the bed, and return at the sides of the passageway through the center. Ordinarily the outgoing pipes are too hot for the hand, and the same is true of the water in the tank, at times. The plumbing, if it can be rightly so termed, was done by ourselves. The coils are, of course, permanent fixtures, but by the use of the union joints at the tank connections, the line piping is easily removed, and

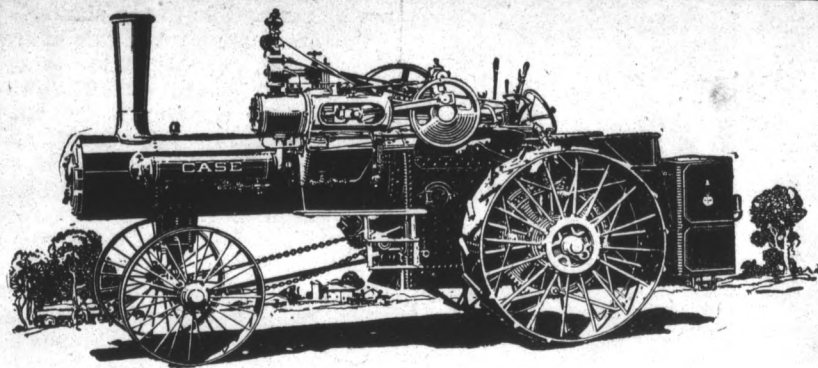
might have been made eleven feet wide just as well, by increasing the depth of the trench. The front wall comes even with the front end of the furnace, the furnace door being on the outside. At this end the gable is glass; the other end (north) is boarded up. As yet we have only glass enough for two-thirds of the bed, using linseed oil treated muslin for the remainder. This forcing-bed is not prepossessing but when the interior is filled with husky vegetable plants the crudeness of the structure is not so noticeable; anyhow, we get results.

Some Advantages.

There is one advantageous feature in connection with this style of forcing



ing house not possessed by the regular style greenhouse; the roof being easily removed it is possible to properly harden the plants without removing them from the bed. This is not true of the greenhouse for the reason that the direct rays of the sun can not be admitted, neither the direct currents of air, both of which are necessary factors in the hardening process. Moving plants to cold frames to harden doesn't give the same results. If made early in the season, the change is too great and sudden, causing a shock to the plants. But with movable sash the plants can be inured so gradually to



CASE Steam Tractors

Case still believes in steam for power. In some localities, of course, gas is best. So if it's steam you want, remember that there is a Case steam engine for you. These "old reliables" come in seven sizes—from 30 h. p. up to 110 h. p.

In the steam field, Case tractors have long been acknowledged the leaders. Owners have always praised their simplicity and stability of construction, their economy in operation and their constant power. Official tests have further proved our claims.

Simplicity Means a Great Deal

In our claims for superiority we lay great stress upon the simplicity of Case steam engines. For instance, the generous size of the fire-box and the space before it, which permit of freedom in firing, are features which appeal to all operators. The working parts, too, are in full view and within easy reach. It is just such things as these that mark Case tractors in distinction to others.

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1. **Simplicity:** As illustrated by the fact that we build the single engine type only.
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5. **Power:** Case steam engines develop more power per pound of weight than any other.



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low temperature that the change will not be perceptible to the plants.

Our first equipment of this kind was simpler still, the only outlay being for muslin and linseed oil. The fire pit was made by covering a pit with the drums from two old heating stoves riveted together. A square of the same material answered for a door to the pit. The trenches for flues were covered with pieces of old stove pipe and similar junk from the city dump. The chimneys were old stove pipe. Poles from the woods supported the cloth, the roof having a double pitch the same as now. This style has an advantage over the narrow forcing bed in that one can do necessary work with the sash on, by digging a trench through the center of sufficient depth to permit standing inside.

Emmet Co. M. N. EDGERTON.

THE EVERBEARING STRAWBERRY.

In your issue of February 26 appeared an article on the everbearing strawberry, by Mr. Brown, of Benzie county, giving his experience with one season's trial of the Superb.

Mr. Brown says he set 1,000 plants but only let 800 bear fruit, and from these 800 plants he received 72 quarts of berries. I think this yield was a little below the average for this variety and I cannot figure how it would

them, so much cold and rainy weather, and coupled with this, a freeze late in August that killed nearly all vegetation. But in spite of all this we kept right on picking fancy strawberries, and although the yield was not so large the price obtained per quart was higher, so the returns per acre was about the same as the previous season.

In my estimation there is not a crop grown in this latitude to compare with the everbearing strawberry. It certainly is very gratifying to have a crop that will net over \$500 per acre in such a season as the past, when all other crops are nearly a total failure.

It is not necessary to be located near a large city to grow these berries commercially, for they will stand shipping a long distance, by express, in common crates. I have shipped nearly 1,000 miles and have never had a complaint. I put them up in four, eight and 16-quart crates and if to nearby points sent them by parcel post, which is cheaper.

Nothing attracts so much attention at the fall fairs as does an exhibit of strawberries, and there is not a strawberry grown to compare with the Francis for this purpose; no berry has a prettier appearance and no berry will stand up longer. Late in October last season I picked berries on Monday, shipped them to Fremont, Mich., on Tuesday. They were still on exhibit Saturday evening in good condition and were not eaten until Sunday.

To grow them commercially I think it best to fruit only during the fall of the first season, but for the home garden they can be fruited for a full crop the second season. They are the first to bloom in the spring, more frost resistant than common kinds, and should they freeze you would be sure of berries anyway, for other blossoms would soon appear.

W. F. TINDALL.

TRFE GRAFTING AND SETTING OF FRUIT TREES.

The tools needed for grafting purposes are very simple and found on every farm. They consist of a mallet, grafting knife, and a vessel full of grafting wax. We make our own wax by melting together the following ingredients: Four parts resin, two parts beeswax and one part common tallow. When the mixture is thoroughly melted it is poured into cold water and left in that



Grafting Mark on Old Tree.

be very profitable to raise them with so small a yield.

Mr. Brown says he paid \$15 for the 1,000 plants, plus express charges, for this investment he received from berries sold, \$14.39, or less than the cost of plants, but he figures the new plants are worth \$80. This may look good to the man after plants but how does it look to the man after berries?

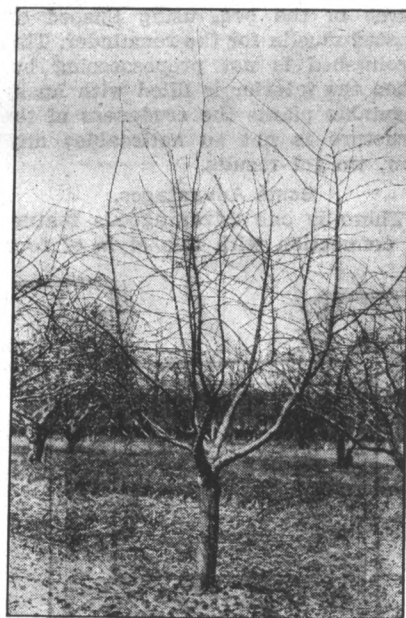
My experience with the everbearing strawberries dates back to 1911. my first varieties being the Francis and Productive. The following spring I set the Superb and Americus and the next the Progressive. I grew the Superb two seasons and think they did a little better for me than for Mr. Brown, but not much.

In the spring of 1914 I set 2,400 plants of the Francis variety. The white grubs took a great many of these and some died from other causes until I had less than 2,000 plants left. This plot comprised precisely one-third of an acre. The blossoms were picked until July 1, and July 28 we picked eight quarts of berries, two weeks sooner than though they had been Superb. From the 2,000 plants we picked for market 1,000 quarts, which were all fancy berries, for which we received from 25 to 40 cents per quart.

Furthermore, this patch was attacked twice by the cotton moth, which almost ruined two pickings. We had a hail storm that ruined a great many berries, and no less than 300 people who came to see them during the fall ate more or less berries. From these 2,000 plants we picked 77 quarts at a single picking.

The past season was a poor one for the everbearing strawberry in this section. It was so cold and dry at setting time that the plants did not get a good start. To get best results they should be set early and given the best of care so as to develop as large a plant as possible by August 1.

The fall was also much against



Top-worked to a Better Variety.

condition until it becomes cold enough to work nicely with the hands, then it is pulled until it turns a light buff color. When this is done, we usually make small rolls and wrap them up in greased or oil paper where the wax will keep perfectly until we are ready to use it. A good string for holding the scions and buds in place can be made by boiling yarn in the hot wax for at least fifteen minutes. After the above is done we are ready for grafting, which is not at all difficult to perform, providing, of course, that we use a reasonable amount of care in doing the work as it should be done. I have

had much better success with the cleft method of grafting. To begin with, I saw off a branch about three inches in diameter and close up to the tree and split the end of the stock. The end of the stock is then covered with the wax in a manner so that all air is excluded and cannot get into the cleft. Applying the wax properly is the hardest part about tree grafting and the success or failure in grafting depends largely on this. Two to three buds are sufficient and all that are needed on each scion.

The time for doing tree grafting is in the spring when the frost is out of the ground and when the buds begin to swell and open. By this method a tree that bears poor fruit can be made to produce nice fruit of salable quality. Quality is what counts most and we should aim to graft only such varieties where there will be no doubt as to the quality of the product when the tree begins to produce. A tree with 15 to 20 grafts will bear an abundance of fine salable fruit. Some of our best fruit comes from previous grafting in the orchard. Our aim is to graft trees that seem to be on the decline. Somehow when they get a start the tree takes on new life and vigor and some of our thriftiest and most valuable trees today were the least attractive trees in the orchard a few years ago.

In setting out small fruit trees we begin just as soon as the frost is out of the ground enough to allow us to dig the holes. After a spring rain or two the dirt settles around the tree firmly and the tree will be ready to take root and grow. In ordering trees from a nursery be sure to have a contract with the firm to deliver the trees promptly at the time set in the contract. Most nurserymen try to do this and it is a very important matter, for if they come three or four weeks later on in the season the planting will be injured unless weather conditions prove to be unusually favorable. A tree set out late in the season will stand a poor show and especially during a dry season. One year we lost a great many trees from this cause when it could otherwise have been avoided.

H. W. SWOPE.

PAINTING OF TREE WOUNDS.

It has long been the custom for horticulturists to recommend, and fruit growers to use, dressings of various kinds on the wounds of trees when branches are removed in pruning. A few years ago the New York Experiment Station decided to conduct some experiments to determine whether such practice was really of any value or not.

From results of this work, which have recently been published in bulletin form, it is concluded that the use of white lead, white zinc, yellow ochre, coal tar, shellac, and aversarius carbolineum as coverings for wounds under five inches in diameter is not only useless, but usually detrimental to the tree. This is particularly true of peaches, and perhaps of other stone fruits, which, according to recommendations, should never be treated at all.

The substances mentioned often injure the cambium layer to such an extent that the healing of wounds is greatly retarded. Of the substances experimented with, white lead proved to be the best and is recommended wherever anything is used. But it is not thought worth while to use even white lead for wounds two or three inches or less in diameter, though it may be advisable to use it on wounds where very large branches have been removed.

On the larger wounds, where much surface is exposed to decay, the white lead will help to keep out moisture and the organisms which cause decay. The smaller wounds, however, heal so quickly that the evil effects of the covering may more than offset the benefits derived from its use.

Colorado.

R. A. MCGINTY.

The Building of a Profitable Dairy

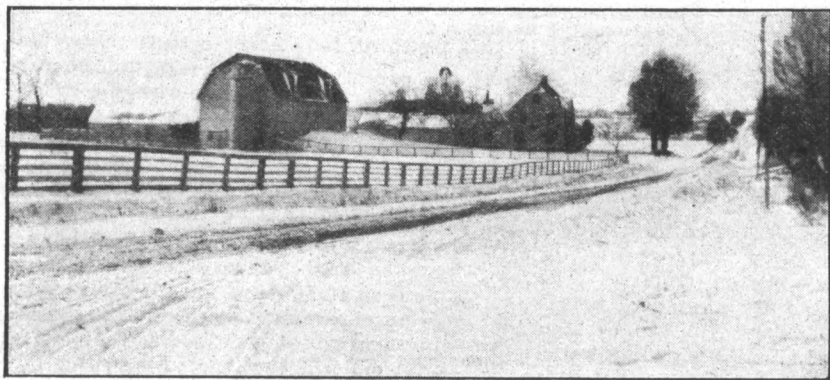
A NATIONALLY prominent dairyman was in the habit of expressing nearly the whole program of dairy evolution with three words: "Breed, weed, feed!" Every man who is desirous of getting the most out of his dairy must include these words in his program. They cover a very large field, however, and in this article I shall call the attention of the reader to the first one only.

Fundamentally we ought to agree upon a definition of a good dairy. In the mind of the writer, a profitable dairy is one that will convert the raw material in the way of hay, ensilage, pasture, grain, and other feeds into dairy products at a profit. The cow that does not return a product that is worth more in dollars than the food she consumes plus the labor of caring for her, is not worth keeping around. What we want is not simply the cow that will produce the largest amount of milk nor yet the one that will yield the greatest number of pounds of butter-fat in a given period, but rather we want the cow that will produce a large

amount of milk rich in butter-fat with a good profit to her owner upon the feed she has consumed and the care incident to her keeping.

It used to be said that the upper peninsula of Michigan was too far north for a Jersey to live and give milk, and many people I think were satisfied with that conclusion, but before we were aware of it, a little Jersey cow living almost up to the shore of Lake Superior had completed her year's record with 1,132 pounds of butter to her credit. But she was not destined to wear her laurels for long and so it goes from year to year. No one can possibly say how much butter will be produced by a single cow in a given time within the next ten years, for the "end is not yet."

When my father was a boy in western New York, the horse that could



Buildings which Indicate Modern Dairy Methods.

amount of milk rich in butter-fat with a good profit to her owner upon the feed she has consumed and the care incident to her keeping.

What Selection Has Accomplished.

With this thought in mind, we desire to discuss the importance of good breeding in the development of the dairy. The would-be dairyman must believe in heredity. In fact, it must be the very first article in his dairy creed. Why should he not believe in it? In Oakland county lives a man who six or seven years ago began selecting oat heads with a view to increase the number of kernels in each head. When he began he was obliged to spend a great deal of time in order to select a few heads containing from sixty to eighty kernels each. Last winter it was my privilege to see a single head of oats grown by this man containing three hundred kernels.

In the western part of Isabella county lives a farmer who dreams dreams and makes them come true. Six or seven years ago he looked down into his grain bin one morning at a pile of beans that represented his crop for that year. They were a miserable looking lot of all shapes and sizes. Vines had grown all over the field, but they yielded only sixteen bushels per acre and ripened very indifferently. As this man stood looking at those unpromising beans, he had his first dream in seed selection. To dream with him was to act, so he began at once to sort those beans. It was a task to do it. It took him several days, but he stuck to it and came out at last with a few quarts of beans whose size, shape and color conformed to his idea. He has doubled the yield of beans on that farm within the years since his experiment began. They are of uniform shape, size and color and all because he started with a right conception of the old truth, "Like begets like."

Dairy Progress Through Selection.

During the World's Fair in Chicago dairymen all over the country were well nigh holding their breath as scraps of the story of the splendid performance of Brown Bessie were published to the world. When the fair was over Brown Bessie was queen. It

trot in three minutes was considered a wonder. Today the man who owns him would not hesitate a minute to swap him for an automobile. A little over two hundred years ago a man in Massachusetts was arrested upon a criminal charge. His record was bad. As his children grew up they were bad also, and statisticians watched his descendants until hundreds of them had been convicted of crime. Down in the old east lived stern Jonathan Edwards. He was narrow, he was intolerant to be sure, when viewed in the light of the twentieth century, but Jonathan Edwards was just when measured by his standards. His descendants have filled almost every place of trust and honor within the gift of the American people. Not one of them that was ever convicted of crime and few have been even suspected.

The Value of Heredity.

I have given the foregoing examples to establish what seems to me abundant proof of the theory of heredity. Oat heads were lengthened, beans were made to conform to a given type, dairy performance has been greatly increased, speed in trotting horses has been accelerated, and the lives of men and women have been made or marred largely on account of their inheritance.

In the building of a dairy, the first important matter is the selection of a breed. If the best results are to be secured, this should be a distinctively dairy breed. There are so-called dual-purpose breeds in which are to be found many good cows, but while discovering these cows we are sure to find a much larger number that are not economical producers. There can be no objection to one who desires to produce beef mating the most of the cows in his herd along dairy lines, but he who keeps cows chiefly for the production of milk or butter should keep a dairy breed for best results, not that everyone could be, or should try to be, successful in the breeding of pure-bred were, the price would be prohibitive in many cases.

For the average man there seems to be but one course, that is to use



"Good News for Farm Women"

Orange, N. J., March 1, 1916

Dear Mrs. Dairywoman:—

The bearer of good news is always welcome; and I have some very good news for farm women. We've a new separator at our house and it's a wonder.

One splendid feature of this new invention which must have been planned with the comfort of the dairy woman in mind is the knee-high supply can. This does away with the hard, high lift no woman should be asked to endure day after day. It's only a few inches to lift and a tilt of the pail, even for a small boy. This is *one* item of good news.

Cleanliness is the beginning, middle, and end of good dairy work. You know how quickly the separator shows the effect of any slight letting up in this direction. With dishes to wash three times a day, cooking utensils, calf pails, milk pails, etc., a big pile of separator disks is just about the "last straw", isn't it? But with our new Sharples there are only three pieces to clean, not one heavy, bulky, or fussy. This is the *second* piece of good news.

Formerly, a slight slowing of speed in turning the handle of the separator meant a loss of cream—and money. One's attention had to be strictly on turning the crank at an unvarying high speed, which was trying to both mind and strength. My *third* and best piece of good news is that

THE NEW SHARPLES SUCTION-FEED

Separator draws up into the bowl just the right amount of milk—always in proportion to the separating force. If you feel out of sorts, you may turn slowly and the bowl will drink up just enough milk for clean skimming and no more. If you feel spry and want to get through to sew, to trim a hat, or to visit a neighbor, turn as fast as you please and the bowl will take up proportionally more milk, yet the cream will be of the same thickness. Smooth, even cream, such as the Suction-feed gives you makes quality butter that brings top prices.

The separator has only one thing to do while you have many tasks. The separator has always been a tyrant which insisted on being turned at regulation speed, whether you were well or ill, worried or happy, rested or worn out. But this new Suction-feed Separator *meets your moods*. Its speed is your speed and yet, it *gets all the cream all the time*.

Why don't you drop a postal to the Sharples people for their new book? Then, you can show your husband that this new invention will be a money saver for him as well as a labor saver for you.

Yours truly,

A Dairywoman

What this farm woman says in her letter is absolutely true. There are many other pieces of good news in our new book, "Velvet" for Dairymen, which fully describes this wonderful separator. Send for your copy today. Address Dept. 18.



The bowl is easy to wash. There are only three parts, and no disks.

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But amid all this feverish elevation in the prices of silos we are going steadily ahead, making Indiana Silos of our *highest grade* material, making them as nearly perfect as silos can be made,—and selling them at last year's prices without one cent advance.

We can do this because last year, when we realized that the prices of raw materials were bound to advance, we had the foresight and the purchasing power to buy tens of millions of feet of INDIANA SILO GRADE TIMBER, clear heart stock.

So long as this timber holds out we will not advance the price of the INDIANA SILO. And no matter how high the prices of raw materials may go, we will not reduce the quality of the Indiana Silo. We cannot tell how long this timber will last and we therefore urge early buying as the only certain means of saving money. Delivery when you want it. Terms to suit your convenience.

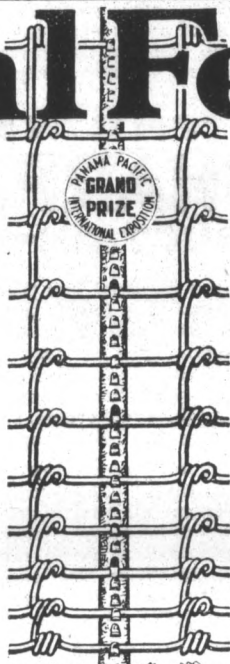
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American Steel & Wire Company

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Why the "Milwaukee" Gets all the Cream

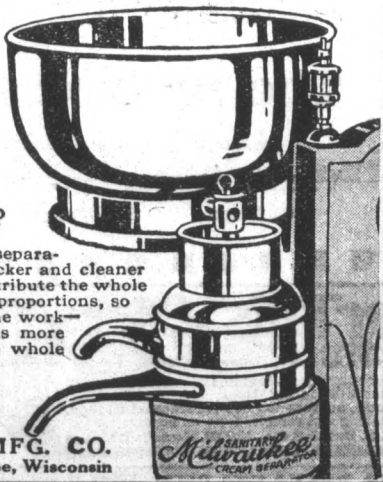
FEWER discs are used in the Sanitary Milwaukee, yet it skims closer, quicker and easier than any other separator. The discs are made of aluminum, which, unlike the tinned steel discs of other separators, will not rust, and can be drawn and tapered to the exact shape required for greatest skimming efficiency. Because of the tapered discs used in the

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the skimming space is widened where the separation actually takes place. This means quicker and cleaner skimming. Three removable feed slides distribute the whole milk into each skimming space in exact proportions, so that each disc must do its full share of the work—another reason why the Milwaukee gets more cream. Every Milwaukee is tested with whole milk before it leaves our factory.

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243 Madison Street Milwaukee, Wisconsin



the best cows in the herd he already has as mothers of his future herd and to depend for improvement upon the best sire obtainable representing the breed of his choice. This animal should not only be pure-bred, but he should be from a family fairly abounding in great producers. Every record cow in the pedigree of any animal gives added evidence of his probable worth. Personally I would not put a dollar into a male whose dam could not qualify for the register of merit class and I should want to go even farther than this. I should want to know about his grandmother; I should want to know about his sisters, in fact, I should want to know everything that I could know about the largest possible number of animals connected with the family he represented. It would not make much difference to me whether he were a Holstein, a Jersey, or a Guernsey. The important thing would be that I make up my mind in the beginning what breed I wished to keep and then adhere steadily to my purpose.

Definite Purpose Necessary for Success.

The great trouble with the majority of people is that they are going through life without a definite program. Life is short enough at best. I remember getting on the train once at Mackinaw City and feeling almost discouraged when the conductor told me it would take nine hours and twenty minutes to reach Grand Rapids. "Well," I remarked, "you must run mighty slow." "No," said he, "we run just as fast as any train on the road when we run; our trouble is that we have to stop too often." The man without a program experiences the same difficulty. He has to stop too often and it is the stopping in our work and the lack of a definite purpose that consumes our time and gives worse than nothing in return.

The man who concludes to breed Holsteins should stay right by them and, if at any time, he finds it better to adopt some other breed, he should dispose of his entire herd of Holsteins and begin over again. This is equally true of him who would breed the Jersey or the Guernsey, but someone will say, "I have a cow in my herd that is part Jersey and part Holstein and she is an excellent cow, too." Yes, reader, and so have I, but as a mother she is worth absolutely nothing. After years of observation and experience I would hardly dare to guess what kind of cows could be raised from mothers of mixed breeds. The first cross does not hinder production, but to follow this course is to invite failure in the near future in nearly every case.

Building up the Grade Herd.

No one has yet said which of the great dairy breeds possesses the most merit. I doubt if anyone can tell, but they should be kept distinct from each other. The farmer of moderate means can use an ordinary herd of scrub cows as a part of the foundation of a splendid grade herd if he selects a good sire of either one of the great dairy breeds. He can secure one or two heifers of the breed of his choice for a moderate outlay of cash and gradually, as time goes on, he can sell his grade cows to his less fortunate neighbors and fill their places with pure-bred animals grown on his own farm at only slight expense. By and by he will find himself with a pure-bred herd and it will have cost him no large outlay of money at any particular time. Such a course, and such results are within reach of hundreds of farmers in every county in Michigan and yet it is a surprise to find large areas in which little or no attention is being given to the improvement of live stock. It is almost as sad to discover an equally large extent of territory in which ideals of breeding are so indefinite as to lead to scarcely less promising results. This is an old subject; it is one upon which much has been written and said, but it will continue to be a very timely topic until hundreds of thousands of scrub cows have gone to

the butcher shop or the bologna factory and their places are filled by animals that are better worth keeping.

A Community Ideal Brings Results.

But it is not enough that the individual in the community should have a dairy ideal. It is hard for one individual in the neighborhood to reach the best results as a dairyman. What is needed is a community ideal. The purpose not only of the individual but of the whole neighborhood to breed one breed of cattle and develop it to the highest point of excellence obtainable. Again, let me say that the particular breed does not matter so much. In our neighborhood we are breeding Jerseys. The writer likes a Jersey cow. If there is anything that he likes better in the bovine family, it is a lot of Jersey cows, but if he were to move to a neighborhood in which they were breeding Holsteins or Guernseys, he would not think of keeping Jerseys...

The all-important thing is that the neighborhood should co-operate, and why? Well, for a number of reasons. First, it is easier and pleasanter for most people to go along with the crowd. Second, there is always a feeling of good-natured rivalry among a number of people who are doing the same thing at the same time and, third, it is never certain that a single individual will be able to secure the best blood obtainable in the breed he has decided to keep. In fact, he may work half a lifetime and never produce a single phenomenal cow, but if all the dairymen in the community are breeding one breed of cattle, somebody is going to produce some great cows. No one can prophesy who will, for success along dairy lines is often as much of an accident as in other activities of men, but, depend upon it, no neighborhood will continue to breed one breed of cattle for ten years or more without results in some quarter that will be astonishing in the extreme.

Good Results from Community Work.

In the community where the writer lives the truth of this statement is being abundantly proven every year and the blood of these good animals is passing from herd to herd and if we live a few years more, we shall be able to say to the readers of the Michigan Farmer that the majority of our two-year-old heifers are passing through the first period of lactation and yielding from a pound to a pound and a half of butter-fat per day under ordinary dairy conditions. There are plenty of pure-bred Jerseys in our part of the state whose heifers would not do this nor anything like it under the best of care. It is simply a matter of inheritance. There are some registered cattle that are just as poor as a lot of cattle that never can be registered. The thing to be desired is not only pure-bred cattle but pure-bred cattle of merit because they are capable of great dairy performance. Such cattle will be discovered almost certainly by a system of community breeding and herein lies the solution of the first part of the problem of the building of a profitable dairy.

Oceana Co. W. F. TAYLOR.

SAVE THE MANURE.

Remember that \$100 worth of hay (clover) contains \$85 worth of plant food; that when this is fed to the cow, three-fourths of the plant food is returned in the manure. One hundred dollars worth of cream contains but \$1 worth of fertility while \$100 worth of butter contains but ten cents worth of fertility. This makes it plain that feeding hay to the cow leaves nearly all its fertilizing constituents in the manure to be returned to the land, while had the hay been sold, this fertility would have been a total loss to the soil. Either use the manure daily upon the farm, or store it in a shallow concrete pit, at a reasonable distance from the barn or milk-house, and thus save the valuable nitrogen that the ground, sun and rain would help eliminate. Keep the pasture highly fertilized. The addition of lime phosphates, etc., to a cow pasture, has meant a large increase in the yield of milk. Mortgage your farm for a manure-spreader.

DAIRY PROBLEMS.

Amount of Silage Necessary.

I want advice on a 200-acre farm proposition. I have a new 12x40 silo made of vitrified tile. I did not get it filled last year but will this year. I have 26 head of cattle now and will have more. Is this silo large enough to carry through what stock I now have? I feed clover and corn stover, some bean pods and straw. I want to keep 26 cows besides young cattle, and want to have some ensilage for summer. I am selling milk and now feeding as above, except no silage this year, and for grain, ground corn or corn meal and bran, equal parts in quantity as outlined in your advice in Michigan Farmer previously. I want to raise all the grain and hay on the farm that I need to feed these cows. Will seed ten acres to alfalfa next summer. Have 46 acres of new seeding of clover, which was a fine catch. Have a 20-acre field which is fall plowed. Had five grain crops on it since seeding. Poor catch of seeding is the reason for going so long. Soil is clay loam. Can I sow soy beans with any degree of certainty of a crop and are these fit to grind and use with corn meal, or would cowpeas be better. The field is under-drained and will raise clover. Has had no manure since corn crop five years ago. Grew good crop of barley last year. Is it necessary to lime a field for alfalfa that will produce a good stand of June clover?

Genesee Co. A. R. G.

I don't think a 12x40 silo will furnish you all the silage you need. It will be better to have a 10x36 for summer feeding. You can feed it all and save money.

Your ration is somewhat deficient in protein. If you fed all clover hay for roughage it will do very well, but the straw and corn stover cuts it down. I would advise leaving out the oats and substituting gluten feed or dried brewers' grains.

Soy beans are better for your purpose than cowpeas. If the soys are allowed to ripen and you grind them with corn they will make an excellent ration. With clover hay and silage this ration would be hard to beat.

Land that will produce good growth of clover will produce good alfalfa without lime. But usually lime helps both these plants.

Dried Beet Pulp will not Balance Alfalfa and Corn Silage.

I would like to know the value of dried beet pulp to feed in connection with ensilage and alfalfa hay, and what price one could afford to pay for it put up in 100-lb. sacks, per ton?

Lenawee Co. L. S. D.

Dried beet pulp contains only 4.1 per cent of digestible protein, while ground corn contains 7.8 per cent. Beet pulp contains only a little over half as much protein as corn chop. In theory alfalfa hay will balance corn silage in food nutrients but both are bulky foods and a cow must have some grain to do her best. Beet pulp and wheat bran mixed in equal parts will do very well, or beet pulp, 200 pounds, and dried brewers' grains, 100 pounds, would furnish sufficient protein.

At present beet pulp costs in carlots, \$21 per ton f. o. b. factory. It is a good feed. Cows like it and do well on it, even better than its analysis would indicate, probably because it is quite digestible. It is better to feed two different grains for food to give a variety. Beet pulp and wheat bran make a good ration.

Must Buy Extra Protein.

Please balance ration for my milch cows, of the following feeds: Roughage, clover hay, shredded cornstalks, wheat, oat and barley straw; for grain, plenty of corn, barley, wheat grown in shock, and a few oats. How shall I balance these grains to get them ground for hogs, weight about 75 lbs.? I do not want to buy extra grain unless necessary. Can you give me information on how to build a self-feeder for from 15 to 20 hogs?

St. Clair Co. H. M. C.

Even if you fed clear clover hay for roughage it would take equal parts of corn, wheat and oats to furnish sufficient protein to make a balanced ration, and since no more than one-half or one-third of the roughage is clover hay it will be necessary to buy gluten feed, dried brewers' grains, etc., to get protein enough. The analysis of bar-

ley does not differ much in protein from corn so I would sell the barley and buy gluten feed.

Mix the grain in the following proportion: Two hundred pounds each of corn, wheat and oats, and 100 pounds of gluten feed, and feed one pound of grain for every three or four pounds of milk. When the oats are fed out you can feed 200 pounds of corn, 200 pounds of wheat and 100 pounds of gluten feed.

Corn and wheat, equal parts ground, and a little oil meal or feeding tankage, will make a good ration for the hogs. Feeding tankage is best and costs but little more.

The size of the self-feeder makes no difference, as you only have to put the amount of grain you wish in it at a time. The feeder must be slanting on the inside so grain will run out at the bottom. Have a small opening at bottom into a flat-bottomed trough.

COLON C. LILLIE.

GOING INTO DAIRYING.

If a man aspires to be a dairyman in every sense of the word, he must keep only well-bred dairy cows, and care for them as such cows should be cared for. This is a fact conceded by every dairy expert in the country, and every dairyman who has gone into the business in the right way has done well and is receiving handsome returns.

But this fact has also led many dairy authorities to go out and preach the highly bred dairy cow to the farmers in general. They have evidently overlooked the fact that farmers, as a class are not dairymen, nor are they likely ever to become dairymen in the true sense. They are diversified farmers, carrying on the business of milking cows as a side issue. While fully appreciating the profits to be derived from carrying on the dairy business wholly as a business, yet it cannot be contended that all farmers would be wise to turn right over to exclusive dairying. Many would make a mistake by doing so, for, lacking the necessary qualifications which only a more or less extensive period of experience can give for dairying on a large scale, more would fail than would succeed.

If the average farmer is to become a successful dairyman, he must in the majority of cases learn the business by degrees. There may be exceptional instances here and there where all the surroundings are so favorable that even the most inexperienced man could make a "go" of dairying right from the start, but the average farmer need expect no such results to attend his efforts. So before he indulges in any rosy and elaborate equipment, he would better take the common cows he has on his farm, and by careful breeding and selecting let him breed his herd and his knowledge of the business up to the point where he can make a success of real dairying. A few dairy authorities are beginning to see that this is the true course for them to pursue if they wish to develop successful dairymen out of farmers who have never considered the production of market milk, or cream, or butter other than as a minor part of the farming operation. The average farmer must first be urged to take a little better care of the cows he now has, to feed them a little more regularly and on better feed, to sell-off a scrub cow occasionally and let some good heifer take her place. This is practical preaching because of the fact that if a man can be induced to make a small improvement in his herd and in his methods this year, he is apt to make a still larger improvement next year, and so on. As he begins to make these gradual improvements he will see for himself that it pays, and he will want to go on making still greater improvements.

W. F. PURDUE.

The storage of fodder in airtight receptacles dates back to ancient times, but the modern use of the silo was not started until 1875.

For Quick Work in Hay Time

LOUDEN HAY TOOLS



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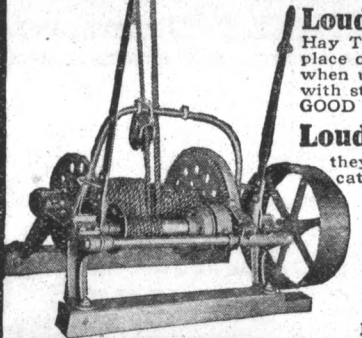
What's One-Third of Your Time in the Hay Field Worth to You?

Louden Hay Tools will save it. Will enable you to move bigger loads easier and faster than in any other way—avoid the danger of delay which often lets the rain catch your hay down, spoiling it for use or sale.

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Set the Louden Balance Grapple Fork across a load and it will take the entire width of an 8-foot rack at a single lift. Moves straw, alfalfa, or clover as clean as timothy—grabs it tight; no scattering or dribbling. What other hay fork will do this? Built of the finest steel, especially made for us. Light, strong, perfectly balanced, never fails.

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Louden Hay Tools are always dependable. They cost little; save time; save labor; and they often save the crop. Write for our big new illustrated catalog on Louden Hay Unloading Tools. Free on request.

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The Louden Machinery Co.

1903 Court St. (Established 1867) Fairfield, Iowa



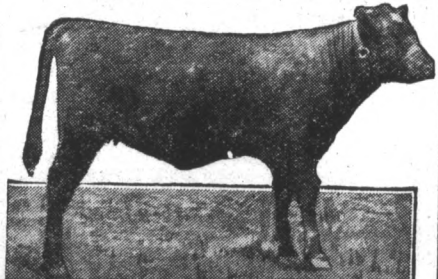
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—to produce more milk than any other ration either home mixed or purchased and do it without giving your cows constipation or udder trouble. Ready to use right out of the sack without any mixing.

Larro-feed

Absolutely free from adulterants and fillers, just like the feed you would mix for yourself, is a special 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 ingredient 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 cow may turn a loss into a profit. Try LARRO-FEED for more profits. Sold on "money back if not satisfied" plan, the decision being entirely up to you. LARRO dealers almost everywhere; write if none near you.

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Her name is "Daisy" and her owner, W. A. Riddle, of Chapin, Iowa, raised her on Blatchford's Calf Meal, which costs less than half as much as milk.

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A useful preventive of scouring. Calves raised "The Blatchford's Way" are heavier, bigger-boned and healthier. Known as the complete milk substitute since the year 1875. Sold by your dealer or direct from the manufacturer. Blatchford's Pig Meal insures rapid, sturdy growth of young pigs at weaning time. Prevents scab. See Actual Figures —based on results that show you how to increase your calf profits. Write today. Blatchford Calf Meal Factory. Dept. 4383 Wankegan, Illinois

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GUERNSEY SILO

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Guernsey Clay Co. AGENTS 906 Fletcher Trust Bldg. Indianapolis, Indiana. WANTED

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Supersedes All Caustery or Firing. Invaluable as a CURE for

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Your Gombault's Caustic Balsam is the best liniment I know of. I have bought four bottles for my neighbors, and two for myself. I have cured a sweened horse with the Balsam.
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Having read an advertisement in Wisconsin Agriculturist about your Gombault's Caustic Balsam, I have tried some of it and think it excellent.—J. M. Woradowsky, Big Flats, Wis.

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Send for fine Photographic
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No salesman need apply we deal direct and give terms to responsible parties.

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Two Registered Percheron Stallions coming
For Sale: three and six, black and grey. Will sell for 2/3
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We have 100 head of Belgian and Percheron Stallions and mares. Imported and home bred. We have sold pure bred horses in Michigan for the last 25 years, and have the right kind, and at the right price. We can supply any number of work horses, both geldings and mares. Get in touch with us.

LIGONIER, INDIANA.

Additional Horses on Page 415.

HORSES



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60 HEAD OF STALLIONS FOR SALE

PERCHERONS, CLYDESDALES and HACKNEYS

Also 20 head of Choice Hackney
mares with foal.

Gentlemen I got on my selling clothes.

Write for prices.

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Stallions and Mares

of high quality. Royally bred, some of them by the Great \$40,000 Champion Carnot (66,666). All recorded in P. S. A. Studbook. If you are in need of a good Stallion or mare, come and see us. We can suit you in both quality and price.
H. A. ROHRS & SONS, R. D. No. 4, Napoleon, Ohio.

Registered Percherons

2 rising two year old Percheron Stallions weight 1550 and 1600 lbs. Priced to sell. Inspection invited.
L. C. HUNT, Eaton Rapids, Michigan.

Percherons, Holsteins, Angus, Shropshires, Durocs
DORR D. BUELL, Elmira, Michigan.

Imported Percheron Stallions black 7 yrs. old and one 3 yrs. old, black, will sell or exchange. Frank Mulso, Mt. Clemens, Mich.

Feeders' Problems

Peas and Oats as a Hog Pasture.

I would like to know something about the feeding value of oats and peas to hog down, as compared with other feeds, also the time to sow, and if it pays to use commercial fertilizer and what formula should be used. The ground was in corn last year and all manured; the soil is of clay loam of some gravel mixtures. How many hogs, weight 100 lbs., should eight acres feed up till time to hog down corn, say September 10.
Barry Co.

V. R. W.

In some exhaustive experiments conducted by the Iowa station to determine the comparative value of different forage crops as a summer pasture for hogs, peas, oats and rape are advised in combination sown at the rate of one bushel of oats, one bushel of peas and three pounds of Dwarf Essex rape per acre. The average results secured from this combination of forage crops indicated a per acre value of \$86.56, figuring the grain fed as a supplementary ration at its cost. From twelve to thirty pigs per acre were found to be the maximum which could be successfully run upon this kind of pasture, depending upon the age and size of the pigs. The value of the pasture in the experiment above noted was fixed upon a basis of 50 cent corn, and hogs at \$6 per hundred weight. Figuring the proposition the other way around, with pork at \$6 per hundred weight, the grain fed upon this combi-

this fact being true because they gained so much more rapidly and attained greater weights, and consequently had a larger forage consuming capacity. From this series of experiments in which some 500 hogs were used and fed in a large number of different ways, the Iowa station seem to have conclusively shattered the theory that the cheaper way to grow hogs is to feed them a light grain ration on summer pasture.

Another benefit which would be derived from following the Iowa plan would be that the hogs would attain a size which would insure their quick finish when turned into the standing corn, as is contemplated by this enquirer, so that they would be in condition to market at desirable weights and finish at a time when pork is ordinarily at its maximum fall price.

Raising Calves on Skim-milk.

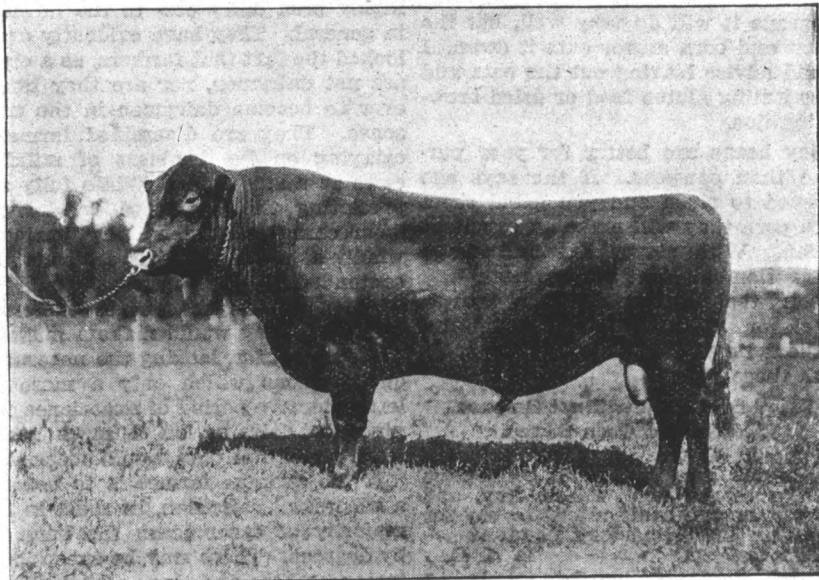
Would you please advise me as to what kind of feed for calves would be best to substitute for whole milk, or to feed with skim-milk.

Mecosta Co.

W. D. C.

Where calves are raised on skim-milk, some supplementary feed should be given with same, which will largely at least, replace the fat removed from the milk.

It has been found that flaxseed is the best available single grain to accomplish this purpose. It should be boiled into a jelly and about a gill of this fed with each mess of milk at the start. This can be gradually supple-



"Teddy," Unbeaten Champion Red Poll Bull of 1915.

This bull, owned by Jean DuLuth Farm, of Minnesota, has the remarkable record of eleven senior and grand championships in recent years and of having been shown at twenty-one state fairs without being once defeated.

nation pasture crop brought a return of 84.9c per bushel for the corn fed.

It would be profitable to use a small application of a complete fertilizer when sowing this combination forage crop, so as to provide available fertility to give the young plants a vigorous start. This will shorten the period of growth necessary before the hogs can be turned in. Two to three hundred pounds per acre of a good grain fertilizer would be a profitable amount to use.

In this connection, it is interesting to note the experiments conducted on an extensive scale at the Iowa station last year which have previously been noted in these columns but may have missed the attention of the enquirer and other interested readers. In these experiments it was found that hogs on pasture, whether of alfalfa, clover or specially sown forage crops, made the most economical gains when given a full feed of grain through the medium of a self-feeder. Where the forage crop was not one which would properly balance a corn diet, tankage or some other nitrogenous feed was fed in a separate compartment in the self-feeder.

Another interesting factor in this connection is the fact that these hogs not only made larger gains and more economical gains when so fed, but that they consumed a larger amount of the forage crop than pigs which were fed a light grain ration on similar forage,

mented and replaced by corn meal as the calf gets older.

There are manufactured at the present time several kinds of commercial calf meals combined with a special view of balancing skim-milk for calves which are being used by many farmers who do not care to go to the bother of preparing supplementary grain feed for this purpose.

THE BROOKWATER DUROC SALE.

No phenomenal prices were made on feature animals at the Brookwater Duroc sale on March 4, but a strong conservative demand prevailed till Colonel Inglehart declared the last animal sold. Not once during the sale did the interest lag or the bidding fail to be active. The attendance was good notwithstanding the fact that the first week in March is a difficult time for most breeders to leave home. The Brookwater sale will doubtless be held about two weeks earlier next year. The remarkable uniformity of the offerings is indicated by the evenness in prices of the various lots sold. For example, no catalogued bred sow or gilt sold for less than \$40 and nearly half sold between \$60 and \$100 each. The top price was \$99, at which price Hawthorn Farm secured a choice two-year-old sow by Cherry King, Jr. The offering goes into seven states and Canada. Iowa, South Dakota, Illinois, Ohio, Florida, Alabama and Michigan each took their quota. The sows and gilts bred to The Principal 4th brought an average of \$71. The average on all catalogued bred sows and gilts was \$60.

DEPRAVED APPETITE OF CALVES.

Calves and young cattle have been known to show an abnormal appetite for clothes left hanging where they could reach them, old boards, leather, and the like. In the early days when cattle were expected to get most of their living by browsing in the woods, the lumbermen would frequently find that the cattle chewed their jackets left hanging in some tree; they nosed into the tin dinner pails; on one occasion, the water jug could not be found, and on making a search, it was finally located at the foot of a hill, with the strap which had been looped through the handle very much chewed by the cattle. On another occasion, an animal was found near the cook shanty with a pork barrel jammed down on its head; the obvious conclusion is that the animal craved salt, and got its horns caught in the attempt to satisfy the craving.

With calves, there can be no doubt that much of the foolish trait of sucking or chewing straps, etc., is due to the instinct of nursing the dam, especially if the trait displays itself just after the calf has been fed milk. In the case of weaned animals, yearlings, or more mature animals, however, one must find some other explanation for the trait.

An analysis of milk shows that it contains an average of .75 per cent ash. This ash or mineral matter is made up principally of phosphates of lime and potash, the chlorides of potash and soda, with small amounts of phosphate of iron and magnesia. Without doubt these elements are intended by natural processes to contribute to the formation of bone in the calf.

It seems reasonable to suppose that when cattle show an abnormal craving which leads them to chew clothing, etc., they do so because the ration they receive does not supply a sufficient amount of the bone-making material. Perspiration from the body contains a certain amount of salt, and perhaps the cattle were simply dissolving the salt out of the leather when they chewed the strap on the jug before mentioned.

To continue feeding skim-milk after the calf is weaned, or to feed milk at any time will, of course, supply bone ash in the most available form for the growing animal. Then, too, the plants eaten by the cattle contain lime, phosphorus, etc., in their ash. That all plants are apt to vary in this respect according to the soil, is evident from a comparison of conditions in Hawaii and Kentucky. In Hawaii, the soil is of volcanic origin, and contains only small traces of lime. According to studies reported by Dr. E. C. Shorey in Farmers' Bulletin 329, Hawaiian forage crops are uniformly deficient in lime, and the failure to secure the best results with apparently well balanced rations may be due to this cause. In Kentucky, on the other hand, the limestone of the bluegrass region appears in the forage crops, and so in the bone of the animals, and the region is noted for its live stock.

There can be no harm resulting from feeding bone ash, or even wood ashes, raw rock phosphate, or the like. They may be placed where the cattle can have access thereto, that they may lick the mineral matter most craved for. A plan which has been tried in the Transvaal region, where the deficiency in lime in proportion to phosphates is noticeable, is to provide a "lick" containing salt, bone, ash, sulphur. According to a statement made by a Michigan veterinarian, the only addition required to salt to supply the minerals needed under Michigan conditions, is iron, and he recommended an addition of five per cent of copperas, finely pulverized and thoroughly mixed with common salt, as furnishing a medicated salt equal to the more expensive trade preparations.

When the horse shows the trait of eating earth, wood, etc., it may be a symptom of worms, according to Dr.

Waterman, formerly of the M. A. C., but cattle are seldom affected with worms.

Benzie Co.

E. H. BROWN.

THE RUNT PIG.

In almost every litter of pigs there is a runt. Ordinarily this undersized slow-growing little fellow is left to shift for himself along with the larger pigs in the litter and he becomes a more pronounced runt all the time. Some hog raisers say "knock them in the head and get rid of them," but that is a policy that I do not approve. Instead it is best in every way and a paying proposition to give runt pigs a show and make them make the greatest possible return for the care and feed invested in them.

Small undersized pigs should have all of the feed they can eat and it should be a combination of everything on the place that is good for pigs. If milk is available a liberal portion should go to the pigs, then table scraps or swill, soaked shelled corn, a little oil meal, and as many other good things as can be included in the ration. A mixture of several good kinds of feed is better for pigs than any single kind. When green feed, such as alfalfa, has grown sufficiently in the spring, let the pigs have all of it they can eat.

There should be a separate pen joined to the one in which the sows are kept, but so fixed that only the small pigs get into the place where they are fed. This can be done by raising a panel a few inches off the ground so that only the small pigs can get under. In this small pig feeding place all of the litter will feed as long as they are getting milk from the sows and the way to insure the runts getting all that they should is to have ample trough room for all of the pigs to be fed there and feed plenty so that the runts may keep on eating after the others have finished, if they want to. After the litters are weaned it is a good plan to place the runts and small pigs in a pen by themselves or shift them into a pen of smaller pigs where they can have access to all of the good feed they can eat.

Keeping everything about the pigs clean all the time is very important and they must have a good comfortable place in which to sleep. Let them get all the benefit of the sunshine they can. Lice scurf and all of the ills that hogs are heir to seem to find the unthrifty pig the most attractive "bait."

Keep a close watch on these young pigs and whether there seems to be anything the matter with them or not dip them occasionally. This can be easily done by mixing a tub of some good dip, using it according to directions, holding the pigs by their hind and forelegs and giving them a "ducking" once or twice, making sure to get them good and wet all over. Dipping, however, is not only good for pigs, but all hogs. It is a practice that I am careful to follow regularly, knowing from practical experience that it pays well. All kinds of live stock pay big for intelligent care and attention, even the runt pig.

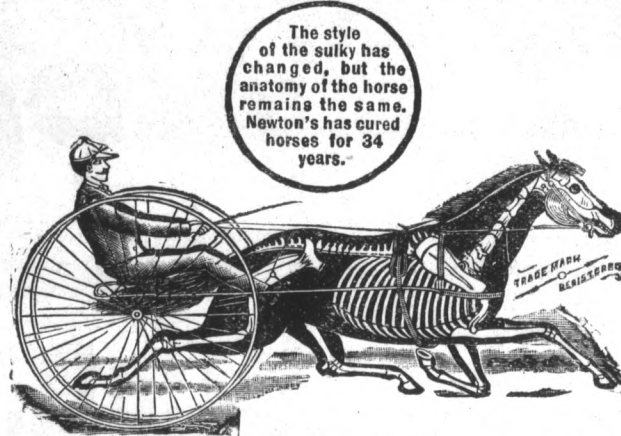
Illinois.

W. M. HARDY.

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I have a small piece of ground adjoining a field of clover which I intend to pasture next summer, said ground had been a beet field last year. What could I sow on it that would make the best and earliest pasture for summer? Lenawee Co. SUBSCRIBER.

About the best plants for a catch crop pasture are a mixture of oats, spring rye, or even winter rye, field peas, dwarf Essex rape and some June clover. Use plenty of seed, three to three and a half bushels of oats and peas, five pounds of rape and five pounds of clover seed. Roll the ground after sowing and turn stock in when six to eight inches high. Use a good liberal application of stable manure. Top-dress and work into the soil.



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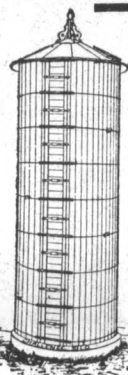
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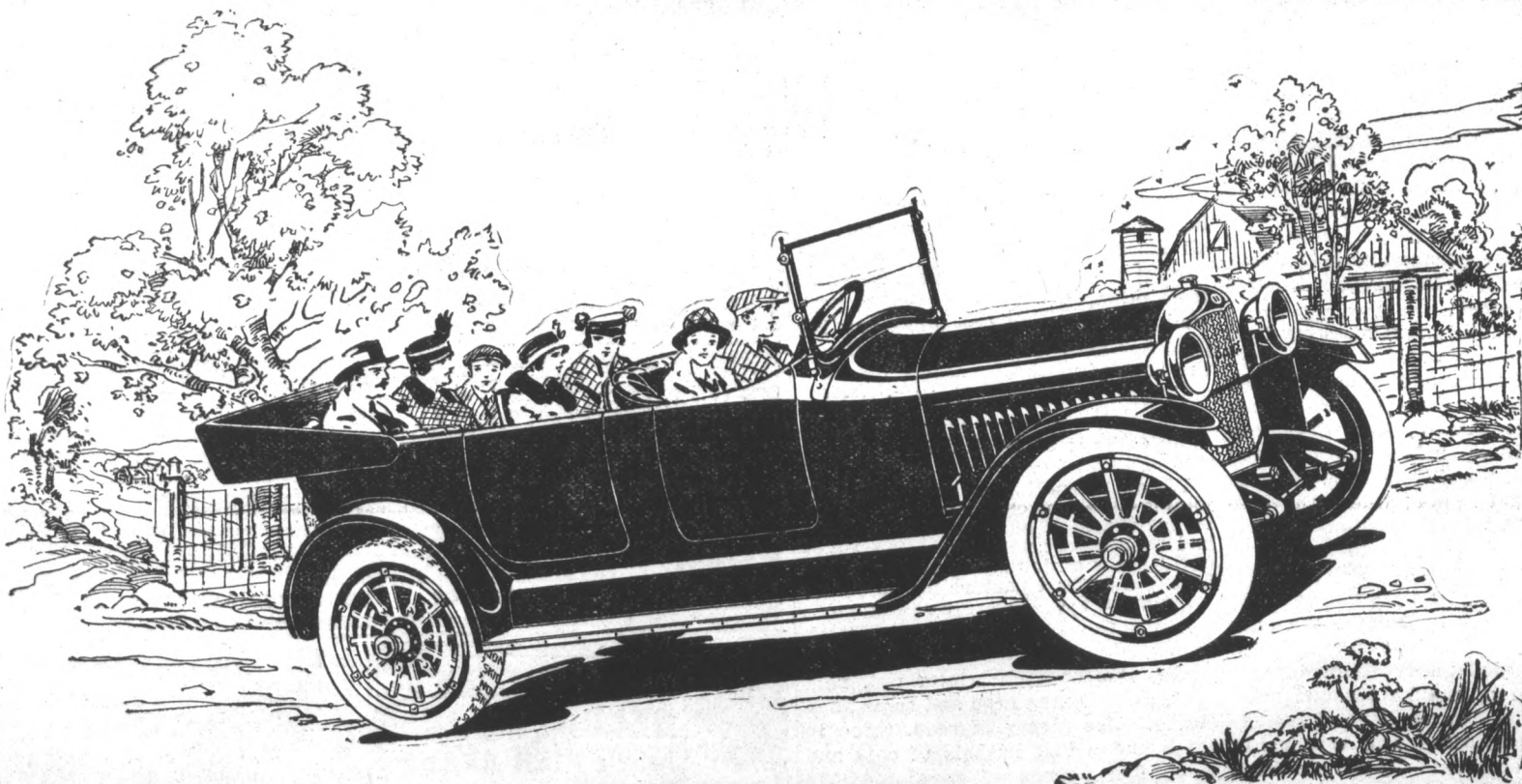
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SCIENTIFIC and
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This Magazine Section forms a part of our paper every week. Every article is written especially for it, and does not appear elsewhere

An Agricultural Viewpoint of Taxation By JAMES N. McBRIDE

THE assured things in the world of industry are the certainty of changes and taxes. The world of 1916 is not the same as it was, even two years ago. The European war has changed and is changing national viewpoints. Foreseeing is constructive, while an after view without action is merely in attendance and retrospective. Whatever the view of national policies and revenue measures has been, the present constructive thought is toward protective tariff laws. When peace comes industrial reconstruction will necessitate custom duties in some cases to prevent dumping and to maintain the necessary standard of living, as well as for revenue purposes. The comparative equilibrium of the plane of industry has been disturbed and nothing seems more certain to the student of industrial history than that trade walls will be constructed when the trenches are vacated. Under these conditions the previous reason for decreasing tariff rates and the enactment of the Federal income tax will no longer exist, but exactly the reverse. This will be the opportunity for the states to insist that the Federal government yield to them the entire opportunity to derive revenue from incomes. It is also foreseen at no late date that alcoholic liquors will be considered as other habit-forming drugs and cease to be any considerable source of revenue, either in the state or for the nation. In other words, the saloon will follow in the wake of African slavery. This tendency is seen in the decrease of 21,342,067 gallons of whiskies, wines and beer withdrawn from consumption as compared to the year previous as shown in the last report of the commissioner of internal revenue. While the Federal government will be considerable of a loser directly, the states and municipalities

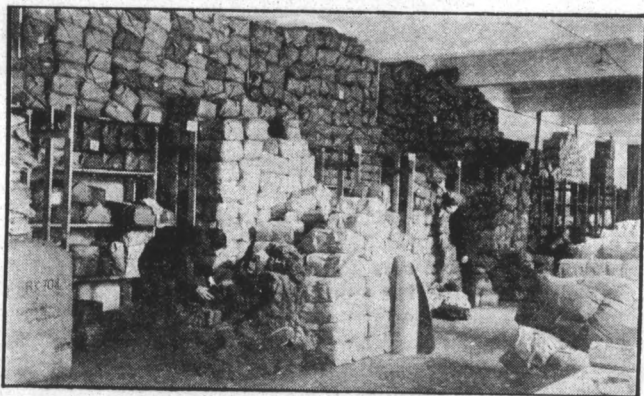
WORLD EVENTS IN PICTURES



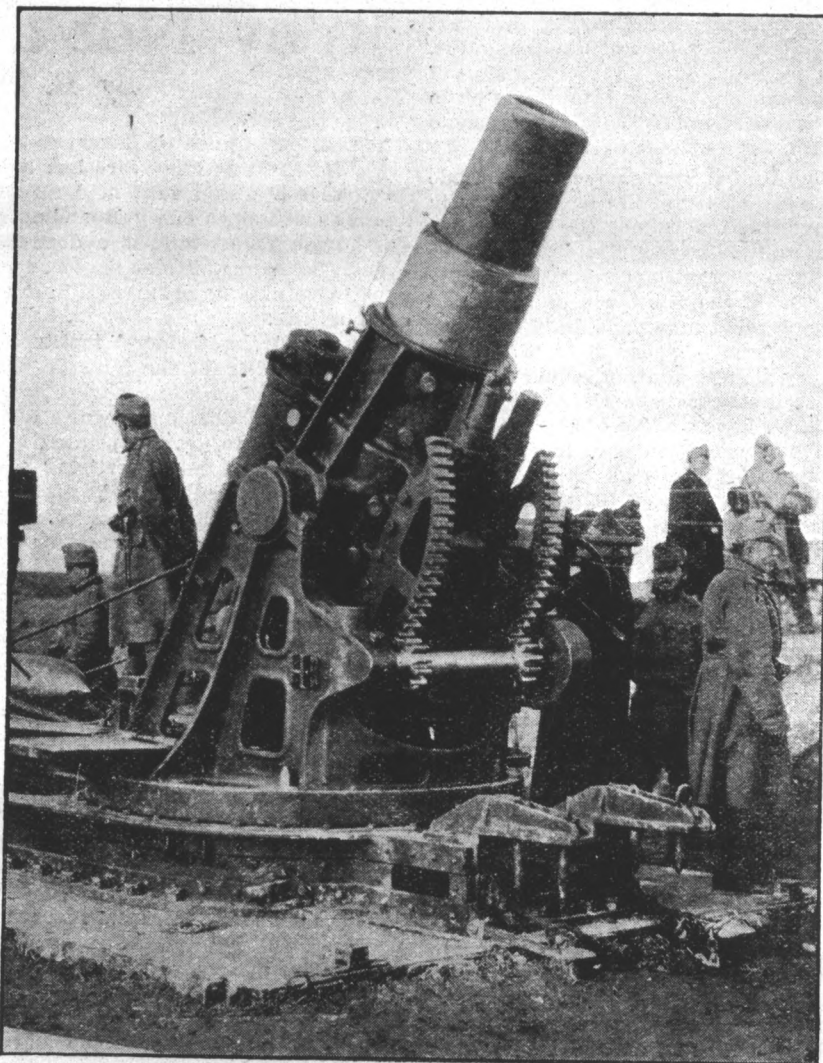
Ragnar Onved, American, Breaks the World Record by Ski-Jumping 192.9 Feet.



Jules Bois, French Envoy on Mission to United States.



French Soldiers Shown at Right Marching through Champagne Forest to the First Line of Trenches. At Left the German Red Cross Preparing Gifts to be Sent to Men in the Trenches.



Monster Skoda Guns now Battering the Verdun Forts must be Securely Anchored on Concrete Beds. Four Shells from one of these Guns Completely Demolished the First Fort and a Single Shot Smashed the Second One Guarding the Way to Verdun.

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Marguerite Clark, the Popular Little Lady who is a Big Film Star.

will lose from this source the larger amount.

As noted before, the necessity of the national government from an economic standpoint will necessitate increasing custom duties, the states have no means to recoup their losses without some additional property tax or an income tax. There is, then, the additional reason for the Federal government to withdraw almost entirely from the internal revenue field, even to extend external taxation to the present free list. For with our dual citizenship, state as well as national revenue must be provided.

The vanishing spirits tax and the recasting of trade conditions seem to be coincident. The incursion of the Federal government into the income tax field has shown that the administration features are not objectionable and, in fact, paved the way for easy state action.

An additional argument for a state income tax is in the increasing price of products or the decreasing power of purchase in gold. The index of prices January 1, 1896, was 80.09, as compared with 155.94 in 1915, and on February 5, 1916, 157.45, just a fraction under 100% increase in 20 years. This advance necessitates almost double the number of dollars of taxation, for the state must pay more for services and materials thus measured, just as the individual must do. Contrary to popular opinion there has been no decrease in efficiency of state government, when the added functions undertaken and the change in the purchasing power of money are calculated.

This feature is, however, so difficult to explain, together with the added demands for service along educational and social service lines, that it retards necessary state measures. On the other hand, a larger proportion of taxes should be paid by those who are directly benefited, viz., those whose services are paid for as wages, fees or salaries, or any form of personal return, whom the state has educated or advanced in any way. The constant tendency of civilization is to pyramid personal services and intangible forms of property upon real property. This fact is seen in the quick recovery of a community from a bank failure as compared to a crop failure or the filling of the place vacated by the death of some person paid a salary.

The report of State Bank Commissioner Merrick shows an increase of bank deposits of \$69,165,120.46 and capital stock of \$1,762,481.25, in 1915, over that of 1914, with total resources of the banks reporting to the state commissioner of \$494,030,670.44. This item, if added to the resources of national and private banks and personal wealth would approach the total assessed valuation of the state, and almost entirely of incorporated values. Of this total in state banks \$214,212,489.83 is mortgages and bonds, largely exempt from taxation for economic and administrative reasons. These facts are not given to complain of assessed valuations, but merely to show the accretions of personal property based on real property. The necessities of these exemptions, together with the small amount of other personal property, is added evidence to what every student of taxation knows, viz., that the taxation of personal property will have to be abandoned and something found that is equitable and possible. Wisconsin and Oklahoma have made this change by largely substituting the income tax for the personal property tax.

The personal property tax has always borne most heavily upon the farmer, because his equipment of implements and live stock were visible, while the intangible property of the cities was not easily seen. The effect of the income tax is seen in Wisconsin when it is seen that 66 per cent of the total tax is borne by corporations, 11 per cent by manufacturers not incorporated, eight per cent by professional services and one-third of one per cent

by the farmer. It is often said that the farmer escapes taxation on personal property largely because on April 1 he has practically none of the season's crops on hand. This view is superficial because the farm's valuation assumes this production and this is the basis of valuation made. If it were not for the possibility of this production no values would exist. To illustrate farther, the valuations of farms in the frosted area of northern Michigan presumed the lost crop. A series of such seasons would find no values for taxation. The productivity of the soil is basic to the farmer, just as the wool, for example, is basic to the woolen mill. It must be in existence. The difference between the taxation of the personal property on the farm and of merchandise is that the latter is turned over so often that the tax is comminuted and in the final analysis transferred. One of the interesting observations is that business men can afford to contribute to local enterprises and charity, and are called liberal. The farmer does not give so freely. The business man can distribute this tax by including it in the overhead expenses; the farmer cannot.

The attempt to place all property on a cash valuation for purposes of taxation and the increased valuation incidental to the decreased purchasing power of money has magnified two factors in taxation, viz., the undue proportion of personal property from the farm placed on the assessment rolls as compared to the personal property of other industries, and the other more important factor is the inclusion of the vocational skill of the farmer. The sale value of the farm is made the assessed valuation and this is not the rule of taxation applied to other property. For example, the loan basis on a farm is 50 per cent of the sale value. Men may come and men may go, but the real irreducible hypothecation excludes the farmer for purposes of security. The proposed rural credit land bank bill uses the same one-half value as the loan basis on farms. Sec. 8 of this bill further provides that in case of sale the land bank may at its discretion accept the assignee, or may at its pleasure, declare the mortgage due. This means that the purchaser may be acceptable or objectionable, and that he is the other part of the sale value. The inclusion of the vocational skill of the farmer as read into the statute has made the farmer pay an income tax on his earnings or wages.

The United States government made a survey of 440 of the larger farms in Wisconsin and found the total average capital employed was \$19,651.00, and the average net receipts was \$1,831.00. If the allowance of vocational income for a man capable of handling such a farm is placed at \$1,200, in fact a very modest allowance, and we capitalize the balance of \$631.00 at six per cent, we have a value of about one-half the total where the labor income of the farmer is included as farm valuation.

Article 10, Sec. 3, of the Michigan Constitution provides: "That the legislature shall provide by law a uniform rule of taxation."

The state tax commission used a different rule for appraising mining property. (See "Report on the appraisal of mining properties of Michigan 1911," page 11). After describing the method employed of calculating the annual output and the reserve, on deferred output at five per cent, the value of the mine for assessment purposes was determined. This language is there used: "This sum (i. e., the assessed valuation), is the amount which an investor can afford to pay for the property."

In other words, the personality of the operator is excluded in the calculation and the property placed on an investment basis which is not the same rule that is applied to farm property and in violation of the explicit provision of the paragraph of the constitution previously noted. The assessment of residence property includes no per-

sonality, for the home is only incidental to production. The capitalization of rentals quite often fixes the value of such property, which brings this property to the basis of income or investment value. Business blocks have their values, determined also on the investment basis, with often continued increasing values incidental to location. The active manufacturing plant is not assessed on its earning capacity or investment basis, but on its replacement cost. An idle plant of equal cost is practically exempt. Here is another rule which is applied to manufacturing plants. There was a good deal of moral justification in reducing the valuation on the Pere Marquette system one year ago, because of its low earnings, but the same might be said of farmers who have no labor income. However, it is assumed that there are no idle farms, nor is any attention paid to low incomes from farms as a basis for reduced valuations.

The debates in the constitutional convention and legislative attempts to revise the tax laws are of interest. However, these conflicts are turned over to the state tax commission by the Legislature very much as one perplexed parent turns over a disagreeable child to the other with the attitude: "Here, see what you can do."

In a general way the principle of income has been the basis of determining values on mining, residence and business property. This income has been, from the viewpoint of the investor. On manufacturing and power properties the state tax inquiry commission wanted the income made a feature of a special tax. This idea recognized that the income was not the basis of valuation.

On farm property the income arising from the productivity of the farm, together with all the personal property and the income due the farmer for superintendence are added together for purposes of taxation.

Very much of simplification and equity could be accomplished by separating state and local sources of taxation. Wisconsin collects approximately four million dollars from incomes at a very low rate of cost. New York

is considering an income tax law that is estimated to raise thirty-eight million. Michigan could well hope to raise all needed state revenue, aside from the primary school fund, from an income tax. Elasticity could be provided for by a minimum and maximum rate administered by a state board. Or in case of an inflexible rate certain appropriations could be made proportional or dependent, just as the private individual must do. The possibilities of industrial life were not dreamed of when our laws did not provide for a capitalization as large as a single manufacturing company desired. Of the earnings of some of the large Michigan concerns, while not entirely derived within the state, the larger portion is and would be subject to an income tax.

For example, The Commonwealth Power, Light and Railway Company earned around six million dollars last year; the Detroit Edison Company close to three million dollars; The General Motors Company, for the last six months of 1915 was carrying an item of thirteen million dollars of undivided profits; the D. U. R. earned close to the two million mark.

To the state of Michigan the income tax offers increasing resources after the earnings have been made, and does not tax industry until it is able to contribute. It would reach the individual income of all of the classes upon which it would operate and not upon a single class, as is now the case with the farmer. This tax should be welcomed by the "single taxer" because it can be made to reach some of the unearned increment of land. To the advocate of a mineral tax it justly measures, prices of product and costs of production, in such a manner as to avoid the inequalities pointed out by the Supreme Court of Pennsylvania in vacating the tax on anthracite coal, and can take toll of the royalty holder as well. Men who are earning salaries in the professional world should be glad to participate directly in government on a paid basis.

The best modern economic thought approves the income tax supplanting the tax on personal property.

Why Not a Winter Fair?

By E. H. BROWN.

THE experience of Benzie county for the last two years has been that a winter fair, held in connection with the County Round-up or the Farmers' Institute, is a desirable event. Some suggestions based on our experience may be of interest in other communities.

We found the farmers' institute a good companion for the fair, for obvious reasons. The farmers were bound to be in attendance, and it was a fairly simple matter to get out printed matter for an advanced advertising campaign that would combine the premium list with the institute program. The first fair was, of course, more or less of an experiment, but a successful one, and in our succeeding efforts we shall have to adopt the same lines of organization, essentially.

As to financing the payment of premiums, rent of hall, lumber, labor, etc., several means suggest themselves. We found that our local merchants were willing to make donations out of their stock for use as premiums. We corresponded with flour manufacturers, and obtained the donation, through the local representatives, of four barrels of flour, to be used as premiums for baked goods made from the respective flours.

As a first prize, bread made of a certain brand of flour, 100 pounds of flour of that particular kind were offered, while additional prizes of 50 and 25 pound lots were offered as second, third and fourth prizes. The result was the entry of 29 different loaves of bread made by users of one make of

flour. A booth was decorated with advertising posters, hand-books, and the bread; thus the interests of manufacturer, retailer, and exhibitor, as well as the fair committee were mutually served. Other flour manufacturers were willing that we should award donations by them in any form we desired, so contests in cake, cooky, and other forms of baking, as well as bread, were encouraged by these flour premiums.

No doubt this idea of securing outside donations from manufacturers could be elaborated on more fully than we are able to do here. We found that one of the manufacturers of spray material was willing to give 100 pounds of arsenate of lead. This we offered to exhibitors of apples in plates, collections, and packages. Doubtless if we had corresponded with a manufacturer of glass fruit jars, we could have secured donations of jars for the best displays of fruit in their cans. Similarly we might have written to a manufacturer of crates or packages, and asked him to donate stock for the best exhibit of fruit or vegetables put up in his style of package.

In getting these donations, we at first corresponded with the manufacturer direct, but learned by experience that a better way for all concerned is to have the local retailer handle the donation, the company preferring this method, and honoring a premium award so that the merchant is reimbursed for making same.

We were able to secure a considerable sum of money from advertising (Continued on page 401).

Organized Agriculture In Norway

By WM. B. HATCH

OWING to a scarcity of time left the Commission, to complete its studies, a small sub-committee left Denmark the last day of the commission's study there, and went for a brief look at and an investigation of co-operative activity in Norway and Sweden. I had the privilege of organizing and accompanying this section or sub-committee.

A brief ride north from Copenhagen took us through good farming country. The crops, methods of tillage, machinery, soil and general topography looked more like home than any other country we had visited since leaving

it afforded us, to visit Norway during the long summer days. This was the twenty-seventh of June. The remarkable thing about this Norwegian landscape is the fact that such detail can be shown in photographs taken from a moving railroad train at 9:45 p. m. We entered the nation's capitol about ten o'clock at night, or better, 10:00 p. m., for it did not seem like night. Although cloudy it was so light that one could read without artificial light. We took a walk about the city before retiring, looking at the shop window displays by natural light. There seemed almost as much activity, except in



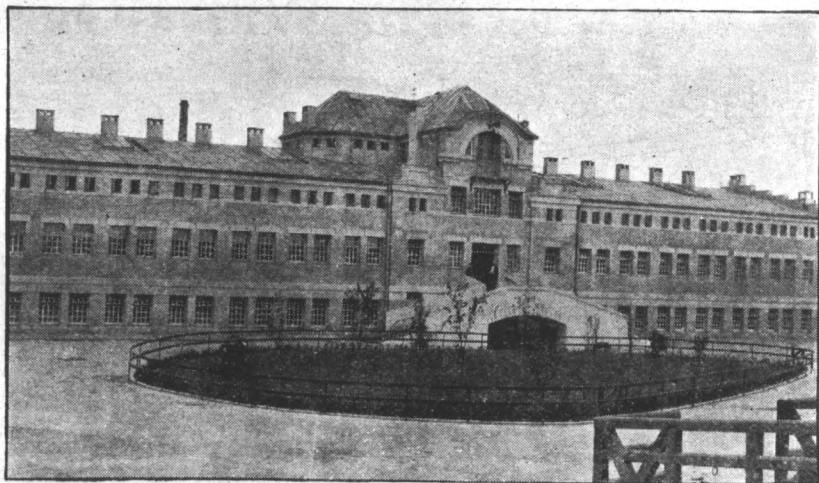
Six Thousand Norwegian Farmers Co-operated in Building this Modern Slaughter House.

America. Our through car passed on to a ferry and in about half an hour we were across the Categat Channel in Sweden. We did not, however, stop in Sweden and take testimony as our time would not permit, and it would have necessitated changing our direction and going to Stockholm, the Swedish Capitol, as our working base. It was decided that we should go to Christiania the Capitol of Norway. This gave us a daylight ride for some three hundred miles across southwestern Sweden.

Sweden differed from most of the European countries visited, in having a larger proportion of private owned railroads than public. It has great water power possibilities, largely as yet un-utilized. Gothenburg, its chief commercial city, is in the vicinity of one of its best water powers and is amply supplied by it with light and power. The co-operative agricultural activity in Sweden is essentially that of Nor-

heavy traffic as you would expect to see in the real day time. A man came down the street reading his newspaper at eleven o'clock p. m. The sun sets at 9:26 p. m. and rises at 2:14 a. m., away down here in southern Norway. At the northern part you see the "Midnight Sun" at this time of year. Christiania is practically on the sixtieth parallel, which passes through the southern part of Greenland. The exceptionally long days in summer, must largely account for the possibilities of agriculture in these northern countries because the winter days are correspondingly short.

Christiania is the natural distributing point for Norway and Western Sweden. We found here a municipal enterprise, which, while not co-operative, is worthy of at least passing notice. It is the municipal abattoir and refrigeration plant costing \$600,000, a snapshot of which is shown. Christiania is a city of 250,000 people. No



Municipal Abattoir and Refrigeration Plant at Christiania, Costing \$600,000. way, both being copied largely from Denmark and Holland.

We entered Norway at Frederikshald and were transferred to a government owned and operated railroad. Here the dining-car and sleeping-car service is supplied by women, and the service has a sort of homey atmosphere, and why not? Women have always been better housekeepers than men. Norway has even greater water power possibilities than Sweden. At Sarpsburg our train passed over a small Niagara harnessed and at work. It was fortunate, for the sensation

meat is permitted to be sold in the city, except such as is slaughtered and cured in this sanitary establishment. And all the imported meat for transshipment to the interior has to pass the municipal inspection and "control" prevailing here. All meat has the municipal mark of first or second class before it can go out to be sold, so that all buyers know what they are getting. No effort seems to have been made here to reduce or regulate the price to the consumer—only he is protected against bad or diseased meat and of-

(Continued on page 398).



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Are Fortified Against:

Rim-Cutting—By our No-Rim-Cut feature.
Blow-Outs—By our On-Air Cure.
Loose Treads—By our Rubber Rivets.
Insecurity—By our Multiple Braided Piano Wire Base.
Punctures and Skidding—By our Double-Thick All-Weather Tread.

Every Goodyear Feature Yields Greater Mileage

We do not depend upon rubber alone for Goodyear mileage, nor on fabric alone; nor alone on the skilful combination of the two.

Our experts devise many ways to toughen rubber, to make it wear longer and better.

They seek to make Goodyear Tires superior to abuse, misuse and wretched roads.

Rim-cutting was a common fault of tires until Goodyear devised its No-Rim-Cut feature. Then it ceased to be a terror of motoring.

The Goodyear On-Air cure smooths possible wrinkles out of the fabric in the final vulcanization, for fabric not entirely smooth under the rubber tread is weak and invites blow-outs.

Our Rubber Rivets minimize loose treads by literally welding the tread to the body of the tire.

We guard against insecurity, and against tube pinching, by vulcanizing many braided piano wires into the base of the tire. These hold the tire firm and flat on the rim.

Puncture and skidding are guarded against by the double thickness of the All-Weather Tread, and the sharp, square blocks, biting deep into a soft road, afford positive traction.

These Goodyear features are all a part of the Goodyear policy of building the highest quality into a tire, so that the user can get the greatest mileage with the least trouble at the lowest cost.

A policy which has made Goodyear the one favored tire—with almost 200 brands for every buyer to choose from.

Goodyear Tires, Tubes and Accessories are easy to get from Goodyear Service Station Dealers everywhere.

The Goodyear Tire & Rubber Company
AKRON, OHIO



Model 26

SIX

\$114

of Toledo

You Almost Forget

A six cylinder motor is superior to a four chiefly in that it is *possible* in a six to have greater range of speed on direct drive—requiring less gear shifting.

But not *all* sixes are superior to *all* fours.

We build both sixes and fours.

We build fours that have greater flexibility than many sixes.

Our only purpose, therefore, in building a six is to satisfy *with Overland finality* those discriminating buyers who demand well nigh miraculous performance in an automobile.

So the Overland Six is equipped with a motor so flexible that it almost lets you forget that you have a gear shift.

Except for the start from a standstill, you will drive the Overland Six under all road and hill conditions with seldom a gear shift.

And not only is the Overland Six flexible.

It has great reserve power.

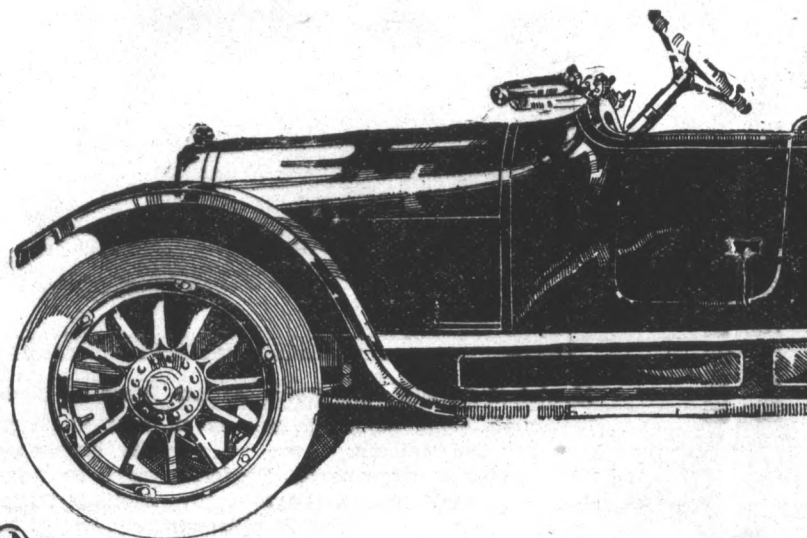
Its range of speed on direct drive, coupled with reserve power, which is developed with *lightning rapidity* from the start.

And our enormous output enables the Overland Six, equipped with our vastly superior motor, to cost hundreds of dollars less than you can get for performance in any other car.

Catalog on request. Please

The Willys-Overland Company

"Made in U.S.A."



Model 26

SIX 145

Toledo

Overland

Get Your Gear Shift

From an absolute standstill, you can shift under even the severest traffic conditions without a need to shift a gear.

The Overland Six motor a marvel of

power.

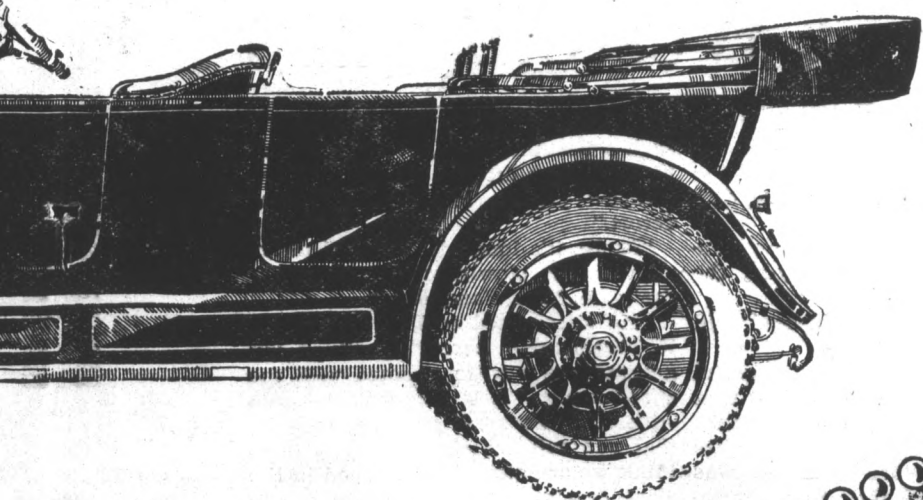
The direct drive or "high" is therefore superior, which enables you to accelerate from the *slowest* to the *highest* speeds.

Output enables us to offer the Overland Six motor, at a price less than you must pay for equal performance.

Please address Dept. 390

Overland Company, Toledo, Ohio

Made in U. S. A."



We are the world's largest builders of sixes and fours, producing virtually two cars for every one of any other concern building similar types and sizes of cars.

Obviously, the Overland Six is underpriced—is dominant Six value—comparable only with very much higher priced cars.

The rush of spring buying naturally centers upon such excess value, taxing even our unequalled production capacity.

See the Overland dealer at once and order your Six *now*.



4 OUT OF 5 ARE EQUIPPED WITH

Champion

TOLEDO MADE FOR THE WHOLE WORLD'S TRADE

Dependable Spark Plugs

THE official estimate of the AUTOMOBILE CHAMBER OF COMMERCE on automobile production this year is—

One million four hundred thousand cars. Of these, over a million will be Fords, Overlands, Studebakers and Maxwells, equipped with Champion Dependable Spark Plugs.

The Manufacturers of over one hundred other cars will equip this year exclusively with Champions. Their production will exceed 120,000 cars.

So of all the automobiles produced this year it is apparent that more than four out of five will be dependably equipped with Champions.

Champions have been selected by these hundred and more manufacturers because their exhaustive tests have shown that the Champions designed for their motors give the best results. Remember their conclusions when you replace the plugs in your car.

CHAMPION SPARK PLUG COMPANY, 506 UPTON AVE., TOLEDO, O.

Sears-Cross

Absolutely Accurate

Spedindicator

Mechanical Type

WHETHER you buy a car equipped with a Sears-Cross SPEDINDICATOR or buy a Sears-Cross SPEDINDICATOR for your car, the Sears-Cross Company retains an interest in your SPEDINDICATOR. Service Stations and Branches of the Sears-Cross Company are located in all principal cities throughout the United States and Dominion of Canada.

Any Sears-Cross instrument may be taken to any of these stations or branches for repair or adjustment.

Sears-Cross SPEDINDICATORS are absolutely guaranteed to be mechanically perfect, and if not tampered with, will be repaired or replaced at any Service Station, free of charge.

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Branches and Service Stations in all principal cities

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AND TIMOTHY Per Bu.

DECIDED BARGAIN—INVESTIGATE and Save Money Red Clover and Timothy mixed—the standard grasses, cannot be surpassed for hay or pasture. Contains 1-3 clover, just right to sow. Thoroughly cleaned and sold on approval, subject to government test. Ask for this mixed seed if you want our greatest bargain. Have Pure Clover, Sweet Clover, Timothy and all Field and Grass Seeds. Write today for free samples and 100-p. catalog. A. A. BERRY SEED CO., BOX 631 CLARINDA, IOWA

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In each town to ride and show a new 1916 model "RANGER" bicycle. Write for our special offer on a sample to introduce. DELIVERED FREE on approval and 30 days' trial. Send for big free catalog and particulars of most marvelous offer ever made on a bicycle. You will be astonished at our low prices and remarkable terms. 34 STYLES, sizes and colors in Ranger bicycles. Most complete line in America. Other guaranteed models \$11.95, \$14.75 and \$17.50. A few good second-hand bicycles taken in trade \$3 to \$5 to clear. Tires, lamps, wheels, sundries, parts and all bicycle supplies at half usual prices. Do not buy until you get our catalog and offer. Write Now. MEAD CYCLE CO., DEPT. T-77, CHICAGO



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ORGANIZED AGRICULTURE IN NORWAY.

(Continued from page 395).

extensive slaughter house nuisances. The system used preserves the economic value of the entire animal for the best purposes to which each part may be put.

But a short distance out of Christiania the farmers of Norway, some six thousand of them, have constructed and are operating a co-operative slaughter house and refrigerator plant. It is of the same substantial, reinforced concrete construction. It is under municipal inspection which gives its product the benefit of assurance that it is first-class and dependable. The members are obliged to have all of their animals slaughtered at this institution or suffer the penalty of a fine for every animal sold or slaughtered elsewhere. The institution pays its members for whatever animals they bring, at the market price prevailing at that time, and then once or twice a year distributes among the members their share of the net profits based upon their contributions to the net profit in live stock supplied.

There had been completed in Christiania a five or six-story building of modern reinforced concrete construction with Norway Granite facing on the lower floor, as the general headquarters of the co-operative purchasing and distributing associations of Norway. It is owned by six thousand farmers through seventy local societies representing seven provinces of Norway. They are handling all kinds of farm machinery, farm seed, etc., and have provided ample room for wholesale departments for general merchandise.

It seems that many of the sections of Norway are so isolated from each other by mountain ranges and other barriers and the communication between them is so greatly interrupted that their language varies greatly. Often they cannot understand each other in their respective districts, and find it difficult to make themselves understood when they are in Christiania. So this community meeting place serves as a clearing house for interpreting the different languages as well as for the handicraft and products of the people. At the time of our visit several hundred farmers and their families were eating lunch in the commodious dining quarters of their co-operative home in the national capitol. They were waited upon by young ladies from the different provinces, gowned in their home costumes. There are also hotel accommodations and a theatre building is situated in one of the best locations in the city and cost \$250,000.

Rural and Urban Credit Facilities. The Mortgage Bank of the Kingdom

of Norway has its central office at Christiania and its loan offices in various towns throughout the country. It is organized to procure for proprietors of real estate facilities for raising money on their property. The original capital was furnished by the state and on account of this the bank pays an interest of four per cent per annum, which is taken from the surplus receipts after the payment of the cost of management. Loans are made on a 50 per cent valuation basis, the bonds issued each year forming a series running from thirty to eighty years. Repayment takes place at half-yearly installments in such a way that the sums to be paid in accordance with the amortization plan accumulate so as to represent, together with the interest paid, sums which are more or less equal for each period. The bank also has the right to redeem at any period after six months' notice, a great number of bonds than ordinarily provided for, or even a whole series. The bonds are issued against mortgages taken in the first instance and are guaranteed by the city and find a ready sale in London and Paris on a four per cent basis.

There is also the Norwegian Bank for Workmen's Credit. This bank is organized to aid the city and suburban citizen of limited means and good habits to buy and own his own home. Both banks are conducted on a business basis, have been successfully tried out for a number of years, have never met any reverses and seem to be constructive community undertakings for the encouragement of stable and dependable citizenship.

The long days of summer would seem to form an abundance of good haying weather, but such is not the case. It rains so much that it is a common sight to see the farmer hanging out his hay to dry, as we would a washing.

The Norwegians, furthermore, believe that "All work and no play makes Jack or Hans a dull boy." They do a large part of their playing in the winter time. Back of Christiania is a beautiful mountain park. Here amidst the beautiful Norway spruce on the slopes of Vaxenhollen five thousand people assemble in winter to enjoy the exciting sport of skiing and tobogganing. This track is three miles or more long and is quickly covered in five minutes or less.

Our minister, who had previously represented this country also in Switzerland, assured us that for scenery and natural beauty and grandeur, Norway is quite the equal of Switzerland. We came away from Norway with a favorable impression of her people, of their thrift and their enterprise. We were agreeably surprised to find the progress they had made in agricultural co-operation.

Light of Western Stars

By ZANE GREY

"Look!" said Florence excitedly. "What is that?" asked Madeline. "Why, it's Link Stevens coming with the automobile!"

"Oh, no! Why, it's only a few minutes since he telephoned saying the party had just arrived."

"Take a look with the glasses," said Florence.

One glance through the powerful binoculars convinced Madeline that Florence was right, and another glance at Stillwell told her that he was speechless with delight. She remembered a conversation she had had with Link Stevens a day or two before.

"Stevens, I hope the car is in good shape," she had said.

"Now, Miss Hammond, she's as right as the best-trained horse I ever rode," he had replied.

"The valley road is perfect," she had gone on musingly. "I never saw

such a beautiful road, even in France. No fences, no ditches, no rocks, no vehicles—just a lonely road on the desert."

"Shore, it's lonely," Stevens had answered with slowly brightening eyes; "an' safe, Miss Hammond."

"My sister used to like fast riding. If I remember correctly, all of my guests were a little afflicted with the speed mania. It is a common disease with New Yorkers. I hope, Stevens, that you will not give them reason to think we are altogether steeped in the slow, dreamy, manana languor of the southwest?"

Link eyed her doubtfully, and then his bronzed face changed its dark aspect and seemed to shine.

"Beggin' your pardon, Miss Hammond, thet's shore tall talk fer Link Stevens to savvy! You mean, as long as I drive careful an' safe I can run away from my dust, so to say, an' get

here in somethin' less than the greaser's tomorrow?"

Madeline had laughed her assent. And now, as she watched the thin streak of dust, she reproached herself. She trusted Stevens; she had never known so skilful, daring, and iron-nerved a driver as he was; if she had been in the car herself she would have had no anxiety. But imagining what Stevens would do on forty miles and more of that desert road, Madeline suffered a prick of conscience.

"Wal, as Nels says, I wouldn't be in that there ottomobile right now fer a million pesos!" remarked Stillwell.

"Is Stevens driving very fast?" Madeline asked anxiously.

"Fast? Miss Majesty, there hain't ever been anythin' except a streak of lightnin' run so fast in this country. I can jest see Link now, the crooked-legged little feller, hunchin' down over that wheel as if it was a hoss's neck."

"I told him not to let the ride be hot or dusty," remarked Madeline.

"Haw! Haw!" roared Stillwell. "Wal, I'll be goin'. I reckon I'd like to be hyah when Link drives up, but I want to be with the boys down by the bunks. It'll be some fun to see Nels and Monty when Link comes flyin' along."

"I wish Al had stayed to meet them," said Madeline.

Her brother had rather hurried a shipment of cattle to California; and it was Madeline's supposition that he had welcomed the opportunity to absent himself from the ranch.

"I am sorry he wouldn't stay," replied Florence; "but Al's all business now, and he's doing finely. It's just as well, perhaps."

"Surely. That was my pride speaking. I would like to have all my family and all my old friends see what a man Al has become. Well, Link Stevens is running like the wind. The car will be here before we know it. Florence, we've only a few moments to dress; but first I want to order many and various and exceedingly cold refreshments for that approaching party."

Less than a half-hour later Madeline went again to the porch and found Florence there.

"Oh, you look just lovely!" exclaimed Florence impulsively, as she gazed wide-eyed at Madeline; "and somehow so different."

Madeline smiled a little sadly. Perhaps, when she had put on that exquisite white gown, something had come to her of the manner which befitted the wearing of it. She could not resist the desire to look fair once more in the eyes of these hypercritical friends. She knew that what society had once been pleased to call her beauty had trebled since it had last been seen in a drawing-room.

Madeline wore no jewels, but at her waist she had pinned two great crimson roses. Against the dead white they had the life and fire and redness of the desert.

"Link's hit the old round-up trail," said Florence, "and, oh, isn't he riding that car!"

With Florence, as with most of the cowboys, the car was never driven, but ridden.

A white spot with a long tail of dust showed low down in the valley. It was now headed almost straight for the ranch. Madeline watched it growing larger moment by moment, and her pleasurable emotion grew accordingly. Then the rapid beat of a horse's hoofs caused her to turn.

Stewart was riding in on his black horse. He had been absent on an important mission, and his duty had taken him to the international boundary-line. His presence home long before he was expected was particularly gratifying to Madeline, for it meant that his mission had been brought to a successful issue. Once more, for the hundredth time, the man's efficiency struck Madeline. He was a doer of things.

The black horse halted wearily with-



Intensive Manufacturing

INTENSIVE manufacturing, like intensive farming, is simply efficient specialization. The only object of intensive methods is to secure by the intelligent application of specialized knowledge, a larger, better and less expensive product.

Maxwell Motor cars are products of intensive manufacturing. In the first place, we make only one chassis. We do not build cars of different wheelbases, having long since passed the experimental stage of our development. We know that for our purpose a wheelbase of 103 inches meets all conditions and therefore we have standardized that length.

In the second place, we build only one motor—a powerful, four cylinder, high speed, smooth running motor that has created much favorable comment among Maxwell owners. We do not dabble with this, that and some other type of engine—nor do we ask customers to risk the satisfactory operation of any other new and untried fads or innovation.

Maxwell cars are as nearly standardized as it is possible to make them. In all essentials they are correct be-

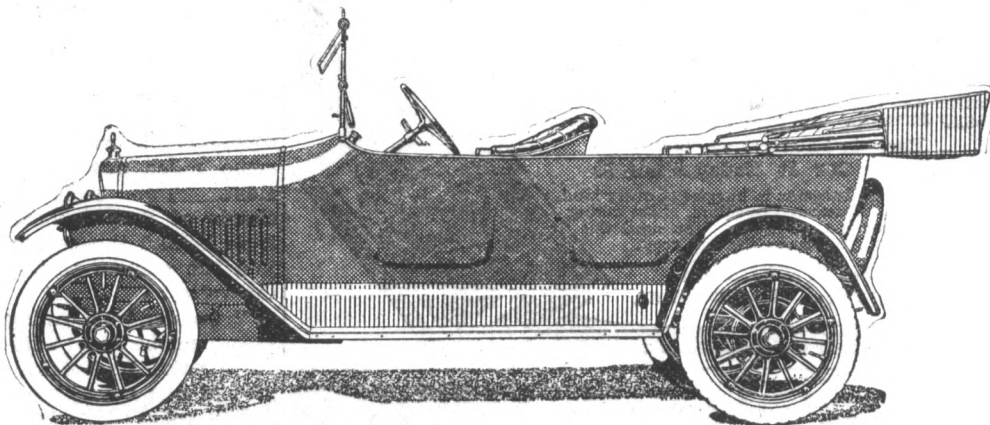
cause they have been put to the test, not only by us but by thousands of owners in all parts of the country. And they have acquitted themselves creditably.

Of course, we are always going forward and striving to produce a motor car that will approach mechanical and engineering perfection. We make minor changes and refinements from time to time, knowing that the march of progress demands it. The "ultimate" car is not here and, like tomorrow, never will be. So the next best thing is to build a car that will approach this condition of absolute excellence.

With a demand exceeding five thousand cars per month, we can and do effect great economies in all manufacturing departments. These economies, as you know, would be impossible with a smaller production or a wide range of types and sizes.

Beauty of lines and finish; sturdiness combined with light weight; economy in first cost and upkeep—these are the qualities contributed by Maxwell intensive manufacturing methods.


Brief Specifications—Four cylinder motor; cone clutch; unit transmission 3 (speeds) bolted to engine, $\frac{3}{4}$ floating rear axle; left-side steering, center control; 56" tread, 103" wheelbase; 30x3 $\frac{1}{2}$ " tires; weight 1,960 pounds. **Equipment**—Electric starter; Electric headlights (with dimmer) and tail-light; storage battery; electric horn; one-man mohair top with envelope and quick-adjustable storm curtains; clear vision, double-ventilating windshield; speedometer; spare tire carrier; demountable rims; pump, jack, wrenches and tools. **Service**—16 complete service stations, 54 district branches, over 2,500 dealers and agents—so arranged and organized that service can be secured anywhere within 12 hours. **Prices**—2-Passenger Roadster, \$635; 5-Passenger Touring Car, \$655, F.O.B. Detroit. Three other body styles.



Maxwell

MOTOR COMPANY, DETROIT, MICHIGAN

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ADD \$1000 to the Value of YOUR FARM with PEERLESS FENCING and GATES

THERE is more than one way to save money besides putting it in the bank. One of the best ways is to improve your farm. An investment of a few dollars in fencing pays more than 6%. You know it is perfectly safe and relieves worry.

You can replace any bad stretches with Peerless fencing at little cost, save time mending the old fence, save possible injury to animals, and save crops that might be ruined. **Good fences enable you to get full forage value from all your fields.**

There is a style for every purpose in the Peerless Line.

Hog, Field and Poultry Fences

All made from the best quality of Open Hearth Steel Wire, heavily galvanized by a special process. One-piece cross-bars give the fence upright rigidity and the special knot prevents wire slipping in any direction. Poultry fences are close spaced and are designed to stretch up straight and true without top or bottom rails.

Peerless Gates

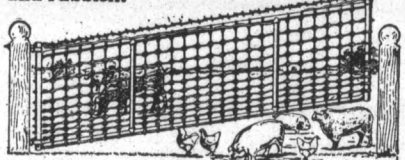
You are not saving money by using board gates. They may be a little cheaper in first cost, if you don't consider your time worth anything, but they are more expensive in the long run. Peerless steel and wire gates, with their big frames, heavy wire filling, handy and efficient fittings, last many times as long as any wooden gate and improve the looks of the place. There are many different styles, and you can find one to just suit you.

Before you buy a rod of fence or a single gate you should send for our big free catalogue and get full details about Peerless fencing and gates.

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The Peerless Self-Raising Gate

It is one of the best selling styles in our entire line. It is no longer necessary to lug around the old-fashioned sagging, dragging, heavy gates. The Peerless lifts automatically and swings over all obstructions, snow, ice, grass, and rubbish.



In addition to being self-raising, it is extra heavy in both frame and filling. Big, massive frames of 1 1/2-inch tubing and close woven all No. 9 wire, close mesh filling, insures long life. Every part heavily electro-galvanized—no paint to wash or wear off in a year or two.

out the usual pound of hoofs on the gravel, and the dusty rider dismounted wearily. Both horse and rider showed the heat and dust and wind of many miles.

Madeline advanced to the porch steps, and Stewart, after taking a parcel of papers from a saddle-bag, turned toward her.

"Stewart, you are the best of couriers," she said. "I am pleased."

Dust streamed from his sombrero as he doffed it. His dark face seemed to rise as he straightened his weary shoulders.

"Here are the reports, Miss Hammond," he replied.

As he looked up to see her standing there, dressed to receive her eastern guests, he checked his advance with a violent action which recalled to Madeline the one he had made on the night she had met him, when she disclosed her identity. It was not fear or embarrassment or awkwardness. It was only momentary; yet, slight as had been his pause, Madeline received from it an impression of some strong halting force. A man struck by a bullet might have had an instant jerk of muscular control such as convulsed Stewart.

In that instant, as her keen gaze searched his dust-caked face, she met the full, free look of his eyes. Her own did not fall, though she felt a warmth steal to her cheeks. Madeline very seldom blushed; but now, conscious of her sudden color, a genuine blush flamed on her face. It was irritating, because it was incomprehensible.

She received the papers from Stewart and thanked him. He bowed, then led the black down the path toward the corrals.

"When Stewart looks like that, he's been riding," said Florence. "But when his horse looks like that, he's sure been burning the wind."

Madeline watched the weary horse and rider limp down the path. What had made her thoughtful? Generally it was something new or inexplicable that stirred her mind to quick analysis. In this instance the thing that had struck her was Stewart's glance. He had looked at her, and the old, burning inscrutable fire, the darkness, had left his eyes. Suddenly they had been beautiful.

The look had not been one of surprise or admiration; nor had it been one of love. She was familiar, too familiar, with all three. It had not been a gaze of passion, for there was nothing beautiful in that. Madeline pondered; and presently she realized that Stewart's eyes had expressed a strange joy or pride. That expression Madeline had never before encountered in the look of any man. The longer she lived among these outdoor men the more they surprised her. Particularly, how incomprehensible was this cowboy, Stewart! Why should he have pride or joy at sight of her?

Florence's exclamation recalled Madeline's attention to the approaching automobile. It was on the slope now, some miles down the long, gradual slant. Two yellow, funnel-shaped clouds of dust seemed to shoot out from behind the car and roll aloft to join the column that stretched down the valley.

"I wonder what riding a mile a minute would be like," said Florence. "I'll sure make Link take me. Oh, but look at him come!"

The giant car resembled a white demon, and but for the dust would have appeared to be sailing in the air. Its motion was steadily forward, holding to the road as if on rails; and its velocity was astounding. Long gray veils, like pennants, streamed in the wind. A low rushing sound became perceptible; it grew louder, became a roar.

The car shot like an arrow past the alfalfa field, by the bunk-houses, where the cowboys waved and cheered. The horses and burros in the corrals began to snort and tramp and race in you old and dowdy. Majesty, you're

fright. At the base of the long slope of the foot-hill Link reduced his speed more than half; the car roared up to the ranch and crashed and cracked to a halt in the yard before the porch.

Madeline descried a gray, disheveled mass of humanity packed inside the car. Besides the driver there were seven occupants, and for a moment they appeared to be coming to life, moving and exclaiming under their veils and wraps and dust-shields.

Link Stevens stepped out, and, removing his helmet and goggles, coolly looked at his watch.

"An hour an' a quarter, Miss Hammond," he said. "It's sixty-three miles by the valley road, an' you know there is a couple of bad hills. I reckon we made fair time, considerin' you wanted me to drive slow an' safe!"

From the mass of dusty-veiled humanity in the car came a chorus of low exclamations and plaintive feminine wails.

Madeline stepped to the front of the porch. Then the deep voices of men and softer voices of women united in one glad outburst, as much a thanksgiving as a greeting:

"Majesty!"

Helen Hammond was three years younger than Madeline, and a slender, pretty girl. She did not resemble her sister except in whiteness and fineness of skin, being more of a brown-eyed, brown-haired type. Having recovered her breath soon after Madeline took her to her room, she began to talk.

"Majesty, old girl, I'm here, but you can bet I would never have come here if I had known about that ride from the railroad! You never wrote that you had a car. I thought this was out west—stage-coach, and all that sort of thing. Such a tremendous car! And the road! And that terrible little man with the leather trousers! What kind of a chauffeur is he?"

"He's a cowboy. He was crippled by falling under his horse, so I had him instructed to run the car. He can drive, don't you think?"

"Drive? Good gracious! He scared us to death, except Castleton. Nothing could scare that cold-blooded little Englishman. I am dizzy yet. Do you know, Majesty, I was delighted when I saw the car. Then your cowboy driver met us at the platform. What a queer-looking individual! He had a big pistol strapped to those leather trousers. That made me nervous. When he piled us all in with our grips, he put me in the seat beside him, whether I liked it or not. I was fool enough to tell him I loved to travel fast. What do you think he said? Well, he eyed me in a rather cool and speculative way, and said with a smile: 'Miss, I reckon anything your love an' want bad will be coming to you out here!' I didn't know whether it was delightful candor or impudence. Then he said to all of us: 'Shore, you'd better wrap up in the veils and dusters. It's a long, slow, hot, dusty ride to the ranch, an' Miss Hammond's order was to drive safe.' He got our baggage-checks and gave them to a man with a huge wagon and a four-horse team. Then he cranked the car, jumped in, wrapped his arms round the wheel, and sank down low in his seat. There was a crack, a jerk, a kind of flash around us—and that dirty little town was somewhere on the map behind.

For about five minutes I had a lovely time. Then the wind began to tear me to pieces. I was fascinated, then terrified. We went so fast I couldn't catch my breath."

"Helen, I thought you were fond of speeding," said Madeline with a laugh.

"I was; but I assure you I never before was in a fast car, I never saw a road, I never met a driver."

"Perhaps I may have a few surprises for you out here in the wild and woolly west."

Helen's dark eyes showed a sister's memory of possibilities.

"You've started well," she said. "I am simply stunned. I expected to find you old and dowdy. Majesty, you're

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My Kentucky Rival buggy is made in a special factory. Immense output, direct selling and standardized manufacturing methods enable me to make this low price. The Kentucky Rival is sold on 30 days' trial and it is guaranteed for two years.

Get my special Kentucky Rival circular and also my big new catalog describing

BOHON'S "BLUE GRASS" BUGGIES

Absolutely the best buggies money can buy. Every job made right in our own factory. Genuine straight grain, second-growth, Kentucky split hickory. French head, French point springs, strong hickory wheels, long distance axles. Upholstered in Bohon's HAND BUFFED auto leather. Bohon's famous full wrought running gear doubly braced. In building the "Blue Grass" buggy we have done everything possible to secure style, comfort, durability and elegance. The easiest riding, lightest running buggy ever made.

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My buggies must have quality or I couldn't make any such offer. You take the "Blue Grass" right out on the road and make any fair test. If my buggy isn't right in every particular, let me know and I'll take it back.

The "Blue Grass" buggy's unlimited guarantee against defective material and workmanship is backed by my \$30,000 Bond.

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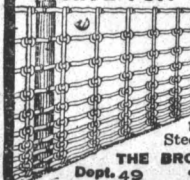
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SWEET CLOVER \$5.50 PER BU.

White Blossoms. Biggest bargain in unhulled Sweet Clover this season. Have scarified hulled seed at low prices. Wonderful money-maker. Best paying crop on the farm today. Builds up worn out land rapidly and produces heavy, money-making crops while doing it. Splendid pasture and hay; inoculates your land for Alfalfa. Keep up with the times. Investigate. It will pay you to get our free samples and prices and big Profit Sharing exclusive Field and Grass Seed Guide. It's free. AMERICAN MUTUAL SEED CO., Dept. 581, 43rd and Roby Sts., Chicago, Ill.

TIMOTHY \$3.00 PER BU.

SAVE MONEY—Buy Direct from Grower.

New cleaned Iowa Grown Timothy, free from noxious weeds. Guaranteed Satisfactory or money refunded.

Write today, 100-page catalog and Free Samples. Low prices on Clover and all grass seeds. Write before advance. A. A. BERRY SEED CO., BOX 351 CLARINDA, IOWA

the handsomest thing I ever laid eyes on! You're so splendid and strong, and your skin is like white gold. What has happened to you? What's changed you? This beautiful room, those glorious roses out there, the cool, dark sweetness of this wonderful house! I know you, Majesty, and though you never wrote it, I believe you have made a home out here. That's the most stunning surprise of all. Come, confess. I know I've always been selfish, and not much of a sister; but if you are happy out here I am glad. You were not happy at home. Tell me about yourself and about Alfred; then I'll give you all the messages and news from the east."

It gave Madeline no small pleasure to hear from one and all of her guests varied encomiums upon her beautiful home, and a real and warm interest in what promised to be a delightful and memorable visit.

Of them all Castleton was the only one who failed to show surprise. He greeted her precisely as he had when he had last seen her in London. Madeline, rather to her astonishment, found meeting him again pleasurable. She discovered that she liked this imperturbable Englishman. Her capacity for liking anyone had enlarged. Quite unexpectedly her old girlish love for her younger sister sprang into life; and with it interest in these half-forgotten friends and a warm regard for Edith Wayne, a chum of college days.

Helen's party was smaller than Madeline had expected it to be. Helen had been careful to select a company of good friends, all of whom were well known to Madeline. Edith Wayne was a patrician brunette, a serious, soft-voiced woman; sweet and kindly, despite a rather bitter experience that had left her worldly wise. Mrs. Carrollton Beck, a plain, lively person, had chaperoned the party. The fourth and last of the feminine contingent was Miss Dorothy Coombs—Dot, as they called her—a young woman of attractive blond prettiness.

Castleton was of small stature, with a pink and white complexion, and a small golden mustache. He was immaculate and fastidious. Robert Weede was a rather large, florid young man, remarkable only for his good nature. Counting Boyd Harvey, a handsome, pale-faced fellow, with the careless smile of the man for whom life had been easy and pleasant, the party was complete.

Dinner was a happy hour, especially for the Mexican women who served it, and who could not fail to note its success. The mingling of low voices and laughter, the old gay, superficial talk, the graciousness of a class which lived for the pleasure of things and to make time pass pleasantly for others—all this took Madeline far back into the past. She did not care to return to it, but she saw that it was well she had not wholly cut herself off from her people and friends.

When the party adjourned to the porch the heat had markedly decreased and the red sun was sinking over the red desert. An absence of spoken praise, a gradually deepening silence attested to the impression that the noble sunset made on the visitors. Just the last curve of red rim vanished beyond the dim Sierra Madres, and the golden lightning began to flare brighter, Helen Hammond broke the silence with an exclamation.

(Continued next week).

WHY NOT A WINTER FAIR?

(Continued from page 394).

space, which the merchants bought. Space was allowed in the program and premium list booklet, at the rate of \$5 for full page (5½x7 inches), and \$3 for a half page. The advertising receipts more than paid for the cost of all printed matter in connection with the institute and fair, including the booklets, space in two county papers two weeks, entry and premium tags, and

the mailing of the premium list to every school teacher and every supervisor in the county.

In addition to the above sources of revenue, we were able to secure an appropriation from the board of supervisors, \$75, to be used for farmers' institute work in general. Inasmuch as a considerable portion of the expense of farmers' institute work is met by membership fees, much of this \$75 was available in paying cash premiums for art, penmanship, canning, sewing, and other contests. The services of secretary, judges, department heads, and the use of the hall were all free, so that expenses were kept low.

While the fair was not a money making scheme for anyone, and the premiums were all rather small, yet the response on the part of exhibitors and visitors was prompt and generous. The work was truly of educational value to all concerned. One satisfactory feature of the fair was that it demonstrated the bounty which the farmer can produce, in spite of an adverse and frosty season for growing crops. What the fair lacked in apples and corn as compared to a normal year, it made up in butter and eggs or baked goods. The exhibit of beans was especially fine, and the best bushel sold at a premium price of six dollars.

Unlike many counties of the state, we had no boys' corn or potato contest, or girls' canning contest, this year. Where such work is conducted, a suitable way to terminate it for the season is to hold an exhibit, as we did last year, and hope to do again next year. To interest the school children this year, we held, in lieu of agricultural contests, a penmanship, spelling, arithmetic, and art contests. The spelling and arithmetic tests were conducted at one of the institute meetings, and it was indeed interesting to watch the boys and girls add long columns of figures, the awards being made for accuracy and speed.

Some of the art productions were pleasing, while the work of a nine-year-old girl who won prizes was truly remarkable. One contest open to high schools called for posters to advertise the fair, giving date and place, appropriately lettered and decorated. These posters were used in store windows, and doubtless helped to advertise the event, as well as to exercise and develop the talent of some young folks who may some day have use for their knowledge of original design.

In our plans for another year, we are contemplating the holding of the Farmers' Institute, Teachers' Institute, Junior Club Rally, and any kindred meetings, in joint session. This will permit the attendance of teachers, pupils, and patrons, at a meeting where their interests are common. The results from a joint meeting are very desirable from many standpoints. To be sure, it will be best where such a plan is attempted, to hold separate meetings whenever the discussion is of a purely technical or business nature, with the organization concerned. However, it is likely to be true in most counties that the speaker addressing the teachers' institute would be able to develop a message for the pupils and patrons as well, in say an evening meeting of the three groups. The same principle would apply in visiting the fair; while school is closed the teachers and pupils both would be interested in getting out to a fair where the work of other schools and agricultural clubs of the county would be on display along with their own.

Among the great advantages of a winter fair is that it comes at a season when everyone is able to spare time for it. There are no fakers or other concessions clamoring for a right to run gambling devices in connection with the fair. The exhibits are purely local, and call forth entries in all departments from people who would not think of attending a larger fair.

See Club list on page 413



Price-Dependability-Roominess

The Pullman's dependability—sturdy, clean-cut chassis, powerful motor, smart lines, and luxurious appointments are known and recognizable features.

But do you know that the Pullman is the roomiest car of its class on the market? No car gives the roomy comfort that a Pullman gives for \$740.

Leg space is ample in driver's compartment, and the rear seats are so built that there is no chance of crowding or cramping. The seats are real leather over real curled hair. A Pullman seat is the easy chair of the road.

As optional equipment to the Pullman the C-H Magnetic Gear Shift may be had for \$110 extra.

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SPECIFICATIONS: 114-inch wheel base 32-H. P. four-cylinder motor; Batavia non-skid tires on all four wheels; cantilever rear springs; independent electric starting and lighting systems; DIXIE high-tension magneto; honeycomb radiator; full floating rear axle.

A Postal Gets It FREE

PEERLESS Automobile Specialties

The Columbus Varnish Co., Columbus, O.

Spring is Here!

Make Old Cars Look Like New

Let your car come spick and span from its winter shell. Peerless Specialties will take that weather-beaten appearance from your car and give it that just-from-the-factory look.

It costs no more to run a car that looks like new than a dingy one

FREE BOOK

Tells how to make the old car look like new, what to use, how much and the cost. It shows how to keep down your auto expenses. Write for it today.

Peerless Mohair Top Dressing—Leaves cloth soft and pliable.

Peerless Leather Top Dressing—Renews finish.

Peerless Lining Dye—Colors stains and faded parts.

Peerless Cushion Dressing—Brightens and renews the finish.

Peerless Lamp Enamel-Gloss—For brass, nickel or iron.

Peerless Jet Enamel-Dull—One coat covers solid.

Peerless Jet Black Fender Japan—Heavy bodied, rich gloss.

Peerless Ford Top Dressing—Makes an old top look like new.

Peerless Cylinder Enamel-Black—Saves cylinder and all metal parts from rust.

Peerless Cylinder Enamel-Gray—Heat, grease or gasoline can't hurt.

Peerless Mirroroid—Used with brush or cloth to restore lustre.

Peerless Anti-Rust Rim Paint—Keeps tire changing of its horrors.

Peerless Auto Body Polish—Brightens all varnished parts.

Peerless Extra Fine Black Japan—For use on wood or metal.

Peerless Battery Box Black—Proof against battery acids and fumes.

Peerless Liquid Wax—Easily applied in light even coat.

The Columbus Varnish Co., 263 Cozzens St., Columbus, Ohio.

Mr. Fruit Grower, Mr. Farmer, KEEP BEES

Your orchards will produce more fancy fruit by so doing. Your berry crop will be increased in quality and quantity. Your Alsike and Sweet Clover crops will be greatly benefited. You really cannot afford not to keep a few colonies. Tons of honey go to waste each year. For want of bees to gather it. Progressive farmers and fruit growers everywhere now realize the value of bees. We furnish complete equipment, Modern Hives, Pure Italian Bees, gentle and good honey gatherers. Our booklet "The Bee Keeper and The Fruit Grower" free. Also our general catalog of bee supplies.

Berry Baskets Send for catalog. We furnish the best wood berry basket made. Our wax lined paper basket is a cheap, clean package. **Special Offer**—200 wax lined paper baskets, post paid for \$1.00.

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Member Mich. Experiment Association. Seed Oats, 5, "The Corn Belt Oat," also Worthy's. Not damaged by wet. Free from smut. Sample and prices on request.

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Milady's Hands

EVERY woman dreads dish-washing because it make the hands red and roughens the skin, but the woman "who knows" does not fear the after-meal clean-up; she adds

20 Mule Team Borax

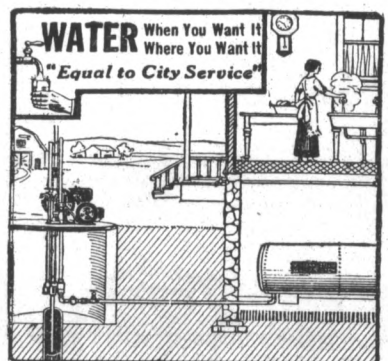
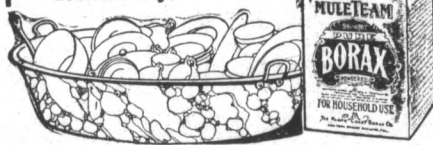
to the water and keeps her hands soft, smooth and white.

Borax makes dish-washing easy. It cuts grease from pots, pans and china; makes glass-ware and silverware sparkle.

Borax saves the hands from injury that would be caused by caustic washing powders, because Borax is a natural healer and antiseptic.

Soft, white hands are one of woman's greatest assets.

Keep 20 Mule Team Borax on your kitchen shelf. Buy it from your dealer today.



Water under pressure in your home will make housework easier, add to comfort, and increase the property value.

All water requirements of farm homes are met at moderate cost with our pneumatic pressure outfits.

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These sheets are unexcelled for Tanks, Roofing, Siding, Silos, Culverts, Flumes and all forms of exposed sheet metal work. Look for the Keystone added below Apollo stencil, indicating that Copper Steel is used. Sold by weight by leading dealers. Apollo Roofing and Siding Products enable you to build good buildings at a low cost. Write for a free copy of our "Better Buildings" booklet giving full information and building plans of value to every farmer and owner of buildings. A postal brings it promptly.

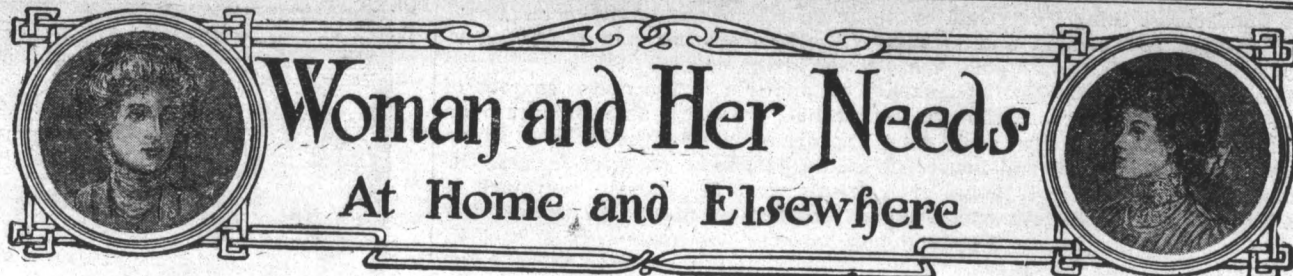
AMERICAN SHEET AND TIN PLATE COMPANY, Frick Bldg., Pittsburgh, Pa.



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FITS YOUR OLD LAMP. 100 Candle Power Incandescent pure white light from (kerosene) coal oil. Beats either gas or electricity. COSTS ONLY 1 CENT FOR 6 HOURS. We want one person in each locality to whom we can refer new customers. Take advantage of our Special Offer to secure a Beacon Burner FREE. Write today. AGENTS WANTED.

HOME SUPPLY CO., 28 Home Bldg., Kansas City, Mo.



The Rural School

As Viewed by the National Educational Association.

THE rural schools came in for a large share of attention at the session of the National Educational Association recently held in Detroit, Michigan. State supervisors and inspectors of rural schools to the number of 200 discussed the problems of rural education, the needs of country schools and the progress which has been made in the past generation. That much must be done before the farm boy and girl get their just deserts from American schools, was the consensus of opinion, though encouraging reports from many sections showed that educators and officials are at last on the right track.

"The trouble comes from clinging to a hidebound past," said Harold W. Foght, specialist in rural school practice, of the United States Bureau of Education. "We have kept our faces resolutely turned backward. We must right about and face the future, make it our business to find out what is needed right here and now. We must put into the rural course a new leaven, real farm yeast."

"Our common school system, to which many of us still want to cling, began back in pioneer days with the three R's, reading, writing and arithmetic. That was all the school needed to teach then, it was all the community demanded. The home was the real educator in those days. Here the girl learned domestic science, to bake and brew, to spin and weave, and the boy learned to work in wood and iron. Later in colonial times English grammar, with its abominable parsing and diagramming was added, then geography and warped history, followed later by physiology, and still later by music and art, and, in our day, vocational training. We must teach the boys manual training, the girls household economy because the modern inventions have taken these arts from the home. How to teach them in the eight grade schools is a question. There is no trouble in the consolidated rural high schools. The girls are trained in cooking by being taught to prepare hot noon lunches for the pupils, the boys are taught to make seed testers, wagon boxes, non-sagable gates and other things needed about the farm."

"The entire course of study content for rural schools must be made over, and a committee of three of us are now hard at work on it in Washington. It looked easy when we started, we thought all we need do was to sit down and write a new course, but we quickly found that a new course must be worked out, not written. This working out is being done for us in various schools throughout the United States and the results will be combined in the new course for rural schools. We are making real headway, though we are not yet prepared to make any announcement of a new course. That teachers feel the need of change is evidenced by the fact that seven out of ten letters which we receive are from teachers of farm schools, asking for aid."

"What the new course will contain is as yet undetermined, but we do know what it must give to the pupils. The first need of the country is strong men and women, hence the new course must contain hygiene and sanitation, not the old physiology which taught the child to name all the bones of his body, but did not teach him not to go

out and get his feet wet and die of pneumonia. The new course must teach him hygiene, how to take care of his body, and sanitation, how to take care of his house, farm and barns. Then the man and the woman must know and understand their opportunities under the body politic and their responsibilities thereto. This they will be taught by means of civics, not civil government, which began with learning the preamble of the constitution, but civics taught with local application, the duties and privileges of the citizen in his own county and township. Civics taught with relation to every phase of life, so that the boy when grown will feel the duty of making honest returns to the assessor."

"The farm boy and girl must be taught, too, how to earn an honest living, to know and love the soil and to get the most out of it. The American farmer today makes less out of his investment than anyone else in the United States. In 1915 his average income above actual living expenses was only 49 cents a day. He must be taught to make more, and this we can do through teaching the boy agriculture, the girl domestic science and household management."

"Then the cultural side must be considered, and this can be done when the farmer has been taught to make more money and thus secure more leisure. There is no opportunity for the cultural side of life so long as the farmer is ground down by hard toil. He can not be expected to be so interested in the purely aesthetic or religious as he might be if he had leisure. Teach him to make more money, to get more leisure, and the cultural side will take care of itself. Put money into improving the country, instead of improving the town."

"How these things are to be done, we have not yet decided. Many of the old subjects must be thrown out altogether. There is much dead rot which must be eliminated. We must throw out apothecaries' measures and other things which we never use, and fill their place with practical things. The old principles will be retained, but new applications devised. Instead of teaching percentage by figuring the gains on stocks and bonds, the boy and girl will learn to figure out the percentage of butter-fat. The trivial things will be eliminated, and the farmer and his wife taught what they need to know today and tomorrow."

"Because a child is born in the country it is no sign he is going to stay there," said Charles A. Wagner, state superintendent of Delaware, who followed Mr. Foght. "In this democratic land of the free and home of the brave the boy who is hoeing corn on the farm today, may be cutting coupons in the city five years from now. We cannot throw out of our rural schools the things he will need in town and give him only subjects which will be no good in the city. What he needs to know now, may not be at all what he will need to know tomorrow. Give him the ability to learn at any time the thing he needs to know then. This has been the trend of education in America for the past 15 years."

Consolidation of rural schools and standardization were discussed. How two-thirds of the schools in one Ohio county were consolidated in one year was told by W. S. Fogarty, county superintendent of schools, Eaton, Ohio. In this county the schools of one township had been consolidated for four years and here every boy and girl should be in school was in school, both in high school and in graded schools. With this good example the county officials went to work and by a campaign of education, newspaper articles, personal letters, calls and petitions so aroused the interest of the county that two-thirds of all the schools voted to consolidate. The result is better teachers, better buildings, better equipment, good playgrounds and high school advantages for every child in the consolidated districts. As showing the difference in high school attendance in consolidated and unconsolidated townships, Mr. Fogarty gave the following figures: Last year out of 23 eighth-grade graduates in unconsolidated districts only seven went to high school, while 15 out of 16 in the centralized district attended high school. The sixteenth child was forbidden by physicians to attend. This year six out of 16 in the unconsolidated schools took up high school work and every one of the eighth-grade graduates in the centralized schools continued their work in high school.

Deleware county, Indiana, reported two centralized schools in 1898 and 81 per cent of the county consolidated in 1916, with 88 wagons carrying 680 children to school. In Randolph county, Indiana, 2,000 children are going to centralized schools and the number of school buildings has been reduced from 129 to 60.

Standardized schools are being worked for in Illinois. Here, instead of trying to unite small districts into one consolidated school, the officials are trying to raise the standard of individual schools. When a school puts in desks which fit the children and conform to certain specifications of the state superintendent regarding heat, light, water, fire and toilet they are given a placard to be nailed above the door proclaiming this a standard school.

C. H. Lane, chief specialist in agricultural education, of the United States Bureau of Education, reported that whereas in 1910, 12 states were teaching agriculture, there are now 25 where agriculture is taught. In some of these states the Legislature has passed a law requiring it, in others the state superintendent has been given authority to add it to school curriculums and in others the subject has been added to the list of subjects in which teachers are examined.

Dr. Thomas D. Wood, Professor of Physical Education in Columbia University, discussed health problems in rural school. He made a plea for better buildings, and better care of the buildings we now have.

"A bad building, well kept, is better than a good building poorly kept," said Dr. Wood. "The school house must be kept as well as the home. There must be pure water for drinking, and washing facilities so that the children may wash before eating. Even in cities few schools have facilities for washing, though many diseases are spread by germs entering the mouth. Defacing marks must be removed from buildings and fences, and trees, shrubs and flowers must supplant ash piles. Playgrounds must be provided, and garden spots as well. Each school should have at least three acres for a playground."

"From 60 to 75 per cent of the children in city and country suffer from physical defects which are detrimental

to mental and moral welfare as well as to physical being. They must be examined and treated for these defects. Dental inspection in all schools must come. In Great Britain it is estimated that defective teeth cause more racial, individual and national degeneration than alcohol. In Europe today auto dental offices go to the trenches and care for the teeth of the soldiers who are to be shot down tomorrow. Should we not give as much attention to our school children? These things are not fads, luxuries nor extravagances, but necessities.

"Warm school lunches should be provided. Every growing child needs warm food at noon, and experiments have shown that children so fed can do more and better work and tire less easily than those who eat cold lunches day in and day out. Providing these lunches will give the girls a chance to learn domestic science.

"The schools spend millions of dollars trying to educate children who are kept back by ill-health. Thousands spent on health would do more good, and people in the country are better able to do this than the city poor. Yet taken on the whole, the country father spends less money on the welfare of his children, than the city father."

Dr. Woods had with him a number of charts which were exhibited at the San Francisco Exposition, and which show the work that is being done for health in the schools. These have been reproduced in pamphlet form and will be sent on request if he is addressed at 525 W. 120th Street, New York City. The report of the committee on minimum health requirements will be given in another issue.

HOME QUERIES.

Household Editor:—I have two pairs of white window curtains which I should like to stain to an ecru. If you, or any of your readers, can offer any suggestions along this line, they will be very thankfully received. —Mrs. M. E. H.

The best way to stain to an ecru is to dip the curtains in strong coffee, which has been strained through a doubled cheesecloth to remove all sediment.

Household Editor:—Is it injurious to clean the rollers of a clothes wringer with kerosene oil? We always have so many dark clothes, stockings and flannel shirts, that the rollers are quite dirty and kerosene is the only substance that will remove the dirt. I have been told that kerosene will injure the rollers. If it does, will you please tell me how to clean the wringer without kerosene?

Is kerosene injurious to shoes if applied to soften the leather after shoes have been wet?

What is the secret of making soft cookies? If possible give recipe for cookies that will be soft like those sold in the bakery.—A. M. S.

Kerosene will not injure the clothes wringer, and personally I do not know of anything better with which to clean the rollers. Pure lard is better for the shoes than kerosene. The secret of soft cookies is to use plenty of cream or shortening, and not too much flour. The following recipe makes soft cookies, if you use just as little flour as possible to keep them from sticking. They are better if mixed and allowed to stand two or three hours before rolling and baking: Two eggs, one cup of white sugar, one cup of shortening, one teaspoonful of soda, one-half cup of sour cream or rich buttermilk, flavoring to suit, and just enough flour to roll without sticking to rolling pin or board.

MILK IN BREAD MAKING.

Housekeepers, who have difficulty in making good bread with the water from their wells, should use skim-milk for the liquid. The food value of the bread is increased in this way, the flavor is good, the crust browns nicely, but some authorities report that bread made with milk dries out quicker than when water or potato water is used. Buttermilk is the liquid sometimes used

ed but it may give an unpleasant flavor to the bread. The flavor of water bread is good, but when this liquid is used fat should be added to the bread to make the crust less tough. Potato water may be used but often results in dark colored bread. Clear, warm water to which mashed potatoes have been added gives just as good results and better color.—Colo. Agril. College.

RECIPES.

A nice dressing for boiled meats is made as follows: One cupful of vinegar, one tablespoonful each of butter and sugar, and a little salt. Mix all together in a sauce pan, and when it boils add one-fourth of a cup of sweet cream into which has been stirred one teaspoonful of flour. When cooked, pour over boiled or chopped meats.—M. A. P.

LETTER BOX.

Woman's Chances Not Confined to the Home.

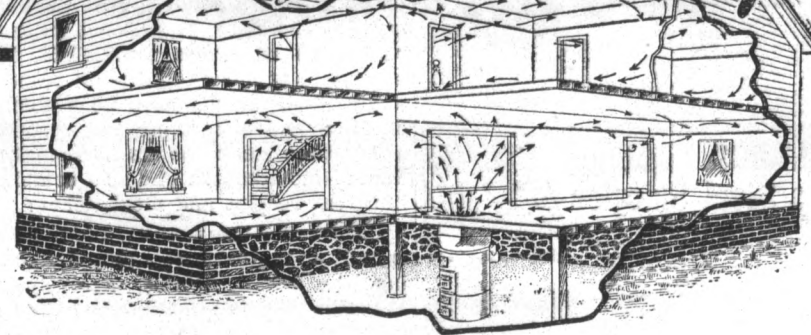
Deborah is an inspiration to us all, and we find in her articles not only what we enjoy, but what we need to give us courage and a sensible point of view. So it is with almost a feeling of sacrifice that a many-years' reader of the Michigan Farmer dares to call attention to an omission in her article on "The American Woman's Chance."

Don't think for a moment that Deborah is a spinster who writes household articles in a down-town office. In the article above mentioned she has proven that such is not the case—for every contented home-maker believes that only home-makers are happy and supremely useful, while nearly every business woman believes that only business women have similar cause for thankfulness. These same women, who would object to the sweeping statement, "Cats are black," on the ground that not all cats are black, nor has the feline species a monopoly of blackness, see no inconsistency in their own views. Deborah's excellent article presupposes but one class of women—the many whose reasons for home-making are a loved and respected husband and welcome and beloved children. No doubt such are happy and useful, and have indeed chosen the supreme opportunity. On the other hand, the writer, an unmarried social worker, is happy, has been happier since her thirtieth birthday than ever consecutively before, and hasn't the least longing for a home. Doesn't this happiness and opportunity depend on the woman even a little more than on her occupation?

It is doubtful if a woman of the middle classes ever reached maturity without having, at some time, to choose between home-making and business life. And the writer, who is, you remember, a happy spinster, agrees that when the choice lies between making a home for the man you love and trust, or entering the business world for any of the reasons that Deborah names, the home-making is indeed the choice of greatest opportunity for service and for happiness. But this particular choice does not come to us all. Any of us can marry somebody; most of us can marry one worthy our respect—but is respect and the realization of a desire for a home, sufficient reason for marriage? What about the man? Would you like him to turn the tables, and marry you because you are a nice girl and he needs a housekeeper? Such a home-making is in plain terms, giving one's self physically only, for a compensation. Such is the choice of the woman of the streets, whom we talk so much about "uplifting." "The Colonel's lady and Judy O'Grady."

Why was it a "sorry day for women when the trades and professions were opened to them?" And why go back to the days of our grandfathers, when a woman must be a home-maker? There were happy marriages then, as there always will be; there were as

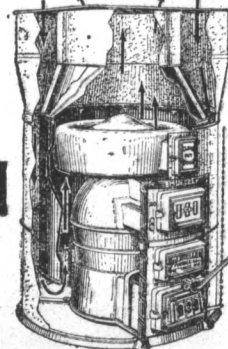
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ENJOY furnace heat without the trouble and expense of building pipes or flues into your walls. Keep every room at a comfortable temperature even in the coldest weather. Do away with the drudgery, dirtiness and wasted space of stoves. Lessen your family's likelihood of taking cold. The **Mueller System of Pipeless Heating** is thoroughly reliable and will put solid comfort into any home, old or new, large or small.

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Heats the whole house from one central register without flues or pipes. Easily installed in any cellar no matter how small; if your house has no cellar, just dig a pit for it.



The one thoroughly practical pipeless furnace. Gives you most heat from fuel. Burns coal, coke or wood. No heat wasted. Continuous circulation of fresh air ventilates your rooms. Doesn't heat up cellar and spoil produce. Thousands of delighted users. Built of cast iron. Easy to tend and clean.

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20 Packets Seeds—10c.

We want every reader to test "HARRIS SEEDS THAT HUSTLE." Send 10c. now—before you forget for this mammoth collection. We send you 20 separate packets, finest varieties—one each—of Beets, Carrot, Cabbage, Celery, Cucumber, Lettuce, Cress, Muskmelon, Watermelon, Onion, Parsley, Parsnip, Radish, Salad, Spinach, Tomato, Mixed Peppies, Giant Cosmos, Double Jay Calendula and Children's Botanical Garden, a curiosity collection of flower seeds. With this collection we send rebate check for 10c. and big catalog of world's finest seeds.

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When writing to advertiser please mention The Michigan Farmer.

many unhappy ones then as now, but we heard less about them, for then a woman must marry or be pitied and bullied—and, once wedded, she must remain so, or starve. You may say that these women could comfort themselves with their children—but consider the man! For isn't the man of today getting a squarer deal than his grandfather had? If it is not quite so easy to obtain a wife, wouldn't he feel more sure of her affection—or respect, if you wish—if she gave up a chance of fame and a certainty of a higher salary than his, to be his home-maker, than if she accepted him as a combination rent receipt and meal ticket?

Concerning the woman whose home is built on mutual love and understanding, the writer heartily agrees with Deborah that no other life is so full of opportunity. But so very many women, whoever they might marry, cannot have the man of their choice, perhaps never even meet him early in life, and have not means to choose the next best work, making a home for a bevy of otherwise homeless children. You surely don't mean, Deborah, that these women should be home-makers at any cost to conscience, honor, loyalty, self-respect—everything that a woman holds sacred? Isn't it better for these, of whom there are many, to make the best of the situation, give themselves to useful work, and be just as happy as those whom you deem more fortunate?—Sina MacQuarrie.

Dear Deborah:—I enjoy all of your articles in the Michigan Farmer, but feel that I must give you special thanks for the "Who Said 'Wifely Submission'" article in a recent number. It doesn't strike me or my "good man," for our home is run on an equal partnership basis, but I see so many cringing wives holding out their hands for the "alms" their lord and master is willing to dole out to them, that it makes me fairly sick.

Keep the good work going and instill into the minds of all women that if they desire to retain their own self-respect or the respect of husband and children, they will have to make good at holding up their end of the financial game and demanding their rights. There is a difference between commanding and demanding respect.

A real man will not make a mendicant of his wife, he will either share one purse with her or give her one of her own. I prefer the "joint deed," etc., share and share alike.

I agree with every word you say in this article and thank you most heartily for it.—G. S., Cherokee, Iowa.

PLANNING A CANNA BED.

BY L. H. COBB.

Canna beds are so popular and so easy to make that every one of us could have one in our front yard if we like them. There is hardly a plant that can be found that is easier to grow or more certain to succeed in almost any position. They have almost no bad habits to annoy us, like diseases they will take if given half a chance, or insects that like to feast on them. They go their way free from all these troubles, and show a dense growth of tropic foliage that is very attractive. While we appreciate them more for the foliage than the flowers, their flowers are hardly less showy than the foliage.

If we are planning to have a canna bed the first thing to do is to find out how large a bed we can have. Being large plants with immense foliage a bed of them must have room or it will make the lawn look crowded, as though you had more flower bed than lawn. Seven feet is a very good size for the ordinary yard, though a clump with one plant in the center and six plants around it, making a bed about four feet in diameter will look well and probably will be all many small yards would stand. In a seven-foot bed two rows of cannas and a row of some other plant that would form a good con-

trast with the foliage of the cannas.

Salvias are often used as a border plant for beds of cannas and they are very satisfactory. In a seven-foot bed with a center plant of some tall growing sort, then six plants of a good dwarf variety around, and 12 plants of salvia around all you would have a good combination of both foliage and flowers. The cannas should have scarlet flowers to harmonize with the flowers of the salvia.

A bed ten feet in diameter would hold two rows of plants around the center plant and then have room for a row of salvias. By planting a very tall green foliaged plant in the center and a row of bronze foliage plants next, a lower variety, and then a dwarf green variety on the outside, bordering all with the salvia, a mass of rich foliage and brilliant flowers would be combined. In this as in the smaller bed I would have all the cannas have flowers to harmonize with the scarlet of the salvia.

The soil for cannas should be very deep and rich and the bed arranged so that water can be made to remain on it, for to have the finest beds they must have plenty of water as well as food. I generally mulch the beds with manure soon after the plants get to growing well, for they soon hide it and it will keep washing down into the soil where the roots can make use of it. Cannas are tropical and love heat and water.

Canna tubers are easy to start into growth in the house and they will bloom earlier than those that are planted in the ground direct. Cannas will not start until the ground is warm, so it is sometimes late in the season before we can get a good stand when the dry bulbs are planted, but if they are first planted in pots and then set in the ground about the time you set tomatoes they will grow off nicely and make an even bed much sooner than the other way.

OLD-FASHIONED HOME-MADE SOAP.

MRS. E. O. SWOPE.

Home-made soap is a necessity in any home, besides this it is more pure than what we buy and the cost is quite reasonable in making. I will give my recipe for making this soap and trust it will help someone in making this home necessity.

For each can of lye I use seven quarts of water and five pounds of grease. The grease used is either cooked or in the raw state. If used raw it is cut up into small pieces. To this mixture add six ounces of borax. This recipe will make about 18 pounds of good soap.

I never used a tin vessel as the soap corrodes it in cooking. A granite or iron vessel will answer the purpose and the vessel will not be injured in any way. The vessel should be about twice as large as the amount of soap to be made as the liquid boils up considerably and will run over often if the vessel is not of a sufficient size.

I start by putting the water into the vessel in which the soap is to be cooked, then add the lye and stir. Let it come to a boil, then add the grease and let boil again, stirring occasionally. It will be necessary to cook the mixture about one hour. If larger quantities are made it will take longer to cook. The mixture should be stirred occasionally but it will not require constant stirring. Test the mixture by letting the boiling liquid drip from the stick or paddle. When it gets stringy the soap is ready to come off the fire and when cold the soap will get hard like any laundry soap.

Pour the mixture into shallow pans or vessels or in boxes to cool. Cheese-cloth is nice to line the boxes as the soap will stick to this and it can be pulled off when the soap is hard, and the same cloth used again. When the soap is cold and firm, remove from the vessel and cut into bars or squares. It

should be stored away in a dry place where it will harden out to perfection. Soap should not be allowed to freeze unless it is perfectly dry then the freezing will not injure it, to any great extent.

The cost of making one pound of home-made soap is about three cents, counting the grease, lye, fuel, etc., and when cooked properly and made as it should be made, it will not contain any more moisture than laundry soap as sold on the market. Laundry soap costs about 10 cents per pound when bought in the stores in the usual way and one pound of home-made soap will outlast the same quantity of laundry soap when properly made.

On most farms there is an abundance of soap-making materials that otherwise would go to waste and these gathered together will make a soap almost 100 per cent efficient for all purposes. Considering the difference in the cost of home-made soap and that bought in the stores, even in large quantities, it will pay anyone to make home-made soap. We have home-made soap always for laundry purposes and I have never found any other brand to equal it for this purpose. Our clothes are much cleaner when we use this soap and it does not require so much rubbing and washing. Home-made soap will not crack the hands during cold weather as some laundry soaps will, and it can also be used for toilet purposes without injury to the skin. The real test of home-made soap is efficiency. Try it.

MICHIGAN FARMER PATTERNS.

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



No. 7682—Ladies' Shirt Waist. Cut in sizes 36, 38 and 40 inches, bust measure. The waist may be made with or without cape and applied box plait.

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No. 7675—Ladies' Apron. Cut in sizes 36, 40 and 44 inches, bust measure. The apron closes at the back and has a three-gored skirt.

No. 7324—Ladies' Skirt. Cut in sizes 22 to 34 inches, waist measure. The skirt is cut in four gores and the closing line may be straight or fancy in cut, as desired.

No. 7644—Children's Dress. Cut in sizes 2, 4, 6 and 8 years. The dress has body and sleeve sections in one, an applied yoke and closes at the back.

The above patterns can be secured from the Michigan Farmer. Price 10 cents each.

Farm Commerce.

Marketing Conference at M. A. C.

THE Thursday morning session of the fourth annual conference of the Michigan Country Life Association held at M. A. C. during Farmers' Week, was devoted to a discussion of the marketing of farm products. In the temporary absence of Master Ketcham of the State Grange, the meeting was called to order by Hon. A. B. Cook, who yielded the chair to Mr. Ketcham on his arrival.

The first number on the program was, "What a Community can do by Co-operation," by Mr. C. D. Beebee, manager of the Tecumseh Co-operative Association. This association, in addition to acting as a marketing agency for the farmers of the community in disposing of live stock, grains, etc., conducts a co-operative store through the medium of which many of the bulky articles needed by the members are purchased, including machinery, coal, fertilizers, etc.

Mr. Beebee stated that the interest of the membership in the organization was keen, there being more than two hundred members present at the last annual meeting. He also stated that one of the principal early troubles encountered by the manager of the organization was in making the members fully understand that they really own the business instead of being simply patrons of it. As with other organizations of the kind, some dissension has been expressed among the membership, but this has been a minor difficulty due to a provision at the organization of the association, whereby dissatisfied members could be eliminated.

Attitude of Business Men.

Early in the experience of the organization there was considerable opposition to this work from the business men of the town. A marked change has been noted in this respect, and at the present time the business men of the town are interested in the success of the organization, because they realize that it is bringing more business to the town than would otherwise come to it. The business men are not alone in this interest, inquiries having come from business men from towns in surrounding territories as to how they could promote the organization of similar institutions in their towns.

Mr. Beebee was, however, emphatic in the opinion that it was essential to the success of an organization of this kind to have the movement started by the farmers themselves instead of simply as a means of boosting the locality from a business standpoint. Mutual confidence was emphasized as the essential foundation for success in the conduct of co-operative business, and the speaker expressed great satisfaction in the confidence which the members of this association have not only in each other but apparently in the management as well.

One of the problems which this association is working out at the present time is a more advantageous plan of marketing the milk produced by its members. Up to the present time cream only has been handled, but it is planned to work out a plan by which the milk produced by the members can be marketed at a better price than can now be obtained. The association did a business aggregating \$106,000 during its first year, the latter months of which showed a considerable gain over the earlier months in the year. A dividend of six per cent was paid on the stock, and the balance of the earnings was distributed among the patrons on the basis of the business transacted through the association.

Among the minor difficulties encountered has been the preference shown by members for certain lines of agricul-

tural machinery which were not regularly carried in stock, and for the obtaining of which special arrangements had to be made. Owing to the unfavorable season and the poor quality of much of the grain marketed, the question of quality was sometimes an annoying one, and one upon which some education of the patrons was necessary. The unfavorable attitude of competitors was a handicap at the beginning, but has now become a minor factor. The general beneficial effect upon the community was strongly commented upon by the speaker, who dwelt upon this phase of the organization in greater detail than is possible in a report of this kind.

Michigan Markets for Michigan Farmers.

This was the subject of an address by Mr. Louis P. Haight, of Muskegon, who proposed a scheme illustrated on a chart prepared for the purpose by which the bulk of the farm produce of the state could be distributed through a federation of local markets with three sectional markets located in the western and northern sections of the state for the purpose of collecting information with regard to the produce which will be available in certain markets at given times. This information would enable the officials of the divisional markets to direct purchasers to local markets where large quantities of any given product would be available. In this way the speaker believed that the agricultural resources of the state could be advertised much more cheaply and effectually, and distribution directed more economically than could be accomplished by any other means. He emphasized the point that the farmer is essentially a producer rather than a salesman, and that for best results an expert salesman must be employed to market the products of the farms to best advantage, which he believed would be accomplished by the plans submitted.

Brief comment was made by the speaker on the new market which is being promoted in Muskegon, which was given as a typical example of local markets which in time should be so plentiful that no farmer would be more than ten miles from a market of this character.

Bean Marketing.

"The Present Status of Bean Marketing," was the subject of a talk by Hon. James N. McBride, State Market Director. Mr. McBride, after commenting on the fact that the bean crop gave a larger return to the farmers producing it than the per acre return secured from the high priced lands of the grain belt, described the work which had been done in the standardization and distribution of the crop by the organized bean jobbers of the state. He then spoke of the organization of bean growers which was affected last year, and the fact that accurate government statistics had been made available on the bean crop as a result of the work of the organization.

The minimum price fixed by the action of the organization, and its influence on the market was also dwelt upon at some length in proof of the fact that while every effort was made by speculators to hold the market down in order to fill short sale orders at a profit, those efforts had been unsuccessful. As a proof of this influence Mr. McBride referred to the fact that while beans sold in Michigan for \$3.00 and above, Idaho beans of better quality were bringing the growers but \$2.50 per bushel. The possibility of increasing the consumption of beans by a judicious advertising campaign, and by

(Continued on page 409).



\$2.50 to \$4.00

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WHATEVER the price is you pay for your shoes you are entitled to expect a dollar's worth of service for every dollar you spend. The man who works cannot afford to spend money just for the fun of spending it.

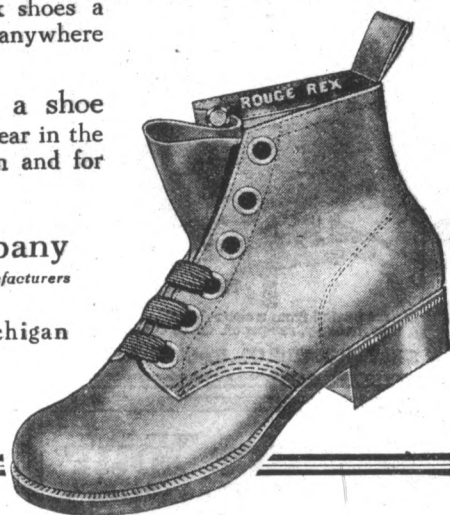
Rouge Rex Shoes are made for the man who works, in everything from the material to the price. The materials are the best. Only Rouge Rex shoes have Rouge Rex tanned leather in them. The lasts are full and roomy—the man who works on his feet must have room in his shoes for his feet. The prices are based on a full dollar's worth of long, satisfactory service. Below the prices asked for Rouge Rex shoes a shoe cannot be made of anywhere near the same quality.

Rouge Rex No. 485 is a shoe for the man who works to wear in the Spring. It's made for him and for the season.

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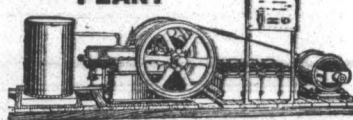
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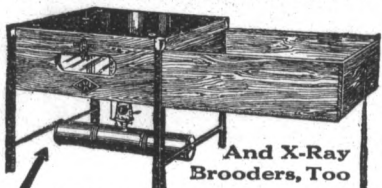
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are heated from central heating plant squarely underneath. No cold corners or sides, no "cooked" eggs. Note the big oil tank—requires only one filling—one gallon—for the entire hatch.

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Get all the facts about X-Ray construction and X-Ray hatching record. Learn all about X-Ray automatic trip that keeps the heat just right; the X-Ray generator that supplies the moisture of mother hen, producing healthier chicks; the X-Ray duplex heater that carries mild, even heat to every corner. Get X-Ray facts in big free book.

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25 CTS

The Care of Eggs for Hatching

IN order to secure a good hatch, it is of the utmost importance that the eggs be given proper care, both before and after being placed for hatching. If hens are used, the eggs need less attention, directly, than with incubators, but the care of the hens is, in one sense, the care of the eggs. For if a hen is neglected, she cannot do her work well.

Fresh eggs nearly always give the best results; but if shipped eggs are properly packed and carefully handled, they stand a much better chance for hatching than if they are carelessly packed and otherwise damaged; or, one might say, mistreated.

Beginners will oftentimes get so excited, when eggs are being unpacked, that they will actually ruin the entire lot. They do not even hesitate to give each egg a vigorous shake, "just to see if they will rattle."

Now, as a matter of fact, a perfectly good egg will sometimes "rattle" a little, after being closely packed and shipped some distance, probably because the air has been excluded. But eggs should not be tested by shaking. It is too costly. We learned this by experience years ago.

When eggs are received from the express office, we do not think it is necessary, as we once did, to let them "rest" over night. The better plan is we find, to unpack, carefully and prepare for the hatching at once. But if they must be kept for some time they should be turned every day to prevent settling of the yolks to one side. Fresh eggs, of course, are always best for hatching. Where the word "fresh" is used, we mean new-laid. But it is not always possible to set the eggs the same day they are laid. We have kept turkey and goose eggs for 21 days and secured good hatches. Duck eggs should not be kept over a week for the best results. Hen eggs will keep perfectly for two weeks in cool weather, counting from the time they were laid. It is not advisable to have any kind of eggs shipped very far in warm weather, but duck eggs are more liable to be injured than any other kind. A duck egg, it appears, is more delicately constructed than other eggs and after being shipped a few hundred miles in warm weather, is of little or no value for use in incubation.

When eggs must be kept a while, before being placed for hatching, they should be kept in a cool place; but never in a damp cellar. A cool room, that is, where the temperature never goes above 60 degrees F., nor below 45, is best. But if the eggs are securely wrapped and then placed in boxes, one layer deep, they are easily turned, and a few degrees of temperature either way, does not matter much. The wrappers should always be of stout paper. This helps to overcome slight difficulties in providing an even temperature.

We have heard a great deal about washing eggs, intended for hatching. Some people will say: "Never wash an egg, no matter how badly it may be soiled." While we prefer to use eggs that require no washing, we know by experience that a properly washed egg stands a much better chance for hatching than one that is badly soiled. This holds good with all kinds of eggs, but is particularly true of duck and goose eggs. These fowls always lay their eggs on the ground or on the floor of their roosting quarters and often amuse themselves by rolling them around until they are fairly plastered. Therefore, it is next to impossible to keep the eggs clean, especially in wet weather when they are laid on the ground. In washing eggs always use clear, tepid water. Never use any kind of soap or alkali.

Good Hatches from Shipped Eggs.

If it is necessary to have eggs shipped, it is always best to deal with someone as near home as possible. However, we know it is not unusual to get good hatches from shipped eggs. We have, in nearly every case, got excellent hatches; we might say, in every case where we exercised a little judgment and common sense. One setting, we spoiled while unpacking. Another was ruined by being shipped nearly a thousand miles in very warm weather. The latter were duck eggs.

As to the care of the setters, we believe that very few amateur poultry raisers take proper care of them. This is a common cause of poor hatches. Setting hens must have good care if they are expected to bring off good hatches.

It is best to have the setters in a

house by themselves. The nests and nest-boxes must be clean and free of vermin. Hens find it hard to stay with their eggs, when they are being constantly tortured with lice or mites. They sometimes do, however, and die on their nests. Tobacco dust or some good louse killer should be used in the boxes and nest material, even if there are no vermin to be found. Keeping the hens free of these pests is the first step towards protecting chicks.

Don't place the nest-boxes where the hens will have to jump down upon the eggs. Shallow boxes are best. Never make a deep nest. The nearer flat it is the better. A deep nest means broken eggs. We like dry grass or fine hay for nests better than straw or excelsior. Don't put covers on the nests. If you force a hen to "stay put" the chances are you will have more broken eggs than chicks.

Moving the Setting Hen.

Sometimes it is necessary to move a hen from one location to another. In fact, this is always the case where the setters have a house to themselves. Be sure that the hen will set. Then arrange the new nest, put in the eggs and place in the exact spot formerly occupied by the old nest. Let the hen go onto the nest, of her own accord. When evening comes, lift the box, carefully—eggs, nest and hen—and carry to the place where they are to remain. A low bench is a good place for the nest boxes. If a hen is comfortable, she will usually stay with the eggs.

Be careful that no cold drafts strike the hens. In hot weather, be equally careful that they are not forced to sit in the sunshine.

Eggs should always be tested, no matter whether they are in incubators or under hens. All kinds of eggs are easily tested with the exception of guinea eggs and thick-shelled hen-eggs. They may be tested in the usual way, or if one has no egg tested, it can be done equally as well by simply holding each egg close to a small opening in the side of a building, where the bright sunshine enters. It requires some patience to become skillful in this work, but almost anyone can learn in time, to distinguish between a fertile egg and an infertile one. Begin when the eggs have been set about a week. Then, if you cannot tell which are the infertile ones, put all eggs back and test again at the end of two weeks.

Testing Eggs.

Those who have had some experience find it easy to pick out the clear eggs at the end of the first week. The clear eggs are the infertile ones. Those that look darker are usually fertile. A fertile egg shows a light spot at the large end, as a rule. This clear space is the "air cell," and it is seldom visible in eggs which are not fertile. It is a good plan to do this work when the hens are off their nests. Thick-shelled eggs had better be left alone.

Goose and turkey eggs are easily tested when they have been set two weeks. If one is in doubt about the eggs, then, of course, none should be thrown away.

Duck eggs, as a rule, are very easy to test, because they have thin shells. But they are unlike any other eggs, in some respects. At a certain stage of incubation, a duck egg presents a rather strange appearance, especially to one who is unfamiliar with such matters. If the shells appear to be about half empty, don't get excited. That is the way they should be. If they are very clear at one end and very dark at the other, rest assured that they contain ducklings. It is during the latter part of the hatching period, however, that duck eggs appear as above described. Don't leave any kind of eggs out of the nest or incubator very long, or they may get chilled.

Ohio.

ANNA W. GALLIGHER.



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EGGS, CHICKS, BREEDING STOCK and 8-week-old pullets from hens with records up to 294 eggs. Choice utility matings composed of birds that average 170 to 180 eggs per year; eggs, March \$1.70 per setting, \$8.00 per 100, \$70.00 per 1000; April \$1.50 per setting, \$7.00 per 100, \$63.00 per 1000; May \$1.40 per setting, \$6.50 per 100, \$59.00 per 1000; June \$1.30 per setting, \$6.00 per 100, \$54.00 per 1000; July \$1.20 per setting, \$5.50 per 100, \$50.00 per 1000; August \$1.10 per setting, \$5.00 per 100, \$46.00 per 1000; September \$1.00 per setting, \$4.50 per 100, \$42.00 per 1000; October \$0.90 per setting, \$4.00 per 100, \$38.00 per 1000; November \$0.80 per setting, \$3.50 per 100, \$34.00 per 1000; December \$0.70 per setting, \$3.00 per 100, \$30.00 per 1000.

We also have **SPECIAL LAYING PENS** from stock with trapnest records of over 200 eggs per year. If you want the best layers to be had order chicks or eggs from these pens. Eggs are \$2.75 per setting, \$15.00 per 100 in March; \$2.25 per setting, \$12.00 per 100 in April; \$1.75 per setting, \$10.00 per 100 in May; \$1.50 per setting, \$8.00 per 100 in June; \$1.25 per setting, \$6.50 per 100 in July; \$1.00 per setting, \$5.00 per 100 in August; \$0.75 per setting, \$3.50 per 100 in September; \$0.50 per setting, \$2.50 per 100 in October; \$0.25 per setting, \$1.50 per 100 in November; \$0.10 per setting, \$0.50 per 100 in December.

Eggs, fertility guaranteed; chicks, live arrival guaranteed. Breeding stock shipped on approval. Breeding hens from \$1.50 up, pullets \$2.00 up, cockerels \$3.00 up. Pens of 12 hens and cockerels from \$22.50 up. Special prices in hundred lots. Eight-week-old pullets after May 1st—Write for prices.

WE RAISE THOUSANDS of White Leghorns every year and can fill promptly orders of any size. We have supplied foundation stock to thousands of successful poultry farms in the past 16 years. You will find testimonials from all parts of the country in the free catalog which we will be glad to send you. The White Leghorn is the most profitable breed for eggs.

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SHAPE OF HEN AND PRODUCTION.

Good egg producers have triangular shaped bodies in the form of a wedge, the back being one side of the triangle, the breast another and the third side being the distance from the pelvic bones to the back point of the breast or keel bone. Whether the shape of a hen's body influences egg production or egg production influences her shape, or both, may be hard to say, yet all prolific egg producers have the above described shape.

It matters little whether shape influences egg production or egg production influences shape, for the fact remains that the hens which are producing large numbers of eggs all conform to the rule which advanced poultry breeders are following. This is what we have come to call the "wedge-shaped hen," and those who make a study of the rules of this shape, will be able to judge young pullets and their possible future ability to produce eggs.

Shape assists, therefore, in selecting the best producers, and when this is assisted by about thirty days of trapnesting, a good basis for selecting for breeding purposes has been formed. Much can be told of a hen's value as an egg producer by the rhythm of egg production. The number of eggs produced by a hen without missing a day is known as a cycle. The cycle tells us in number of eggs produced whether the egg organs have the ability to produce eggs rapidly, and frequently with which these cycles are repeated tells whether the hen has a constitution which will stand under the strain of heavy egg production. In other words, the number of eggs per cycle tells us the hen's breeding and the repeating cycles tells us of her constitution.

If a hen lays four or more eggs to a cycle and repeats the cycles with only one or two days missed, she is a good hen. If a hen lays three or less eggs to the cycle and misses two or more days between cycles, she has little value as a producer of eggs.

But the hen which produces 20 or 30 eggs in one cycle, then misses 10 to 15 days, should be classed with the hen which lays regularly but lays but one or two eggs to the cycle. The first has a well-developed egg organs but has a weak constitution, while the second has a strong constitution but weak egg organs.

This method is of great value in breeding where the hens are trap-nested for two or three months during the breeding season, or if a hen has been trap-nested during the breeding season and get killed, the rhythm of egg production would give a good idea of the value of the offspring.

New York. E. W. GAGE.

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Growing chicks and laying hens require foods containing phosphates, the mineral elements that enter largely into the formation of bone and egg-shell. Bran is especially rich in these mineral elements and should be fed regularly to chicks of all ages, as well as to laying hens. Bran contains a higher percentage of protein than the other by-products of the flouring mills, and when fed daily, it, in a measure, at least, will counterbalance the excess of carbohydrates found in most grains. Contrary to the general impression, light, flaky bran is much better for poultry feeding than the kind that is finely ground, and mixed with middlings or low-grade flour.

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J. A. Barnum, Union City, Mich., breeder of Barred Plymouth Rocks, writes: "The Michigan Farmer brings me more returns than any other publication I advertise in."

See Club list on page 413

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A Significant Phase of Peach Marketing

ONE thing that has contributed to the demoralization of the peach market the past season is the fact that canners have done next to nothing in peaches. In ordinary seasons in the past these dealers have taken large quantities when prices ruled low, and this has operated to keep the markets cleaned up, but last fall there was not this outlet, and so the market went flat and seemed to remain so. Whether this will continue a disturbing factor is only a guess. A dealer who is generally acquainted with trade conditions told me that probably one main reason for this inactivity on the part of canners is the facility offered to California shippers by the Panama Canal. He said that since waterway has been opened the California canners can put their goods into New York at a rate of 42 cents, while it costs our dealers 38 cents, and that in California peaches for canning can be bought for 20 cents per bushel. Should this be the case it may operate as a disturbing factor in the future in years of full crops. On the other hand, the peach crop the country over is one of the most uncertain of any crop that is generally grown over wide areas on account of its liability to frost injury. The peach is a tender fruit and is liable to winter-killing of the buds, and it is one that blossoms early and is subject to serious injury while in blossom, by frosts. So that it is seldom that a crop is so generally grown the country over as last season.

An Unworked Field.

But there is another factor which far outweighs any of these which should give rise to optimism as to the future of this luscious and desirable fruit, and that is the large possibilities for marketing right at our doors. Just over the line of commercial orcharding perhaps nine-tenths of the people scarcely taste a peach. Only in the larger cities is there any very general attempt at marketing peaches or other fruits made. Only occasionally is a car of peaches run into one of the smaller cities or larger villages, and the small villages and country places are almost wholly neglected. Western Allegan county grew a large crop of peaches last season, and eastern Allegan county had very few or no peaches at all to use. A friend of the writer's living in the largest village in eastern Allegan county said that the only peaches she saw during the entire season were a few white clings that an auto truck had brought over from the Fennville district. People living in other villages were surprised when visitors from the peach district told them of peaches going to waste in the orchards because there was no market for them. There was simply no attempt made to reach these people with peaches; and such conditions prevailed all over Michigan as a rule. A relative of the writer's living in a village of 500 or 600 inhabitants in Central Illinois received some peaches, and when neighbors found such fruit was obtainable they wanted some, and at one time five bushels were sent and at another ten bushels, and these people were glad to get this fruit for \$1 per bushel, and 47 cents express charges. And this without any drumming or soliciting whatever.

A speaker from New York at the recent meeting of the State Horticultural Society in Grand Rapids, took a very doleful and pessimistic view of the outlook, not only for peaches, but for other kinds of orchard fruits. In view of the conditions, however, such a view is a little short of sheer nonsense. There are people enough in Michigan to use every peach that is grown in the state, and at good prices, if only the fruit can be gotten to them. It is by no manner of means a question of over-production but of totally inadequate distribution. And when Michigan people are well supplied there are plenty of folks in states adjoining to take as

many more. The only question is, whether or not Michigan fruit growers are going to adopt the methods necessary to connect up with this large, unsupplied class and get the stuff to them.

It is not the purpose or intent of this article to give a dissertation on marketing, but a few suggestions may be pertinent. In the first place, of course, some co-operative method will be necessary. The average grower alone is unable to do much. He is occupied with the work of harvesting, and the work of selling these days requires something of a specialist. Then reliance must be placed on some other means than the commission fraternity for reaching these people. The fact that so much of this trade is unreach- ed and unsought is ample evidence of the insufficiency of this channel. The flat market of the past season is another evidence. No doubt the grocery trade will have to be drummed—and possibly induced to handle the fruit for slightly smaller profits than has heretofore been the custom. Formerly it was possible to start a car of fruit along the lines of the railroads and with stop-over privileges at the smaller towns to unload part of the contents, but for some reason this is now denied. Pressure should be brought on the railroads to restore this privilege. There are hundreds of articles, by no means as desirable as fruit, which the promoters find means of getting before possible purchasers, all over the land, and similar methods and efforts will work out in selling fruit to this large class that will buy if only it is placed within their reach.

Allegan Co. EDW. HUTCHINS.

THE ADVANTAGES OF SELLING CREAM.

Some farmers are churning butter and selling it for less than they would receive from the sale of the cream which is used in making the butter. Prof. C. H. Eckles, of the Missouri College of Agriculture, points out three very good reasons why it is to the advantage of the average farmer to sell cream rather than to make butter to be sold at the local store. (1) selling cream means less work for the women than making butter. (2) the cream will nearly always bring as much as the butter and often considerably more. (3) the cream buyer offers a market for any quantity of cream at any time.

Any system that will lighten the duties of the women on the farm without decreasing the income should certainly be adopted. When cream is sold all that is necessary is to see that the cream is cooled after being separated and to take it along to town twice a week and three times in summer.

It may be that a few farmers' wives will find special customers that will take the butter at a price equal to that secured for cream, but that does not apply to many. Even then surplus butter will be left on hand at times. Again there may not be enough to supply the customers and dissatisfaction will result. When selling cream these troubles do not come to annoy. Any quantity, much or little, can be sold to the cream buyer at any time and cash received on the spot.

As a rule, unless the home-made butter can be sold at an average price of 25 cents or more, the year around the income will be more if the cream is sold. At an average of 25 cents the income will be about the same but a large amount of work will be saved by selling the cream. If the farmer does not have a cream separator he should get one if four cows or more are milked. A machine will more than pay for itself within a year when ten cows are kept, by the additional butter saved. Four cows with a separator will make as much butter as five of the same grade without a separator.

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MARKETING CONFERENCE AT M. A. C.

(Continued from page 405).
improving the quality of the crop through the use of clean seed were touched upon, and bean growers were encouraged by the argument that the abnormal conditions of last year were not likely to recur, and that it was probable that the loss from bean diseases would not again reach the proportion which were suffered this year.

Next on the program came a discussion of the proposition of the federation of the live stock shippers' associations of the state, led by W. W. Billings, discussed by W. E. Sheldon and other representatives of live stock shippers' associations, which discussion will be reported in some detail in a future issue.

The Farmer as Buyer and Seller

THIS was the subject of an address by Dr. T. N. Carver, Professor of Rural Economics at Harvard University. Dr. Carver laid down the premise that in farming there were two distinct ends or aims which are normally capable of equal development, namely, the production end and the bargaining end. As a first essential of success the farmer must be expert at the production end of his business. He left with the audience the impression that while much might still be desired along this line, that the production end of agriculture is much better developed and much more successfully conducted than the bargaining end, partly because of greater ability of individual farmers along this line, and more particularly because of the different nature of these two departments of successful agriculture.

The production end of the farming business can be further improved by the separate efforts of individual farmers, but in the bargaining end co-operation between farmers is essential. These two overlap somewhat in the matter of the preparation of farm products for market, since successful bargaining in the sale of farm products involves the inspection and grading of the products offered, so that the purchaser may know just what he will get when any given product is purchased. The speaker commented upon the influence which this factor had had upon the success of the co-operative fruit selling organizations of the west, since the purchaser knows exactly what he will get when he buys a box of oranges of any given grade. As the first essential to collective bargaining Dr. Carver laid great emphasis on this matter of inspection and grading of products offered in a collective way.

In discussion Prof. Homer C. Price, of the Ohio State University, gave his experience in selling a crop of apples grown on his farm and sold to a buyer for a chain of stores requiring a large amount of apples for distribution in the cities where these stores are operated. Prof. Price emphasized the point that it is not difficult to sell a product of quality at a remunerative price when it can be offered in quantities which will attract large buyers.

This subject was also discussed by Hon. A. B. Cook, Senator J. W. Hutchins and others. Mr. Cook gave his experience in selling products in carlots in a middle eastern market, and stated that although his business was not conducted on a large scale, one firm who had handled his products for a number of years were always ready to buy upon his description, and that dealings had always been mutually satisfactory. He emphasized the importance of a farmer having a few lines of production and producing enough of these lines to market in carlots for best results in solving the marketing problems under present conditions although he expressed strong belief in the idea that co-operative marketing was not only desirable, but that

An address on the federation of co-operative fruit growers' associations was next given by Mr. R. H. Ellsworth, manager of the Grand Traverse Fruit Growers' Association, which advanced a plan of having such a federation promoted through the state office of markets. This subject was discussed by a number of managers of co-operative fruit growers' associations in Michigan, and evoked strong interest among those present.

The interest in this session was so great that a special round table discussion was called during the noon hour, at which the officials of co-operative organizations in the state met to exchange opinions with regard to methods of management, and the promotion of still more successful co-operative efforts through the associations with which they are identified.

a marvelous growth would be noted in this direction in the near future.

Senator Hutchins commented upon the fact that nearly all, if not all, of the cooperative organizations in the state are organized under a law passed at a comparatively recent session of the Legislature, and that their success was most gratifying to one who had aided in the formulation and enactment of the law.

Further reports of marketing discussions which took place at the market conference session on the following day will appear in the next issue.

MICHIGAN CROP REPORT.

Wheat.—In answer to the question, "Has wheat during February suffered from any cause?" 240 correspondents in the state answer "Yes," and 218 "No;" in the southern counties 172 answer "Yes" and 56 "No;" in the central counties 35 answer "Yes" and 75 "No;" in the northern counties 32 answer "Yes" and 62 "No," and in the upper peninsula one answers "Yes" and 25 "No."

Snow protected wheat in the state 16 days, in the southern counties 10, in the central and northern counties 21, and in the upper peninsula 29 days.

The average depth of snow on February 15 in the state was 4.64 inches, in the southern counties 1.97, in the central counties 4.66, in the northern counties 5.12 and in the upper peninsula 21.65 inches. On February 28 the average depth of snow in the state was 3.92, in the southern counties 0.83, in the central counties 3.58, in the northern counties 5.12 and in the upper peninsula 22.23 inches.

The total number of bushels of wheat marketed by farmers in February at 65 flouring mills is 132,086, and at 82 elevators and to grain dealers 191,007, or a total of 323,093 bushels.

Of this amount 241,973 bushels were marketed in the southern four tiers of counties, 69,726 in the central counties and 11,394 in the northern counties and upper peninsula.

The estimated total number of bushels of wheat marketed in the seven months, August-February, is 6,500,000.

Forty mills, elevators and grain dealers report no wheat purchased in February.

The average condition of live stock in the state is reported as follows, comparison being made with stock in good, healthy and thrifty condition: Horses 96; cattle 95; sheep 97 and swine 94.

STORAGE APPLE HOLDINGS.

An inquiry relating to the quantity of apples stored in the coolers March 1, 1916, has been completed by the Office of Markets and Rural Organization, U. S. Department of Agriculture. Inasmuch as some cold storage firms have not responded, this report should not be considered as dealing with the entire cold storage apple holdings of the country.

In spite of the fact that apples moved out of storage somewhat faster during the month of February, than during the previous month, the information received would seem to indicate that there are 19.9 per cent more apples in cold storage on March 1 this year than were held on March 1, 1915. However, the barreled apple holdings on the first of this month show an excess of 40.5 per cent over those of a year ago, while the boxed apple holdings are 25.7 per cent below those of last year.



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Markets.

GRAINS AND SEEDS.

March 14, 1916.

Wheat.—Further general decline in wheat values characterized last week's trading. Congestion on the railroads and a continued lack of ocean tonnage were the main elements of discouragement to the holders of the grain, and as a result considerable liquidation followed. The recent government report was bearish, showing large supplies of wheat remaining in farmers' hands. The decline in foreign markets, especially Liverpool, is less in proportion than the reductions here, and the offerings from the southern hemisphere amount to practically nothing. Reports of damage continue to come in and prospects of a serious curtailment of the wheat acreage in Canada due to the small amount of fall plowing and the lateness of the spring opening are bullish features. The visible supply increase was small. One year ago No. 2 red wheat was quoted at \$1.59½ per bushel. Last week's Detroit prices were:

	No. 2 Red.	No. 1 White.	May.
Wednesday	1.12	1.07	1.14½
Thursday	1.13	1.08	1.15½
Friday	1.13½	1.08½	1.15½
Saturday	1.12	1.07	1.13½
Monday	1.10½	1.05½	1.12
Tuesday	1.11	1.06	1.12½

Chicago.—May wheat \$1.08½; July \$1.07½ per bushel.

Corn.—Corn values suffered less than those of wheat during the past week. There has been an unusual demand for corn, especially of the better qualities, which with moderate offerings keeps the trade firm. The improvement in live stock prices has encouraged longer feeding periods, thus increasing the amount of farm consumption. The visible supply increased less than a million bushels last week. One year ago No. 3 corn was quoted at 75c per bu. Last week's Detroit prices were:

	No. 3 Mixed.	No. 3 Yellow.
Wednesday	70½	72½
Thursday	70½	72½
Friday	70½	72½
Saturday	70½	72½
Monday	70½	72½
Tuesday	71½	74

Chicago.—May corn 76½c; July 77c

Oats.—Oat prices moved in the opposite direction from wheat by showing an advance of a cent in the past week. Commission houses that were recently selling the grain have turned to the buying side. Receipts are small. A year ago standard oats were quoted locally at 65c per bushel. Last week's Detroit quotations were:

	Standard.	No. 3 White.
Wednesday	45	44
Thursday	45	44
Friday	45½	44½
Saturday	46	45
Monday	46	45
Tuesday	46½	45½

Chicago.—May oats 44½c per bu; July 43½c.

Rye.—The market is inactive and unchanged at 92c for No. 2.

Barley.—Higher with malting grades at 72¢@76¢ at Milwaukee, and 62¢@77¢ at Chicago.

Peas.—No change in Chicago market with prices at \$2.40@2.50, sacks included.

Beans.—There is very little trading in beans at this point. Quotations on immediate and prompt shipment \$3.50; April \$3.55. At Chicago prices are easy with pea beans, hand-picked Michigan stock \$3.60@3.80; red kidneys \$5.50. At Greenville beans are selling on a \$3@3.10 basis.

Clover Seed.—Prime spot \$11.50; prime alsike \$9.50. At Toledo prime spot \$11.30; prime alsike \$9.50.

Timothy Seed.—Prime steady at \$3.50 per bushel.

FLOUR AND FEEDS.

Flour.—Jobbing lots in one-eighth paper sacks are selling on the Detroit market per 196 lbs., as follows: Best patent \$6.30; seconds \$6; straight \$5.70; spring patent \$6.70; rye flour \$6.

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

Hay.—No. 1 timothy, \$18.50@19; standard timothy \$17.50@18; light mixed \$17.50@18; No. 2 timothy \$15@16; No. 1 mixed \$14@15; No. 1 clover \$10@13.

Chicago.—Choice timothy \$18@18.50; No. 1 do \$15@16; No. 2 \$13@14.

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

DAIRY AND POULTRY PRODUCTS.

Butter.—Market is firm in all grades and prices unchanged. Extra creamery 35c; firsts 34c; dairy 21c; packing stock 18c.

Eggs.—Top grades are still scarce and bring 35c per lb. The high price has increased trade in lower grades and storage stock. Price for week, based on sales, is 35c.

Chicago.—Good stock is scarce and its price well maintained. Storage stock and lower grades are selling well. Extra creamery 35c; extra firsts 34@34½c; firsts 30@33½c; extra dairies 33c; packing stock 21@22c.

Eggs.—Receipts are large and the demand active at prices about 1c lower than last week. Current receipts are quoted at 18½c; candled firsts 19½c per dozen.

Chicago.—The trade is good, and notwithstanding liberal receipts prices are slightly higher than last week. Firsts 18½c; ordinary firsts 17½@17¾c; miscellaneous lots, cases included 18@18½c.

Poultry.—Offerings are not large and demand is good. Prices for springs and hens are higher. Turkeys 16@17c; spring turkeys 21@22c; fowls 14@18½c, according to quality; spring chickens 17@18½c; ducks 19@20c per lbs; geese 17@18c.

Chicago.—Receipts are good and demand only fair. Fowls are lower but other kinds remain about the same. Turkeys 14@21c, depending on quality; fowls 16@16½c; springs 15½@18c; ducks 18c; geese 10@13c.

FRUITS AND VEGETABLES.

Apples.—Apples are moving freely and offerings are ample. Greenings \$2.50@3.50; Spys \$3.50@4; Baldwins \$3@3.50; Steel Red \$4@4.50. At Chicago stocks are liberal and the market favors buyers. Bulk of offerings only of ordinary quality. No. 1 Greenings are quoted at \$2.50@2.75 per bbl; Jonathans, No. 1, \$3.50@4; Baldwins, \$3@3.25; Spys \$3@3.75.

Potatoes.—Market is steady and the prices are slightly higher. Carlots on track, white \$1.05@1.08; red 95c@\$1 per bushel. At Chicago large receipts brought lower prices. Buyers are inclined to hold off for further reductions. Michigan whites 90@95c per bushel; other kinds 90c@\$1. At Greenville the buyers are paying 85c per bushel.

WOOL AND HIDES.

Wool.—Although the manufacturers, through heavy buying, have taken large blocks of wool from the market and satisfied their immediate needs, the operating of the mills at full capacity will soon make it necessary for them to replenish supplies again. Because of the temporary let up in buying, sales at Boston were considerably reduced last week. Buying from farmers in western states is increasing with the producers able to control prices. Fleeces are in good demand with Michigan unwashed delaines quoted at 31@32c; do. combed 32@37c; do. clothing 26@31c per pound.

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

GRAND RAPIDS.

Eggs are lower, having dropped to 16 and 17c at the week's opening. If the warm weather continues the buying for storage will soon begin. Storage buyers made some money on last season's eggs and it is expected they will be active this spring, which will keep the market stable. Potatoes are around 80c. White beans are worth \$3.40; red kidneys \$4.40. Vegetables grown under glass here are cheap just now, with lettuce down to 6½c per pound, and radishes 18c per dozen. Poultry is scarce and very high. Grain prices do not show much change from last week.

DETROIT EASTERN MARKET.

Considering the season, there was a fairly large market on Tuesday morning, and offerings of farmers moved rather freely. Apples continue to form the major part of the supplies, with prices generally ruling between 80c and \$1.30, a few good Spies going as high as \$1.80; cabbage sells around 65c; potatoes \$1@1.10; carrots \$1@1.20; parsnips 65c; onions \$1.25@1.40; eggs 30c; butter 35c; loose hay goes rather slow at \$18@22 per ton.

During the coming national campaign it will be necessary to elect 32 members for the United States Senate. Of those whose terms will expire, only one has declared himself not to be a candidate for re-nomination.

LIVE STOCK MARKETS.

Buffalo.

March 13, 1916.

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

Receipts here today. Cattle 110 cars; hogs 75 d. d.; sheep and lambs 75 d. d.; calves 1300 head.

With 110 cars of cattle today, good shipping cattle sold unevenly higher, bulk of them full quarter above last week. Some of the medium and low-priced butcher cattle sold 15@25c higher. Top price on good shipping cattle today \$9.25. We look for a fair run of cattle here next week and look for these good shipping cattle to sell good. We are very bullish on the future market on good corn-fed cattle and also fat butcher cattle of all kinds. We look for them to gradually keep working higher. Of course, there will be Mondays, after they have had a heavy run in Chicago, that they may buy them a little lower, but that break will only be temporary.

We had a rather light supply of hogs today, demand very light and the general market about 10c lower on best grades, while pig stuff sold about steady. The general sales of yorkers and light mixed were at \$10.35@10.40, and the general run of pigs at \$9.25; roughs \$9@9.50; stags \$6.50@7.50. About everything sold at the close and it looks like we should have about a steady market the balance of the week.

Market was active on choice sheep and lambs but slow on medium and coarse, with prices 35c lower than the close of last week. About seven loads unsold and we look for steady to shade higher prices the last of the week.

We quote: Lambs \$11.40@11.50; cull to fair \$8@11.25; yearlings \$8.50@10.35; bucks \$4.50@7.25; handy ewes \$8.25@8.50; heavy ewes \$8@8.25; wethers \$8.75@9.25; cull sheep \$4.50@7; veals, good to choice \$12.75@13; common to fair \$8@12.50; heavy \$6@9.

Chicago.

March 13, 1916.

Cattle. Hogs. Sheep.

Receipts today..14,000 54,000 16,000
Same day 1916..21,880 53,748 10,328
Last week.....42,069 153,690 69,337
Same wk 1916..43,470 149,175 61,080
Shipments from here last week were as follows: Cattle 10,177; hogs 41,755; sheep 14,385. Hogs received averaged 211 lbs.

This week opens with a meager cattle supply and prices generally 10@15c higher, under a good demand. Hogs are firm, with sales at \$9.35@10. Sheep and lambs do not show much change, although there are lower bids in numerous instances.

Cattle were in as lively general demand as ever last week, with all descriptions wanted by both local buyers and shippers, and continued moderate receipts resulted in further sharp advances all along the line. A large share of the steers marketed sold at a range of \$8@9.25, prices ruling higher than at any previous time this year, with the best heavy steers offered going at \$9.40@9.90. The poorer lots of thin steers found buyers at \$7@8.25, with medium class steers selling at \$8.50@8.95 and good fat beefs at \$9@9.35. Butchering cattle shared in the advance, with cows selling at \$5.10@8 and heifers at \$5.25@9, prime yearling heifers being scarce and selling the highest. Cutters went at \$4.40@5, canners at \$3.50@4.35 and bulls at \$5@7.75. Calves were in the customary active demand, with light weight vealers selling especially well at \$10@11.25 while the demand for shipment was excellent, the heavy calves going at \$5@10. There was a good trade in stockers and feeders at higher prices for the better class, with feeders going at \$6.50@7.90 and stockers at \$6@8, some stockers that averaged only 547 lbs. selling at \$8, while some feeders averaging 1075 lbs. also brought \$8. Killers had competition from feeders all the way up to \$8, and the stock yard speculators were buyers of a few very poor little stockers down to \$5.75 and even lower, but these cattle were mainly of a canner kind. Prices for well-bred stockers and feeders are climbing so high that it seems doubtful whether country buyers will continue to support the market at its present level. Illinois feeders who bought stockers as soon as this outlet was reopened not long ago got supplies at much lower prices than those paid last week. The best demand runs strongly in favor of a good class of little stocker cattle. The general cattle market advanced largely 25@35c last week.

Hogs not only made their regular weekly performance of showing fresh high records, but they had one of the most extraordinary booms witnessed in a very long time, much to the surprise of most people interested in the hog trade. Prices reached the highest level seen since April, 1910, and further advances were generally predicted. While the receipts have been

falling off in recent weeks, the general local and shipping demand has kept up as large as ever, with the fresh pork requirements the most important factor, although cured hog meats are also in very large demand on domestic and export account. The hogs now coming to market are of good average quality, with recent receipts averaging 209 lbs., comparing with 199 lbs. a month earlier, 190 lbs. at the beginning of the year, 223 lbs. one year ago and 227 lbs. two years ago. The bulk of the offerings have sold with a range of 20c, with prime light shipping and prime heavy shipping lots both selling at top figures. Top hogs brought \$10.10, with closing prices for the week ruling at \$9.45@10, comparing with \$8.55@9.20 a week earlier, while pigs brought \$7.50@9.50, according to weight.

Lambs, yearlings, wethers and ewes have continued to bring far the highest prices ever recorded in March, notwithstanding declines from time to time, packers neglecting the heavy lambs, while favoring the weighty sheep. Colorado lambs made another high record by bringing \$11.55. No new features are seen in the market, and high prices have come to stay evidently. Late sales were made of lambs at \$8.50@11.55, yearlings at \$9@10.35, wethers at \$7.50@8.75, ewes at \$5@8.50 and bucks at \$5@6.50. The shorn lambs brought \$7@9.65 and feeding lambs \$10@10.90.

Horses were plentier and active last week at former prices, with the principal demand for army types. A few prime heavy horses sold at \$260@300, but sales up to \$250 cut little figure, with the poorer animals selling around \$60@100, while drivers sold at \$100@200, commercial chunks at \$165@210 and the best farm mares at \$210@225. Wagoners brought \$165@200.

LIVE STOCK NEWS.

Lambs, handy weight yearlings, wethers and ewes are all selling extremely high on the Chicago market, even at such times as sharp breaks in prices take place, for supplies are meager most of the time. The number fed the past winter was greatly below normal, and at the present time most of the lambs marketed hail from Colorado, where the bulk of the feeding is being carried on. Word comes from the North Platte district of Nebraska that approximately 250,000 head were fed there this season, comparing with 188,000 a year ago and 191,000 two years ago, the season extending from the early fall to the latter part of April. Never before were such extremely high prices paid in the month of March as those lately prevailing, and owners of prime flocks are making generous profits. Shearing has been going forward in districts where sheep and lambs are owned, and with wool selling in Montana at 30 to 31 cents per pound, the spring clip is an extremely valuable item in the sheep industry.

Very few prime heavy steers are reaching the Chicago market at this time, and prices have advanced sharply, late sales taking place as high as \$9.75 to \$9.90 per 100 lbs. All kinds of cattle have had large advances since the low time several weeks ago, and thin stockers and feeders have moved up much the most because of the reopening of the feeder outlet at last.

NATIONAL CROP REPORT.

The Crop Reporting Board of the Bureau of Crop Estimates, from reports of correspondents and agents, estimates that the amount of corn on farms March 1, 1916, was about 1,138,773,000 bushels, or 37.3 per cent of the 1915 crop, against 910,894,000 bushels, or 34.1 per cent of the 1914 crop on farms March 1, 1915, and 866,352,000 bushels, or 35.4 per cent of the 1913 crop on farms March 1, 1914. The proportion of the 1915 crop which is merchantable is about 71.3 per cent, against 84.5 per cent of the 1914 crop and 80.1 per cent of the 1913 crop.

The amount of wheat on farms on March 1, 1916, was about 241,717,000 bushels, or 23.9 per cent of the 1915 crop, against 152,903,000 bushels, or 17.2 per cent of the 1914 crop on farms March 1, 1915, and 151,795,000 bushels, or 19.9 per cent of the 1913 crop on farms March 1, 1914.

The amount of oats on farms March 1, 1916, was about 596,600,000 bushels, or 38.7 per cent of the 1915 crop, against 379,369,000 bushels, or 33.2 per cent of the 1914 crop on farms March 1, 1915, and 419,481,000 bushels, or 37.4 per cent of the 1913 crop on farms March 1, 1914.

A CORRECTION.

In the leading article of last week's Michigan Farmer, in referring to the prize won by Wallace Bros. for the highest yield of oats in a contest conducted last year, their location was given as Huron county, instead of Emmet county, in which county they are located.—The Editors.

THIS IS THE FIRST 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.
March 9, 1916.
Cattle.

Receipts 2353. The run of stock at the local yards fell behind those of a week ago in all department, especially so in hogs. Good service was given by the railroads and everything arrived early.

The cattle trade was much more active than for sometime and on nearly all grades there was an advance of 10@15c per cwt. over last week, speculators and local butchers taking all the receipts. Few buyers from the country were on hand for stockers or feeders.

Milch cows were dull and so the common grades were extremely so. The close was full steady as follows: Best heavy steers \$7.75@8; best handy weight butcher steers \$7@7.50; mixed steers and heifers \$6.50@7; handy light butchers \$6@6.25; light butchers \$5.75@6; best cows \$5.75@6.25; butcher cows \$5.25@5.50; common cows \$4.50@5; canners \$3.25@4.25; best heavy bulls \$6@6.50; bologna bulls \$5.25@5.50; stock bulls \$5@5.50; feeders \$6@7; stockers \$5@6.25; milkers and springers \$30@70.

Bishop, B. & H. sold Mich. B. Co. 11 steers av 932 at \$7.20, 7 do av 901 at \$6.75, 2 bulls av 710 at \$5, 4 cows av 1132 at \$5.75, 2 do av 1152 at \$5, 7 do av 900 at \$5.50, 11 butchers av 802 at \$6.90, 1 bull wgh 1880 at \$6; to Newton B. Co. 4 cows av 992 at \$4.75, 2 do av 1145 at \$5.75, 2 do av 875 at \$6, 3 do av 1170 at \$6.25, 2 do av 690 at \$5.50, 3 steers av 797 at \$6.50, 22 do av 925 at \$7.10, 24 do av 824 at \$6.85, 1 bull wgh 650 at \$5.50; to Bray 8 stockers av 527 at \$4.75; to Kull 2 butchers av 775 at \$6, 14 steers av 836 at \$6.90, 2 do av 730 at \$6; to Newton B. Co. 3 canners av 880 at \$4.25, 2 cows av 1215 at \$5.75, 1 bull wgh 1030 at \$5.75, 5 steers av 788 at \$7, 5 do av 896 at \$7.10, 1 bull wgh 1730 at \$6.25; to Sullivan P. Co. 2 steers av 860 at \$7, 1 cow wgh 740 at \$4, 5 do av 1010 at \$5.75, 4 steers av 1047 at \$7.75; to Bray 2 cows av 1275 at \$6.50; to Zehner P. Co. 1 steer wgh 570 at \$6, 3 do av 1083 at \$7.75; 6 do av 1110 at \$7.75, 3 do av 1220 at \$7.70; to Hammond, S. & Co. 9 butchers av 511 at \$6; to Mason B. Co. 1 steer wgh 900 at \$7, 1 cow wgh 1050 at \$5.50; to Kamman 1 bull wgh 560 at \$5.

Sandel, S. B. & G. sold Mason B. Co. 10 butchers av 755 at \$6.50, 5 do av 822 at \$6.90; to Newton B. Co. 5 cows av 1020 at \$4.75, 8 stockers av 612 at \$5.75, 2 steers av 790 at \$6.40, 10 butchers av 554 at \$5.50, 20 do av 757 at \$6.50, 2 cows av 1100 at \$6; to Golden 2 do av 1150 at \$4.75; to Hammond, S. & Co. 11 steers av 961 at \$7.10, 1 bull wgh 1500 at \$6, 1 do wgh 1870 at \$6.50; to Sullivan P. Co. 8 steers av 1242 at \$7.85; to Newton B. Co. 16 butchers av 744 at \$6.85, 2 cows av 1100 at \$5.85.

Veal Calves.

Receipts 1004. The veal calf trade opened and closed full steady with last week; a few choice grades brought \$11.75@12, but the bulk of the good went at \$10@11.50; common and medium grades \$7@9.50.

Sandel, S. B. & G. sold Sullivan P. Co. 2 av 145 at \$11.50, 2 av 195 at \$11.50; to Dunn 1 wgh 200 at \$11.50, 3 av 160 at \$11, 4 av 135 at \$10.25; to Parker, W. & Co. 10 av 131 at \$11.50; to Nagle P. Co. 9 av 150 at \$11.50, 5 av 150 at \$11.75, 17 av 140 at \$11.50.

Roe Com. Co. sold Sullivan P. Co. 2 av 145 at \$10.

Sheep and Lambs.

Receipts 1464. The supply of sheep and lambs was very light and the quality common; a few small bunches of good lambs brought \$11, but the bulk of sales was around \$10.50. The close was steady as follows: Best lambs \$10.75@11; fair do \$10@10.50; light to common lambs \$8@8.75; yearlings \$9.25@10; fair to good sheep \$7@7.50; culls and common \$5@6.

Haley & M. sold Mich. B. Co. 53 lambs av 75 at \$10.75, 24 sheep av 105 at \$6.75; to Nagle P. Co. 12 do av 85 at \$6.50.

Reason & S. sold Nagle P. Co. 13 lambs av 85 at \$10.50, 12 sheep av 85 at \$6.50, 5 lambs av 70 at \$10.50, 56 do av 70 at \$10.75.

Hogs.

Receipts 9515. The hog market is very active and prices have been advancing rapidly for the past week; last Thursday the top grades brought \$8.90@9, and at the same time this week they were 50@55c higher, selling medium and heavy at \$9.50@9.55; mixed \$9.35@9.40; pigs \$8@8.50. This is 10@15c higher than on Wednesday.

LIVE STOCK NEWS.

The course of the Chicago hog market for many weeks has highly favored sellers, even during such weeks as the receipts rose to enormous proportions, with a liberal demand not only from the big local packers, but also from shippers to eastern packing points. Long ago most of the eastern-grown swine were marketed, and for many weeks the east has been a very large buyer in the Chicago market. For a long period the unusual predominance in the receipts of pigs of all ages and sizes and underweight hogs due to the scarcity and dearth of good feeding corn resulted in these offerings selling at a large discount, while the slim showing of good heavy shipping barrows caused these to sell at an unusually generous premium. Receipts are still averaging much lighter than in recent years, although there has been an average gain of 18 lbs. during the past month, and now the choicest hogs of light weight are selling close to the prices paid for the best heavies. It will be remembered that as long ago as last October the big packers were in a bearish mood and were talking a sure drop to much lower prices. The break finally reached a point where hogs sold on a \$6@6.50 basis, and many stockmen were so alarmed that they hurried to let their pigs go to market without delay. Then the market started to go up, and the upward trend has been proceeding for a long time, with the best hogs selling recently up to \$9.20, values being much higher than in most recent years, particularly last year.

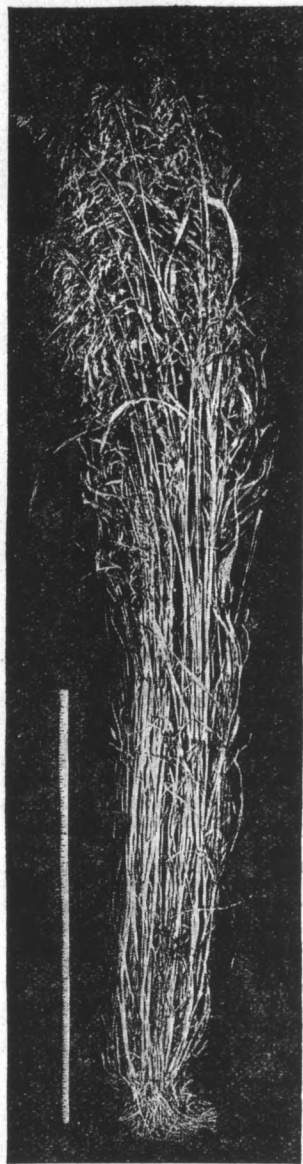
Never in the past were the conditions governing the hog trade more favorable for stockmen than today, and farmers who own plenty of good brood sows and good numbers of healthy pigs may well consider themselves as highly fortunate, for prices have had a wonderful advance. The demand from all classes of buyers in the various markets of the country keep up remarkably well, and a short time since prime offerings of barrows sold on the Chicago market for \$10.10 per 100 lbs., hog values being the highest touched at any time since April, 1910. The big end of the last pig crop was marketed some time ago, and from now on high prices are generally expected, numerous predictions being heard of further advances. The receipts are grading extremely well on the whole, and the bulk of the offerings are taken within a range of 15c, the best light weights at last selling on a level with the best heavy barrows, such as are taken by shippers to eastern packing centers.

While the largest demand for stock and feeding cattle may be expected after grass gets a fair start this spring, yet there has been a very good trade in such cattle of late in the various markets of the country, and good transactions have taken place in the Chicago market at ruling advanced prices, the re-opening of the feeder outlet working wonders. Farmers everywhere realize the primary importance of doing their share in the beef production of the country, and they are naturally averse to letting their pastures go to waste, although here and there complaints are heard concerning the high prices asked for good steers adapted for fattening for the future market. There is just now a marked shortage of cattle in most feeding districts of the country, and in various quarters farmers are showing considerable anxiety as to their chances for securing needed supplies at what they regard as fair prices. In many parts of the northern corn belt states there is plenty of corn, such as it is, but the grain is seriously lacking in quality, and a great deal of it is required to accomplish much in fattening stock. In the southwest it is learned that cattlemen are holding out for last year's prices for all classes of feeders, with plenty offered for spring delivery to northern buyers. In the northwest it has become quite a serious problem how to furnish feed through the long winter period, which lasts at least six months of the year, with rough feed much more costly than it used to be years ago. A leading stockman of Minnesota stated that in times gone by when clover and timothy hay were not worth hauling to the nearest town it made little difference how much of it was used on the farm where grown. At that time straw had no value, whereas now baled straw is selling on the market at fair prices. In order to furnish these feeds from the latter part of October to the middle of May means a considerable cost to the farmer who winters stock cattle, and no full feeding is done in that region.

Could Have Sold Four More.

A. R. Graham, Flint, Mich., a few weeks ago advertised a Holstein bull calf for sale. He writes that the first advertisement sold the calf and he could have sold four more if he had had them.

SUDAN GRASS



This new Forage plant is commanding the attention of thousands of farmers in Michigan.

Two years trials have proven it to be of great value on poor, sandy farms.

It has been endorsed by the Government Agricultural Agents.

It has given a good account of itself in Kent County.

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Such as Alfalfa, Sweet Clover, Vetch, Cow Peas, Soy Beans. Don't fail to get a copy of our new catalog which will give you much information of real value. We can always fill orders promptly for strictly high grade Clover and Timothy. Also all other seeds

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Write for catalogue describing this wonderful annual hay crop.

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EGGS, ETC.—Small consignments from producers in your territory bring very attractive prices. Returns day of arrival. Refer to Dun or Bradstreet. **Zenith Butter & Egg Co.** 355-59 Greenwich St., New York, N. Y.



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You know how unsatisfactory your Garden Peas have been the past few years. Why Not Try SOME NEW SEED

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Northern-grown—Extra Fine Quality—Very Pure—Free Johnson Grass—High Germination. Do not fail to plant this wonderful forage crop this season. Heavy hay producer; equal to cane—quality far superior. Excellent pasture, not affected by drouth. Cheap to plant and grows abundantly either wet or dry—on all soils—no failure. Write today for circular and 100-page catalog and Free Sample. It will pay you big.

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FOR SALE: Choice Dahlia Tubers 100 varieties to select from.
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Secretary—Jennie Buell, Ann Arbor.
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MENDON UNITED WELFARE ASSOCIATION CORN SHOW.

One of the finest community projects in Michigan has recently been held in Mendon. It was the fourth annual Corn Show under the auspices of the Mendon United Welfare Association.

History of Association.

Four years ago Mendon Grange conceived the idea of holding a corn show. After due consideration a committee was appointed to confer with the business men and arrange for a show. The idea was new to many and some opposition was found, but with the financial support of business men the Grange succeeded in holding a corn show of one day.

The second year horses and poultry were added and a very successful two-day show was held. By this time opposition was a thing of the past and plans were laid for a bigger and better show than ever. The third annual fair aroused so much enthusiasm that instead of the Grange and business men alone conducting the show, other organizations were asked to assist, and as a result three days were devoted to corn, horse, poultry, baby and fancy work exhibits.

The first year the idea originated in the Grange and assisted by the Business Men's Club.

The second year the Grange, Business men's Club and a few individuals neither in the Grange or in the Men's Club, were responsible for the show.

The third year the Grange, Business Men, School, Woman's Club, Churches of all denominations, and other organizations were united to make a splendid show in Mendon. For the first time in the history of Mendon, last year saw all classes of people united in thought and action to accomplish something for the common good in Mendon and vicinity.

Other organizations and other places in the state hold their annual fairs or corn shows, but we believe Michigan has the rare distinction of being the only place where all organizations are united to develop all phases of rural and civil life, both by exhibit and on the platform. Much emphasis is placed on the program, both day and night, for only by united action can the forces of the state and nation be brought to a small place like ours.

Objects.

The primary object was, of course, to raise the standard and quality of corn in Mendon and vicinity. The result has been surprising during the last three years, not so much in the corn, but in the development of the unity of thought and action among the people themselves. There is strength in unity, so much good can be accomplished by unity along all lines of endeavor for the upbuilding of the community. The ultimate or real object of the new "United Welfare League" will be the development of the community along the lines of health, character and finance by the use of exhibit, local and state workers on the platform, and any way that the future will offer that will unite us as on people for boosting Mendon and vicinity.

The meeting this year was held on January 11-12-13, and an after-meeting on January 14.

When I arrived on the evening of the first day, I found the Opera House, which seats about 500, filled with an interested audience—children, young people, and adults.

The next morning, in spite of the heavily falling rain, I visited the exhibit rooms and found them thronged with visitors. There was a fine exhibit of corn and grains that filled a

fair-sized room. One building on the main street of the town was housing a fine exhibit of poultry. Another building had a farm machinery exhibit. The ladies exhibited canned fruit, baked goods, and there was an unusually large exhibit of needlework. One room was devoted to paintings and pastels. The school children had work from most of the grades and from the high school.

One special feature that was very popular was a series of booths put up by the merchants showing new and old-time household equipment. Coffee, cocoa, hot biscuits and other eatables were dispensed, advertising their wares. Exhibits showing new things for caring for the baby were especially helpful. There was a model dining-room, and food exhibits showing the comparative value of common food-stuffs.

The baby show was a great attraction. This was carried on, on the new lines, with doctors and nurses to score the little ones. Altogether, about \$300 was awarded in prizes.

The following program was carried out with some extras:

Tuesday.

Music. Invocation, Rev. Wright. Address of welcome, Judge Yaple. Response, Mrs. H. L. McClellan. Announcements, President. Lecture, by Mrs. O. J. C. Woodman.

Evening.—Music. Lecture, Hon. J. C. Ketcham.

Wednesday—Boys' and Girls' Rally Day.

Boys' and Girls' Club Work, Prof. E. C. Lindeman.

Opera House.—Music, Sturgis Boy Scout Band. Boy Scout lecture, Clarence Mills. Girls' Camp Fire lecture, Miss Margaret Linsey. Home Economics, Miss Dora Stockman. Cattle lecture, Colon Lillie. Poultry lecture, Judge Van Horn.

Evening.—Music, piano solo, Mildred George. Lecture, Play Activities in Rural Life, Prof. Lindeman. Music, vocal solo, Isabel Quale.

Thursday.

Baby judging; horse and automobile parade. Dinner. Baby Show at Opera House. Judging of horses at Yaple's barn. Lecture, Care of Babies and General Child Health. Lecture on the horse, Ellis McFarland. Home Economics, Mrs. Dora Stockman, Dr. Kane and Mrs. W. Cavin. A Successful Co-operative Association, Wm. Sheldon.

Evening.—Music, Fred Woodworth, Morris Bowman. Entertainment. Lecture, "A Rural Hero," Rev. C. D. Oberlin.

Even then the people were not ready to stop, and especially for the country people who could not get in on Wednesday, because of the well-nigh impassable roads, an extra session was held Friday. This was attended by over 300.

The president of the association is Verne Olney, a farmer, and the Pomona Lecturer of this county. The secretary and treasurer, Mr. Robinson and Mr. Estes, are business men of the town. There is a board of six directors, with Mr. Roy Olney as chairman, assisted by efficient committees for the various activities represented.

The main features of the program were given at the Opera House and at three of these sessions over 500 were seated and many standing.

For this is the big community event of the year. Even the schools are dismissed for the afternoon sessions. And everybody works to make it one of the "Best Ever" meetings in Michigan.—Dora Stockman.

AMONG THE LIVE GRANGES.

Gratiot Pomona Grange met February 19, with Arcadia Grange, meeting early enough to enjoy a fine pot-luck dinner. A fifth degree meeting was also held. In the afternoon the lecturer produced a good program of music, recitations, and an excellent address on "Grange Life Assurance Association" was given by Brother Willard E. King, of Lansing. This address was a rare treat, as Mr. King is a well informed man, a very pleasant speaker, with plenty of wit and enthusiasm. Brother Redman had charge of the question box, and many interesting topics were discussed. Pomona Grange stands strong for state-wide prohibition.



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—You should get the highest grade of limestone manufactured. Buy it upon the basis of analysis. We manufacture the highest grade pulverized limestone sold in Michigan. Let us prove it. Ask for sample and analysis.

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From ground planted secured by use of The KEYSTONE POTATO PLANTER than by any other method of planting. Work perfectly accurate. A simple, strong, durable machine. Write for CATALOG, price, etc.

A. J. PLATT, MFR.
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BOWSER SWEEP MILLS

Different from all others. 4 or 2 horses. Grind Corn with shucks and all small grains. (Also make 10 sizes of bolt mills) FREE—Folder on "Feeds and Manures"

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Farmers' Clubs

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

UNION MEETINGS.

From a number of localities have come reports of union meetings joined in by two or more Farmers' Clubs. These meetings are profitable, as all will attest who have participated in meetings of this character. In some counties, county organizations have been profitably maintained, but where the county organization is not practicable, it will prove mutually beneficial to hold union meetings with adjacent Clubs, as is being done in many communities at the present time.

ANNUAL CLUB BANQUET.

The annual banquet of the Howell Farmers' Club is an event looked forward to with anticipation by all the members of the Club, even those who do not find it convenient to attend any other meetings during the year. This year the banquet was held in the Ladies' Club rooms and dinner was served by the ladies of the M. E. church at noon and was well done. Plates were laid for 135 and vacant places were hard to find. The dinner over, the president of the Club, S. M. Yerkes, introduced as toastmaster, Jay Tooley, who set the ball rolling at once with a few well chosen remarks. Music was furnished for the occasion by the orchestra.

The first speaker introduced was Mrs. Roy Lennen, of Cohoctah, with the toast, "The Modern Priscilla." The modern farmer's wife prepares the meals, takes care of the house as of old, but she does more than that now. With new improvements about the house she finds time to attend church, lectures, chautauquas, clubs, etc. She is not in the kitchen all the time. The home is her first duty, after that she should have recreation and pastime. She should have some responsibility as to affairs about the home. The speaker closed with Solomon's definition of the discreet woman in proverbs.

The next toast was given in his usual thoughtful manner by Robert R. Smith on "American Progress." He traced the history of travel from the ox cart in the time of our fathers to the automobile and pointed forward to the flying machine. In other lines farming, electricity, navigation, etc., progress was equally marked. At first 96 per cent were farmers, now not more than 50 per cent of the people are engaged in the best of all occupations, farming. We are a progressive people and we will keep on to even better things in the future.

"The Michigan Farmer," not a paper but the real article, was ably and pleasantly handled by Mrs. Ed Houghtaling. The farmer is as far removed as he can be from vice and the things that degrade. The methods of the past will not do now. The modern farmer must use his head as well as his hands, must be a business farmer, looking after the selling end of his business as well as the production. He should be a man of high ideals, educated and above all should have an interest in his fellow man. Money is not everything, even in farming.

Hugh A. McPherson gave an instructive and interesting talk on "Thrift." Most of us have learned thrift in the school of experience, of necessity, but what about the next generation. They must be taught to save. In the city wages are higher but saving is more difficult than in the country. In Scotland farmers taught their boys to do better than their fathers had done. Real thrift does not mean saving every dollar and doing without the necessities and comforts of life, but rather a judicious use of the money. Systematic saving will accomplish much. Let the children have savings accounts in the bank in their own name and teach them to deposit their pennies in place of spending them foolishly. A saving of \$5 per week at the legal interest will amount to \$1,123.68 in five years. Then, too, thrift conserves patriotism.

"Why Should the Spirit of Mortal be Proud?" This toast was responded to by Prosecuting Attorney Willis Lyons. He began with the text and closed with the text, and between being filled with strictly new stories to illustrate the various ups and downs of mortals. The audience was kept in an uproar for ten or fifteen minutes while they were absorbing a better opinion of the ordinary mortal. The program was pleasantly interspersed with music and readings.



PINE TREE BRAND TIMOTHY SEED

Extra Recleaned and Pure
At Moderate Price

For Sale by all Dealers or Write

The Albert Dickinson Co.,
CHICAGO - MINNEAPOLIS

Michigan Farmer's Club List.

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

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

Write for prices on publications not listed.

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

We send sample copies of the Michigan Farmer only.

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

NAME OF PUBLICATION.	See explanation above
Daily, (6 a Week) on R. F. D. only.	
Free Press, Detroit.	2 50 2 50
Journal, Detroit.	2 70 2 70
Times, Detroit.	2 00 2 00
Herald, Grand Rapids, Mich.	2 50 2 50
News, Grand Rapids.	2 00 2 00
Press, Grand Rapids.	2 00 2 00
Courier-Herald, Saginaw, Mich.	2 00 2 00
News, Saginaw.	2 00 2 00
Tribune, Bay City, Mich.	2 00 2 10
Blade, Toledo, Ohio.	2 00 2 05
News-Bee, Toledo, Ohio.	2 00 2 05
State Journal, Lansing, Mich.	2 00 2 00
Tri Weekly Newspapers	
World, N. Y. City.	1 00 1 20
Semi Weekly Newspapers	
Journal, Detroit, Mich.	1 10 1 25
Weekly Newspapers	
Blade, Toledo, Ohio.	1 00 1 00
Commoner, Lincoln, Neb.	50 75
Enquirer, Cincinnati, O.	1 00 1 05
Cattle, Sheep, Swine, Poultry, etc.	
American Bee Journal, Hamilton, Ill. (w)	1 00 1 05
American Poultry Journal, Chicago, (m)	1 00 1 20
American Poultry Advocate, Syracuse, N. Y.	50 75
American Sheep Breeder, Chicago, (m)	50 75
American Swineherd, Chicago, (m)	50 75
Breeders' Gazette, Chicago, (w)	1 00 1 45
Green's Fruit Grower, Rochester, (m)	50 70
Hoard's Dairyman, Fort Atkinson, Wis.	1 00 1 20
Jersey Bulletin, Indianapolis, Ind. (w)	1 00 1 35
Kimball's Dairy Farmer, Waterloo, Ia. (s-m)	25 70
Poultry Keeper, Quincy, Ill. (m)	50 70
Poultry Success, Springfield, O. (m)	50 75
Reliable Poultry Journal, Quincy, Ill. (m)	50 75
Swine Breeder's Journal, Indianapolis, Ind. (s-m)	50 80
Michigan Poultry Breeder (mo)	50 70
Popular Magazines.	
Everybody's Magazine, N. Y. City. (m)	1 50 1 60
Etude, Philadelphia, Pa. (m)	1 50 1 60
McClure's Magazine, N. Y. City. (m)	1 00 1 50
Musicalian, Boston, Mass. (m)	1 50 1 55
National Sportsman, Boston, Mass. (w)	1 00 1 15
People's Home Journal, N. Y. City. (m)	50 85
People's Popular Monthly, DeMoines, Ia.	25 65
Red Book Magazine, Chicago, Ill. (m)	1 50 1 55
Review of Reviews, N. Y. City. (m)	3 00 3 00
Ladies' or Household.	
Delicater, N. Y. City. (m)	1 50 1 60
Designer, N. Y. City. (m)	75 1 05
Housewife, N. Y. City. (m)	1 00 1 20
Ladies World, New York City (m)	1 00 1 25
McCall's Magazine and Free Pattern, N. Y. City. (m)	50 75
Mother's Mag., Elgin, Ill. (m)	1 50 1 55
Pictorial Review, N. Y. City. (m)	1 50 1 50
Today's Magazine and Free Pattern (m)	1 50 1 50
Woman's Home Companion, N. Y. City. m	35 60
Woman's World, Chicago. (m)	35 60
Religious and Juvenile.	
American Boy, Detroit, Mich. (m)	1 00 1 50
Boys Magazine, Smithport, Pa. (m)	1 00 75
Little Folks, Salem, Mass. (m)	1 00 90
Young People's Weekly, Elgin, Ill. (w)	75 90
Youths Companion, Boston, Mass.	2 00 2 25

SPECIAL BARGAIN CLUBS

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

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

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

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

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

No. 1.	
Michigan Farmer, 3 yrs., wk.	\$1.25
Boys' Magazine, mo.	1.00
The Ladies' World, mo.	1.00
Regular price	\$3.25
OUR PRICE ONLY \$1.65	

No. 2.	
Michigan Farmer, 3 yrs., wk.	\$1.25
The American Boy, mo.	1.00
Woman's World, mo.	.35
American Poultry Advocate, mo.	.50
Regular price	\$3.10
OUR PRICE ONLY \$2.00	

No. 3.	
Michigan Farmer, 3 yrs., wk.	\$1.25
American Poultry Advocate, mo.	.50
The Ladies' World, mo.	1.00
Regular price	\$2.75
OUR PRICE ONLY \$1.60	

No. 4.	
Michigan Farmer, 3 yrs., wk.	\$1.25
Pictorial Review, mo.	1.50
Boys' Magazine, mo.	1.00
Regular price	\$3.75
OUR PRICE ONLY \$1.80	

No. 5.	
Michigan Farmer, 3 yrs., wk.	\$1.25
Youths' Companion, wk.	2.00
McCall's Mag. and Pattern, mo.	.50
Poultry Success, mo.	.50
Regular price	\$4.25
OUR PRICE ONLY \$2.95	

No. 6.	
Michigan Farmer, 3 yrs., wk.	\$1.25
American Swineherd and book, mo	.50
McCall's Magazine & Pattern, mo	.50
Poultry Success, mo.	.50
Regular price	\$2.75
OUR PRICE ONLY \$1.75	

No. 7.	
Michigan Farmer, 3 yrs., wk.	\$1.25
Choice of any daily in Detroit or Grand Rapids except Detroit News	\$2.00 to \$2.50
People's Popular Monthly	.25
Everyday Life, mo.	.25
Woman's World, mo.	.35
Regular price	\$4.60
OUR PRICE ONLY \$3.00	

No. 8.	
Michigan Farmer, 3 yrs., wk.	\$1.25
Mother's Magazine, mo.	1.50
McCall's Mag. and Pattern, mo.	.50
Ladies' World, mo.	1.00
Regular price	\$4.25
OUR PRICE ONLY \$2.15	

No. 9.	
Michigan Farmer, 3 yrs., wk.	\$1.25
Choice of either:	
Breeders' Gazette, American Sheep Breeder, Hoard's Dairyman	1.00
Poultry Success, mo.	.50
Boys' Magazine, mo.	1.00
Ladies' World, mo.	1.00
Regular price	\$4.75
OUR PRICE ONLY \$2.70	

No. 10.	
Michigan Farmer, 3 yrs., wk.	\$1.25
Today's Magazine, they also give choice of one May Manton pattern free with first issue.	.50
Poultry Success, mo.	.50
Boys' Magazine, mo.	1.00
Regular price	\$3.25
OUR PRICE ONLY \$1.65	

No. 11.	
Michigan Farmer, 3 yrs., wk.	\$1.25
Any Detroit Daily (except the News)	2.50
Poultry Success, mo.	.50
Boys' Magazine, mo.	1.00
People's Popular Monthly	.25
Regular price	\$5.50
OUR PRICE ONLY \$3.00	

No. 12.	
Michigan Farmer, 3 yrs., wk.	\$1.25
Any Grand Rapids Daily, 1 yr.	2.00
Kimball's Dairy Farmer, S.-mo.	.25
Reliable Poultry Journal, mo.	.50
People's Popular Monthly	.25
Regular price	\$4.25
OUR PRICE ONLY \$3.00	

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

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

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

SPECIAL NOTICE

Registered Holstein Females for Sale.

Our present farm being more valuable for real estate than dairy farming, we are going to dispose of fifty females—mostly heifers and young cows. Some are sired by the great bull "Pledge Spoffard Calamity Paul" and many are in calf to him. We offer in this sale granddaughters of Pontiac Korndyke, Hengerveld De Kol, Pontiac Butter Boy, etc.

They are priced to sell. Absolutely no tuberculosis in herd.

An opportunity not often offered to buy this kind. Farm at foot of West Genesee Street and City Limits.

ESPANORE FARM

LANSING - MICHIGAN

CHASE S. OSBORN } Owners
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Registered Holstein Cattle
Wednesday, March 22, 1916.

Thirty head of choice cattle with the best of A. R. O. backing. Among them a splendid lot of bull calves from tested dams. A great opportunity for the man who will want a bull for next fall service. There are twenty females with records from 15.6 lbs. butter, 7 days as jr. two yr. old to 24.52 lbs. as mature cow. One year's time on approved notes at 6% interest. Sale held at farm 1½ miles East of Haslett which is 8 miles North-east of Lansing on M. U. T. Write for catalog to

Barber & Jenkins,
HASLETT, - MICHIGAN.

CATTLE.

ABERDEEN ANGUS

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

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

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

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

Aberdeen Angus, two registered bulls, 10 months old, good ones, for quick sale, price \$110. WILSON BROS., Lake Ann, Mich.

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

THE VILLAGE FARM,
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GUERNSEY CATTLE.

MILO D. CAMPBELL CHAS. J. ANGEVINE

BEACH FARM
GUERNSEYS

No Tuberculosis Or Abortion

We are offering a number of fine Registered cows for sale. Some of these cows have finished their A. R. test and others soon will with records from 400 to 620 lbs. of fat in one year. We also have Reg. Bull calves from A. R. cows for sale, also one Bull old enough for service whose dam's record is over 620 lbs. of fat as a 4½ year old.

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Coldwater, Michigan.

GUERNSEYS—REGISTERED

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

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

AVONDALE Guernsey bulls all sold. Sorry to disappoint those wishing our stock. Only registered bull calves left. Avondale Stock Farm, Wayne, Mich.

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

Guernsey Bull Calf Six months old A. R. breeding. Also a good Collie dog. G. A. WIGENT, Watervliet, Mich.

Guernseys for sale from A. R. dams. 1 2-yr.-old bull and 3 bull calves. Geo. N. Crawford, Holton, Mich.

Duroc Jersey Boars and Sows

BROOKWATERS' WINNING COMBINATION

Best Blood Lines. Individual Merit. Prices that will make you money.

This is our record, one which we shall maintain. Choice fall and spring pigs and mature stock. Send for our new circular and state your wants. Write or better come. If you wish one of the best young Jersey bulls in Michigan we have him for sale.

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

5 HANDSOME HOLSTEIN BULLS, READY FOR SERVICE

All world record breeding. Bams full, so will reduce price on each 25% over fall prices, for 30 days. Don't stop to write, come and see them.

LONG BEACH FARM, Augusta, Kalamazoo Co., Mich.

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

AT Farmers' Prices Registered Guernsey Bull calves from A. R. dams and dams being tested. If interested write for photo, breeding and price. Byers & Barnes, Coldwater, Mich.

GUERNSEY Bull old enough for light service, a few good bull calves—all of a Son Pauline Spotswood-A. R. O. 746 lbs. fat—prices reasonable. J. M. Williams, North Adams, Mich.

Herefords—3 Bull Calves

ALLEN BROS. PAW PAW, MICH

Purebred Registered
HOLSTEIN
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Holsteins, the best dual purpose breed.

The Michigan, Iowa and Nebraska State Experiment Stations report that in their competitive tests the Holsteins made a larger gain per steer at a less cost per pound of either roughage or grain than any of the other breeds. As voluminous and profitable milk producers and valuable beef animals when their milking days are over, purebred Holsteins are firmly established as the world's leading dual purpose cows. Investigate the big "Black-and-Whites."

Send for FREE Illustrated Descriptive Booklets
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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. 6½ 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.

FOR SALE

SOME VERY FINE YOUNG BULLS
Whose sires have as high as 31 lbs. of butter behind them. As these young bulls will make a low price on them. BIGELOW'S HOLSTEIN FARMS, BREEDSVILLE, MICH.

HATCH HERD
YPSILANTI, MICHIGAN

Registered Holstein-Friesian sires, grandson's of World's greatest dairy sire, out of choice A. R. O. dams and King Pontiac Jewel Korndyke; Brother of K. P. Pontiac Lass 44.15; average record of 50 dams in his pedigree 31.25 in 7 days; average per cent of fat three nearest dams 4.37; of his own dam 4.33. Sires in first three generations already have over 600 A. R. O. daughters. A few females bred to "King". Prices reasonable.

ALL READY FOR SERVICE
A SPLENDID HOLSTEIN BULL

A 19.55 lb Dam.
An 18.44 lb. 3-yr.-old Sire's Dam.
An 19.7 lb. 3-yr.-old Sister.
Hengerveld DeKol and King Segis Blood.
Good Markings—¾ White.
Good Vigor, Good Size, Good Constitution.
Price—Crated, placed F. O. B. Ionia—\$100.
SPRING VALLEY STOCK FARM,
F. B. Howard, R. F. D. No. 6, Ionia, Mich.

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

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

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

ALFALFADALE HERD of Holsteins. Contains aged cows producing 32.94 lbs. butter in 7 days; 4 yr. olds producing 31.76; 3 yr. olds producing 26.37 and 2 yr. olds 25.69 all officially tested. Sons and brothers of these high testing cows for sale. Geo. H. Gillespie & Son, Mason, Mich.

For Sale: or to rent after June 1 a brother to a 30 lb. jr. 4 yr. old Holstein. 6 nearest dams all have records above 20 lb. 23 nearest sires and dams all have A. R. O. daughters.
M. L. McLaughlin, Redford, Mich.

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

"TOPNOTCH" Holsteins

By careful retention, for many years, of largest producing females, and use of superior sires, a breeding herd of wonderful quality has been established. We are selling young bulls of this "TOP NOTCH" quality of serviceable age, at moderate prices. Informal pedigrees, etc., on application. McPHERSON FARMS CO., Howell, Michigan.

Special Notice
Registered Holsteins For Sale

Have rented my farm. I offer for sale 10 registered cows age 2 years to full age. Price \$150 to \$225. 20 head to select from. A chance to get some choice cows at a very low price. Must be sold by April 1st. M. E. Williams, Elsie, Mich.

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

Registered Holstein heifer, 2 mos. old, mostly white, very nice individually and breeding. \$100 delivered, safe arrival guaranteed. Write for pedigree. HOBART W. FAY, MASON, MICH.

REG. Holstein Bull 5 mo. old. Dam 23.73 Butter dam of Flint Buttrjusea Pauline 5.96 milk, 28.51 Butter in 7 days at 2 years. Priced right. John A. Rinke, Warren, Mich.

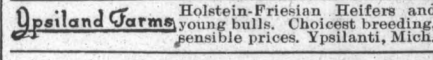
FOR Sale—Registered Holsteins. One heifer 10 mos. old, also 3 bulls from 2 to 7 mos. old, sired by a 30 lb. Bull. Wm. GRIFFIN, R. No. 5, Howell, Mich.

A BARGAIN—A beautiful pure bred cow, nearly white, good size and old Holstein milk, bred to freshen this fall. GEO. D. CLARKE, VASSAR, MICH.

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

Only \$25 Delivered: Handsome Holstein bull, 18.46 lbs. milk, 18.46 lbs. butter 7 days. Nicely marked and well grown. E. R. Cornell, Howell, Mich.

Ypsilanti Farms. Holstein-Friesian Heifers and young bulls. Choice breeding, sensible prices. Ypsilanti, Mich.

Dairymen!
—The Truth

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

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

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

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

THE WILDWOOD Jersey Herd. Registered Jersey Cattle of Quality. Forty head Tuberculin tested Majesty's Wonder 9777 heads the herd. His daughters are producing from 400 to 500 lbs. butter in one year as two year old heifers, and are bred to Majesty's Oxford Fox 134214 a class Grandson of Oxford Majesty which combines type and production. Alvin Balden, Capac, Mich.

MAPLE Lane R. of M. Jersey Herd. Tuberculin tested by the U. S. Government. For sale bulls, cows, bull calves and heifer calves. The lowest record of any mature cow of this strain is 553 lbs. of 8½ butter. IRVIN FOX, Allegan, Michigan.

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

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

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

Hope Farm Jerseys. FOR SALE—Yearling bulls, 2 bull calves. Geo. C. BORCK, Grand Haven, Mich.

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. & L. R.'s. Address G. R. Schrader Mgr. BIDWELL STOCK FARM Box B, Tecumseh, Mich.

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

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

Auction Sale Mar. 1st, 1916. 25 head shorthorns, 7 males, at "Locust" on D. U. R. between Almont & Imity City. WARNER BROS., Almont, Mich.

Two Shorthorn Bulls old enough for service. Golden Wyandotte Cockerels. Collie puppies S. G. BELCHER, R. No. 5, Hudson, Michigan.

Shorthorns Herd bull, Bright Sultan roan 4 yrs. no fault, am retaining his heifers also one roan ready for service. W. B. McQuillan, Howell, Mich.

3 Choice Shorthorn Bulls for Sale H. B. PETERS, Carland, Mich.

SHORTHORN Cows and two year old Heifers and Yearling Heifers, for sale. From good families. E. R. HAWLY & SONS, Stockbridge, Michigan, R. F. D. 3.

DAIRY Bred Shorthorns of best Bates strains. Two extra fine yearling heifers for sale. Price \$200.00 each, registered. J. B. Hummel, Mason, Michigan.

Polled Durhams for Sale, 8 young cows and heifers bred, 18 mo. to 5 years. Prices right. Write for them. L. C. KELLY, Plymouth, Michigan

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

HOGS.

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

Berkshires of best breeding, of various ages, either sex, all registered stock, no akin, special reduced price. Write your wants quick. Mitchell's Lakeside Farms, R. 2, Bloomington, Mich.

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

Rolling View Stock Farms, Cass City, Mich.

Breeders' Directory—Continued on page 415.

TAKEN FROM LIFE
Raise Chester White Hogs
Like This
(CALLED BY SOME O. I. C.'S)
Write for my plan
"How to Make Money from Hogs"

I have started thousands of breeders on the road to success. I have a very large and fine herd. Every one an early developer, ready for market at six months old. I want to place one hog in each community to advertise my herd.
C. S. BENJAMIN R. No. 10, Portland, Michigan

SWIGARTDALE FARM

BREEDERS OF
HOLSTEINS AND BERKSHIRES

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

Swigartdale Farm, Petersburg, Mich.

REG. Berkshire sows due to farrow in April. Gilts \$18, Yearlings \$20. Mature sows \$30. All guaranteed. B. B. REAVEY, Akron, Michigan.

Berkshires I have one nice fall Gilt to go at once not bred, and 2 sows bred to farrow in April and May. A. A. Pattullo, Deckerville, Mich.

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

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

Chester Whites Bred sows and Fall pigs for sale also 9 months Holstein Bull. F. W. Alexander, Vassar, Michigan.

Capitol Herd D. J. Swine. Young sows bred, young express prepaid. J. H. BANGHART, Lansing, Mich.

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

Our Duroc Jerseys Comprising the greatest of blood lines. The Professor, Kant Again, Ohio Chief, Good E. Nuff, Orion, Perfection, Ira D. Jack, Pilot Wonder, both sex. Prices reasonable. Send for pedigrees. THE JENNING'S FARMS, R. 1., Bailey, Michigan.

DUROC JERSEY BOARS a choice lot of spring boars. Fall pigs, pairs and trios not akin. W. C. TAYLOR, Milan, Michigan.

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

J. W. KEENEY, Erie, Mich. Gilts for April farrow. D. M. & T. Local from Monroe or Toledo, Keeney Stop.

DUROC JERSEY tried sows and spring gilts bred to E. D.'s. Defender Col. No. 72975. Inspection invite E. D. Heydenberk, Wayland, Mich.

Six June Gilts Bred for June Farrow. Price \$25.00. Weight 160 lbs. to 180 lbs. H. G. Keesler, R. No. 5., Cassopolis, Mich.

DUROC Jerseys, Yearling Sows & gilts bred for Apr. farrow to a son of Orion Cherry King the greatest Boar of his breed. Also fall pigs either sex. F. J. Drott, R. 1. Monroe, Mich.

Duroc Jerseys for sale—a few choice fall pigs of either sex. Fancy Buff Rock cockerels. JOHN MCNICOLL, Station A, Route 4, Bay City, Mich.

Duroc Jersey—Sept. pigs either sex & Holstein bull calves & 2 Registered Holstein cows. E. H. MORRIS, MONROE, MICH.

DUROC JERSEYS Boars and sows all sold. Some good fall pigs either sex for sale. Wm. W. Kennedy, R. 3, Grass Lake, Mich.

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

Heavy Boned Durocs—A fine bunch of Bred sows and fall pigs for sale. M. A. BRAY, OKEMOS, (Ingham Co.,) Mich.

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

Brightside, Grand Lodge, Mich.

O. I. C. Bred Gilts Choice 100 lb. Pigs \$16. J. CARL JEWETT, Mason, Mich.

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

O. I. C. choice serviceable boars; bred gilts for April and May farrow; Fall pigs not akin. Write for low prices and photo. A. V. Hatt, Grass Lake, Mich

O. I. C.'s. All sold except one July boar and a few Oct. pigs. C. J. THOMPSON, Rockford, Michigan.

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

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

O. I. C. Sows and Gilts for Spring farrow all sold. H. W. MANN, Dansville, Michigan.

O. I. C. Strictly Big Type Sows & Gilts bred for March & April farrow all sold. Also fall boars. Have two extra good July boars and one May boar for sale and Three July gilts and three Sept. gilts right good ones. Address, Newman's Stock Farm, Mariette, Mich. R. 1.

O. I. C. and CHESTER WHITE SWINE Big type with quality. We have the undefeated breeders young herd at seven State fairs this year. They were sired by Abo 2nd, one of our many good head boars. Special prices on all boars for the next 30 days. Get a Gilt bred to the Great Schoolmaster, the highest priced boar of the breed, Champion over champions. Write for our big catalogues with history of the best herd in the whole country. Come and see them.

Rolling View Stock Farms, Cass City, Mich.

Breeders' Directory—Continued on page 415.

Veterinary.

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

Unthrifty Brood Mare.—My 15-year-old mare that is heavy with foal is out of condition and I would like to know of the best condition powder to give her. U. G. S., Hillsdale, Mich.—Kindly understand that good care, good grooming, a properly ventilated stable that is kept clean, and regular outdoor exercise will do more for your mare, than giving her drugs. Mix together equal parts of cooking soda, ginger, gentian and charcoal and give her two tablespoonfuls at a dose in feed twice a day.

Lumpjaw.—I have a calf six weeks old that has a lump on lower jaw and side of face which is growing, and I might say bunch is very hard. G. B., Twining, Mich.—If I owned your calf, I should make veal of him at once.

Indigestion.—I have a cow that had an attack of indigestion one week before time to freshen, and I have waited patiently for her to calve, but her appearance does not change and she is now four weeks past due. Now I am sorry that I dried her. Do you believe that I can bring her back to normal milk flow if she is not with calf? F. P., Marlette, Mich.—Your cow is not pregnant, but by proper feeding and milking you may be able to induce a fairly good milk flow.

Feeding Pigs—Feeding Ewes.—Some time ago I bought a few pigs and have been feeding them middlings, bran, boiled potatoes and milk with some warm water added, which they eat and drink all right, but these pigs do not feel lively and care to exercise any. I would also like to know how to feed western breeding ewes which are due to lamb in May. They are now fed bean pods, clover hay, oat straw and corn stover. W. M. M., Clare, Mich.—Your pigs should be forced to take some exercise, and during the cold weather feed them some corn, oats, oil meal, or tankage with their other food. This will warm them up and make them feel more inclined to exercise in the cold air. You should feed your ewes some grain with the rest of their feed once or twice a day.

Turkey Has Sore Eyes.—I have a two-year-old Tom Turkey that is in good condition, excepting his eyes, which appear to be sore and he seems to have lost his sight, or almost so, in one. Mrs. O. E. F., Hillman, Mich.—Apply one part peroxide hydrogen and four parts water cautiously to clean off coagulated mucus, then apply calomel to eyes once a day.

Catarrh.—My hens are troubled with a sickness which affects their head and some of their eyes close. Mrs. A. G. D., Brighton, Mich.—Mix together equal parts bicarbonate soda, ground ginger, and ground gentian and mix some with their feed, a teaspoonful is enough for eight or ten chickens at one dose. Dissolve 40 grains of borate of soda, 40 grains of boric acid in one-quarter pint of boiled water and apply to eyes by dipping head in this solution twice a day. If their beak becomes closed with mucus, apply peroxide of hydrogen to clear out mucus or a weak solution of cooking soda.

Lice on Rabbits.—I wish you would tell me how to kill lice on rabbits. I have a formula which is good to use on cattle, but may be too strong for rabbits. This is the way I made it. One pound of tobacco leaves, 4 ozs. of soap, put in one gallon of water and after this solution was cooled I added 1-oz. of kerosene. I applied this mixture on two rabbits, both of them died in three hours. I also applied lice powder on them, but their fur is so thick it did not reach the lice. J. K., Grawn, Mich.—The tobacco, soap and kerosene mixture poisoned your rabbits. Apply mercurial ointment to the back of neck and rump near root of tail, sparingly, and disinfect their sleeping place with coal tar disinfectant and you will perhaps get rid of the lice.

Looseness of Bowels.—Have a horse that has bowel trouble; about one-half of the time his bowels are costive, the other half they are too loose. Had our local Vet. float his teeth sometime ago and I might say that I feed him whole corn, wheat bran and carrots three times a day. He is also fed some clover hay. H. O., Mattawan, Mich.—Your horse's digestive trouble can be best regulated by proper feeding and his diet should be such as to keep his bowels fairly active all the time. He should be exercised every day. Mix together equal parts bicarbonate soda, ground gentian and powdered charcoal, giving him a tablespoonful at a dose three times a day.



For Stock and Poultry
Dr. LeGear's Remedies
One for every curable ailment

Saves feed!

Your profit in stock is measured not by how much feed you give them but by how much nourishment they get out of the feed. Animals with poor digestion cut your profits by wasting feed and developing slowly.

Dr. LeGear's Stock Powders

expel worms and put digestions in A-1 condition, causing your stock to get every ounce of value from the feed given.

Cows give more milk, horses get harder, hogs develop faster, sheep yield more wool when Dr. LeGear's Stock Powders are used regularly. This is not mere "say-so" but actual results proved both by Dr. LeGear's 23 years Veterinary Practice and by thousands of farmers. Test these powders yourself—get a trial box today at your dealer.

50c stock book free

If your dealer cannot supply you with any of Dr. LeGear's Remedies, tell us his name and we'll send you Dr. LeGear's own stock book free—116 pages and 64 pictures. Write today.

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

Each of Dr. LeGear's 21 different Remedies is his own prescription tested in 23 years Veterinary practice. Ask your dealer for them.

IMPROVE THE SOIL

GROW BETTER CROPS

And the greatest aid to soil improvement is proper drainage.

Every farm should be drained and the drain should be laid of

AMERICAN VITRIFIED TILE

It is frost and acid proof and as lasting as the earth in which it is laid.

Ask your dealer or send for prices

AMERICAN SEWER PIPE CO.,
200 St. James St., JACKSON, MICH.

DISPERSION SALE

20—Registered Holstein Cattle—20

40—Registered Shropshire Sheep—40

to close the estate of EDW. CUMMISKEY, we will sell at

PUBLIC AUCTION

On March 22, at ONE O'clock

The cattle are all young with the exception of 3 foundation cows. They are daughters of some of the greatest bulls ever owned in Michigan. Plenty of good records. (Pedigrees at Sale). The sheep are the result of 30 years of careful breeding. None better. Morning trains will be met at Howell. (Farm 5 miles west of Howell.) Notify us if you are coming so that we may provide enough rigs.

BARNEY CUMMISKEY
and Est. of EDW. CUMMISKEY,
FOWLERVILLE, MICH.

TRACTOR ENGINE

Will keep cool. 4 cylinder 35 H. P. Continental design; 4 1/2 x 5. Closing out. Job lot at low price of \$95. Complete. Cost \$220. New stock, high-class. Build your own tractor cheap. SCHMITZ BROS., 237 COLLINS AVENUE, PITTSBURGH, PA.

SCOTT'S RED CLOVER

Look out for Buckhorn and other weeds in clover this year. Very little pure seed to be had. Ours is practically free from weed seeds and waste. Much the cheapest to sow. All other varieties of field seeds. Samples and instructions "How to Know Good Seed" Free. Write today. O. M. SCOTT & SONS CO., 136 Main St., Marysville, O.

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

Frost Proof Cabbage Plants Head long before home grown—prepaid post—\$2 thousand. Farmer's Plant Co., Martins Point, S. C.

WANTED: Responsible agents for established and necessary products. Unless you have an established territory or successful selling experience to the farmer, your application will not be given consideration. State fully your conditions, with references in first letter to Albion Chemical Works, Albion, Mich.

For Sale: Write W. A. Ewalt, Mt. Clemens, Mich. for those pure bred, stable and white Scotch Collie Puppies, natural heelers from trained stock.

B. L. K. Cow Milkers
for which I have no use at present. In good working order as good as new for further service. Will sell the whole equipment complete for \$175.00.
HENRY S. TILT, Filton, Mich.

HORSES

(Continued from Page 390)

FOR SALE A high class Trotting Bred Mare, 5 years old, sound, wt. 1075 lbs., 15 1/2 hands high. Sired by Donald Wilkes, 2:13 1/4. One of Michigan's Greatest Race Stallions. 1st dam by Marble Grit, sire of Michigan Queen, 2:03 1/4, fastest mare ever raised in Michigan. 2nd dam by Semicolton, 2:13 1/4. 3rd dam by Ky-Whips. This is a full made and smooth turned Brown Mare and will be sold at Road Horse Price. Address, STARKWEATHER STOCK FARM, Northville, Mich.

Shire Stallion

ROYAL OAK ALBERT

Registered Number 15084

By IMPORTED ROSSEAU

ROYAL ALBERT

Bay horse with white marking. Six years old. Can be seen at

Hendrie Farm, Royal Oak, Mich.

For Price Address

GEORGE T. HENDRIE

422 Hammond Bldg. DETROIT, MICH

FOR SALE

Imported Belgian Stallion.

Five years old. High class individual and extra good sire. Will sell very reasonable. Might take some other stock toward him. For further particulars address

H. E. SLOAN, Burt, Mich.

FOR SALE, 1 Registered Belgian mare 5 yrs. old; 1 High Grade Belgian mare 8 yrs. old in foal; 1 Pair, Registered Clyde Mares 5 and 6 yrs. old, one in foal. Write R. S. HUDSON, MICH. AGR. COLLEGE, East Lansing, Mich.

JACKS AND MULES

Raise mules and get rich. 200 head fine large jacks, Jennys and mules. 14 to 17 hands high. Large registered jacks and draft stallions cheap now. Will trade for sheep, cattle or horses. Write for prices today. Stock guaranteed. Address KREKLER'S JACK FARM, West Elkton, Ohio

OVER STOCKED, MUST SELL.

FOR SALE: Six colts coming three year old, four colts coming two year old, and three yearlings, six Jersey cows; three being registered; four heifers, three, two year old, one yearling registered bull; one extra nice pair of bay colts. This stock may be seen at the Ternes Farm, Chase Road, one mile north of Michigan Avenue. A. P. TERNES FARM, 1730 Michigan Avenue, Detroit, Michigan, Walnut 2091.

FOR SALE 2 Belgian Stallions, one imported 10 yrs old bay, weight 2100 lbs, colts to show, one registered home bred coming 4 yrs. old, weight 2200 lbs. Both outstanding good ones, sure foal getters. Would consider an exchange of one of them for another Belgian equally as good. Oscar Wolf, St. Louis, Michigan.

REGISTERED PERCHERON STALLION for sale at bargain. Write for Pedigree and breeding. F. D. NICHOLS, Homer, Mich., R. D. No. 1

FOR SALE Stylish black mare, weight 1275 lbs. \$200. Will trade for good registered Holstein Heifer. E. Horne, South Haven, Mich.

CATTLE

NOTICE

Wednesday, March 29, 1916
Auction Sale of Sixteen (16) head of Bull Blood Registered Holstein Cattle; high milk producing strain; advanced registration; choice individuals.
On account of the death of Royal Miller, the above described herd of Registered Holstein Cattle will be sold at public auction on the Royal Miller farm, Five miles west of DeWitt, Clinton County, Michigan. Sale opens 10 A. M. Wednesday, March 29th, 1916.
MRS. ROYAL MILLER, Proprietor.

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

HOGS

Registered O. I. C's. Attractive prices on fall pigs large litters. Elmer E. Smith, Redford, Mich.

O. I. C's. 20 bred sows for sale. 8 last April gilts averaged 270 lbs. Jan. 10, 1916. They are a very growthy lot. Have some May gilts and last fall yearlings, also a few service boars and plenty of last fall pigs. Otto B. Schulze, Nashville, Mich.

O. I. C. Choice gilts bred for April and May farrow. Also last fall pigs of excellent quality. A. J. BARKER, Belmont, Michigan, R. No. 1.

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

O. I. C. SWINE I am offering strictly O. I. C. type bred to farrow the forepart of May, also fall pigs price right. Stock registered in purchaser's name free of charge. A. J. Gordon, R. 2, Dorr, Mich.

O. I. C. Choice Boars ready for service. I pay express and register fees. JULIAN P. CLAXTON, R. 8, Flint, Mich.

O. I. C's. FALL PIGS, EITHER SEX. Satisfaction Guaranteed. A. R. GRAHAM, Flint, Michigan.

POLAND CHINAS

From our thousand pound Grand Champion Boar and Big Stretchy Sows of best breeding. Spring Boars at a bargain. Bred Gilts and Brood Sows. Billerest Farm, Kalamazoo, Mich.

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.

POLAND CHINA gilts bred for March and April farrow. Fall pigs, satisfaction guaranteed. G. W. HOLTON, Kalamazoo, Michigan.

POLAND CHINAS of the big type, bred for April and May farrow. A. A. WOOD & SON, Salline, Michigan.

Large Strain P. C. a few choice boars of spring and lot of spring Gilts bred for spring farrow sired by Big Defender the boar that every body goes wild over. H. O. SWARTZ, Schoolcraft, Michigan.

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 Wonder 3 and Big Jump, four great boars in state. Come or write. W. E. Livingston, Parma, Mich.

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

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

POLAND Chinas—Big and medium type. Gilts bred to big type boars for April farrow. Fall pigs, either sex. L. W. Barnes & Son, Byron, Michigan.

P. I. G. type Poland Chinas—Western bred, long bodied extra large bone, pairs or trios not akin. We have Peter Mouw, H. Fessenden and Geo. Marshall bred. Call or write. W. Brewbaker & Sons, Elsie, Michigan.

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

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.

Yorkshires Gilts

For March & April farrowing For Sale. Waterman & Waterman, Ann Arbor, Mich.

Large Yorkshire Swine all ages. Red Poll Bulls ready to use \$75 each. E. S. CARR, HOMER, MICHIGAN.

GROWTHY THE DISEASE PROLIFIC "MULEFOOT" RESIST- PROFITABLE HOG ING

WE ARE NOW BOOKING ORDERS FOR SPRING PIGS THE CAHILL FARMS KALAMAZOO - - - - MICHIGAN

MULEFOOT HOGS. Just a few left yet for sale. C. F. BACON, R. 3, Britton, Michigan.

Hampshire Swine. the great pasture hog. My herd contains the blood of some of the greatest champions of the breed. Headed by a son of the Great "Look Out." Bred sows and boars all sold. Booking orders for spring pigs. Can supply pairs and trios, notakin. Geo. E. Starr, Grass Lake, Mich

Hampshire Hogs—Nothing for sale but Apr. Boars. Taking orders for spring pigs. Write for prices. John W. Snyder, St. Johns, R. No. 4, Mich.

Hampshire Swine. Pigs of both sex. Bred Sows, Service boars. Write for prices. Price to sell. FLOYD MYERS, R. No. 9, Decatur, Ind.

SHEEP.

Kope Kon Farms
SHROPSHIRE and DUROCS. KINDERHOOK, MICH

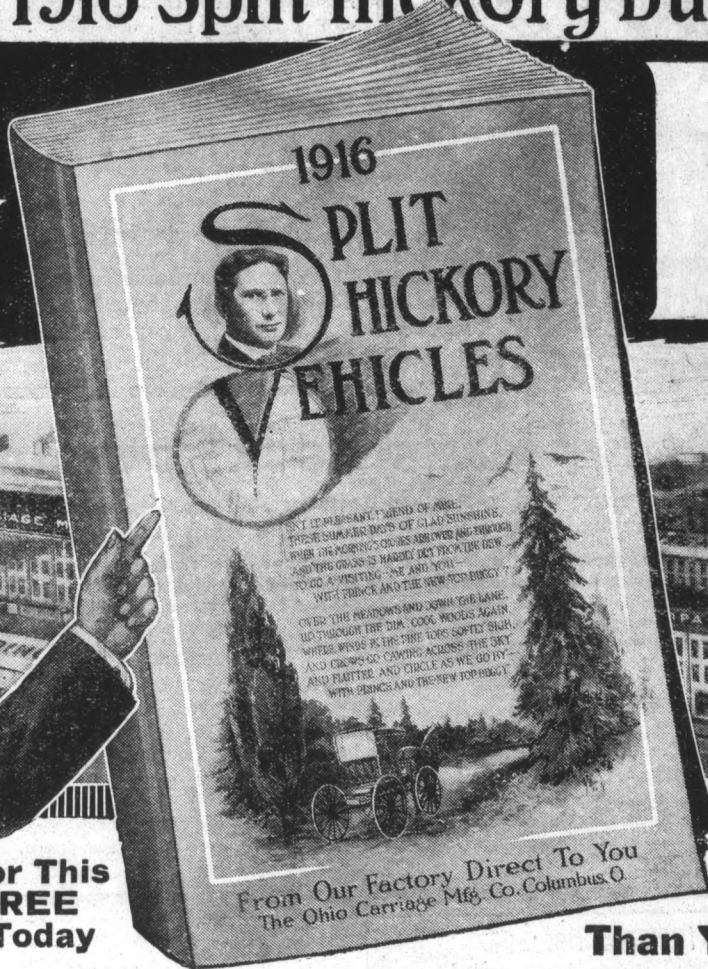
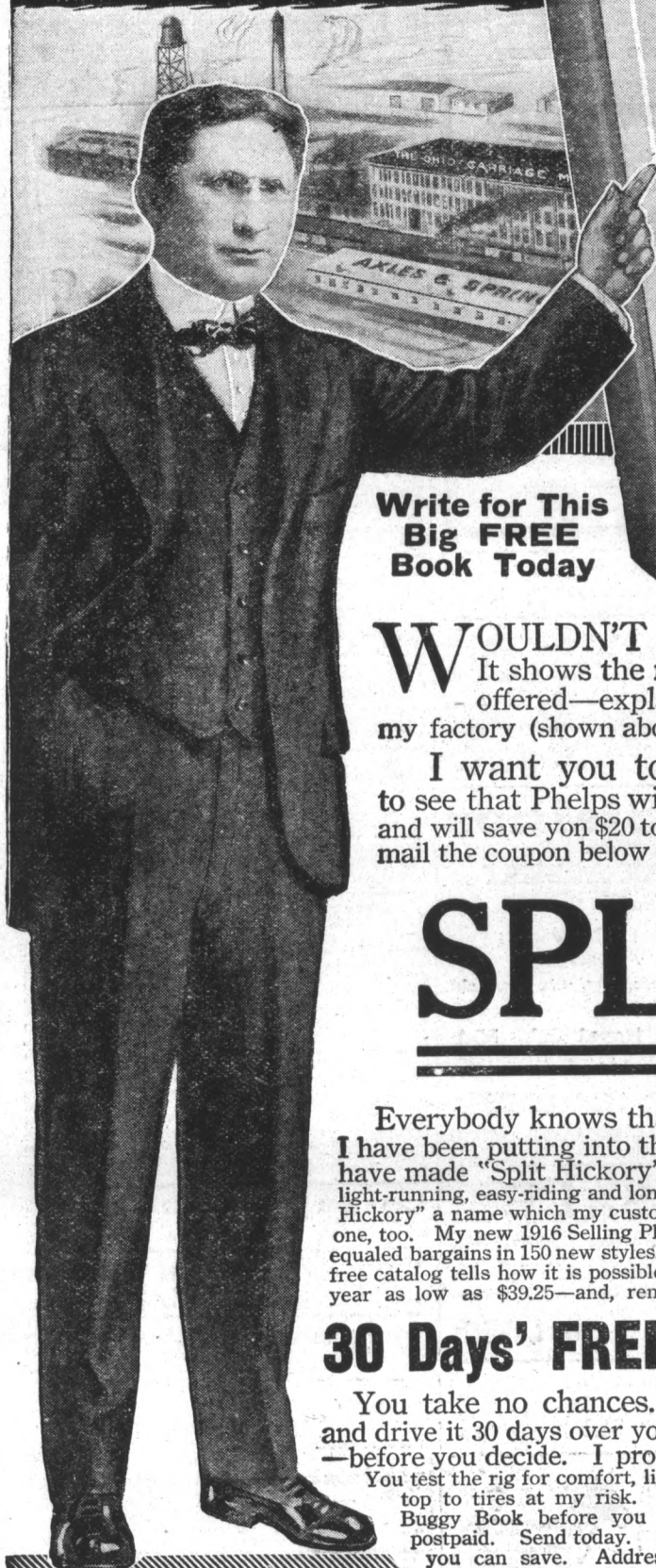
Oxford Down Sheep. no stock for sale at present. M. F. GANSSLEY, Lennon, Michigan.

WOOL-MUTTON SHROPSHIRE EWES
Bred to high class imported ram. Special prices now to close out. Also M. H. Turkeys
Maplewood Stock Farm, Allegan, Mich.

My Great 1916 Split Hickory Buggy Book

IS NOW READY

FREE



Write for This
Big FREE
Book Today

Contains MORE Styles
and BIGGER Bargains
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WOULDN'T you like to have a copy of my big 1916 Buggy Book? It shows the most complete assortment of styles and the most surprising values ever offered—explains how my new plan of splitting profits with my customers has made my factory (shown above) the biggest in America selling high grade vehicles direct to the user.

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