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Planning for Big Corn Yields

*How to Get Maximum Crops from Your Soil is Told by
Prof. Cox of the M. A. C.*

AT this season of the year, the foundation is being laid for the 1921 corn crop. Land is being plowed, seed beds fitted, and in southern Michigan, the first plantings have very lately begun. Next autumn's yields will depend very largely on the thoroughness of the job of fitting the land, planting, and cultivating the crop. Under present conditions, corn growers will make the most profit who can produce at the least cost per bushel.

Extra thorough cultivation, in fitting the seed bed and during the early days of the growth of the corn plant, is effective in cutting the total cost of cultivation. The proper use of the disk, spike-tooth, and spring-tooth harrow in fitting the seed bed, controls weeds much more cheaply than cultivating between the rows with the corn cultivator after the crop is planted.

Eight years of observation in Michigan has convinced the writer that far too much corn is planted on hastily and poorly prepared seed beds, and that as a rule, far too many corn growers plant corn too late in the season for best results.

The ideal soils for corn are fertile, well drained, loams, silt loams, and clay loams, which are well supplied with organic matter. Michigan's best corn counties are located in southern and south-central Michigan. Adapted varieties are dependable throughout the lower peninsula and Menominee county for both grain and silage, and corn is the most valuable silage crop in the southern range of the upper peninsula counties.

The seed corn shortage, during the war year of 1918, proved the great value of good seed of home-grown varieties, properly stored and tested. Varieties of outstanding worth are available in nearly all Michigan corn-growing localities, to farmers who have not properly saved their own seed.

For southern Michigan the Silver King, Duncan, Folks White Cap, Pickett, Murdock, and Lawrence Yellow Dent, are among the leading varieties which are available. In central Michigan, Pickett and Golden Glow are recommended, and in northern Michigan the Early Golden Glow, Wisconsin No. 25, and Northwestern Dent, are dependable varieties.

Even after such a favorable fall as

been manured, and fall-plowed to a good depth of seven or nine inches, or manured and plowed in early spring to a depth of seven inches. Where plowing for corn is done at a late date, particular attention is necessary in properly fitting the land. It is not enough to merely plow, harrow the land, and plant, but late plowing should be followed by thoroughly compacting with the roller or cultipacker, and frequent

maturity of the crop. The use of from two hundred to three hundred pounds of sixteen per cent acid phosphate gives distinctly noticeable results on nearly all Michigan corn soils. A more firmly matured, and a heavier yielding crop almost invariably results. Should a short season follow, an application of phosphate is effective in bringing through a well-ripened crop of corn.

Phosphate, to the amount of from two hundred to three hundred pounds, may be applied at the time of fitting the seed bed by fertilizer drill or through fertilizer attachment on the ordinary grain drill or it may be broadcasted by shoveling from a wagon bed. Not more than one hundred pounds per acre should be applied at time of planting corn through fertilizer attachment, since a too large application in the row tends to cause a concentration of root growth, while broadcasted applications encourage the roots to forage widely and enable the corn crop to better withstand summer drought. Manure and phosphate are a great team to hitch to the corn crop.

Good Yields Follow Good Stands.

A good stand of corn is necessary for good yields. The practice of cultivating empty hills in the row is costly and greatly lessens profit. In addition to planting corn of high germination, it is necessary that the planter drop be uniform, and hence seed corn should be carefully graded to a uniform size, and the planter plates carefully adjusted to the size of kernel, so as to give a high percentage of uniform drop.

On fertile corn ground in southern Michigan counties it is usual to plant three kernels per hill, forty-two to forty-four inches apart for grain purposes; for silage, in rows forty-two to forty-four inches apart, dropping a kernel every twelve or fourteen inches. In central Michigan the usual distance between hills is thirty-eight to forty-

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Apply 200 to 300 lbs. of Acid Phosphate when Fitting the Seed-bed.

that of the past year, it is necessary to test seed corn. Those who have not already tested their seed, will do well to start a test immediately in cases where there is yet time.

Plant Early in Season on Well-fitted Seed Beds.

There is great advantage in planting fairly early in the season. Early May plantings in southern Michigan, and mid-May plantings farther north, should be the rule. While occasionally early plantings may be caught by a late spring frost, replantings can be made, but late-planted crops are almost sure to be caught by early frost in the fall before they fully mature.

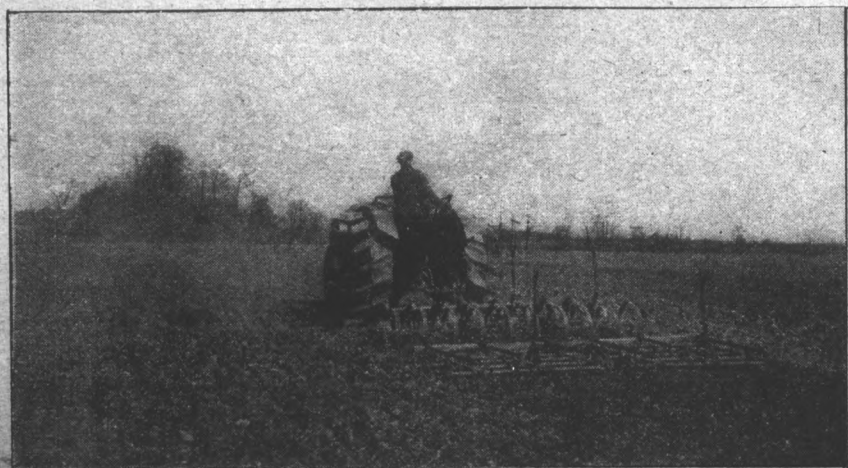
An ideal seed bed for corn can best be prepared on sod land, which has

harrowings with spring-tooth or spike tooth harrow.

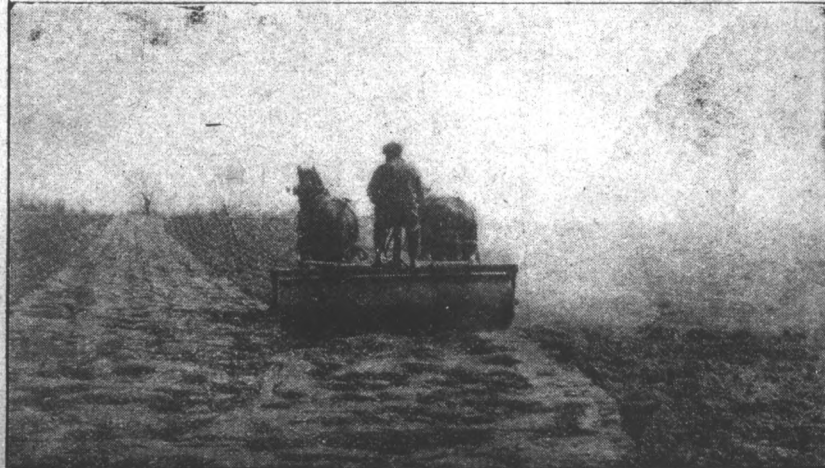
Seed corn starts best on seed beds which are well packed at the bottom of the furrow slice, with the surface worked into a condition of good tilth. Fall-plowed land can be best fitted for corn by disking in early spring and harrowing at intervals of a week or ten days until planting time. Fall-plowed land carries a higher percentage of moisture and available nitrates, which start the seed off most vigorously, and opportunity is offered for a thorough fitting and earlier planting.

Use Phosphate.

Acid phosphate gives a paying return with the corn crop, by increasing the weight of yield and hastening the



Thorough Preparation of Soil Reduces Production Cost.



Spring-plowed Land Should be Firmly Compacted Immediately After Plowing.



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DETROIT, APRIL 30, 1921

CURRENT COMMENT

Farmers' National Program

THE executive committees of seven leading farmers' organizations met in Washington recently for the purpose of formulating a legislative program upon which all could agree. A program committee, consisting of a committee from each organization recommended that this program be limited to four propositions: Collective bargaining, packer control legislation, tariff and taxation. Each proposition was discussed at length in the conference, with a view of reaching a decision upon which all could stand, and which would best serve the needs of the farmers of the entire country. After this discussion the conference recessed subject to future call. Several of the organization representatives expressed the opinion that a definite program would be agreed upon at a future conference.

There can be no doubt that concerted action on the part of these great national farmers' organizations representing a membership of about three million farmers is desirable. Any program on which there is unanimous agreement of their executive committees is certain to be both sane and constructive, and far more certain of accomplishment than would be the case if the several organizations were working independently and often at cross purposes.

While this conference was in progress the People's Reconstruction League, which includes three of the more radical farmers' organizations, and a large number of labor brotherhoods and unions held another meeting in Washington and sent a delegation to the house and senate with a program of demands. This program is apparently largely dictated by the interests of the railroads and the operation and wages to rail-

tive program. It is to be hoped that better team work along this line will be an early development. With it a constructive program backed by a united public sentiment would be easy of accomplishment.

Equipment Prices Reduced

SINCE the announcement of a substantial cut in the price of steel on April 13, a number of prominent manufacturers of farm equipment have sent out notices of price reductions on their various lines of goods. These include the International Harvester Company, which announces a reduction of ten per cent from their published prices for 1921 on all machines and implements, (motor trucks excepted), not included in the list of machines reduced in price on March 7 or earlier; Deere & Company have made a flat reduction of ten per cent in the prices of plows, cultivators, harrows, spreaders, hay and grain harvesting machinery and other implements; Advance Rumley Thresher Company has made reductions in the price of their tractors of from \$300 to \$685 on the different sizes in their line; Willits Light Division of the Electric Auto-Lite Corporation has announced a reduction of \$100 in the price of their farm lighting plant. In each case these manufacturers state that the reductions in the price of steel will not affect the cost of their present output, but will permit the replacement of raw material at a lower cost. All express a realization of the burden borne by the farmers of the country in the process of readjustment, and a readiness to meet the situation, by enabling the farmers to buy more economically the equipment they need and at the same time increase the value of their own products by aiding manufacturers to give employment to a larger number of factory workers.

The influence of this action in the price leveling process is certain to be pronounced, both in the lowering of other commodity prices and in the revival of business in these lines. In addition to this downward trend of general commodity prices there is need for a healthy reaction in the prices for farm products. The index numbers of wholesale prices covering 326 commodities, issued by the United States Department of Labor for March, show prices for farm products to be still far out of line with the rest of the group, the index price number for farm products being twenty-two per cent higher than in 1914, as compared with an average of sixty-two per cent above 1914 prices for all commodities and 178 per cent for the highest number in the group, which is for house furnishings.

It is a reasonable hypothesis that with the advent of more stable business conditions and a normal employment of labor some reaction will be evident in prices for farm products.

Meeting Agricultural Competition

AGRICULTURE is again on a competitive basis. Keep competition has developed in practically every department of the farming field. Our dairymen are not only selling their goods in the same markets with dairymen from every state in the Union but are also competing with the dairymen of Denmark, Holland, New Zealand and Australia who have imported into this country during the past few months over thirty million pounds of butter. American grain growers are meeting in competition with the grower on the prairies of central and western Canada and the producer of meat finds that he must consider the product of Argentina, and other southern hemisphere countries. The present competition from these sources has been encouraged by the low rate which has worked to the advantage of the foreigner who

ships his products to this country. This condition may be changed through the passage of the emergency tariff bill which will undoubtedly give temporary relief but which may ultimately cause a reaction against the purchase of our surplus products by these same foreigners, hence the advisability of limiting the period in which the tariff will be operative.

But competition in any line of industry is generally met by introducing more efficient methods of production and marketing. To hold a market one must either produce goods of superior quality or get them to the consumer at less cost. In the case of the farmer he must make judicious use of labor-saving machinery; till his fields to the extent of producing crops at the minimum of expense per unit; sow only the very best seeds; keep improved live stock; replace the two hundred-pound butter per year cow for a three hundred or four hundred-pound animal; adopt a rotation of crops and plan of farming that will use the available labor to the best advantage; in fact, the farmer who means to survive the competition that is now on must use his head as well as his hands to take advantage of every condition to produce and market at the lowest cost.

Improving Forage Markets

ACCORDING to letters recently received many of the readers of this journal are debating the general proposition of the future market for hay. Certainly there is nothing in the present situation to give one encouragement to pile up a big surplus of this product. It is a very difficult matter to forecast what the future market will be and it is more difficult to make accurate predictions as to the weather during the coming two months when the 1921 crop will be made. It is possible that a severe drought may so reduce the crop that all the present surplus will be needed before the 1922 crop is available. On the other hand, it is probable that a normal crop or a bumper one may be produced and in either event we are quite certain to have twelve months in which the buying public will be indifferent to the appeals of the man who has hay to sell.

Many causes have contributed to the present very unsatisfactory markets. While the mild winter, the early spring, and increased railroad rates have greatly aggravated the situation, perhaps the chief cause lies in the fact that during the past two years there has been a surplus of ten million tons over the five-year average production from 1914-1918 and at the same time the live stock population of the country has decreased by ten million animals.

This leads to what seems to be the only solution to the present problem of over-production, or perhaps better stated, under-consumption, the solution being to increase the amount of live stock on the farms in those sections having a surplus of forage. In the present situation there is an opportunity to restock farms or to add to the present supply at comparatively small cost. There would be little chance of failure in such a venture. The big item in the cost of producing live stock is the feed bill and with this item reduced to its lowest terms and the good breeding stock selling at low figures, one can hardly make a mistake by stocking up the farm with good animals against the day of higher values. Then, too, whatever course one's farming may take in the future, whether live stock production is continued or grain or mixed farming followed, he will have assisted in the solution of the present difficulty and at the same time prepared his farm through storing up fertility for heavier production in the years to come.

And furthermore a movement should

be put on foot to get the tenant farmer interested in the live stock business. Conditions surrounding the present tenant practices have a tendency to aggravate the depression in the forage markets. Farms are made less productive and tenant and owner are made poorer through a system which provides for the growing of grain year after year. If a bunch of dairy cows, a flock of sheep or other stock could be added to the list of activities on the tenant farm, a healthier tone would be given the hay trade by keeping a larger portion off the markets and at the same time many of the evils inherent to present tenant farming methods would be remedied.

News of the Week

Wednesday, April 20.

THE postoffice department has announced that mail clerks will be armed with sawed-off shot guns to foil mail robberies.—Former emperor William of Germany suffers nervous attack.—Senate orders general investigation of railroad situation; labor charges capital combine to lower railroad wages.—A world congress of Russian monarchists is called to meet in Berlin on June 1.—Prohibition census of U. S. government warehouses shows 1,500,000 gallons of whiskey out of bond.—Art treasures seized in Russian palaces and from individuals are sold by Soviet officials for food.

Thursday, April 21.

BERLIN offers allies \$750,000,000 and one-fifth of exports yearly for ten years.—Japan refuses to yield to United States note with reference to the Isle of Yap.—Greeks open big offensive against the Turks near Usback.—Motormen and conductors on Detroit city car lines refuse pay cut set for May 1.—Lloyd-George is willing to compromise with Irish on everything except the republican form of government.—Action by the federal reserve board makes business credit conditions easier.—Chicago couple in Berlin are mobbed because they were thought to be French.

Friday, April 22.

PRESIDENT HARDING refuses request of Germans to mediate the question of reparations between Germans and allies.—Trotzky, Russian soviet war minister, says Reds have millions of men and plenty of ammunition.—A branch of the United States Department of Justice is established in Chicago.—General Pershing is put in charge of plans to keep the army on a war basis.—The municipal street railway in Detroit increases activities, rails being laid on seventeen streets.—Agricultural interests in conference at Washington ask Harding to call trade readjustment meeting.—Immigration limit bill is ready for house vote at Washington.

Saturday, April 23.

BRIAND, French premier, yields to British stand against invasion of Ruhr valley, Germany; instead a "wall of bayonets" will be established around it.—A tornado in southwestern Oklahoma destroys many buildings and oil derricks.—Two marine corps aeroplanes complete a 5,000-mile journey to the Dominican republic and return.—Jugo-Slav troops occupy the islands of Lesina and Lissa off the Dalmatian coast; the Italians have withdrawn.—National immigration council urges legislation to make fifty per cent of immigrants to come on boats flying the American flag, as a means of making the merchant marine self-supporting.

Sunday, April 24.

HERBERT HOOVER, secretary of commerce, asks for \$250,000 for promotion of foreign trade; he plans a foreign trade information bureau.—Janet Jackson, Irish champion, defeats Miss Alexa Stirling, American champion, in world golf tournament.—Immigration restrictions bill passes congress without roll call; the bill restricts incoming aliens to three per cent of their nationals already in this country.

Monday, April 25.

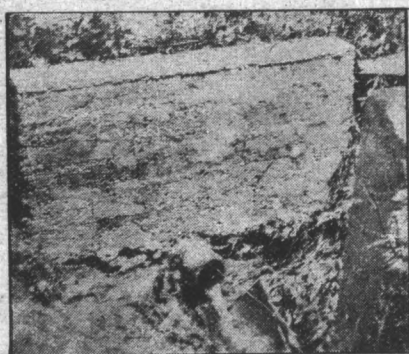
GERMAN capitalists are investing their funds in Argentine to escape taxation for German post-war indebtedness.—British coal strikes cause industrial plants in the Sheffield district to close; unemployment is greatly on the increase.—Rich petroleum deposits have been discovered in northern Salvador; a production of a million barrels daily is expected from this district.—Railway labor board charges

(Continued on page 568).

The Mystery of the Tile Drain

Is Revealed Through First-Hand Evidence as Compiled by Walter Van Haitsma

THERE are two kinds of water in a wet soil, namely, free or hydrostatic water, and film or capillary water. The presence of the former is injurious to the soil and to the plant; the latter is the water upon which the plant depends for its growth. An interesting experiment to show the difference between free and film water, can be performed with little difficulty in any farm home. Take a flower pot, and after plugging the hole that has been provided in the bottom, fill it with dry soil, well compacted. Then pour water into the pot slowly until the water level reaches its top. Next remove the plug and catch the water that drains through the hole, and compare the amount removed with the amount poured in. The water that is removed by gravity is the free or hydrostatic water; that which remains in



Well-protected Outlet is Important.

the pot and forms a film around the numerous soil particles is the film water.

Tile drainage furnishes an outlet for the surplus water in the soil in exactly the same way that opening the hole furnishes an outlet for the surplus water in the flower pot.

Removal of the surplus water in the soil is the foundation for all of the practical benefits that tile-drainage brings.

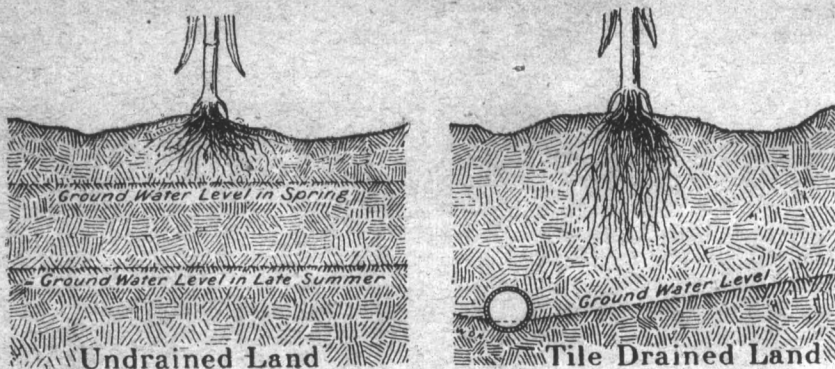
Better Soil Aeration.

Air at the roots is just as essential to the life of the plant as air is to the lungs of a man. Plants do not like "wet feet," because the presence of surplus water at their roots excludes air. Both cannot occupy the same space at the same time. In a well-drained soil, air follows the water down into the soil, and occupies the pores vacated by it. Since the pores in a well-drained soil are larger than in a more compact, undrained soil, the air supply is comparatively greater. This explains why legumes like alfalfa, and clover, which are dependent for their healthy growth upon the nitrogen from the air, thrive on a well-drained soil, and starve on an undrained one, even in a dry season. The experience of F. J. Drott, of Monroe, as related in the following quotations from his letter has been the experience of hundreds of farmers who have tried to grow alfalfa on soil in which the water-level was too high:

"I had ten acres of land near the barn that I thought would be handy for pasture part of the time, but which was tiled shallow, and quite far apart. I got a fair catch the first year, but it grew up very spindling and turned yellow. It did not get much of a growth. I found the water level wasn't deep enough, so I got a better outlet for my main drain and retiled the ten acres two and a half to three feet deep. You ought to see the alfalfa I raised on this field since."

Higher Soil Temperature.

Much of the heat that goes to warm up a drained soil in the spring is utilized to evaporate the water from an



Plants on Tile-drained Soil Develop a Larger Root System.

undrained soil, with the results that the temperature of the latter is appreciably lower than that of the former. Evaporation has a cooling effect on the soil just as it has on a person who is sweating. This accounts for the fact that seed will germinate in a well-drained soil much sooner than in a wet soil.

Earlier and Longer Season.

Earlier germination of seed means an earlier and, consequently, longer growing season than the plants on wet land will enjoy. While a neighbor is sowing oats or plowing on well-drained land in the spring, the wet-land farmer has to content himself with doing odd jobs around the house or about the farm, when he should be working his fields. Chances are that his impatience will get the better of his judgment, with the result that he tries to prepare a seed-bed on land that is too wet. It may take years to overcome the damage done to the soil by working it while in this condition. It is impossible to prepare a good seed-bed out of soil that has been thus maltreated, and almost as impossible to raise a crop on it that will do much more than cover the cost of producing and harvesting it, and it frequently fails to do even that. Farmers who follow this all too common practice of working land while it is wet and soggy generally have to console themselves during the harvest with the thought: "Well, I didn't get as much of a crop as I expected, but then, I didn't expect I would."

The following table shows the difference in the dates of working drained and undrained land as reported by fifty-seven Michigan farmers:

Earlier Seeding.	Number Reporting.	Per Cent.
One week or over...	57	100
Two weeks or over...	33	57
Three weeks or over...	15	26
Four weeks or over...	5	9

The reader will note that every farmer reported an earlier season of one week or over. Some reported a gain of more than a month on land that was too wet at any time except in very dry seasons, while others reported that land that could never be worked in any kind of season was ready for

seeding sooner than the higher land.

The growing season is further lengthened by the fact that plants on a tile-drained soil are seldom stunted in their growth by heavy rains or drought, as they frequently are on undrained soils.

Improved Physical Condition of the Soil.

Tile drainage has the faculty of "bringing the soil from a wet, soggy condition to a moist, loose condition," according to Fred Garlinger, of Nashville. This change is a gradual one in the case of heavy clay soils. Sometimes three or four years are required "before the tile-drains become mature—counts for the fact that plants on tile-



Wet Spots Delay Seeding and Increase Production Costs.

ed." However, the improvement at the end of the first year is very marked.

More Root Space.

Since tile-drainage lowers the water table and makes soils more porous, plants develop a more extensive rooting system in drained than in undrained soils. It is commonly known that plants are more drought-resistant when the spring of the season has been dry, than when it has been wet. During a dry spring the water table in the soil is comparatively low, and offers no obstruction to the development of a normal, healthy root-system. The increased porosity of a tile-drained soil, and the fact that its water table is always low, except for short periods during very heavy rains, make the development of a strong, deep root system possible in any season. This ac-

drained soils are less liable to lodge than those on undrained soils.

Crops More Drought-Resistant.

A porous soil will hold more water than a compact, undrained soil, just as a sponge will hold more water than a stone. The film water thus stored up during thaws or rains, furnishes a supply of water upon which the plant can draw in a dry season. When the supply of water near the plant roots is exhausted capillary action brings up water from the lower levels, just as oil is drawn up into a lamp-wick from the supply below and coffee into a cube of sugar, when one side of the cube is dipped into it. The loose, mulchy condition of the surface soil prevents the evaporation of this water to a considerable extent. Since it is possible to cultivate or harrow a drained field soon after a rain, much of the water which is ordinarily lost through evaporation, is conserved, because of the mulch thus formed. The difference between crops on drained and undrained fields is often as pronounced in a dry as in a wet season.

Increase in Available Plant-food and Humus.

The increased supply of fresh air in a tile-drained soil, and its higher temperature, make it possible for bacteria which can not exist in wet, cold, compact soils, to act upon the supply of

raw plant-food that has been stored up in the soil for years and prepare it so the plants can use it. This accounts for the fact that the increase in crops due to tile-drainage is much more pronounced in a soil that has been so wet that no crop has ever been raised on it, than in one that produces a crop occasionally.

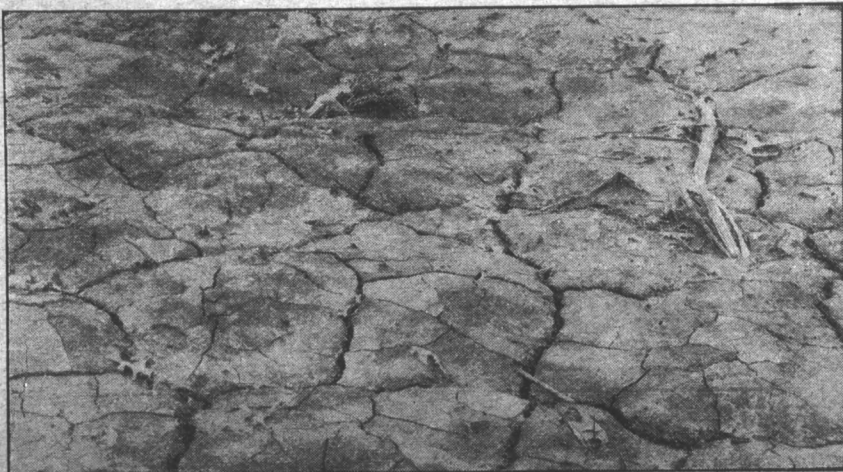
Increase in the Productive Area of a Farm.

There are thousands of acres of swamp land and ponds on improved farms that can be reclaimed at a very small cost, through tile-drainage. Land of this nature will frequently produce a crop the first year that will be worth three or four times the cost of draining it. Dead furrows are unnecessary on a tile-drained field except in the case of heavy clay soils, and then only for a year or two. These furrows frequently occupy over a tenth of the area of the field. Only five out of fifty-seven farmers reporting, supplement their tile-drains with dead furrows, and these only to a limited extent.

Replacing medium-sized open ditches with tile-drains will add considerable land to the productive area of the farm. These ditches can gradually be filled as the farmer works across them. The opening of the sub-soil and the larger feeding ground plants get in this way, is in effect an increase in the area of the farm, because it forms a farm under a farm.

Decrease in Loss of Fertility.

The annual loss of manure and fertilizers on undrained farms, due to surface-washing, can hardly be overesti-



If You Have Soil Like this Tile Drains Are Needed.

mated. Much of this fertility is deposited on low, flat areas, which their owners sometimes call charity fields, because they are kept well fertilized at their neighbors' expense. By absorption of the rainfall through a tile-drained soil the amount of surface washing is materially decreased, and manures and fertilizers are carried down into the soil where the growing crops can make use of them. Some fertility is, of course lost through the tile-drains, but it is negligible when compared with the amount saved from surface-washing.

Less Heaving by Frost.

Frost is frequently responsible for the loss of wheat, clover and alfalfa on undrained soils. A wet soil expands upon freezing, because its pores are filled with water. This expansion of the soil causes plants to be lifted out of the ground so that their roots lose contact with the soil. The result is often the total loss of a crop. In a well-drained soil the pores are filled with air, because the surplus water has been removed. This permits expansion within the soil, and prevents heaving.

More Permanent Crop Rotations.

The loss of a crop in a rotation due to heaving by frost or drought is a serious one, not only because of the value of the crop, but because it breaks up

the rotation. Since tile-drainage prevents the loss of crops due to these causes, it makes it possible to keep up a rotation more permanently than can be done on wet land.

Growth of More Valuable Crops Possible.

Beets, potatoes and alfalfa and other legumes cannot be grown successfully on wet soils. The average increase in crops due to tile-drainage as reported by Michigan farmers amounts to over six tons of beets per acre, nearly sixty-four bushels of potatoes per acre, and nearly one ton of alfalfa per acre. North Westbrook, of Marine City, reports a yield of four hundred bushels of potatoes per acre in 1920, on land that seldom produced an average crop before being drained. Twenty to twenty-five tons of beets per acre are frequently grown on tile-drained soils that formerly averaged less than eight tons per acre.

Better Quality of Crops.

A crop that is stunted at any time during the growing season by excessive moisture or drought is bound to be of inferior quality. Beets grown on tile-drained soil often have a sugar test of five or eight per cent, higher than those grown on wet soil.

Less Wear and Tear on Machinery.

The elimination of open ditches and dead furrows, and the more friable

condition of tile-drained soil reduces wear and tear on farm implements considerably. This saving in wear and tear also applies to horses and men.

Tractor Farming More Practical.

There is some question as regards the economy of using a tractor on a small farm, but the advisability of buying a tractor for use on large, poorly drained farms is just as questionable. The tractor can be used to good advantage on a well-drained farm that is not too small nor too hilly, the year around, in any season, but there are seasons when the use of a tractor on a poorly drained farm is practically impossible at any time. Tile-draining such a farm will, however, make the use of a tractor more practical.

Lower Cost of Production.

Well-drained land is much easier to work than undrained land, because the soil is more friable. This effects a material saving of labor in the preparation of a seed-bed. It is seldom, if ever, necessary, to reseed on tile-drained land. The seed and the labor required in reseeded represent a substantial increase in the cost of production. Many farmers report a reduction in the labor cost of crops, due to tile-drainage of from thirty-five to fifty per cent. Fred Cornair, of Chesaning, writes: "Cost of plowing and fitting lessened one-half. That sounds big, but its the

truth." Others support this contention.

Tile drainage permits a better distribution of labor on the farm. Since drained land is in condition to work earlier in the season, farm labor can be utilized over a longer period. The ability to grow a greater variety of crops, aids in this distribution, as does the fact that it is possible to get on the land from three to four days sooner after heavy rains. Since a greater variety of crops can be grown, it is possible in this way also to make more continued use of the available labor. Better distribution of labor means a material reduction in the overhead cost of production.

The tractor and other labor-saving machinery can be used to good advantage on well-drained soils. Then, too, there is the saving in wear and tear previously mentioned.

Less seed and fertilizers are required on tile-drained ground. More of the seed germinates, and more of the fertility in the soil is available, and less is lost through surface-washing.

Lime and fertilizers are much more effective on well-drained than on wet soils. It is poor economy to waste these on wet land. Drainage should come first, because it is fundamental. Liming and fertilizing will not correct a condition that is due to poor drainage.

LATE AGRICULTURAL NEWS

FREEZE DAMAGES FRUIT.

FRUIT in southwestern Michigan suffered most from the frost of April 16-17, according to reports received by the horticultural department of M. A. C. from field agents. Prof. Roy E. Marshall has issued the following bulletin:

"Southwestern section suffered most severe losses, grape loss there being eighty per cent or more, cherries eighty-five per cent, pears twenty-five per cent, early varieties of plums gone, late varieties injury slight. Early varieties of apples injuries severe; late varieties injury slight. Little injury to small fruits. Northern fruit sections indicate but slight injury to cherry and apple crops. Winter varieties of apples over entire state show but slight injury.

"Berrien county suffered most severely, the grape buds in that section being severely injured so that it is simply a matter of estimate as to how large a crop the second buds or more dormant buds will produce. Sour cherries and peaches have also been severely injured, some variation existing in degree with the different varieties and different orchards. Van Buren and Allegan counties suffered somewhat less, especially in sections near the lake shore."—H.

LIVE STOCK SHIPPING ASSOCIATION.

MANAGER COMPSON of the Michigan Live Stock Exchange tells us that there are now about two hundred and fifty local live stock shipping associations in Michigan consisting of from fifty to four hundred members. This makes an aggregate membership in these associations of approximately twenty-five thousand.

TRAFFIC BETWEEN THE TWO PENINSULAS.

THE statistician of the Michigan Public Utilities Commission has prepared a statement indicating the amount of freight handled between the upper peninsula and the lower peninsula at the Straits of Mackinac, by the Mackinac Transportation Company, which has a monopoly of this traffic. The statement shows that in 1920,

34,212 freight cars were transported loaded, while 17,138 empties were handled. There were 149,157 passengers carried between the two peninsulas in the same period. The number of automobiles taken over was 3,472. This is interesting as showing the large amount of traffic between upper and lower Michigan. Some day perhaps there will be a tunnel or a bridge to provide even better facilities than now obtain for effecting the passage of this nine-mile waterway that now separates the two sections of our state.—CHASE.

FARM VALUES IN UPPER COUNTIES.

THE Michigan Crop Report for the month of March gives figures bearing on farm values for Michigan. For the upper peninsula, the average value of all farm lands, with improvements, is given as \$54 per acre, and, without improvements, \$32 per acre. The average value of good plow lands per acre is put at \$54, and of poor plow lands, \$25 per acre. The average of all plow lands is stated to be \$42 per acre.—C.

DAIRY DIVISION ASSURED.

A DAIRY division of the newly created state department of agriculture is practically an assured fact because of the action taken by Governor Groesbeck and the state administrative board at a conference with the Michigan Allied Dairy Association at the state capitol Tuesday, April 19.

Pursuant to a program adopted at its annual meeting, March 16, the dairy association, upon the enactment of the law creating a state department of agriculture, took steps to secure a conference with the governor and administrative board and to lay before them the need of a state dairy organization for the improvement of dairy conditions in Michigan and improvement of the quality of dairy products placed upon the market.

The importance of a prosperous dairy industry to the state and the need for adequate laws and an organization to enforce these laws and to promote and encourage the dairy industry throughout the state were presented to the governor and the admin-

istrative board by the dairy association in a complete and carefully prepared statement. The statement recommended that a dairy division of the state department of agriculture be created and that \$100,000 be appropriated to finance the work of the department. Twenty dairy inspectors were recommended as a minimum for efficient supervision of the dairy industry.

The governor made known that the state administrative board and himself were convinced of the need of such a department and that it would be created. The state department of agriculture will become a reality on July 1, according to the terms of the act which gave it birth.

The dairy association committee which drafted the statement to the governor, recommended that the appropriation suggested should be distributed as follows: Butter interests, thirty per cent; cheese, five per cent; condensed milk and milk powder, five per cent; ice cream, ten per cent; market milk and production interests, ten per cent. Twenty dairy inspectors are suggested as follows: Butter interests, six; cheese, one, condensed and powdered milk, one; ice cream, two; market milk and production, ten.

SURVEY OF ELEVATOR SITUATION IN MIDLAND.

IN order to get more nearly exact valuations of elevators and to get fair and accurate figures on building costs of elevators, County Agent McMurtry, of Midland county recently asked the manager of the State Elevator Exchange to furnish two experts. These men spent three days investigating and reporting upon the elevator situations at Midland, Sanford and Coleman. Their work has proved eminently satisfactory, and will save the farmers a good many thousand dollars in the purchase price of several properties about to be taken over by co-operative associations.—J. C. M.

MUCH CREAM SHIPPED.

THE quantity of cream shipped from Bruce's Crossing on the South Shore Railroad, last year, was 205 tons. A typographical error in these columns made it read twenty-five tons.

A large unused brewery at Marquette is to be transformed into an ice cream factory by a large Houghton firm, which will increase the local demand for farmers' cream. The manufacture of ice cream is an important business in Cloverland, in spite of the supposedly wintry character of our summer climate.—L. A. C.

STATE SENATE APPROVES NEW EGG LAW.

THE proposals for a "Michigan Egg Law" to require all dealers in eggs to obtain licenses and to candle an egg handled by them met with unanimous approval in the senate when it passed that body without a dissenting vote.

This bill was advocated by the federated legislative committee of the farm organizations of Michigan when they discovered that Michigan eggs were being discriminated against in the big markets because other states have rigid candling and inspection laws, accordingly their eggs are regarded as standard on the markets and are taken in preference to the Michigan eggs whose quality is an unknown factor. Kansas, Nebraska, Iowa, Ohio, Missouri and Indiana have laws making compulsory the candling and grading of all eggs handled by dealers.

Rather strangely, it is reported that the dealers themselves are endorsing the proposal for a Michigan egg law. It was pointed out that the operation of the proposed law would result in more careful handling of eggs and would largely prevent the great losses now caused by careless handling.

The enforcement of the provisions of this act and the establishment of supplementary rules is vested in the state food and drug commissioner.

The federated legislative committee recently voiced its endorsement of the proposal in the following terms: "We approve the principle of an egg law along the lines of those now in force in the neighboring states and urge the passage of such a law by the present legislative session."

Mississippi and Alabama are the only two states who are not affiliated with the American Farm Bureau Federation.

Is Live Stock Farming Safest?

By J. L. Justice

TODAY we are feeding a carload of young cattle that we purchased last fall, with corn that cost us ninety-two cents to produce. It has been variously estimated that a bushel of corn will make between five and six pounds of beef, so if our beef animals must sell for nine cents the gain put on the cattle will bring more than half the cost of producing the corn and leave behind large supplies of farm fertility, besides utilizing our large quantities of straw, hay and cornstalks in the silo. Seven Shorthorn cows have dropped that many high-grade calves that will develop into good feeders, and butter and butter-fat are selling for forty-five and forty-two cents, which realizes more on the corn and oats than the market price of corn. The hogs and poultry and calves are consuming the skim-milk along with the

back quicker than we think if tariff questions are settled satisfactorily. We have nearly two crops of lambs on hand. If we must market all our surplus stock at considerable loss it is our chief desire that it go to market well fitted and to be counted in the good to choice class. If we can accumulate herds of good live stock in advance of the business revival we can expect to profit when that time comes. Bankers are providing financial backing to the earnest and conscientious live stock men, to save their herds from going to the slaughter houses and to give the owners time to fit their stock properly for the market.

Is the stockman a safer proposition for the banker than the grain farmer? Perhaps the banker thinks more of the business ability of the farmer than he does of the type of farming, but most



There is Certain to be a Revival in Live Stock Production.

grains, the hogs converting corn into pork at ninety cents a bushel or the cost of production, and the hogs, poultry and calves utilizing the by-products of the dairy section.

We all know that conditions are not going to be as unstable as they are now. The general impression has been that prices of farm live stock produce will remain about twenty-five per cent above pre-war prices, so if this should be the case the live stock farmer who is holding on to stock may expect to profit most from his grains if the prices of grains remain low as they have been all this year. The greatest loss on the live stock end will be through the depreciation in value of the stock and where the stock was purchased at a high figure before the rapid decline took place. If, however, live stock values should recede much more the holder of such stands to lose heavily in addition to the loss he has already sustained.

These are questions that can be answered only by the future, and since we farmers all have our guess as to the future and gamble on it no matter what we raise, the better gamble appears to be in economical live stock growing. I have never seen the feedlots and fields so bare of live stock in my life as they appear to be today, and it may be significant of what is in store for the breeder in the short space of a year or so. It looks as if we might be going from one extreme to the other, from the production of great numbers during the past few years to that of a real shortage if we continue to dump it all so rapidly onto the market as has been done in the past few months.

The question is worth thinking over. There is certain to be a revival in all live stock lines, if history repeats itself. Even the lowly sheep may come

of the men in banking circles that I have talked with couple live stock farming with good farm management.

It is said that such farmers maintain better and bigger accounts at banks, pay off more mortgages and buy more farms than straight grain farmers because they realize more from their efforts.

To the man who wants to edge into the live stock game now or within the next few months I would say, "buy well." It is no time to plunge, no time to throw money away on scrub stock. There is more pleasure and profit in breeding quality into animals than in trying to get good prices for inferior grades of stock. Remember there are inferior animals among the pure-breds, but fewer than there are among our common stock. It is folly to judge the value of an animal by the price set on him though oftentimes it may not be over-valued, but a choice from the standpoint of utility will likely prove to be the safest course to take.

GOOD BEANS IN HURON COUNTY.

RESULTS of several variety tests of beans, conducted by the Michigan Crop Improvement Association, show that Huron county has a valuable strain of the Robust variety.

For several years Earl C. McCarty has been growing the Robust beans, each year giving special attention to the selection of the seed stock. That seed stock will not run out if given proper attention, but will improve, is shown by the following records of Mr. McCarty's yields:

Robust (McCarty's Seed)	24.83
Robust (College Seed)	20.30
Kimmel	19.11
Hunter	19.16
Darling	17.57
1000-1	16.23
Early Wonder	15.80

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These Tractor Manufacturers Approve En-ar-co Motor Oil

Name of Tractor	Summer	Winter
Sandusky	Heavy En-ar-co	Heavy En-ar-co
Bates Steel Mule	Extra Heavy En-ar-co	Heavy En-ar-co
Liberty	Extra Heavy En-ar-co	Heavy En-ar-co
Twin City	Extra Heavy En-ar-co	Heavy En-ar-co
International	Heavy En-ar-co	Heavy En-ar-co
Mogul	Heavy En-ar-co	Heavy En-ar-co
Titan	Heavy En-ar-co	Heavy En-ar-co
Moline Universal	Extra Heavy En-ar-co	Extra Heavy En-ar-co
Avery 5-10	Heavy En-ar-co	Heavy En-ar-co
Avery Motor Cultivator	Heavy En-ar-co	Heavy En-ar-co
Avery 8-16 and larger	Extra Heavy En-ar-co	Extra Heavy En-ar-co
Eagle	Extra Heavy En-ar-co	Heavy En-ar-co
Allis-Chalmers 18-30	Extra Heavy En-ar-co	Heavy En-ar-co
Big Pull	Heavy En-ar-co	Heavy En-ar-co
Parrett Model H	Extra Heavy En-ar-co	Heavy En-ar-co
Fox	Heavy En-ar-co	Heavy En-ar-co
Turner Simplicity	Extra Heavy En-ar-co	Extra Heavy En-ar-co
Kardell Utility	Heavy En-ar-co	Heavy En-ar-co
E-B	Heavy En-ar-co	Medium En-ar-co
Wellington	Heavy En-ar-co	Heavy En-ar-co
Hart-Parr	Extra Heavy En-ar-co	Heavy En-ar-co
Wallis	Heavy En-ar-co	Medium En-ar-co
J. T.	Extra Heavy En-ar-co	Heavy En-ar-co
Rumely Oil Pull	Heavy En-ar-co	Heavy En-ar-co
Russell	Heavy En-ar-co	Medium En-ar-co
Toro	Heavy En-ar-co	Heavy En-ar-co
Victory	Medium En-ar-co	Medium En-ar-co
Shelby	Extra Heavy En-ar-co	Heavy En-ar-co
Cletrac(Spring) Med. En-ar-co	Extra Heavy En-ar-co	Light En-ar-co

These Motor Manufacturers Approve En-ar-co Motor Oil

Name of Tractor Motor	Summer	Winter
Waukesha (Gasoline)	Medium En-ar-co	Medium En-ar-co
Waukesha (Kerosene)	Heavy En-ar-co	Heavy En-ar-co
Erd	Extra Heavy En-ar-co	Extra Heavy En-ar-co
Le Roi	Heavy En-ar-co	Heavy En-ar-co
Beaver	Heavy En-ar-co	Heavy En-ar-co
BULLDOG	Extra Heavy En-ar-co	Heavy En-ar-co
Hinkley	Heavy & Extra Heavy En-ar-co	Medium En-ar-co

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Farm Lands For Sale

120 acres. Two miles south of Mears, Oceana county, Michigan. Good buildings. Apple, cherry and peach orchard.

78½ acres. Two and one-half miles south of Mears, Oceana county, Michigan. House, barn, granary. Good soil, 10 acres cherry, 10 acres apple and peach orchard.

80 acres. West of Shelby, Oceana county, Michigan. Good soil, small house and barn. 600 peach trees in bearing.

80 acres. 4½ miles northwest of Shelby, Oceana county, Michigan. 7-room house, barn. Small orchard. All fenced.

120 acres. Six miles northeast of Walkerville, Oceana county, Michigan. 35 acres improved. 20 acres timber, balance cut-over pasture.

77½ acres. 7 miles west of Cadillac, Wexford county, Michigan, partly improved. Good grazing land.

280 acres. Two and one-half miles south west of Mears, Oceana County, Michigan. 8-room good house. Basement barn, good soil, all fenced. 40-acre orchard.

368 1/2 100 acres. Six miles east of Lake City, Missaukee county, Michigan. Clay loam soil. 100 acres wood timber, 15 acres saw timber. 100 acres ready for plow.

40 acres. Eight and one-half miles from Lake City, Missaukee county, Michigan. House, barn, good soil. Partly improved.

90 acres. Nine miles northeast of Pentwater, Michigan. Good house, good basement barn, on good road. Clay loam soil.

180 acres. Nine miles northeast of Pentwater, Mason county, Michigan. Good roads, small house, good barn. 120 acres cleared, small orchard well fenced.

80 acres. Elk township, Lake county, Michigan. Three miles west of Irons. Sandy soil, small part has been worked.

73 acres. Two and one-half miles northwest of Caledonia, Kent county, Michigan. Good clay loam soil, well fenced.

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Tobacco Kentucky Natural Leaf Mild Smoking, pure mellow tobacco direct from grower. 10 lbs. \$3; 20 lbs. \$5. Chewing 12 lbs. \$4.50 prepaid. Send no money. Pay when you receive tobacco. Doran Farms Tobacco Association, Mayfield, Kentucky.

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Calves, bull, hogs, tools, household furniture included: a live wire, money-making farm; on improved road, close village; fertile machine-worked fields; 20-cow pasture watered by trout brook; wood; 50 apple trees, pears, plums, cherries; 800 trees fully equipped sugar bush; good 7-room cottage, big basement barn, silo, stable, etc. Retiring owner's low price \$4500 takes all \$1000 down, easy terms. See details page 18 Plus Spring Catalog 1100 Bargains, FREE. STROUT FARM AGENCY, 514 BC Ford Bldg., Detroit, Mich.

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Homeseekers Chance 40 acres rich farm land, Central Michigan. \$800 with \$100 or more down. Balance 10 years. Roads, railroads and cities established. See us before buying. Staffed Brothers, 15 Merrill Bldg., W.S. Saginaw, Mich.

FARMS Poultry, truck, stock, and grain farms cheap. FIGGS & NOCK, Salisbury, Md.

Wanted to Hear from owner of land for sale. O. K. HAWLEY, Baldwin, Wisconsin.

Don't Buy a Farm Before you get our free list of 50 good farms. DEODURES, Bloomington, Mich.

Late Farm Bureau News

ENLARGE OFFICE SPACE.

CONSTANT expansion continues to be necessary at State Farm Bureau headquarters as the press of business compels the great farmer organization of the state to seek more and more floor space for the directing of its multitudinous activities. The bureau is now engaged in increasing its office space at Lansing headquarters by more than one-fourth.

The last of the three-quarters of a million pounds of wool once stored in the farm bureau headquarters building has been sold. In its place is a cluster of new offices and the odor of green plaster has supplanted that of stored wool. Soon the sound of clicking typewriters and the hum of the farmer's business will pervade those rooms. The expansions are illustrative of the rapid growth of the farm bureau, perhaps the fastest growing farm bureau organization in the country. Today its offices are five times as large as they were one year ago.

Remodeling of the farm bureau headquarters in the interests of a greater efficiency will proceed with the expansion of office space. The elevator exchange has assumed such proportions that it has been accorded a suite of five of the new offices; the wool department will take in a suite of three offices instead of one, in addition to a large show-room for the sale of farm bureau blankets and suitings, and the executive committee is to be provided with a committee room with a seating capacity of one hundred and fifty. Many meetings held at the farm bureau headquarters are attended by one hundred or more people. The farm bureau publicity department will take over two of the new offices, all of which are on the second floor of the farm bureau headquarters building.

Remodeling operations include provisions for private offices for President James Nicol, Secretary Clark L. Brody and Auditor J. Lee Morford, an adequate reception room, increased space for the accounting, purchasing and seed departments. At the rate the farm bureau seed department is growing, it is not unlikely that it will require the services of a small army of clerks in another year. It has bought and sold millions of pounds of seed for farm bureau members since its organization in April, 1920.

WOOL POOL NEWS.

HALF a million pounds of wool from the Michigan State Farm Bureau wool pool were sold to a great eastern clothing mill during the week of April 11, according to A. J. Hankins, in charge of the pool. The shipment totaled thirty carloads, approximately a trainload of Michigan wool.

Sold direct from the producer to the mill and free from any profits accruing to several in-between agencies, the wool netted the farmer having wool in the pool several cents more per pound than he could have gotten through any other agency, says the department. The mill purchasing the wool was said to be one of the farm bureau's regular connections. The wool sold as follows: Three-eighths blood, 27 cents; quarter-blood, 26 cents, and short clothing wool, 21 cents.

Approximately 6,000 checks have been mailed to date to growers having wool in the pool. Ten cents a pound constitutes this payment which is on the cheaper grades in the pool. Checks continue to go out. Sales are now being made of the medium and delaine wools. Grading of the remainder of the 3,500,000 pounds of wool originally placed in the pool will be completed by May 1. New wool has started to come in. Reports from field men

indicate that the 1921 pool may exceed the gigantic total for 1920 by perhaps a million pounds, says the department.

The wool department is now arranging for the manufacture of a portion of the wool in the pool into a line of hard-woven woollens and worsteds in addition to the woollens already put out. The new line will be part of the suitings manufacture project which the farm bureau has under way. To date orders for suitings have been in advance of the mill's ability to keep up with the demand.

WOOL GRADING WAREHOUSES ANNOUNCED.

WOOL pooling seems to be paying out. Actual sales made by the farm bureau are giving the farmer five cents and more on his wool than local buyers are offering, hostile propaganda notwithstanding. What local buyers call "rejection wool" is bringing from sixteen to twenty-six cents a pound under the farm bureau system of grading and marketing. Staple and combing wools bring from twenty-five to thirty-one and a half cents, farm bureau pooling and wool grading on the quality basis giving the grower that return.

Pooling is under way. Grading warehouses in central Michigan as announced in the middle of April are located at Port Huron, Lapeer, North Branch, Imlay City, Oxford, Holly, South Lyon, Washington, Merrill, Saginaw, Chesaning, Owosso, Durand, Perry, Howell, Midland, St. Johns, Elsie and Fowler.

Merchants of Lapeer and Oxford have announced a special bargain day for the first local pooling day, to bring farmers not directly interested in the pool to town for purchases and to see the wool graded.

Contracts have been closed with tailoring houses at Lansing and Detroit to make up farm bureau suitings at \$20 a suit. The finest tailor-made virgin wool suit will cost from \$28 to \$35 complete. Blanket manufacture continues on a production scale and a fall sales campaign is planned.

Genesee county wool growers have 86,287 pounds of wool in the State Farm Bureau wool pool, which was assembled at Swartz Creek, Fenton, Grand Blanc, Montrose, Gaines and Davison.

Huron county wool growers have 23,445 pounds of wool in the State Farm Bureau wool pool, which was assembled at Bad Axe and Pigeon.—M.

WHAT OTHER BUREAUS ARE DOING.

PLANs for the unification of cotton marketing activities of the entire south will be discussed at a National Cotton Marketing Conference to be held at Memphis, Tennessee, on April 26. This conference will be attended by representatives of the farm bureau federations of the various cotton states. All cotton producers' organizations and state colleges of agriculture have been invited to send representatives.

Reports from New Hampshire indicate that every county in that state is now affiliated with the American Farm Bureau Federation.

J. N. Norton, head of the farm bureau membership drive in Nebraska, reports that the campaign in that state is making fine progress. Over thirty-one thousand members have been secured, with a satisfactory number being added each week.

Eleven creameries in Meeker county, Minnesota, have launched a cooperative marketing enterprise with a view to standardizing their butter output, improvement of their markets, and increased returns through the pooling of their shipments. Mr. C. G. Gustav-

son, former inspector for the state dairy and food commission, has been engaged as field manager. It is stated that the annual output of these eleven creameries is nearly two million pounds of butter.

A fifty per cent saving to growers of sugar cane in Dallas county, Texas, on their cane seed requirements, is one of the accomplishments of the Texas Farm Bureau. Forty-three thousand pounds of this seed were purchased for these growers.

The Ohio Farm Bureau Federation has secured Prof. C. W. Waid, of Michigan Agricultural College, to take charge of their Fruit and Vegetable Marketing Department. Prof. Waid was formerly an Ohio man and has become well known in horticultural circles. He is the organization secretary of the Vegetable Growers' Association of America and is said to be one of the best informed men along vegetable lines in the United States.

Resolutions asking that the American Farm Bureau Federation appoint a committee of not more than twenty-one men to formulate plans for cooperative fruit marketing associations were adopted at a conference of prominent fruit men on April 5, in Chicago. Sixty-five delegates from twenty-seven states attended the meeting.

ACTIVITIES OF SHIAWASSEE FARM BUREAU WOMEN.

A GREAT work has been done by the farm bureau women of Shiawassee county, and their influence in the farm bureau movement has been decidedly felt. It is essential that this work continue with assistance of the home economics extension department, under the women chairmen in the various locals.

The women are headed by Mrs. Geo. R. Fauth, county chairman, and Mrs. A. Calkins, Mrs. George Getman, Mrs. James Riley and Mrs. Charles White, on the advisory committee. In addition to these officers there is the local chairman at each local, and project chairmen where the organization of the women has been completed.—M.

PRESQUE ISLE COUNTY BUYS GRIMM.

THE Presque Isle County Farm Bureau and the various cooperative associations have placed orders with the State Farm Bureau for seven thousand pounds of clover seed, including twelve hundred pounds of genuine northern-grown Grimm alfalfa. This is the only source on which the guarantee covers not only purity and germination, but also origin. The matter of origin is very important, northern-grown seed being more hardy than the southern. All orders for June and Mammoth clover are being filled with Michigan-grown seed.

The climate of Presque Isle and also the soils, are especially adapted to the growing of clover seed, the heavier soil sections producing phenomenal yields of alsike, while with the lighter soils sweet clover, grown in rotation with potatoes and small grains, provides a very profitable cash crop, and at the same time a leguminous crop so necessary on the lighter soils. The seeding of sweet clover has been encouraged by E. S. Brewer, county agent, with the result that large numbers of farmers are buying seed for use this spring. The acreage will be at least doubled, as the low prices for seed offers a great opportunity for large yields and substantial profits. When the first crop is harvested for seed the yield averages fifteen bushels per acre, while a yield of six or eight bushels is often obtained after removing a crop of hay.—M.

The Sunflower Crop

Results of Work Conducted at Upper Peninsula Experiment Station.—By D. L. McMillan, Supt.

IN the summer of 1919 we planted one acre to sunflowers with an ordinary grain drill, sowing ten pounds of Mammoth Russian seed to the acre in rows twenty-four inches apart. This was cut when it was about one-third in bloom, put into a silo, and fed out to the herd. The cows seemed to relish the silage, and we could see no difference, practically, in the milk production than when fed the pea and oat silage.

We were so well satisfied with the sunflower as a silage crop that we put in seven and a half acres in the summer of 1920. This was seeded May 29, in rows thirty-two inches apart, nine and a quarter pounds of seed to the

duce milk when the animal was allowed to consume the amount desired. From the standpoint of economy, the sunflower silage has the advantage, as it can be produced for about one-half the cost of the pea and oat silage. The reduced production in the last quotation is due, somewhat, to a more advanced stage of lactation.

A sample of the silage from sunflowers grown at the Upper Peninsula Station was sent to the chemistry department at the Michigan Agricultural College for analysis, and the percentages of nutritive elements are given in the following table, compared with the nutritive elements in matured corn and immatured corn:

	Moisture.	Protein.	Fat.	Crude Fibre.	Nitrogen-Free Ext.	Ash.
Sunflower	76.9	3.20	.87	6.12	11.15	1.76
Matured corn	73.6	2.1	.80	7.8	12.9	2.1
Immatured corn..	79.1	1.7	.80	6.0	11.	1.4

acre. This gave us too thick a stand, so we went through with hoes, and blocked the plants so that they were from six to ten inches apart. The field received three cultivations, and by that time the plants were so large that they spread out until the leaves touched one another between the rows.

As we had no corn harvesting binder to cut the crop, we made a V-shaped sled with cutting knives on each side, so as to cut two rows at a time. These knives were old cross-cut saws, sharpened on the back, and bolted to the sled. The field was cut when approximately one-half of the plants were in bloom. The sunflowers lay on the ground for one-half a day after cutting to allow part of the moisture to evaporate, then hauled to the silo, each load being weighed as it was brought from the field. The yield was 24.6 tons per acre. There was no more difficulty in running the sunflowers through the silo filler than there would be with corn. When one-half of the silo was filled, eleven tons of peas and oats were put in, the balance being filled with sunflowers.

This silage was fed out to the dairy herd and the sheep. Careful records were kept of the milk production and observations were made regarding the palatability and the general health conditions of the animals on the two kinds of silage. The same grain ration was fed during the time we were feeding sunflower and the pea and oat silage. The change from sunflower to pea and oat silage was made on January 17, and back to sunflowers on February 13. The average daily milk production for the last fifteen days before changing from sunflower to pea and oat silage was 484.6 pounds. The average for the twenty-seven days while feeding pea and oat silage was 483.8 pounds. The average daily milk production for the fifteen days after making the change back to sunflowers was 466.2 pounds. The cows relished both types of silage about equally well, but owing to the more bulkiness of the pea and oats, they did not consume more than thirty-five pounds per head per day, while they would take forty pounds of the sunflower silage.

This comparative test would indicate that, pound for pound, the peas and oat silage was a little better than the sunflower silage, but was about equal in palatability and ability to pro-

duce milk when the animal was allowed to consume the amount desired. From the standpoint of economy, the sunflower silage has the advantage, as it can be produced for about one-half the cost of the pea and oat silage. The reduced production in the last quotation is due, somewhat, to a more advanced stage of lactation.

Considerable experimental work must be done to determine at what stage of development the sunflower plant will give the greatest feeding value. The objection to letting the plant get too nearly matured is, that rosin develops in the plant during the last stages of development, which produces a dark-colored, ill-smelling and somewhat unpalatable silage, and there is also more crude fibre. The breeding ewes relished both types of silage about equally well, and we could see practically no difference in the results.

After checking up on the work with the sunflowers at the different experiment stations, we have reason to believe that the sunflower is destined to be a large factor in the development of the live stock industry in counties too far north to produce well-matured corn for silage. In the more southern counties of the state, also, southern Wisconsin, the plant seems to rust badly, which causes the leaves to drop off. During the past two years we have had but little trouble that way at the Upper Peninsula Experiment Station. It is possible that climatic conditions may be such that the rust will have a very damaging effect during some seasons. However, our plant breeder, Professor Spragg at the Michigan Agricultural College is now working to develop a rust-resisting sunflower that will give us the high-producing qualities of the variety now used.

We have gone far enough in experimental work in the upper peninsula with sunflowers to be confident that the crop will give a high production of a very palatable silage that has a better feeding value than the corn that is now produced. Another factor that favors the production of the sunflowers in preference to corn, is the fact that it is much more frost-resistant during its latter stage of development.



The Sunflower Crop Encourages Live Stock Production in Northern Districts.

An Oil Stove That Does Not Burn Oil

The Alcazar Kerosene Gas Cook Makes Gas from Kerosene and Air and Burns It—Operates Like Gas Range—Saves 30% Oil

A really new kind of oil stove is the Alcazar Kerosene Gas Cook. And it is a sensational success. Even in the cities where gas is available, the Alcazar Kerosene Gas Cook is used in large numbers.

The Alcazar Kerosene Gas Cook operates just like a gas range. Indeed, it burns a gas—not oil. The Alcazar Burner makes the gas—automatically—by mixing air with kerosene oil.

The gas produces an intensely hot blue flame (two flames in one). The flame is always under perfect control. A mere turn of a valve increases or decreases the flame to the exact point you want.

The flame is concentrated directly on the cooking vessel or right up under the oven. No spread of heat as with the ordinary oil or coal stove. This

concentration of heat means cooking more quickly done and less oil consumed. Also a cool kitchen on hot days.

Convenient and Clean

The Alcazar Kerosene Gas Cook is practically as convenient to use as a gas range. It is lighted and extinguished in a jiffy. None of the bother of the ordinary oil stove.

Burning gas as the Alcazar Kerosene Gas Cook does, means a clean, sweet kitchen, and makes cooking a pleasure.

ALCAZAR
KEROSENE GAS COOK

Pays for Itself in What It Saves

The Alcazar consumes a great volume of air, but very little oil. The perfect combustion gives you 30% more heat from 30% less fuel, as exhaustive tests have shown.

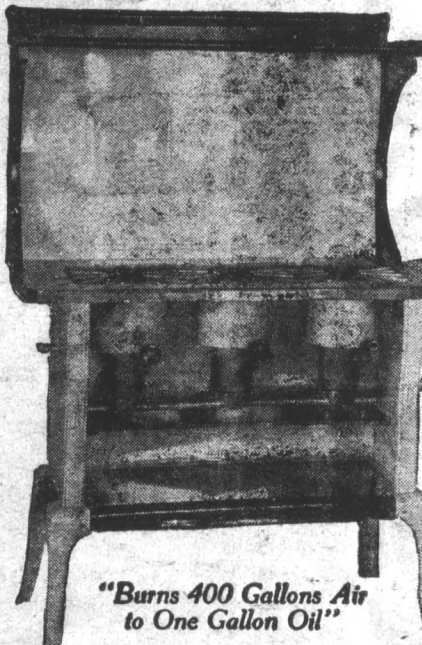
You can't afford to be without this stove since it means such a saving in money, not to mention time and work.

See the Alcazar Kerosene Gas Cook at any good stove dealer's.

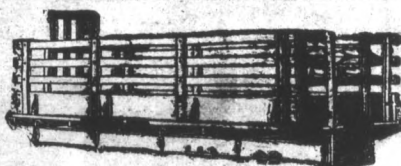
Mark how sturdily it is built. Note, too, how it excels in design and finish and especially the Patented Brass Burner which is drawn of one piece of solid brass, without any seam. It is a stove of real style as well as having virtues of highest efficiency and greatest economy.

Write for descriptive booklet showing all types and sizes.

Alcazar Range & Heater Co.
417 Cleveland Ave. Milwaukee, Wis.



"Burns 400 Gallons Air to One Gallon Oil"



3 Handy Wagon Beds Make Them Yourself

Plans Free

Why bother with heavy wagon beds that take two men to lift off and on?

With a set of A-P hardware any man handy with hammer and saw can make these three handy beds—hay rack, grain bed, stock rack—to fit any wagon.

A few special clamps, sideboard brackets and endgate fasteners, with the necessary bolts and rub-irons, are all the hardware you need.

The beds are made in sections and can be easily handled by one man alone.

Send the Coupon

for free plans. They tell just how to cut material and to fit in place every piece of hardware. Don't go without these easy-to-handle wagon beds any longer when they can be had for the making.

Allith-Prouty Co.

Dept. 8704 Danville, Illinois

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Please send me without obligation your free plans telling how to make A-P combination wagon beds. Also tell me the name of nearest dealer who handles the hardware sets.

Name

Town

Dealer's Name

For Sale Write Dr. W. Austin Ewalt, Mt. Clemens, Mich., for those beautifully marked Sable and White Scotch Collie Puppies, natural heelers from trained stock; pedigrees furnished. Will also buy thoroughbred Collie and Airedale puppies for training.

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Michigan Farmer, one year.....\$1.00
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Both for \$2.35.

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Youth's Companion, one year.... 2.50

Total value\$5.00
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Michigan Farmer, one year.....\$1.00
Woman's World, one year50
Little Folks Magazine, one year 2.00

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OFFER No. 307.

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Today's Housewife, one year.... 1.00
Young People's Weekly, one year .85

Total value\$2.85
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Michigan Farmer, one year.....\$1.00
American Magazine, one year.... 2.50
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Improved White and Brown Leghorns. Selected and bred for egg production and are some of the best today. Get some of these good Leghorns for the price is right. \$12.00 per 100. Write for catalogue with price list. Safe arrival guaranteed.

Wolverine Hatchery, R. 2, Zeeland, Mich.
H. Wiersma, Owner and Mgr.

Baby Chicks Pure Bred 800,000 in 1921

To your door Prepaid by us. Guaranteed live delivery. All our stock is of the Standard and free range and of heavy egg production at the price to meet times. And they are all No. 1 only



Barred Rocks }
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12c each }
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Give us a trial order and you will always come back for more of our chicks get our big offer on chicks and brooders. Order direct from this ad and save delay. Circular Free.

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CHICKS At Reduced Prices CHICKS

20,000 large, strong, well hatched chicks every Tuesday hatched from eggs laid by selected hens on free range insuring healthy, vigorous chicks that will live and grow into money for you.



Barron S. C. White Leghorn heavy weight and heavy layers American S. C. White Leghorns heavy laying strains S. C. Brown Leghorn the most beautiful Leghorn and a good layer. S. C. Anconas great layers.

We Ship By Parcels Post and Pay the Postage to Your Door.

We guarantee the chicks to reach you in good condition. Catalogue free.

WYNGARDEN HATCHERY, Box M, Zeeland, Mich.

Huber's Reliable Chicks--700,000 for 1921

By Parcel Post Prepaid. Guarantee Live Delivery.



This is our 12th season in hatching Baby Chicks of quality, bred for exhibition and high egg production. Prices after Apr. 1st. S. C. White and Brown Leghorns, 13 and 15 cts. Barred Rocks, R. C. and S. C. Reds, 15 and 17 cts; S. C. Anconas 14 and 16 cts; S. C. Black Minorcas 22 cts; S. C. Buff Orpingtons, 21 cts; White Wyandottes 25 cts. Odds and Ends 13 cts. Our chicks are hatched right and full of pep. All we ask is one trial and we know you will come again the same of thousands of others. Combination offer on chicks and Brooder stoves.

HUBER'S RELIABLE HATCHERY,
East High St., Fostoria, Ohio

SUPERIOR BABY CHICKS

At reduced prices, from our Farm raised, free range, heavy laying, purebred stock. Order direct from this ad and save time. Hatch every week. Prices are prepaid to your door and guarantee 100% live arrival.

	25	50	100	500	1000
Pure bred S. C. Amer. White Leghorns	\$3.75	\$7.00	\$13.00	\$62.00	\$125.00
Purebred S. C. English White Leghorns	\$4.00	\$8.00	\$15.00	\$72.00	\$140.00
Purebred S. C. Brown Leghorns	\$4.00	\$8.00	\$15.00	\$72.00	\$140.00
Purebred S. C. Mottled Anconas	\$4.50	\$9.00	\$16.00	\$78.00	\$150.00
Broiler chicks 10 cents each.					

Superior Poultry Farms and Hatchery, Box 203, Zeeland, Mich.

Quality Baby Chicks

and 8 weeks old pullets

AT REDUCED PRICES

American-English Strain S. C. W. Leghorns our specialty. Produced from the choice of 2000 hens on free range. We are not running a hatchery but produce all the eggs that go into our incubators from high quality selected stock. Only the best are used for hatching. This stock is worth more to you than those bought from the regular hatchery though our prices are practically the same. We are now booking orders for latter part of April, May and June delivery. Our supply is limited so place your orders early.

Macatawa White Leghorn Co.
R. 1, Holland, Mich.

DAY-OLD CHICKS

Strong, vigorous fellows, the kind that live and grow. Carefully selected, open range, purebred utility stock. Price reasonable. Circular free. SUNBEAM HATCHERY, 243 S. Main St., Findlay, Ohio.

Baby Chicks

FREE delivery. Superlative quality from select high-producing stock. All popular varieties. Reasonable prices. Write for catalog at once. AERDALE POULTRY FARM, Box P, Springfield, Ohio.

May Chicks Buy 'em Home

May 12, 4, 9 and 11. Brown Leghorns \$5 per hundred. Rocks and Reds \$16. Wyandottes \$18. Add 50c for half and quarter hundreds. Write for other varieties. Prepaid and guaranteed live delivery.

Washienaw Hatchery, Ann Arbor, Mich.

BABY CHICKS Hatching eggs, Barred Rocks, Norman strain, trap-nested, bred-to-lay, expertly tested for many generations, large illustrated catalogue 25c, stamps for circulars. Norman Poultry Plant, Chatsworth, Ill.

Barred Rocks Hatching eggs from Parks 20-egg strain. Rich in the blood of Parks best pedigree pens. \$2 per 15, \$8 per 50, \$12 per 100. Prepaid by parcel post in nonbreakable containers. R. G. HARRY, Route 1, East Lansing, Mich.

Broad View Farm Big Type S. C. White bodied birds. Heavy layers of big white eggs. Exhibition type eggs \$2.50, 100 \$3. Post paid. E. B. MOKER, Hildale, Mich.

Eggs, M. A. C. culled White Leghorns and Rhode Island Whites, dandy layers. \$1.50 per setting. Mrs. Earl DeLane, R. 1, Oxford, Mich.

Barred Rock Hatching eggs, M. A. C. Laying strain, 15 eggs \$2; 50 eggs \$4.50. Postpaid. Mrs. J. T. Ball, R. 9, Charlotte, Mich.

Barred Rock Eggs for hatching, selected quality, \$2.00 for 15. \$3.00 for 50; \$12.00 for 100. Prepaid Parcel Post. MR. H. HUNT, R. 1, Dearborn, Mich.

Baby Chicks Good big healthy chicks of show room quality at utility prices. Catalogue free. Sycamore Hatchery, Sycamore, Ohio.

Additional Poultry Ads. on Page

CONTROLLING GRASSHOPPERS.

If each and every farmer in the districts affected by grasshoppers will put three hen turkeys on his farm and then hatch and raise their young, the hoppers will soon disappear.

Turkeys do not destroy crops as some suppose, at least where there are plenty of bugs or insects for them. They will hunt the bugs and eat them before touching the grain. Even if the turkeys lived on the grain they would eat less than the grasshoppers which the turkeys eat would destroy. Last year the grasshoppers made away with all my seeding and nearly all the crops in the vicinity.

It is also a mistaken idea that the turkey tramples down much of the grain through which it wanders. They wend their way slowly between the drill rows of grain and pick every hopper that hops.—J. E. KENDALL.

FEEDING ROLLED OATS.

I note your article advising the feeding of rolled oats to baby chicks. We have never had any that would eat it; the flakes seemed too large, but perhaps it should be run through the food chopper. Please advise me as to the best method of feeding the rolled oats. Midland Co. F. W. L.

We always crumble the rolled oats by rubbing them in the hands as the whole flakes are a little large for the chicks the first few days. When three or four days old the chicks will break them or eat whole flakes. Scatter the crumbled oats on shingles at the edge of the hover where they can be readily seen. Occasionally a few chicks will be backward at first but we have never found any that would refuse to eat rolled oats.

For several thousand chicks it might be advisable to run the oats through a food chopper. But we have never found it necessary with our flocks and the chicks are soon ready for commercial growing mashers and hard grain scratch feed and then the rolled oats are not needed.—R. G. K.

CLOACITIS.

A number of my hens, while they seem healthy, have some sort of bowel trouble. The symptoms are looseness of the bowels and appearance of inflammation. I feed them equal parts of barley, oats, wheat and buckwheat in the morning, and a mash of boiled potatoes and ground oats and corn at night, with sour milk at noon.

Monroe Co. Mrs. F. S.

The disease affecting the hens is probably cloacitis, or a contagious catarrh of the lower part of the oviduct, and rectum. Apply a five per cent solution of carbolic acid solution or a five per cent carbolic acid solution in warm water. This disease can be carried from bird to bird. Provide the hens with a dry mash containing plenty of bran and a sprinkling of charcoal and it may help to improve the condition of the digestive organs.

MIXING POULTRY MANURE.

Will lime of any sort be of value added to poultry droppings for fertilizing corn?

Cass Co.

T. J. S.

The Massachusetts Experiment Station recommend the following mixture containing poultry manure as a valuable formula for fertilizing corn: Hen manure, 1,510 pounds; acid phosphate, 340 pounds; muriate of potash, 150 pounds.

Wood ashes should not be sprinkled on poultry manure as it helps to free ammonia. Acid phosphate and kainit are recommended to prevent the loss of nitrogen. Lime should not be used as it helps to free the ammonia which contains nitrogen. Equal parts of loam and land plaster are sometimes used as an absorbent for poultry manure.

POULTRY

For your best quality of CHICKS

Send Your Order to the

City Limits Hatchery,

Rt. 5, Box 11, Holland, Mich.

Our chicks are of the highest quality and our prices are within reach of everybody. We have S. C. W. Leghorns, S. C. Anconas, English White Leghorns, S. C. B. Leghorns, and Barred Rocks.

DAY OLD CHICKS

HOMESTEAD FARMS



If you are a farmer poultryman you will be interested in the Michigan bred

Pure Bred Practical Poultry

A stock of demonstrated value for practical poultry people; stock bred under the plan of the Michigan Agricultural College and distributed at fair prices.

2,000 Eight Weeks Pullets

Leghorns, Anconas, and 16 other

Breeds. Shall we send you our 64-page descriptive Catalog? Chicks delivered parcel post prepaid.

STATE FARMS ASSOCIATION,

Desk 1, Kalamazoo, Michigan

BABY CHICKS

We furnish pure bred chicks of the finest quality from high egg producing stock. Flocks built directly from laying contest winners. We have several breeds. Write for our free illustrated catalogue and price list.

J. W. OSSEGE HATCHERY, Dept. 99, Glandorf, Ohio.

B-A-B-Y-C-H-I-X

Crescent Strain S. C. White Leghorns Black Leghorns, Brown Leghorns, Buff Leghorns, Rhode Island Reds, Barred Plymouth Rocks, (also White), Wyandottes, (Silver Laced and White) and Mottled Anconas. WE HATCH eggs from flocks on range on separate farms. Send for booklet containing much of value to poultry raisers. CRESCENT EGG COMPANY, Allegan, Mich.

Baby Chicks from fine stock, to produce eggs, at utility prices. Catalogue FREE. Lee's Poultry Farm & Hatchery, Edison, O.

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High Quality--Moderate Prices

You can pay more and get less in quality but you can't get a bigger value for the same money. That's why once a customer always a customer.

25,000 Husky Chix Weekly

from free range, carefully selected stock, hatched by experts in a real up-to-date hatchery. We specialize in 14 leading breeds. Safe delivery guaranteed by P.P. prepaid. Write for catalog.

OVIE'S POULTRY FARM & HATCHERY, 34 State Street, Marion, Ind.

BUY BETTER BABY CHICKS!

For Bigger Profits! Our illustrated catalog tells you why it is safest to buy Mid West Chicks. 12 leading varieties of real money makers. Write now and order quickly. MID-WEST HATCHERIES, Head Office: 655 E. Dearborn Bank Bldg., Chicago, Ill.

CHICKS English Strain White Leghorn the heavy laying strain at only \$15 per 100; prepaid by mail safe arrival guaranteed send cash with order special rates on 500 or more. JAMESTOWN HATCHERY, Jamestown, Mich.

BABY CHICKS

Hatched from free range stock. Quality and live delivery guaranteed. Write for catalogue. STILLWATER HATCHERY, Covington, Ohio.

BABY CHICKS High Quality, Heavy Laying Strains. Vigorous Chicks from Hardy Stock. Prize winners at N. Y. & O. State Fairs. 35 best breeds—low prices. Safe arrival guaranteed. City free. CRYSTAL POULTRY FARMS, Shepard Strong, 7901 Franklin Ave., Cleveland, Ohio.

Baby Chicks and Eggs for Hatching

Barron's White Leghorns, Barred Rocks and R. I. Reds. Big sturdy chicks from free range stock with high egg records. Interesting catalogue free. BRUMMERS POULTRY FARM, Holland, Mich.

CHICKS

English Strain White Leghorn. Bred to lay Brown Leghorn and Anconas. Bargain prices for our quality stock kept on free range. Order now for early delivery. Hillside Grove Hatchery Farm, R. 1, Holland, Mich.

Buff, Barred, Columbian Partridge, Silver Pencilled, White Rocks, Anconas, White Wyandottes, Rouen Ducks. \$2 setting. Catalogue 2c. SHERIDAN POULTRY FARMS, R. F. D. 5, Sheridan, Mich.

DAY-OLD CHICKS

\$16.00 per 100 and up. Hatching eggs, \$2.00 to \$15.00 per setting and \$9.00 to \$15.00 per 100, from 25 varieties of pure bred, farm raised fowls: Chickens, Geese, Ducks, Turkeys and Guinea. Price list and circulars free. Plenty of nice breeding stock. Book now for early spring delivery. WILMINGTON HATCHERY & POULTRY CO., Wilmington, Ohio.

Fowler's Buff Rocks: Eggs for hatching. Also a few choice cockerels left. Write for prices. R. B. FOWLER, Hartford, Mich.

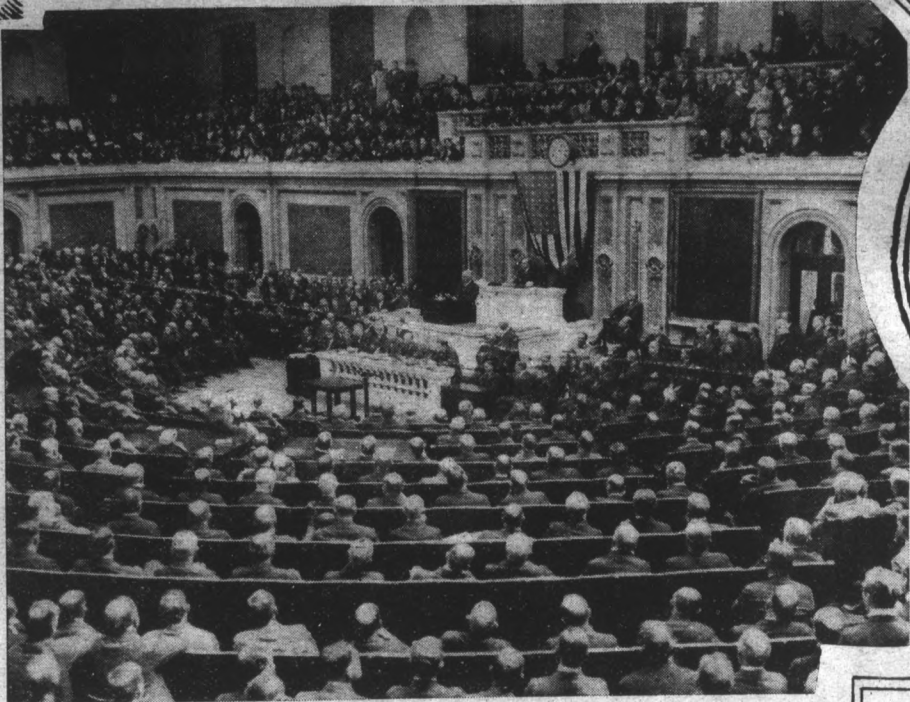
Don't Buy Baby Chicks

Until you get our catalog and prices. Pure bred, heavy laying White and Brown Leghorns, Anconas. Write today. Monarch Hatchery, Zeeland, Mich.

Snowy White Rocks Fishel strain, dandy layers. Eggs \$1.50-15; \$4.50; \$8-100 All prepaid. Mrs. Earl Dehnhoff, Van Buren, Ohio.

Additional Farm Ads. on Page 563

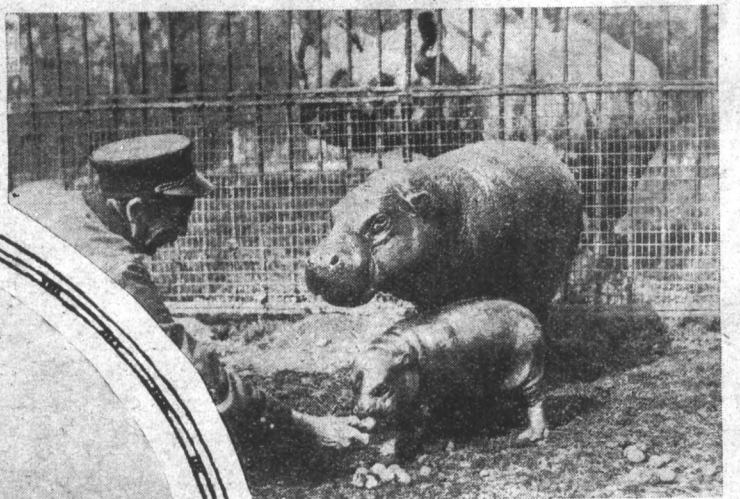
WORLD EVENTS IN PICTURES



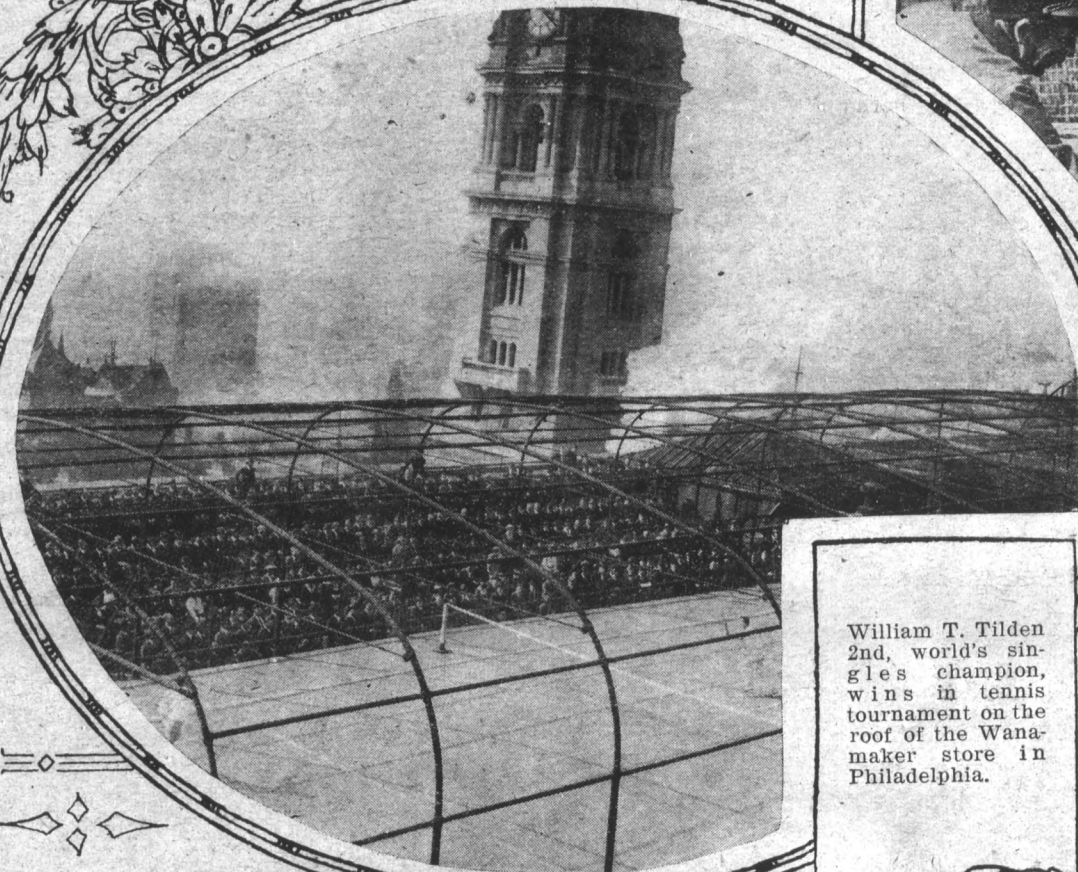
President Warren G. Harding reading his first message in congress.



Miss Clara K. Haywood, girl cue star of Philadelphia, and Edward Horemans, Belgian billiard champion, play exhibition games for charity.



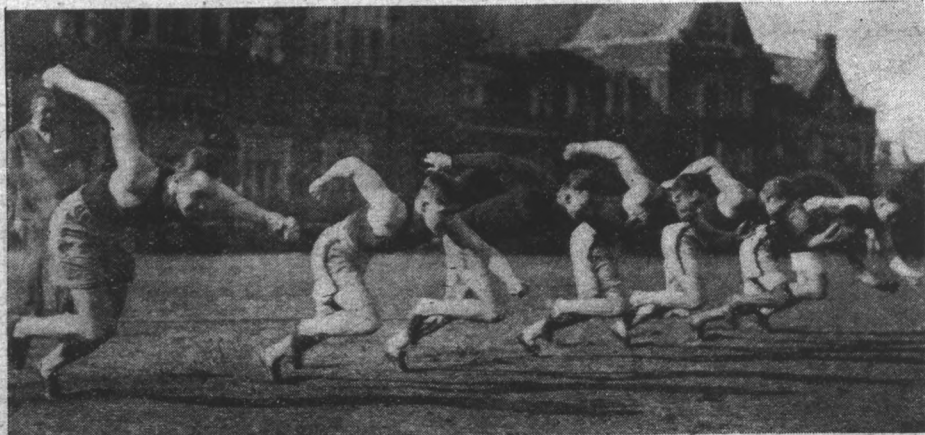
Three-months-old hippopotamus at New York Zoo will not stop eating even to make debut before camera.



William T. Tilden 2nd, world's singles champion, wins in tennis tournament on the roof of the Wanamaker store in Philadelphia.



Jackie Coogan, Charlie Chaplin's co-star in "The Kid," doing some cranking on his own account on top of the Biltmore Hotel, New York.



Relay runners at University of Pennsylvania being put through a starting practice.

THE CLAN CALL

By HAPSBURG LIEBE Copyright 1920, Doubleday, Page & Co.

CHAPTER IX. Lonesome.

WHEN John Moreland and Ben Littleford had finished their breakfast there in the dining-room of the Blaisdell, they drank the water from their fingerbowls, threatened with sudden death the waiter who snickered, and found their way to the lobby.

To Littleford the minutes dragged soddily. Finally he told Moreland, in a sentence filled with double negatives, that he could bear his suspense no longer, and proposed that they set out at once for Doctor Braemer's hospital. The hotel manager overheard some of the one-sided conversation; he 'phoned the surgeon and learned that the young woman was resting easily, which information he passed on to the mountain men.

Ben Littleford was quiet for five minutes, more or less. Then he again proposed to John Moreland that they go to the hospital to see Babe. Moreland refused flatly, and accompanied his refusal with an unmistakable look of contempt.

"You're as restless as a dog in a flea town," he told his old enemy, and with that he walked away.

A few minutes later Ben Littleford stole out unnoticed by his neighbor from the Big Pine, and went at a brisk gait up the street. Moreland found it out shortly afterward; he followed the Littleford chief hotfoot, and overtook him. Trust your hill dweller to note landmarks when he goes into unknown territory—Littleford was headed for the hospital.

They walked for two blocks in silence. Moreland had assumed the attitude of one who has the guardianship of an irresponsible person thrust upon him. But soon he softened somewhat.

"I shore can't understand, Ben," he drawled, "how Bill Dale ever could bear it to live here."

"I wonder," Littleford said absent mindedly, as though he had not heard, "whar Bill Dale is at? It's mighty durned lonesome without him, ain't it? That was good ham we had fo' breakfast, John."

"It wasn't ham. It was beef."

"It was ham."

"It was beef."

"It was ha—"

"Don't ye reckon," flared John Moreland, "that I know a dang cow's meat when I see it? It was beef!"

They had halted in the middle of a stream of pedestrians. A policeman crowded his way to them.

"Move on!" he growled.

Bill Dale was at that moment entering the lobby of the Blaisdell with Rob-

ert McLaurin at his side. Dale had just told McLaurin that he meant to go to Cincinnati to borrow money from his wealthy friend Harris. Then McLaurin told Dale something that saved him the journey to Cincinnati.

"You haven't heard about Harris, Bill? I'm sorry, because he would have accommodated you. He went broke a few days ago in the cotton smash. He was here yesterday, and left last night for Cincy."

Dale did not try to conceal his surprise and disappointment. Harris, for all his youth, had been a business marvel.

"I'll have to try somebody here, I guess. But I won't take it from father—mother wouldn't permit it, anyway, if she knew—and there are several other reasons. Queer how a fellow's mother would turn him down like this! Usually, y'know, it's a fellow's mother that sticks by him the longest."

"I wonder where I could find old Newton Wheatley, of the Luther-Wheatley Iron Company? I know him, all right. He always liked me, Bobby."

"You'll find him at home," McLaurin answered. "He's out of business, and here all the time now. He might take a shot at coal. Why not 'phone him from here?"

"I'll do that," Dale decided. "Look up my two friends for me, Bobby, will you?"

He was soon speaking to Newton Wheatley. He was brief in stating his wishes. To the question as to why he did not go to his father for funds—well, he had his reasons, and it was rather a private matter. Wheatley, of course, remembered the near-wedding.

The old iron man was silent for what seemed to Dale a very long time. Then his voice came over the wire with an almost ominous calm:

"Who besides you has seen this vein, Carlyle? Anybody that knows coal?"

"Yes, my father," Dale answered quickly. "He went over it years ago. Ask him about the coal in David Moreland's Mountain. 'Phone him, and then 'phone me. I'm waiting at the Blaisdell."

Wheatley agreed a little reluctantly.

Dale waited patiently for fifteen minutes. Then the clerk called him to the 'phone. He took up the receiver with boyish eagerness.

Wheatley began cordially: "Your father tells me it is a good proposition, Carlyle, so I'll let you have all the money you'll need. And if you want a good mining man, I know where you can lay your hands on one; also I can furnish you, at half the original cost, all the necessary machinery and accessories. You didn't know the old Tuth-

er-Wheatley Company dickered in coal as well as iron; eh? Well, it did. Let me see you at three this afternoon—"

Dale was jubilant. Here was a stroke of good fortune. He went to McLaurin who had not yet found John Moreland and Ben Littleford—and told him about it. McLaurin was almost as happy as Dale over it.

A bellboy appeared like a jack-in-a-box in the center of the floor.

"Mistoh Cahlyle Dale! Mistoh Cahlyle Dale!"

Dale wheeled. "Well?"

"Wanted immejitly at Doctor Braemer's hosspittle, suh!"

Dale's cheeks lost some of their color. He shook hands with McLaurin and hurried toward the street.

A few minutes later Doctor Braemer met him in the reception room.

"What's wrong, doctor?"

The surgeon beckoned. "Come with me."

He turned and led the way through a long corridor and to a sunny white room where Babe Littleford lay with a bandage about her temples. Ben Littleford was on his knees at his daughter's bedside; he was slowly wringing his big, rough hands and begging pitiously to be forgiven.

Babe stared at him a trifle coldly. She had not yet seen the two men who stood in the doorway. Then she interrupted her father:

"You hush, pap, and go away. I'd told ye a hundred times about fightin' a-bein' mudder, and 'specially to us wimmenfolks; and you never would pay any 'tention to me. You hush, pap, and go away. Ef I die, I'll jest haf to die. And ef I die, I shore do want to die in peace. Go away, pap."

"But ye must live, Babe, honey!" Ben Littleford moaned. "Ef you was to die, what'd I do?"

"I don't know what ye'd do, pap," Babe said weakly. "You ought to thought o' that afore, pap. It may be too late now. I want ye to go on off and le' me alone. Ef I die, I want to die in peace. The Lord knows I never got to live in peace!"

There was a worried look in her wonderful brown eyes, and the doctor saw it. He strode forward decisively and helped Littleford to his feet. The hillman wiped away a tear with his faded blue bandana, and hung his head. He had been made a broken man in one day.

"Go out to your friend, Moreland," smiled the doctor, "and wait there for a little while."

Babe's father walked unsteadily out of the room. Dale went to Doctor Braemer and whispered, "Isn't she going to make it?" anxiously.

"Certainly, she's going to make it," Braemer assured him. "Go on; she wants to see you."

Dale drew a chair up close to the white bed and sat down. Babe's eyes lighted at once, and she put a hand uncertainly out toward him. Dale took the hand in his. He saw that it was a little pale under its delicate sunburn.

"Glad to see you, Babe," he told her softly. "Why do you think you're going to die, Babe?"

She smiled at him. "Why, I don't think I'm a-goin' to die," she said. "I know I'm a-goin' to live, Bill Dale. I feel like I could walk fifty miles right now!"

"But I heard you tell your father—"

"I was a-tryin' to skeer him out o' fightin' any more," she interrupted. "And I believe I 'bout done it, don't you?"

Dale was relieved. "I do. Is there anything you want, Babe? If there is, I'll get it for you if it's in the universe."

"The universe?" she repeated enquiringly. "What's the universe, Bill Dale? Somethin' to eat?"

"The world, the sun, the moon, and the stars."

She smiled at him again. "No," she said, "the' ain't nothin' I want, and the' ain't nothin' ye can do fo' me, I reckon."

"But I thought, as they sent for me—"

Babe Littleford's fingers held tightly to him. "It was me that sent fo' you."

She turned her face the other way. "I was so lonesome, Bill Dale!"

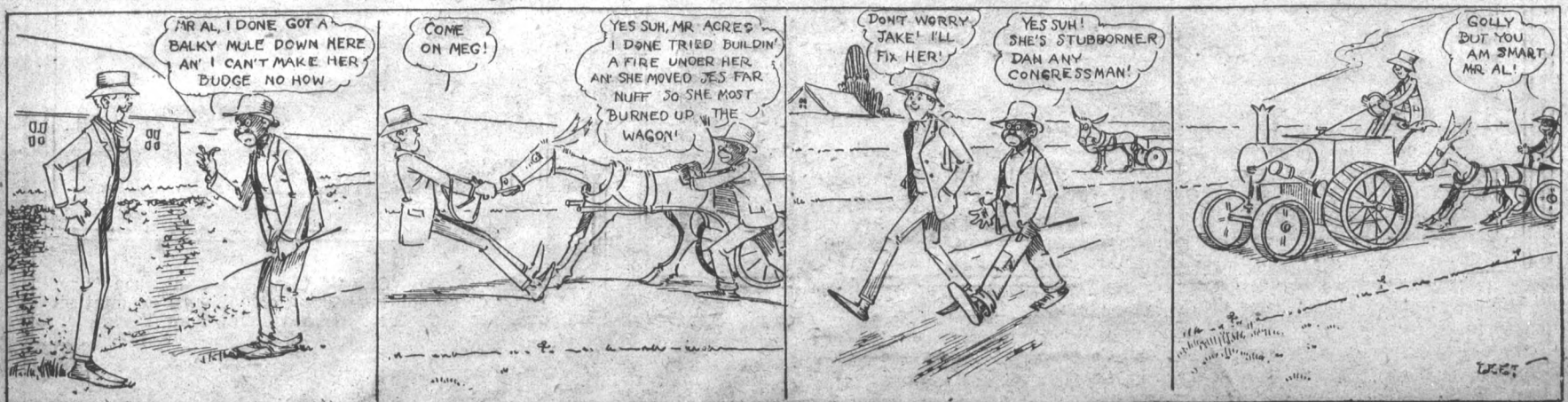
Robert McLaurin's wife Patricia visited Babe twice daily, and a friendship that was none the less warm for being unique sprang up quickly between them. Patricia declared to her husband that she was going to keep Babe—whom she was already calling by her proper name, the same being Elizabeth—and educate her. There was room in the bungalow, Patricia said; and she really needed company, because Bobby was away so much.

Babe accepted little Mrs. McLaurin's offer as soon as Bill Dale convinced her that she wouldn't be merely an object of charity. The hill pride's first law is that one must pay for what he gets—and it's probably the first law God laid down for old Adam in Eden. Ben Littleford seemed bewildered and blue when they told him of the arrangement, but he voiced no objection. Dale pressed upon him a loan of a hundred dollars, and ordered him to give it to his daughter, which he did. Elizabeth Littleford, of course, would need new clothing.

"I ain't even got any dresses at

AL ACRES—How Al breaks the mule's won't power.

—By Frank R. Leet



home," she whispered to Patricia, "but two."

Bill Dale was now sure that he loved Babe, and he was almost sure that she cared for him. But he was quite properly in no haste to come to an understanding. He had known all along that Babe would have to be educated;

and a woman's tastes, he reasoned, might change with education. And he wanted her to have the opportunity of knowing other men of his class. If she couldn't love him with a lasting love, he didn't want her to love him at all. Oddly or not, he never thought of Jimmy Fayne. (To be continued).

The Revival at Mud Valley

Our Weekly Sermon—By N. A. McCune

(Continued from last week).

DURING that week an encouraging event took place. Mr. Skimp was called on the 'phone by a young farmer named Abreast. Mr. Abreast wanted to know if non-members of the church might join the Community Improvement Class. He said he had never been much on going to church, but he was always in for anything that looked toward a better town, and better conditions. Of course Skimp had only one reply. Come, by all means. Mr. Abreast told Skimp to buy any books needed for him, and he would pay for them the first time he came to class. This man Abreast was a graduate of the state agricultural college, as was his wife. He was farming on a large scale, and seemed to be a coming man.

During that week some other things occurred that were of interest to the pastor. He had not asked permission of his officary to hold the class on community improvement. There was a good reason why. He knew they would have opposed it. Tuesday he met Deacon Trudge. It was evident that something had happened to Deacon Trudge. He did not complain about the class, or suggest to the pastor that he had better keep to the "simple gospel." It was well he didn't, for his pastor was in a mood to fight for what he considered his duty to his church.

The deacon was as tractable as a circus pony. He made the absolutely astounding suggestion that the trustees and the board of deacons should be officially asked to join the class, and make it a "big thing." Skimp hardly knew what to think, as he walked home. It was evident that someone had poured a pint of some powerful elixir down the deacon's throat.

SUNDAY night came. The immortal nineteen were there, together with Mr. Abreast, his wife and a young couple who lived near them. None of the latter had ever been in the church before. They eyed the preacher doubtfully, and mentally decided to take him on probation. But, the surprise of Skimp's life awaited him. Three of the deacons and four of the trustees were there. He greeted them, as if they were his wife's long-lost brothers, slapping each man on the back and calling him by his first name.

"We will go on with the bulletin where we left off last week. Note two or three sentences on page fourteen. 'Strong churches, located at natural community centers, are from the point of view of agricultural unity, greatly to be desired. It is the small, weak, pastorless church, poorly located, which tends to surrender agriculture to destructive individualism. It is the strong church, with noble permanent architecture, properly located, with a capable resident pastor, which unifies agriculture; and a unified agriculture, in turn, nurtures the church.' Now, folks, let us pass on rapidly and see what some of the churches are doing in Wisconsin, which Professor Galpin has listed.

"Here on page twenty is a description of the Baptist Church at Honey Creek. If it is a dairy region, it must be a land of milk and honey. The church is the only one within a radius of three miles. The pastor is expected to have a principal part in the public affairs of the community. In fact, by

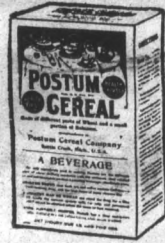
common consent and general understanding, the program of the church is as much a community program as a church program." The bulletin then goes on to tell of the community hall which the parish has built. There is a "Community Brotherhood" of sixty members. Once a year a banquet is held, and a speaker of national prominence is secured. There is a winter lecture course. The pastor has organized a Saturday baseball league. "George!" whispered Jim Stride, "they must have a whale of a preacher over there." "It doesn't seem to me that a pastor should be expected to be a professional ball player," muttered Mr. Flat. "Personally, I prefer the old way, when the minister was the man of God, looked up to by old and young."

Next, the class considered the Methodist church at La Grange. The people take considerable pride in the church building. Every Wednesday evening a community choir meets for practice under a trained leader from the Milwaukee School of Music. A farmers' club of between sixty and a hundred members, holds its meetings in the church. The ladies' aid society draws its members from three school districts. Besides raising money, they maintain a study club, which meets fortnightly. The printed programs for five years show a wide range of topics, such as Bible history, domestic science, music, nature work, child study, international peace, personal experience in travel, and local history.

THE remainder of this bulletin," said the pastor, "eighteen pages, is given over to the life-story of John Frederick Oberlin, the greatest community pastor, probably, who ever lived. Suppose we take that up next time. And at the same meeting Brother Ready can give his report from his chapter from McKeever's 'Farm Boys and Girls.' Suppose we thrash over a little of the material we've gone over tonight. Is there anything in all this that applies to Mud Valley?"

H. Open: "I should say it all applied to Mud Valley. I say, let's go to it and do something." Jim Stride: "That's me, all over. If these Wisconsin folks are so much smarter than we are, maybe we can't keep up with them. But if they're ordinary mossbacks like me and Jake here, I believe we can run 'em a close race. What do you say, P'fesser?" Mr. Ruler: "Where there's a will there's a way. We certainly need a community shaking-up here." Abel Pinch: "Wouldn't a good evangelist be the best move? Get the people converted, and you've solved all problems. We haven't had a revival for ten years." Mr. Flat: "I wanted to say that, and I'm glad you said it, Brother Pinch. A revival'll do more than all the carpentry classes and reading clubs and gardening movements you ever saw." Mrs. Sane: "But does the one exclude the other? Can't we work along improvement lines for the community now, and have a revival later? Isn't this religious, as well as evangelistic meetings? Personally, I have two boys and I spend a good deal of time wondering what they are doing after school?"

"The hour is up," said Skimp. "Let's hope that this will be a revival, sure enough. It's a little different kind of revival, that's all." (To be continued).



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Not in the shouts and plaudits of the throng,
But in ourselves are triumph and defeat.—Longfellow

Woman's Interests

Michigan Girl Works Her Own "Twenty"

TAKE off your hats to Miss Sadie De Young. Five miles from the second city in Michigan; with factories running all summer long and offering alluring wages to strong girls; jazz, movies, joy rides, and everything peppy right under her nose; steady farmers flocking to town and letting the land stand idle; girls coming back home and flaunting silken hosiery and summer furs; all the temptations of the wide-open gate right where she couldn't help but stumble over them, and she stayed right on the old farm with grandfather and grandmother.

She looked real happy and healthy and contented, too, when she came up to Farmers' Week at M. A. C. to study up on fertilizers, soils, crop production, and marketing methods. Indeed, she looked so much more placid and contented than the girls who are busily engaged in searching for a good time and an easy life, that she quite stood out. Further than that, she not only admitted that she enjoyed the life, she bragged about it.

"I don't see how the girls in town

ever stand the hard work," she said, after she had passed by as negligible the fact that she often got out and plowed a field or two when they could not hire a man. "Why, just think of having to get up every morning and start out to work, no matter what the weather is nor how you feel! Now, with my work, if it storms I can stay in, and if I don't feel just right, I can let things go a day or so, and not worry about losing my job. Leave the farm for town? I should think not!"

"We have forty acres," she went on, "and when grandfather got too old to do the heavy work, why, of course, I took things up. We let twenty acres, and I work the rest. Being so near Grand Rapids we decided to go in for market gardening. Last summer we had two acres of watermelons; one of late Evergreen corn; one of pickles, I sold three hundred dollars worth of little pickles; two acres of potatoes, and then some early corn and green peas, and other garden stuff. Besides we put in an acre of field corn for the stock and for seed, and we had seven

acres for pasturing our stock. "We have a small car, and I take the stuff to market twice a week. That's one thing I'm studying up here, marketing methods. It was fun selling, especially with melons and things that moved quickly. One day I got stuck with a lot of potatoes, but I took a smaller price than the rest were asking, and got rid of them.

"I've got no end of help from the college. Our soil is light, and I've learned what to put on to make it better. Then we were bothered with lice on the peas last year, and I found out just what to do for them. There are so many things I didn't know, and I'm getting bulletins on everything I can, especially on fertilizers and marketing.

"I like to raise melons best of all. But then, it's all interesting, and it's not hard work. I've never been to a farmers' week before, but this isn't going to be my last visit."

She gathered up her bulletins and went on. And somehow as she left you wondered if civilization was at the breaking point, after all.

Beautifying the Home Grounds



CONSIDERING the cost of seeds and shrubs, there is no investment that pays better dividends than a small purchase for home improvement. Too many farm homes are lacking in this respect, and it is a good business proposition to improve the home surroundings.

The first step should consist of dividing the grounds around the house from the commercial end of the farm by a hedge of shrubs. Osage Orange, Japanese Barberry or California Privet are ideal in forming a division between the home grounds and the remainder of the farm.

Shrubs are used to advantage to take away the effect of the square corners of the house and soften its outlines. In selecting shrubs choose those which have some landscape value at all seasons of the year. Such shrubs as the Syringa and the many varieties of Spirea are splendid for home planting.

The lawn is a very important feature of home improvement. Good lawn seed should be used abundantly before a rain in the early spring, and even if the lawn appears fairly thrifty, it will be improved by a small purchase of seed. A little fresh seed applied annually to an old lawn will do a great deal toward keeping it in good condition. Mowing should begin as soon as the grass is high enough for one-inch clippings. A lawn should not be raked after mowing, as the fine clippings falling around the roots of the grass form a fine mulch which keeps out the hot sun and conserves moisture. When

the grass is allowed to grow too long, raking is necessary, and this means extra work and also an injury to the grass.

A nice lawn is not improved by being broken up by flower beds, regardless of the beauty of the flowers they contain. Flowers should not be planted in the middle of the lawn, but in the corners or to one side. Flowers in the corners of the yard brighten up the darker background of the shrubs. The old-fashioned flowers, the kinds found in "grandmother's garden" have a

beauty all their own. Purchase seeds only from a reliable seedsman, and select well-known varieties rather than experiment with novelties.

When making plans for improving the grounds, draw a good-sized sketch of the house with outlines of the yard. Then the shrubs and flower beds can be placed in the desired location on the sketch and seeds and plants ordered in the necessary quantities.

Often the soil around the house is packed down hard; before planting the shrubs, some of this soil should be removed and replaced with rich mellow garden soil and manure, which will insure the plant a supply of nourishment until the roots are sufficiently developed to seek their own food. Old shrubs need a good manuring every year to enable them to do their best, but they are hardy, and it is surprising how much they will stand after becoming thoroughly established.



Shrubby and Flowers would Add Greatly to the Appearance of this House, Relieve the Straight Lines, and Make it More Home-like.

Our Boys' and Girls' Page

Poultry Lessons

By R. G. Kirby

Lesson IX.—Keeping Your Chickens Healthy.

PREVENTING poultry diseases is much more satisfactory than trying to cure them. This prevention is accomplished by keeping the poultry house clean and feeding balanced rations to keep the hens vigorous. Breeding from strong thrifty birds helps to produce vigorous chicks that are less susceptible to disease.

Keep Poultry House Dry.

If the poultry house is free from draughts and dampness it will be a great help in keeping chickens healthy. When a bird is sick it should be isolated at once to prevent the infection of other members of the flock. A small brood coop is handy as an isolation hospital.

Plenty of grit is a help in keeping birds healthy. It must be supplied in hoppers during the winter when the hens cannot find their own grit on the range. Grit grinds the food and without it a hen is rather helpless, like a dog without teeth. Charcoal is a help in preventing digestive troubles. Plenty of exercise scratching in a straw litter helps to keep hens healthy. In the winter the birds will be chilled and dumpy if they eat all their grain without scratching and then hump up in the corners of the house. When they scratch for their grain they will sing and make the straw fly and it will help them to lay eggs.

Watch Out for Colds.

Colds show their presence when the birds have watery eyes. Colds lead to roup and that is difficult to cure. So isolate the bird with a cold. Rub the head with camphorated vaseline or dip the head in a solution of one of the coal-tar disinfectants. Color the drinking water deep red with permanganate of potassium to prevent the colds from spreading through the flock. Birds that are kept in the house on raw windy days and fed a balanced ration are apt to have little trouble with colds.

Digestive troubles cause many losses but they can largely be prevented by feeding clean healthy food. Wash the drinking dishes and sour milk crocks occasionally with boiling water. Corn cobs are fine for scrubbing brushes for the poultry dishes. They will loosen and help remove all the gummy accumulations. Fresh clean water is a help in preventing digestive troubles. Keep the water dishes clean, even if hens do sometimes seem to like dirty water.

Green Food Good Tonic.

Plenty of green feed at all seasons is a tonic for the birds. In the winter it must be furnished to them. The rest of the year they will gather green feed themselves if given plenty of range.

Shade on the range is a factor in keeping hens healthy. This can be provided by placing the house in an orchard or near an evergreen wind-break. Raspberries form a dense growth of canes which will furnish shade. Sunflowers and corn fields make a shady range. Exposure to the hot sun without protection helps to reduce the vigor of the hens and make them more susceptible to many diseases.

If any hens become sick it will pay to have them inspected by some friend in the community who is familiar with poultry. After once observing a hen suffering from a known trouble it will be easy to know and possibly prevent that disease in the future.

COMMUNITY MEETINGS WELL ATTENDED.

IVAN HOBSON, federal boys' and girls' club work supervisor for twelve states, including Michigan, with State Club Leader R. A. Turner, has been very busy in central Michigan the past two weeks. He was in Saginaw county several days with County Club Leader Arthur Strang, and was favorably impressed with the club activities in this county.

Members of the boys' pig club and the girls' garment-making club of the Wiltse school, joined in a program and entertainment Tuesday evening, April 5, at the school in Thomas township, in honor of State Club Leader R. A. Turner, who has been visiting the county clubs. Short addresses were given by Arthur Strang and the assistant leader, Miss Marjorie Gile.

Plans to organize a boys' pig club and girls' canning club for summer work, were made at the community meeting at Indiantown, Wednesday night, April 6, by children of the Hausbeck and Indiantown schools. State Club Leader R. A. Turner and Arthur Strang spoke at the meeting; and in the afternoon Supervisor Ivan Hobson paid the school a brief visit.

UPPER PENINSULA CLUB WORK.

MR. GUNDERSON calls attention to the success won by several upper peninsula boys in club work and would like to see the schools of Ironwood, Erwin and Bessemer engage a club worker jointly to push forward the good work. The highest honors in the upper peninsula for garden club work goes to Axel Kilponen. Similar honors go to Carl Johnson and Onnie Kangas for live stock club work, and to Helmi Nevala for pig club work. Incidentally it may be interesting to point out that these youngsters are evidently Finnish, as indicated by their names. There are some very high-grade Finnish farmers in this county. —L. A. C.

MARQUETTE CLUB WORK.

There are eleven sewing clubs with a membership of one hundred and twenty-one in the county, while there are two handicraft clubs with a membership of twenty-six. There are six potato-clubs with forty members. This club is carried out by the assistant state club leader and the county commissioner of schools.

THE ONE WHO STICKS.

The one who sticks has this lesson learned
Success doesn't come by chance—it's earned
By pounding away; for good hard knocks
Will make stepping stones of the stumbling blocks.

They know in their hearts that they cannot fail;
That no ill-fortune can make them quail
While their will is strong and their courage high
For they're always good for another try.

They do not expect by a single stride
To jump to the front; they are satisfied
To do every day their level best
And let the future take care of the rest.

For the one who sticks has the sense to see
They can make themselves what they want to be
If they will off with their coat and pitch right in
Why, the one who sticks can't help but win!

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John's Big Beautiful Barred Rocks are hen hatched, develop quick, good layers, fine show quality, 30 eggs \$3.50, 50 \$5. Postage paid, Photos, circulars. JOHN NORTON, Clare, Mich.

BABY CHICKS Single Comb White Leghorn (Tom Barron Strain). Barred Plymouth Rock, S. C. R. I. Red, Anconas, White Wyandottes and Brown Leghorns 25 for \$5.50, 50 for \$10.00, 100 for \$18.00, 1000 \$170.00. Ross Wade, Meadow Brook Hatchery, Mt. Morris, Mich.

Chicks Chicks

15,000 weekly at bargain prices. Pure bred English and American S. C. White Leghorns and S. C. Anconas. Our free range flocks, the finest and best in this section, the result of 12 years constant improvement along with Mich. Agri. College flock improvement methods. Birds with 285 egg records up. Full count, strong lively husky chicks on arrival by mail. Satisfaction and reliable dealings guaranteed. Quality stock at prices to suit your purse. Valuable feeding instructions with each chick order. Now booking orders for May delivery. Catalog and revised price list free.

W. Van Appledorn,
R. 7, Holland, Mich.

BABY CHICKS

Price List, Prepaid to you, Pure-bred Stock.

W. Leghorns	4.00	7.50	10.00
Buff Leghorns	4.25	7.75	10.25
Brown Leghorns	4.00	7.50	10.00
Black Leghorns	5.00	9.75	12.00
Barred Rocks	4.75	9.00	11.75
White Rocks	5.00	9.50	12.00
Buff Rocks	5.50	10.50	13.00
W. Orpingtons	6.00	11.25	14.00
Buff Orpingtons	6.00	11.25	14.00
W. Wyandottes	5.25	10.00	13.00
S. L. Wyandottes	5.50	10.50	13.50
S. C. & R. O. Reds	4.75	9.00	11.75
S. C. Black Minorcas	5.00	9.25	12.00
Mixed	3.75	7.00	10.00

Start the season right with chicks that can be depended upon to produce profitable heavy egg producing hens. Farm at Hudson, Ohio. Mail orders to J. KREJCI, 2165 East 86th St., Cleveland, Ohio.

R. C. Rhode Island Reds

Choice Rose Comb cockerels—hen-hatched, farm raised, big thrifty, prize winning strains. \$5.00, \$7.50 and \$10.00. We raise only R. C. Reds. No eggs or chicks.

BIDWELL STOCK FARM

Box D, Tecumseh, Michigan

LOOK: BABY CHICKS

at 8 cents each and up for the last two weeks in May, June, July and August. W. Leg. 10c each. Buff Leg. 11c each. Br. Leg. 12c each. Ancona 12c each. Br. Rock 13c each. Buff Rock 13c each. R. I. Red 13c each. W. Wpn. 15c each. Broilers 8c each. 5% discount for order of 500 or more. 10% discount for orders of 1000 or more. All chicks sent by parcel post, prepaid by us, and safe arrival guaranteed. Order direct from this ad, or send for our free illustrated catalogue. OHLS POULTRY YARDS & HATCHERY, Marion, Ohio.

Baby Chicks Anconas, White Leghorns, Brown Leghorns and B. Rocks all have single combs, at greatly reduced prices \$1. per 100 and up parcel post paid, safe delivery guaranteed, catalog free. Knolls Hatchery, R. 3, Holland, Mich.

BABY CHICKS Big Robust S. C. R. I. Reds \$3.75 per 50 \$15.50 per 100 prepaid. Order Today. ROY L. DRUKER, R. 6, Grand Rapids, Mich.

Barred Plymouth Rock eggs for hatching. \$2.00 per 13 postpaid. Fullblood stock. Prize winning strain. J. A. BARNUM, Union City, Mich.

S. C. B. Minorcas. Pen No. 1 headed by a son of our S. C. \$50. 12 lb. cock, mated with 8 of our best hens. \$3.00 per 15. No. 2 pen headed by a cockerel of Pape strain, Eggs \$2.50 per 15. Incubator eggs \$3.00 per 100. R. W. MILLS, Saline, Mich.

BABY CHICKS of Superior Quality

Hot from the Hatchery, right to your door safely, by prepaid parcel post. BIG Strong, fluffy fellows hatched from eggs of selected flocks, and under our own supervision. ROCKS, LEGHORNS, ANCONAS, REDS and MINORCAS. Chicks that live and grow into money. Bred for EGG PRODUCTION and the SHOW ROOM. Save money by sending for our catalogue NOW. THE SUPERIOR CHICK HATCHERY, Lock Box 197, Prairie Depot, Ohio.

R. C. Br. Leghorn Eggs \$1.50 for 15. Pekin duck \$1.50 for 8. W. Chinese Goose eggs \$1.00 each. MRS. CLAUDIA BETTS, Hillsdale, Mich.

100,000 CHIX 14c UP.

Best selected, utility trapnested exhibition stock ever produced. Always 2,000 chix on hand 5 to 15 days old. 18 varieties. Hatching eggs. Hens, ducks. Early bookings, avoid disappointment. Catalog. Beckman Hatchery, 26 E. Lyon, Grand Rapids, Mich.

Hill's Barred Rocks hatching eggs from heavy-laying, Hogan tested, well-bred flocks. 15-\$2.50; 50-\$6.00; 100-\$10. Circular free. Lucian Hill, Tekonsha, Mich.

BARRED Rocks 15 eggs, \$1.50; 100 for \$7; by prepaid mail. Flocks average 133 eggs. 38 hens laid 5072 eggs last year. LEWIS B. AVERY, Clinton, Mich.

Barred Rock Chicks 100% safe delivery. Reduced prices. Write for circular. H. H. PIERCE, Jerome, Mich.

BEST Breeds, Chickens, Ducks, Geese, Turkeys, Guinea Hares, Dogs. Stock and eggs. Write your wants. Catalog free. H. A. Souder, Box 94, Sellersville, Pa.

Chicks, for May and later delivery. Leghorns 15¢ S. C. Reds 15¢ dollars hun. Circular FREEPORT HATCHERY, Box 12, Freeport, Mich.

CHICKS FULL O'PEP

Prices Reduced. Here is your chance to get chicks that live, grow and pay. Trapnested, bred-to-lay and exhibition chicks. Broilers 10c, Leghorns 12c, Rocks, Reds 15c, Anconas, Black Minorcas, and White Wyandottes 16c. Silver Wyandottes and Orpingtons 18c. Safe arrival and full count. Prepaid. Free catalog. HOLGATE CHICK HATCHERY, Holgate, Ohio.

Officially Certified Pedigreed S. C. Buff Leghorns chix and eggs from 215 to 231 record stock. Money makers priced right. HENRY DEPREE, R. 8, Box 137, Holland, Mich.

C-H-I-C-K-S 11 varieties, 13c up. Pure bred stock. Send postal for prices. Save money. O. K. CHICK CO., Box 11, Nappanee, Ind.

CHICKS 300 EGG STRAIN W. Leghorns 16c, Anconas, 17c, Ringlet Rocks 25c, Park's Barred Rocks 20c. Sent prepaid. Order now. Frank Heinz, Box 9, Comstock Park, Mich.

CHICKS—S. C. W. English Leghorns \$11 per 100, order from this ad. Henry Waterway, R. 4, Holland, Mich.

Day Old Chicks from healthy selected Reds, Rocks, W. Wyandottes, W. Leghorns, Br. Leghorns and B. I. Minorcas. Special reduced prices for June & July delivery. Derr & Adams, Litchfield, Mich.

Baby Chicks \$11 a 100 and up. Postage PAID, 95% live arrival guaranteed. FREE feed with each order. 40 breeds chicks, 4 breeds ducklings. Select and exhibition grades. A hatch every week all year. Catalogue free. Stamps appreciated. NABOB HATCHERIES, Gambier, Ohio.

5 lb. English White Leghorns Barron strain. My free catalog describes them, gives feeding methods, a new way to cull hens and much valuable information. A. Wauchek, Gobleville, Mich.

Useful Anconas, (Useful facts about Useful Anconas) it is free. Hogan tested layers, beauty and utility combined, reduced prices on hatching eggs for the balance of the season 15-22¢; 50-\$6.00, 100-\$10.00. Specialty breeders S. C. Modified Anconas. COLLEGE VIEW FARM, R. 3, Hillsdale, Mich.

EDGEWOOD S. C. White Leghorn chicks. 288 egg strain. Carefully selected, open range (M. A. C.) stock \$15 per 100. Order now. Edgewood Poultry Farm, Brighton, Mich.

Rose Comb R. I. Red eggs for hatching. Orders booked now for Cockerels and pullets for fall delivery. MRS. ALBERT HARWOOD, R. 4, Charlevoix, Mich.

S. C. Brown Leghorns Barron S. C. White Leghorns 252-278 strain. Eggs 15-15¢; 50-\$3.00; 50-\$4; 100-\$7, prepaid. Miss V. Fulton, Gallipolis, O.

RHODE ISLAND WHITES win over all breeds at the egg laying contest. 30 eggs \$5; 50 \$8; 100 \$15 order from this ad. Some chicks. H. H. JUMP, R. 5, Jackson, Mich.

S. C. Black inorca cockerels exhibition and utility. Northrup Strain Exclusively. Hatching eggs single settings or quantity. C. J. Deedrick, Vassar, Mich.

S. C. W. Leghorn Eggs Barron Strain stock from Lady Victory 304 egg hen \$2.00 per 15, \$3.00 for 30. V. O. YORK, Box 403, East Lansing, Mich.

Quality Chicks Black Minorca, Light Brahma, 25c each. Barred Rock, R. I. Red, 18c each. Tyrone Poultry Farm, Fenton, Mich.

Whittaker's R. I. Red Chicks and Eggs. Both Combs. Michigan's Color and Egg strain. Prepaid and safe delivery guaranteed. Send for free catalog. INTERLAKEN FARM, Box 39, Lawrence, Mich.

White Wyandottes: 297 egg average. Hatching eggs, \$2.00 per 15. Baby chicks 23 cents each. Cockerels, hens and pullets. FRANK DeLONG, R. 3, Three Rivers, Mich.

W. F. B. Spanish Hatching eggs. Heavy layers. Prize winners \$3 per 15 eggs. S. C. M. Anconas Lawrence Lahaie, Cheboygan, Mich.

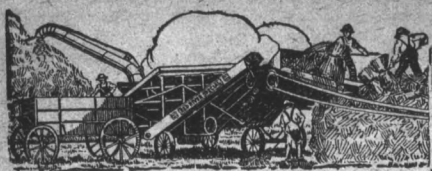
60 BREEDS chickens, ducks, geese, turkeys, guinea pigs, hares, dogs. Fine illus. and dose. catalog only 10c. Edwin A. Souder, Sellersville, Pa.

Wyandottes Official records, five hens 1074 eggs. Eggs for hatching at reduced prices. Catalog free. G. W. SCHOTTMANN, Montrose, Ill.

White Wyandottes BARRED ROCKS bred-to-lay Eggs \$2.50 per 15; \$4.50, 30, 50, 100. HOWARD GRANT, Marshall, Mich.

Mammoth Bronze Turkeys, Toulouse Geese and Pekin ducks. Either sex and eggs. CHASE STOCK FARM, Marietta, Mich.

Mam. Bronze Turkeys Pulletts, 7 lbs. \$5.00; toms, 9 lbs. \$5.00; 24 lbs. \$15.00. Eggs \$4.00 for 10. Ralph Wise Nurseries, Box 151, Plainwell, Mich.



Saving Thresh Bills Every Year

Why take chances with poor threshers? Why put valuable grain into the straw pile? Seventy-three years' experience are behind the

Red River Special

the favorite machine with farmers and threshermen alike. "Clean threshing" has been the watchword in the building of this machine. When you hire a Red River Special owner to do your threshing you know you're going to get a clean job—all your grain saved.

The "Man Behind the Gun" separates 90% of the grain right at the cylinder. It can't become mixed with the straw again. Special beating shakers separate the remaining 10% by beating it out of the straw just like you would do with a pitchfork if separating by hand. All the grain is saved and cleaned fit for market. Red River Specials make money for Farmer and Threshermen because

THEY SAVE ALL THE GRAIN. James R. W. Taylor and 15 others, Columbia City, Indiana, say:

"Our 30x46 Red River Special separator threshes all we can get to it and the best thing about it all is that we save all our grain."

Hire the man with a Red River Special and save your thresh bill. If you are interested in a threshing of your own, ask about our "Junior" Red River Special. Write for Circulars.

Nichols & Shepard Co.
(In Continuous Business Since 1848)
Builders Exclusively of Red River Special Threshers, Wind Stackers, Feeders, Steam and Oil-Gas Traction Engines.
Battle Creek, Michigan

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The Perfect Liniment For External Use on The Human Body

It is astonishing how quickly Caustic Balsam relieves Stiffness and Lameness, Rheumatism, Neuralgia, Strains, Sprains, Lumbago, Backache, Sore Throat, Chest Cold, Stiff Joints, etc.

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OLIVE Drab SHIRTS 2 for \$3.75 Regular U. S. Officers' Silk Poplin Olive Drab Shirts. 2 for \$3.75. Only two to a customer. They cannot be duplicated at \$3.00 a piece or money back, and are warranted to be fast color. Two large pockets with buttons and flaps.

Pay the Postman Send no money. Just send your name, address and size. Your shirts will be sent by return mail. Pay postman \$3.75 and postage on arrival. Sizes 14 to 18.

U. S. Blanket Co., Dept. 74, 45 W. 34th St., New York

Barn Paint \$1.35 Per Gallon

Get factory prices on all paints. We guarantee quality. We pay the freight. FRANKLIN COLOR WORK, Dept. M, Franklin, Ind

Agricultural Lime High calcium hydrated lime in 50 lb. paper bags, in car lots of 20 tons or more. Delivered, price promptly quoted on request. Northern Lime & Stone Co., Petoskey, Mich

FOR SALE New SAMPSON TRACTOR, model T, 1920, in fine mechanical condition. Run only 5 weeks, at less than half price. H. B. Proctor, Grand Haven, Michigan.

BUY FENCE POSTS direct from forest. Prices delivered your station. M. M. care of Michigan Farmer

Dairy Farming

MORE MONEY FOR BETTER CREAM.

GLADWIN county creameries and milk stations are buying cream according to quality, since the new regulations recently agreed upon went into effect. An increased price of four cents per pound is paid for sweet cream above that paid for sour cream. As graded No. 1, or sweet cream, consists of cream that is clean, smooth, free from all undesirable odors, clean to the taste, testing twenty-five per cent or over, and sweet or only slightly sour. It is from this kind of cream that a high quality product can be made.

This is one of the most important actions taken by creamerymen, and is the culmination of farm bureau effort along the line of a better price for farmers' products. The farm bureau, aided by Mr. Austin, manager of the cooperative creamery at Beaverton, to whom a large share of the credit is due, and backed by the action of patrons of this creamery, is asking that the plan be given a fair trial, the quality plan given a thorough try-out.

It has been shown that the plan is of as much value to the manufacturer as to the producer, as it eliminates some of the expense of manufacture and greatly aids in the sale of the product at a higher price. For several months there has been a range in price of ten to fifteen cents between high-grade butter and that of low or medium quality; and it is now realized that a pure quality cream must be used to make a high-grade butter. Posters and advertising matter was used to bring the farmer's attention to the new plan, including suggestions as to the proper handling of cream to bring it to the grade desired.

Poor butter, rather than oleomargarine, was declared to be the worst enemy of the state's dairy industry.—M.

HIGH PRODUCERS INCREASE PROFITS.

I VISITED a herd of dairy cows recently where the whole herd averaged over 14,500 pounds of milk and 590 pounds of butter per cow, and there were nineteen two-year-old heifers in the herd. This herd not only had good stock, but good care and management. They were well housed in light, ventilated stables; no loss was experienced from disease; the animals were in comfortable modern stalls furnished with drinking cups so that they never lacked for water, but had it always at hand. The work about the barn was made handy. The men took a great interest in their work, and the dairy operations were all done efficiently and well.

The manager reported that the herd was paying better dividends now than it had at any time during the war, or even before that time. There is little competition at the top of the ladder. The farmer or workman who is performing a duty which can be done by anyone, by the foreigner who cannot speak our language, or by the unskilled and the untrained, must expect severe and close competition.—A. L. H.

ORGANIZE BREEDERS' ASSOCIATION.

THE Holstein breeders of Huron county gathered at Bad Axe on April 7 for the purpose of organizing a county breeders' association. As this meeting was not intended for pure-bred stock owners alone everyone interested was invited and there was a large attendance of admirers of the famous

black-and-white cattle. H. W. Norton, Jr., secretary of the Michigan Holstein Association, was present and gave an interesting talk on the advantages of organization. A sumptuous dinner was served at noon by the committee of arrangements.—J. C. M.

VENTILATE THE HAY MOW.

A GREAT majority of the fires that destroy barns each year are started from combustion in the hay-mow. It has long been known that when hay is put into a tight mow, especially if the hay be not fully cured, it will go through a heating process—gases will be formed and sufficient heat generated to cause combustion and start a fire.

Mr. James Tracy, state fire marshal for Iowa, recently reported that in 1920 twenty-five barn fires were started by spontaneous combustion in the hay-mow. In 1919 thirty-two fires were started in this way and resulted in the loss of one hundred and sixty-three thousand dollars' worth of property. Mr. Tracy urges that care be used in thoroughly curing the hay before it is stored, and also providing ample ventilation for the mow or loft.

It is a simple matter to ventilate a hay-mow. Well designed cupolas will draw the warm air up as does a chimney. These cupolas also add to the appearance of the building and certainly are of sufficient value as insurance against fire to justify their cost. A. L. HAECKER.

CLOVER LEAF DISPERSAL SALE IN SAGINAW.

THE farm and dispersal sale of Young Brothers' Clover Leaf Stock Farms drew out an attendance of four hundred or more. The demand was active and every item on the list sold readily, the offerings being highly desirable. Of the fine Holsteins eleven head brought \$2,695, a sale average of \$245. Young bulls and animals under one year sold for a total of \$720, while four good grades brought \$100 and \$125.

While the prices were not high they were satisfactory, and all the good animals will remain in Saginaw county. One of the cows sold was bought by Young Brothers a few years ago with her calf for \$250. Including her sale price and her stock sold she brought her owners a total of \$1,400, while her milk has consistently given them a profit, showing that Holsteins are profitable under intelligent handling.—M.

WHY CREAM WILL NOT CHURN.

IN a recent issue of the Michigan Farmer, A. E. B. asks why their cream will not churn. Perhaps our experience will be of value to this subscriber and others having the same trouble. Some time ago we and our neighbors had much difficulty in churning cream and after trying many things we at last began feeding the cows oil meal and bran as a part of the ration. This simple measure seemed to do more than all the methods of handling the cream that I had been told about. The cream made good butter and the cows also improved by this simple treatment.—S. GRAVOLD.

GIVING THE PIG MEDICINE.

WHEN you wish to give a pig medicine just cut two inches off the toe of an old boot, put the foot of the boot in the pig's mouth and pour the medicine down the boot.—W. LADNER.

SAVING FARMERS FROM BANKRUPTCY

That's the mission of silos. Years ago, how were the recognized mortgage-lifters, then came cows. Today with ruin facing thousands of farmers, the silo steps to the front, and profitable farming of the future demands more hogs, more cows, more calf raising, but best feeding, marketing more, if not all of your crops through the silo.

SPECIAL PROPOSITION

Farmers everywhere are waking up. The demand for silos is the biggest ever. If you are interested, get busy. Write us today. Get our special proposition that means a big saving. Makes silo owning easy. A plan that's new, different and original. No cash to pay. No interest. No deposit. Silo pays for itself.

Champion Silo

Different from all others—the cheapest, most satisfactory permanent silo on the market. Made of the best silo material known. Can't rot, will not crumble, not affected by weather. Special construction features not found on any other—such as new foundation construction. Special interlocking anchoring system fastened into silo foundation, heavy steel door frame and many other improvements that put Champion Silos ahead of all. A one absolutely permanent, absolutely practical inexpensive silo.

SILLO BUYER'S GUIDE FREE

Upon request we will send you free, without any obligation, Champion Silo Catalog, Blue Prints of construction and feeding reports. Selling low prominent feeders make money, also particulars of terms, etc.

ACT QUICK

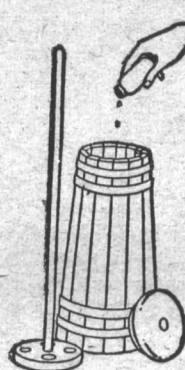
This proposition will only be available to a limited number of farmers. An opportunity of a lifetime to own a silo.

THE E. W. ROSS COMPANY
Box 214
Springfield, Ohio

AGENTS WANTED

If you have spare time on your farm, we have a good offer. Selling Champion Silos, the best silo on the market. Write today.

Use Dandelion Butter Color



Add a half-teaspoonful to each gallon of winter cream and out of your churn comes butter of golden June shade to bring you top prices.

DANDELION Butter Color

All stores sell 35-cent bottles, each sufficient to keep that rich, "Golden Shade" in your butter all

the year round. Standard Butter Color for fifty years. Purely vegetable. Meets all food laws, State and National. Used by all large creameries. Will not color the buttermilk. Tasteless.

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Get your Kirtin this month on smashing easy terms. Try it 30 days FREE! If satisfied, just pay a little each month, taking a year to pay. If not, return at our expense. Money refunded. No risk to you.

Kirtin ONE MAN STUMP PULLER

Weights less—costs less. Greater power, speed and strength. Lasts Longer! A few pounds' pull on handle exerts tons on stump. One man alone handles biggest, toughest stumps—quick, easy, cheap! Free Book gives full details—shows One-Man and Horse-Power Models. Smashing special offer positively withdrawn after time limit expires. Write today.

A. J. Kirtin Co., 3365 1st St., Escanaba, Mich.

DAHLIAS

12 choice named varieties \$2.00.
6 \$1.00.
The Stock That Wins 1st Prize At The MICHIGAN STATE FAIR EACH YEAR.
BAUMAN'S DAHLIA GARDENS,
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Send For Catalogue

Mention The Michigan Farmer When Writing Advertisers

WHY A SOIL SURVEY?

THE members of the Michigan legislature have received during the past week copies of a little booklet published by the American Association of Soil Survey Workers, which very clearly and briefly indicates just what is meant by a "soil survey," something about which many people are obviously hazy. The booklet opens by saying that "the soil survey provides a detailed inventory of the soil resources of the country, county by county," and puts the cost of "an accurate, detailed survey" at from one to three cents per acre.

"Such a survey is valuable to the individual farmer," it points out, because it classifies the agricultural and non-agricultural land. It divides the soils which are adapted to general farming or grazing from those which are suited to various specialized crops, and it gives an idea of their relative value. It also classifies land suitable for forestry purposes. It indicates swamp lands capable of reclamation, dry lands suitable for dry farming, and arid soils which may be profitably irrigated.

Settlers will wish to consult soil survey maps and descriptions. Real estate dealers, land appraisers and bankers will use the soil surveys in determining land values as a basis for farm loans. Road engineers use the soil maps in locating roads and road-building materials. Factories using raw material from the earth's surface will use the results of the survey. Schools and agricultural agents have constant occasion to use soil maps in working out their problems. Experts of the experiment stations use soil maps in advising farmers in regard to their soil problems. Soil maps assist in problems of farm management and cost of crop products. They help in planning individual and general drainage systems. In all fertility and crop production investigations soil maps and reports are of great service. There are still other important uses of soil survey maps. Such maps are constructed on a scale of one inch to one mile and show different soils and accurately locate all important physical features, as roads, railroads and streams; and towns, schools, churches and farmsteads.

The accompanying report describes the properties of the soil and sub-soil, topography, water supply, drainage conditions, crop adaptation, general fertility, systems of farming and method of soil management followed. There is a history of the agricultural development of the county, a discussion of farm improvements, important products, markets, transportation facilities and the general condition of the community. Michigan has nothing like this, although her neighbor, Wisconsin, has; and the legislature is being asked to make such a soil survey possible.—L. A. CHASE.

SHADE TREES WILL LINE CLARE ROADS.

CLARE county will be the first county in the state to plant shade trees along the trunk line highways, arrangements having just been made by the county road commission to act with the state highway department to inaugurate the movement. The plan has the hearty endorsement of Frank F. Rogers, state highway commissioner, who has been interested in this matter for some time, and the work will be done under the direct supervision of C. F. Boehler, landscape engineer of the department at Cadillac.

The work will be taken up in other counties later, the intention being to provide shade along the entire trunk line system of the state, as well as on county roads. About a thousand trees will be transplanted in Clare county at once, maples and elms being chiefly used; and a few pines may be added

here and there, to keep fresh the memories of the old lumbering days in the early history of the county.—M.

ALFALFA MORE POPULAR.

THE Menominee County Farm Bureau News Letter reports that a number of farmers in that section are planting alfalfa this year. It is stated to be a very successful crop when given the right start. One farmer planted his alfalfa last year on May 28 and harvested a fair crop of hay on July 28, it is stated. The soil, which was in good condition, had been top-dressed with a light application of manure and three or four tons of waste lime from a chemical plant was applied.—C.

PLANNING FOR BIG CORN YIELDS.

(Continued from page 551).
two inches apart, three kernels per hill, or for silage in rows thirty-eight to forty-two inches apart, kernels every twelve inches. In northern Michigan, where the corn is smaller, four kernels may be planted to the hill, in rows thirty-six to thirty-eight inches apart.

For grain purposes from four to five quarts per acre is sufficient and for silage from four to eight quarts are used. The depth of planting varies with the soil. On well-drained loams from one and a half to two and a half inches is the proper depth, though on heavy clay or clay loams, one to two inches is sufficient.

It is an excellent practice to harrow immediately after planting, with a spike-tooth harrow with teeth set slanting slightly backward. The harrow may be employed until the corn plants are above the ground, when cultivation with cultivator should begin.

From thirty to seventy per cent of the corn crop in Michigan is grown for silage purposes, according to the locality. It is particularly important that silage corn be planted as early in the season as possible for heaviest tonnage of the most nutritious feed. Varieties which reach the dented and glazed stage of maturity are conceded by most feeders to make the best silage and give the most feed per acre.

Michigan ranks from twelfth to fourteenth as a corn-growing state in the United States. Since the United States produces seventy-five per cent of the corn of the world, Michigan ranks as one of the leading corn-growing sections of the world. As a crop, it is our most valuable, and one of our most dependable. By proper handling it can be made to pay a much greater profit, both to the individual and from a state standpoint.

There are thousands of farmers in Michigan who produce every year more than twice the yield of the average corn-belt farmer. Their methods, many of which have been above outlined, can be used with profit by many thousand more.

Bulletin No. 289, which can be obtained from the Michigan Experiment Station, East Lansing, Michigan, takes up corn growing in Michigan in detail.

During the coming season, large increase fields of selected strains of Golden Glow, Duncan, and Golden Glow-Duncan cross, will be grown on the station farm as a foundation for distribution. These strains have been produced by careful ear-row selection work.

Summer visitors at the experiment station will have opportunity to see the extensive ear-row breeding work, and fields of selected varieties produced by careful selection.

At this time when crop varieties are apparently turning toward a pre-war basis, corn may be considered as one of the most dependable crops to grow, because of the many purposes for which it is used. It is essential that the most effective methods of production be practiced in order to lessen the production cost per bushel.

OHIO RAKE
FARM IMPLEMENTS

Sure Drop Corn Planter



A GREATER CORN YIELD
THE loss of one ear from every second hill is a loss of 15½ bushels to the acre—one ear from every third hill is a loss of 10½ bushels per acre. What you want then is a corn planter that will not miss—it must plant the desired number of grains each time without scattering or breaking them. A cracked or broken kernel will not grow.

You can't see the grains when planted, therefore, you want a planter which you know has proven its success. You don't want to experiment.

The Sure-Drop corn planter has been a favorite with farmers throughout the United States for the past twenty years (it was formerly made by The Gale Manufacturing Company of Albion, Michigan.)

An old worn out corn planter—or a new planter of questionable merit—may cost you many times more in loss of yield than the cost of a new Sure-Drop planter.

The Ohio Rake Sure-Drop Corn Planter positively insures your seed getting into the ground right. It yields a profit the first year in giving a better and larger stand of corn.

Absolutely Accurate:

It plants just the number of grains you want

THE OHIO RAKE CO.
DAYTON, OHIO
ESTABLISHED 1884

It is light, yet strong and durable, and carries the Ohio Rake guarantee of reliability. Some of its many advantages are: Large hinged hoppers, making seed plate changes possible without removing seed—combined foot and hand lever for raising runners—equipped with automatic reel and marker—is adjustable to width of rows from 28 to 42 inches—will plant any variety of corn or beans.

There's a Dealer Near You

There are 210 Ohio Rake Dealers in Michigan who carry the Sure-Drop Corn Planter and other Ohio Rake implements in stock. Send us your name and we will give you the name of our dealer nearest to you and descriptive circulars of any of our implements.



Sewer Pipe
Flue Linings
Corrier Beads
Wall Coping
Coal
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Partition Tile
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Metal Lath
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Lump Lime
Fire Brick
Fire Clay
Mortar Colors

Drain Tile

Our Ohio Salt Glazed or Porous tile are recommended by Mr. W. van Hartsma.

We furnished the tile for his demonstration work in St. Clair County. Prices are now at the **BOTTOM LEVEL**. Get busy and order now and be assured of prompt shipment.

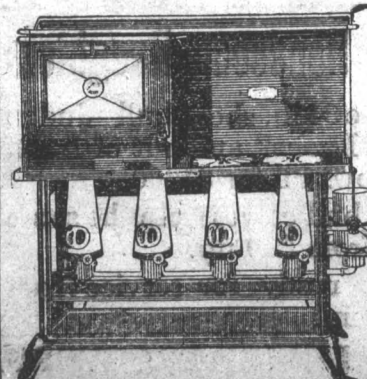
The Cadillac Clay Company,

Manufacturers and Distributors

Building Material

Nicholas J. Engel
Sec. and Mgr.

Penobscot Bldg.,
Detroit, Mich.

SAVE ¼ the Price
Cook in Cool Comfort

Here is where you can save on a work-saving oil range—one that will do all your cooking and baking—a beauty in design and appearance. Prices have hit the bottom.

\$37.95 for this KALAMAZOO Wick Oil Range

Write today—Get our special summer offer. Cash or easy payments—quick shipments—unconditional guarantee. Ask for catalogue No. 1113.

Kalamazoo Stove Co., Mfrs.
Kalamazoo, Mich.

BREEDERS' DIRECTORY

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

THE HOME OF

Imp. Edgar of Dalmeny

Probably
The World's Greatest
Breeding Bull

Blue Bell, Supreme Champion at the Smithfield Show 1919, and the Birmingham Show 1920, is a daughter of Edgar of Dalmeny.

The Junior Champion Bull, Junior Champion Female, Champion Calf Herd and First Prize Junior Heifer Calf, Michigan State Fair, 1920, were also the get of Edgar of Dalmeny.

A very choice lot of young bulls—sired by Edgar of Dalmeny are, at this time, offered for sale.

Send for Illustrated Catalogue.

WILDWOOD FARMS

ORION, MICHIGAN

W. E. SCRIPPS, Prop. Sidney Smith, Supt.

For Sale

Woodcote Trojan-Ericas

We are offering ten cows bred to either
IMP. ELCHO OF HARVESTOWN, or
IMP. EDGAR OF DALMENY

Write for our 1921 BULL SALE LIST

Woodcote Stock Farm, Ionia, Mich.

REGISTERED Aberdeen-Angus. Ten heifers, six
bulls from eight to fourteen months. Best of
breeding, the growthy kind that make good. Reason-
able. Inquire F. J. WILBER, Clio, Mich.

CLOVERLY ANGUS

Cows and Heifers Bred to
Blackcap Brandon of Woodcote 2nd
For Sale
GEO. HATHAWAY & SON, Ovid, Mich.

Reg. Aberdeen Angus

bulls and heifers of the very best of breeding, from
12 to 15 months of age. For next 30 days will price
bulls at \$100.00. Real bargains. Inspection invited.
RUSSELL BROS., Merrill, Mich.

Registered Guernseys a Three yr. old
er calf born Feb. 1, for \$350. An 8 mo. old bull calf
no relation to above for \$100. The three for \$400.
J. M. WILLIAMS, North Adams, Mich.

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

Guernsey Bulls of May Rose Breeding
Their dams have records
420 to 650 lbs. fat also a few cows and heifers are
offered. H. W. Wigman, Lansing, Mich.

FEDERAL Inspected Guernsey Bulls. Priced to sell.
Nine sold in 10 mos. A fine Masher Sequel 3 yrs.
old, sure, sound and right \$175.00. Four grandsons
of Ex-Champion A. A. cow, under 8 mos. old from cows
on test. G. W. & H. G. RAY, Albion, Mich.

For Sale 5 young imported Reg. Guernsey cows
for \$2.50 each. Also May Rose herd
bull; his 5 nearest dams average 725 lbs. fat, \$300.
E. A. BLACK, Howard City, Mich.

Reg. Guernsey bulls for sale cheap. State T.B. test-
Red and from good producing and A.R. cows. Age 1
to 12 mo. C. E. Lambert & Sons, Linwood, Mich.

FOR SALE Guernsey bulls, old enough
for light service.
L. J. BYERS, Coldwater, Michigan

For Sale Two young Reg. Guernsey Cows
also bull calves.
Geo. N. Crawford, R. 2, Holton, Mich.

I Have one yearling Guernsey bull left; May Rose
breeding; cheap if taken soon; write or come.
John Ebels, R. 2, Holland, Mich.

A Good Note accepted in payment of finely bred reg-
istered Holstein bull calves. Quality
of the best, and at prices within reach of all. Write.
GEO. D. CLARKE, Vassar, Mich.

Holstein Friesian heifer and bull calves, purebred
registered and high-grade. Price \$20 up.
Splendid individuals and breeding. Write us your re-
quirements. Browncroft Farms, McGraw, N. Y.

Reg. Holstein Bull Calf \$60 Reg. and Del.
Born in Dec.
J. R. HICKS, St. Johns, Mich.

NOTICE

The Winwood Herd

on Nov. 1st will move their Herd of
Pure Blood Holsteins to their new
home, 1½ miles south of Rochester, Mich.
and for the next 30 days we will sell
what bull calves we have cheap as we
will be unable to get our buildings com-
plete before winter. So get busy if you
want a son of Flint Maplecrest Boy
at your own price.

JOHN H. WINN, (Inc.)

Roscommon, Michigan

Blythefield Farms

Grade up your herd with a pure-bred Holstein bull
from a high record cow. Write for information to
JOSEPH H. BREWER, Grand Rapids, Mich.

Holstein or Guernsey calves, practically pure,
7 weeks old, \$25.00 each, crated for ship-
ment anywhere. Satisfaction guaranteed. Bonds
Accepted. Edgewood Farms, Whitewater, Wis.

7 Bulls 15 Females

Southern Michigan Polled Shorthorn Breeder's Ass'n.

will hold

A PUBLIC SALE

of Polled Shorthorns at the Branch County Farm,

Coldwater, Mich., May 5, 1921

The offering consists of 22 head of show and breeding cattle.

No factor is destined to play such an important part in constructive
breeding as good animals backed with choice breeding.

Those in pursuit will find animals that will make good in any herd at
home or abroad.

We cordially invite all interested to attend this sale as it will be a grand
opportunity to get foundation stock as well as to build up and strength-
en the blood lines of the older herds.

Write for illustrated Catalogue

County Agriculturist, C. L. Nash, Sec. Coldwater, Mich.

Geo. Burdick, Pres., Coldwater, Mich.

Fourth Central Michigan Breeders Sale

May 23, 1921, at Michigan Agr. College,
East Lansing, Mich.

Sixty Head of Selected Holsteins

FEMALES will include a 26.4 lb. cow, a 22 lb. heifer, a daughter of a 31 lb. cow with 19 lb. at 3 years
4 days, and many others over 20 lbs. bred to such bulls as a son of King Joh. from a 34 lb. daughter of
King Segis, King Lansing a son of Sir Korndyke Veeman Hengerveld from Dora DeKol Oosterbaan
with 32 lbs. from 745 lbs. milk at 10 years.

BULLS: There will be a son of a 31.77 lb. four year old sired by a 30 lb. son of Sir Ormsby Banostine
Champion ready for heavy service.

There will be a four months son of Judge Joh. Lyons from a 24 lb. two year old that took first prize in
Michigan in 1919-1920.

A son of a 31 lb. cow that milked over 96 lbs. in a day sired by a son of Glista Erica 35.29 lbs. by a son
of King Segis.

A son a Sycamore Stella Johanna with 27 lbs. butter and a milk record of 772 lbs. and over 3000 lbs.
in 30 days sired by the son of Glista Erica ready for heavy service.

You can buy these cattle with the assurance that they are healthy.

Sixty to ninety day retest privilege. Guaranteed breeders.

For catalog address

Albert E. Jenkins, Sale Mgr., Eagle, Mich.

SHORTHORN SHOW AND SALE

BY

Central Michigan Shorthorn Breeders' Ass'n.

AT

GREENVILLE FAIR GROUNDS

GREENVILLE, MICHIGAN

TUESDAY, MAY 10, 1921

SHOW 10 A. M.

SALE 1 P. M.

39 Head: 29 Females, 10 Bulls; 27 Milking Strain, 12 Scotch Topped

Write for Catalog to M. E. Miller, Sec'y, Greenville, Mich.

Auctioneer: O. A. Rasmussen, Greenville: Judge: L.R. Mackie, M.A.C.



HOLSTEIN CATTLE

Harley Jennings, Clio, Mich., writes:

"I believe in pure-bred stock. Years ago I bred
dual-purpose cows, but two Holsteins which I bought
by accident so far out-milked the others that I decided
to change to Holsteins. Now it is Holsteins for me."
Send for free booklets.

The Holstein-Friesian Association of America
164 American Bldg., Brattleboro, Vermont

Four Handsome Daughters

of the 34 lb. show bull "Judge
Joh. Lyons" and out of A. R.
O. cows all for \$1200.

Also bull calves from the same
sire from \$50 up.

Bulls ready for service from
\$100 up.

SINDLINGER BROTHERS

Lake Odessa, Mich.

A Proven Blood Line

KING SEGIS transmitted to his sons the power to
transmit to their daughters the greatest of produc-
tion over long periods. It is his offspring that has
recently made the greatest yearly production ever
dreamed of \$7,381.4 pounds of milk in a year.
We have for sale at moderate prices.
Beautiful individuals of show type KING SEGIS
BULLS.

GRAND RIVER STOCK FARM,
315 N. East Ave., Jackson, Mich. C. J. Spencer, Owner,
Under State and Federal Supervision

Yearling Holstein bulls 2 light colored and large 30 lb.
breeding on both sides, from 20 lb.
heifers \$150 each. Dewey C. Pierson, Metamora, Mich.

33.60 lbs. butter average of gddams of 8 mo. old
bull. Can have him for present
cost of service. Liberty Bond or note.
M. L. McLACHLIN, Redford, Mich.

Reg. Holstein Friesian cows will sell one or more,
R. Segis and Pontiac breeding bred right and priced
right from two to six yrs. old come and see them or
write. HENRY S. ROHLFS, R. 1, Akron, Mich.

USE PURE-BRED SIRES!

Estimates furnished by the Dairy Division of the
United States Department of Agriculture show
that the dairy cows of the country average only
4,500 lbs. of milk per year.

A good Holstein bull will increase the production
of the ordinary herd 0 per cent in the first gener-
ation.

Let us help you find a good one to use on your
herd. You cannot make a better investment.

The Michigan Holstein-Friesian Association

H. W. NORTON, Jr., Field Secretary,
Old State Block, Lansing, Michigan

"Top Notch" Holsteins

Buy a "milk" Bull of Quality from the Breeders
of the world's only cow to produce 800 lbs. milk in 7
days, having an 800 lb. daughter.

Our herd is rich in the blood of Colantha 4ths Jo-
hanna, the only cow that ever held all world's records
in every division from one day to one year at the same
time. She produced 65.70 lbs. milk in 7 days. We are
offering for sale a bull, whose dam exceeds this record
by over ¼ lbs. in 7 days.

His dam's records are—
Milk 1 Day 100.1 lbs.
Milk 7 Days 659.3 lbs.
Butter 7 Days 26.31 lbs.

His name is
KING VALE CORNUCOPIA WAYNE, No. 312599

Born February 6, 1920

His dam and sire's two nearest dams average

Butter 7 Days 33.02 lbs.

Milk 7 Days 607.3 lbs.

Handsomely marked about one third white.

\$250.00 f. o. b. Howell

McPHERSON FARMS CO., Howell, Mich.

All herds under U. S. Supervision.

Cluny Stock Farm

Offers

Cluny Konigen Colantha Silver 326205

Born May 29, 1920

A white bull with a few black spots.

His sire a 30 lb. son of King Segis Pontiac Konigen.

Sire's 7 nearest dams average 32.301 lbs. butter 624.1

lbs. milk in 7 days.

His dam has a Jr. 3 year old record of 17.683 lbs.

butter from 418.7 lb. milk and is a granddaughter of Colan-
tha Johanna Lad.

2nd dam—a 21 lb. cow that our barn records show milk-
over 145,000 lbs. in 14 milking periods producing 15

calves.

Pedigree on application.

Price \$250.00. Federal Accredited Herd.

R. Bruce McPherson, Howell, Mich.

The Traverse Herd

We have what you want in BULL CALVES, the large,
fine growthy type, guaranteed right in every way.
They are from high producing A. R. O. ancestors
Dam's records up to 30 lbs. Write for pedigrees and
quotations, stating about age desired.

TRAVERSE CITY STATE HOSPITAL
Traverse City, Mich.

Here Is a Good One

Born June 2nd. by Maplecrest De Kol Hengerveld,
a sire having three sisters each having records of over
1200 pounds of butter in a year. Two of them former
world champions, calf's dam by an own brother to
Highland Hartog De Kol yearly record of 1247.95
pounds. This combination of breeding will give re-
sults. HILLOREST FARM, Kalamazoo, Mich.

Registered Holsteins—bulls, heifers or cows always
for sale. Priced reasonable. Satisfaction guaran-
teed. Write or come. B. B. Reavey, Akron, Mich.

Registered Holstein Bull.

Sired by a son of King Ona and from a 22 lb. cow. \$90
delivered your station. Write for pedigree.
EARL PETERS, North Bradley, Mich.

HEREFORDS

Cows with calves at side, open or bred
heifers of popular breeding for sale. Also
bulls not related.

Allen Bros. Paw Paw, Mich.

616 So. Westnadge Ave.,
Kalamazoo, Michigan

HEREFORDS

Two high class, registered bulls, nearly a
year old, for sale. One double standard,
and one with horns, good size, color, and
markings. Both the making of show bulls.

COLE & GARDNER,
HUDSON, MICH.

BUTTER BRED JERSEY BULLS
FOR SALE
CRYSTAL SPRING STOCK FARM,
Silver Creek, Allegan County, Michigan.

The Wildwood Farm

Jersey Cattle, Majesty strain, Herd on State accred-
ited list. B. of M. testing constantly done. Bulls for
sale. ALVIN BALDEN, Phone 143-5, Capac, Mich.

JERSEY BULLS Ready for Service.
Raleigh-Oxford
and—Majesty breeding. Meadowland Farm, Water-
man & Waterman, Packard Rd., Ann Arbor, Mich.

Lillie Farmstead Jerseys Bull calves from
R. of M. cows.
COLON C. LILLIE, Coopersville, Mich.

Meridale Interested Owl No. 111311 heads my herd
bull calves from this great sire and out of R. of M.
dams for sale. Leon E. Laws, R. 6, Allegan, Mich.

Registered Jersey Bulls ready for service from
R. B. FOWLER, Hartford, Mich.

Jersey Bulls For Sale ready for service from R. of
M. dams. T. B. tested. Will give time.
SMITH & PARKER, R. 4, Howell, Mich.

Veterinary.

CONDUCTED BY DR. W. C. FAIR.

Advice through this column is given free to our subscribers. Letters should state fully the history and symptoms of each case and give name and address of the writer. Initials only are published. When a reply by mail is requested the service becomes private practice and \$1 must be enclosed.

Sow Fails to Come in Heat.—I have a sow which I am anxious to breed. She runs with male, but does not come in heat. She seems to be in perfect health. J. J. S., Hope, Mich.—Give her eight grains of ground nux vomica and thirty grains of capsicum in each feed.

Cracked Heels.—One of our work horses is troubled with what our local veterinarian calls scratches, the leg is swollen. I am told not to work him. J. W., Caro, Mich.—Not necessary to rest him. Clip off hair, apply the following lotion three times a day: Dissolve one ounce of acetate of lead, six drams of sulphate of zinc in one quart of water. Give him a teaspoonful of acetate of potash in feed or in drinking water twice daily. Do not wash his sore leg with soap and water. Apply hydrogen peroxide to clean off pus.

Partial Paralysis.—Six weeks after my sow farrowed she seemed to lose the use of her hind quarters. Her bowels never move unless we give her an injection. She is fond of milk, but refuses other kinds of food. She has been sick for two weeks. W. D., Grant, Mich.—Give her mineral oil to open bowels. Also give her ten-grain doses of sodium salicylate three times a day. Hand-rub her back.

Over-feeding, Insufficient Elimination.—What shall I do for my pigs? Early this spring I purchased two purebred sows. One has six pigs and the other ten. They came on the first of March. I fed the sows ground oats mixed with skim-milk in liberal quantities; also fed the sows five or six ears of corn each twice a day. Suddenly the pigs began to scour and then be constipated alternately. Then the pigs in one litter began to get lame. Their legs would swell and they lost the use of them and would lay and squeal. I reduced the feed and pigs are better. Was this what is called blind staggers? G. E. G., Albion, Mich.—Doubtless the pigs were too well fed, had perhaps too little exercise. The scouring was only an effort of nature to eliminate surplus food. Exercise increases bowel action. If any of them become constipated, give Squib's petrolatum or castor oil.

Frightened Ewes.—I have sixty ewes and fifty of their lambs are now dead. The ewes are fed peas and oats, also clover hay twice a day, straw once a day. Occasionally they are fed corn. On March 14 a strange dog was found with them but none of the sheep were bitten, but on the fifteenth the ewes commenced lambing five or six days too early. Lambs came all right but a few minutes after they were born showed symptoms of being in pain and unable to stand. When held up would suck, but soon died. Have five living out of fifty-five. Most of the ewes had twins. The ewes have had plenty of exercise. What is the cause? Feed or dog? J. S., Augres, Mich.—Lambs were weak at birth, partly on account of feed and no doubt the fear of dog caused ewes to lamb early. You did all that could be done to save the lambs.

Chronic Lameness.—For the past two years our dog has at times been lame in one fore leg, now he is crippled in all four legs. J. L., Richmond, Mich.—Give him sodium salicylate two or three times a day.

Toxemia.—I am anxious to know the cause of death in my calves. The cows appear to be healthy, usually calves come at or within a day or two of right time and are seemingly all right when born, but die between twelve and forty-eight hours after birth. After they eat about twice they act as if they had colic, lie down, gradually grow weaker and die. A. S., Kendalls, Mich.—A poisoned condition of the blood is the cause of death. Clean and disinfect the cow's udder before allowing the calf to suck, or if fed by hand the utensil should be very clean and free from infection. A healthy cow usually has a healthy calf, with proper food and care they should live and thrive.

Lumpjaw.—A lump formed on jaw of our five-year-old cow which softened and opened. Now other bunches have formed, some of them discharge. I also notice nose and lip is swollen. D. B., Okemos, Mich.—Paint the bunches with tincture of iodine three times a week, also give her one dram of potassium iodide at a dose twice a day for fifteen days. She should be well fed.

Livingston County Holstein Association

Quality Sale

At Howell, Mich., Wednesday, May 8, 1921

At 10:00 O'clock A. M.

THE HOME OF HEALTHY CATTLE From herds under FEDERAL SUPERVISION 60-90 day retest privilege.

90 HEAD REGISTERED HOLSTEINS

Two-thirds either have A. R. O. records or are from record cows. 5 cows with records from 25 to 29 lbs. 1 daughter of a 32 lb. cow. 9 bulls whose dams have records from 25 to 32 lbs.

JAY B. TOOLEY,
President

J. G. HAYS,
Secretary

For catalogs (ready May 6th) Address
F. J. FISHBEEK, Howell, Mich.

GUERNSEY DAY IN MICHIGAN

Tuesday, May 10, 1921 -- Eau Claire, Mich.

FIRST ANNUAL CON-SIGNMENT SALE OF Registered and Grade Guernseys

BERRIEN COUNTY GUERNSEY BREEDERS' ASS'N
(Sale at Farm of Glenn Clark)

40 Registered Guernsey Males and Females---15 Grade Guernseys

The Guernsey County Guernsey Breeders' Association are endeavoring to make their First Consignment Sale a Great Success. In order to do this, they have consigned the best stock from their herds.

A feature of the sale will be the selling of the entire herd of Glenn Clark, Eau Claire, Mich. Mr. Clark has one of the finest herds in Southern Michigan, and many Advanced Registry cows are offered, as well as daughters of cows that have large records.

Some of the Selections Made for Consignment Are:

GLENWOOD'S PRINCESS THELMA A. R. 6270, Milk 9069.1 lbs. B.Fat 454.2 lbs. @5 yrs. Full sister has record of 590.0 lbs. B.Fat.

AMY OF HICKORY GROVE A. R. 5485, Milk 7123.2 lbs. B.Fat 389.67 lbs. @4 yrs.

FRANCETTA'S BRENDA OF EAU CLAIRE A. R. 6680, Milk 7179.2 lbs. B.Fat 367.2 lbs. @2 yrs. On retest, in 163 days has made 217.6 lbs. B.Fat.

BESS OF WINDEREMERE A. R. 5883, Milk 7072.8 lbs. B.Fat 312.06 lbs. @2 yrs.

MAGGIE OF HICKORY GROVE A. R. 5436 Milk 8232.5 lbs. B.Fat 349.79 lbs. @4 yrs.

MELBA OF YELLOWDALE 11 A. R. 5332, Milk 7748.9 lbs. B.Fat 405.85 lbs. @4 yrs.

LORNA OF SMALLIDGE FARM NO. 76275, on test, in 183 days has made 4367.4 lbs. Milk, 197.34 lbs. B.Fat @3 yrs.

NINA OF HICKORY GROVE A. R. 5303, Milk 7670.9 lbs. B.Fat 382.51 lbs. @2 yrs.

BONNIE MELBA OF BALLARD FARM A. R. 7116, Milk 6656.9 lbs. B.Fat 350.0 lbs. @3 yrs.

LINDEN LADY OF HICKORY GROVE A. R. 8489, Milk 5413.9 lbs. B.Fat 314.0 lbs. @2 yrs. On retest, in 120 days has made 203.2 lbs. B.Fat @3 yrs.

We Want You with Us May 10th.

Sale at 1:00 P. M.

Auctioneers: Love and Benjamin

Write at Once F. E. FOX, Sale Manager, Waukesha, Wis.
for Catalog, to

O. I. C. HOGS

all ages sired by Callaway Edd 1918 world's grand champ, boar and C. C. Schoolmaster 1919 world's grand champion also Wonder Big Type and Giant Buster. Write your wants, all stock shipped on approval.

CRANDELL'S PRIZE HOGS,

Cass City, Mich.

CATTLE

Registered Shorthorns, Bulls and heifers. Prices within reach of all.
G. R. DESHETLER, R. 4, Tecumseh, Mich.

BIDWELL SHORTHORNS
BUY A BULL

that will put weight on your dairy calves—the difference will soon pay for the bull. Now selling good Scotch and Scotch-topped yearlings, reasonably priced. We guarantee every animal to be a breeder. Federal Test. One hour from Toledo, Ohio, N. Y. C. R. R.

BIDWELL STOCK FARM,
Box D, Tecumseh, Michigan

Milking Shorthorns, bulls and heifers 5 mo. to 1 year old for sale at reduced prices to make room for younger stock. E. H. KURTZ, Mason, Mich.

Stop! Look! Listen!

Have you a catalog of the Shorthorn Sale to be held at M. A. C. Feb. 25th at 1 P. M. We are listing four valuable females and two show bulls.

Richland Farms,
C. H. Prescott & Sons, Tawas City, Mich.

Registered Shorthorn bull, color roan, age 15 mos. weight about 1000 lbs. price \$125. E. J. Knickerbocker, R. 2, Homer, Mich.

The Maple's Shorthorns

Kirklevington Lad, by Imp. Hartford Welfare, in service. Stock for sale.

J. V. WISE, Gobleville, Mich.

BUY SHORTHORNS of Central Michigan Breeders' Association at farmers' prices. Write for sale list to M. E. Miller, Sec'y, Greenville, Mich.

One Yearling Shorthorn Bull calf registered, for \$125. M. G. MOSHER & SONS, Osseo, Mich.

We now have **FIVE BRED HEIFERS**

that we will sell cheap if taken at once. Inquire about them or better come and see them.
CARR BROS. & CO., Bad Axe, Mich.

Reg. Red Polled cattle choice young bulls from 6 to 18 mo. old for sale.
FRANK KEBLER, R. 1, Grand Ledge, Mich.

Shorthorns. Bull calves for sale from the best milking blood obtainable.
ROSEMARY FARMS, Williamston, Mich.

Two Scotch-topped Shorthorn bulls for sale.
W. E. MORRISH, R. 5, Flint, Mich.

Reg. Red Polled bull calves from 3 mos. to 1 year old, sired by Famous Charmer, 75% same blood as Charmer 1919 International Grand Champion. One herd State and Federal tested. Westbrook Bros., Ionia, Mich.

HOGS

Berkshire Bred Sows and Gilts \$50 and up, for April, May and June farrow. Have a few good fall pigs at reasonable prices for sale.
M. G. MOSHER & SONS, Osseo, Mich.

Buy Pigs Now Registered Duroc pigs crated and delivered to express station for \$20 each. Either sex or can furnish them uncrated to each other. These are late fall pigs sired by State Fair winners and weighing over 100 lbs. Write for particulars. Michigan Farm Ltd., Pavilion, Mich.

Brookwater Duroc Jerseys

FALL BOARS OPEN GILTS

All of the right type and the best of breeding. Prices reasonable.

Mail orders a Specialty. Satisfaction guaranteed.

BROOKWATER FARM, Ann Arbor, Mich.

H. W. Mumford, Owner J. B. Andrews, Mgr.

DUROC PIGS

either sex, ready to ship May 1st. Extra quality and breeding. The best purchases for Boys' and Girls' Pig Clubs of Washtenaw Co. in 1919 were from my herd. One boy refused \$125 for a male pig a few weeks after purchase. Price \$15 to \$20 reg. and transferred. Satisfaction guaranteed.
B. E. KIES, R. 5, Hillsdale, Mich.

DUROC JERSEYS

Bred gilts, service boars and fall boar pigs at bargain prices. Your correspondence or personal inspection is cordially invited.
RUSH BROS., Oakwood Farm, Romeo, Mich.

Duroc Boars at bargain prices large growthy hogs 15 months old at \$80. Will send C. O. D. and register in the buyers name. Orders booked for Apr. pigs to deliver June 1st. W. E. Bartley, Alma, Mich.

Write Me at once I have just what you want heavy bone registered Duroc Jersey boars ready for service.
W. H. MAYES, L. B. 505, Durand, Mich.

DUROC Jerseys. Boars for spring service, heavy boned type, from the most popular blood lines at reasonable prices. Partridge Rock eggs from best laying strain \$2 per lb. Drott & Berns, Monroe, Mich.



Spring pigs by Walt's Orion, First Sr. Yearling Detroit, Jackson, Cd. Rapids and Saginaw 1919
Phillips Bros, Riga, Mich.

DUROC SOWS

and gilts bred to Orion King No. 169259 Son of the \$10,000 boar owned by Longview Farm, Le Summit, Mo. also young boars ready for service out of good sows. Apply
THE JENNINGS FARM, Bailey, Mich.

Duroc Jersey Sows and Gilts bred for last of April, and May farrow. Also a few spring boars. Best of blood lines and splendid individuals. Satisfaction guaranteed. Write for pedigree and prices, or better come and see, visitors welcome. Thos. Underhill & Son, Salem, Mich.

A FEW CHOICE Bred gilts for Carey U. Edmonds, Hastings, Mich.

DUROCS Bred sows all sold. A few choice fall boars for sale.
W. C. TAYLOR, Milan, Mich.

Duroc Jerseys Am. booking orders for spring pigs. Pay fall gilts.
E. D. HEYDENBERG, Wayland, Mich.

DUROCS A few choice, ready for service, boars for sale.
HARRY FOWLER, Sturgis, Mich.

O. I. C. Swine. Strictly Big Type with quality. A few gilts bred for last of April, and May farrow. A few Sept. and Oct. fall pigs either sex. Extra good ones. Of our State Fair prize winning blood lines. Will ship C. O. D. and record them free. NEWMAN'S STOCK FARM, R. 1, Marlette, Mich.

O. I. C. Gilts bred for April and May farrow. Shipped C. O. D.
H. W. MANN, Dansville, Mich.

O.I.C's Choice gilts for April and May farrow, also fall pigs. Booking orders for spring pigs.
A. J. BARKER & SON, Belmont, Mich.

O. I. C's. 8 last spring gilts due to farrow in Mar. and Apr. some tried sows service boars and last fall pigs, not akin, big growthy stock. Registered free. City Phone 124. Otto E. Schulze, Nashville, Mich.

O. I. C's. 2 sows for May farrow. Orders booked for March pigs.
J. C. THOMPSON, Rockford, Mich.

Additional Stock Ads on Page 569

LATEST MARKET REPORTS

GRAIN QUOTATIONS

Tuesday, April 26.

Wheat.

Detroit.—Cash No. 2 red \$1.38; May \$1.36; No. 2 white and No. 2 mixed \$1.36.

Chicago.—No. 2 hard \$1.37; No. 2 red \$1.35½.

Corn.

Detroit.—Cash No. 3 yellow 67c; No. 4 yellow 64c.

Chicago.—No. 3 mixed 59¼c; No. 2 yellow 59¼@60½c.

Oats.

Detroit.—Cash No. 2 white 44c; No. 3 white 42½c; No. 4 white 39½c.

Chicago.—No. 2 white 37½@38c.

Beans.

Detroit.—Immediate and prompt are higher at \$3.25 per cwt.

Chicago.—Market is easy and lower. Hand-picked beans choice to fancy at \$3.60@4.25; red kidney beans \$8.75@9.50 per cwt.

New York.—Market is dull. Choice pea \$4.25@4.40; do medium \$5; red kidney \$9.75.

Rye.

Detroit.—Cash No. 2 rye \$1.34.

Seeds.

Detroit.—Prime red clover, cash at \$12.50; October \$9.50; alsike at \$14; timothy \$3.15 per bushel.

Hay.

No. 1 timothy \$20@21; standard and light mixed \$19@20; No. 2 timothy \$18@19; No. 1 clover mixed \$17@18; No. 1 clover \$15@16; rye straw \$13@14; wheat and oat straw \$12@13 per ton in carlots at Detroit.

WHEAT

After reaching a new low point on the crop, wheat prices developed firmness as a result of the refusal of the growers to sell on the lower market. Our winter wheat crop outlook remains generally excellent although less flattering than a few weeks ago. Frost damage is reported in the southwest and there are outbreaks of rust in isolated sections. The estimate on the Kansas crop has been reduced 32,000,000 bushels. Foreign crop news is not as favorable as from this country. The spring wheat seeding in the northwest is nearly completed with little evidence of a change in the acreage as compared with last year. Export buying has been irregular but export interests still have large sales to fill. Milling demand for cash wheat has increased slightly although flour trade fails to show much improvement.

CORN

About 5,500,000 bushels of corn have been sold for export during the past week. With primary receipts comparatively light and an improvement noticeable in the domestic demand, holdings at primary markets have begun to decrease and are expected to shrink considerably during the next few weeks. Weather conditions have not favored planting or the growth of corn already in the ground. Prices may advance until growers are induced to renew selling.

OATS

Recent cold weather has made necessary considerable reseeding of oats and some sections report that a part of this acreage may be planted to corn. Domestic demand for this grain is better but Canadian oats have been shipped to eastern markets at prices below American grain. The passage of the emergency tariff will stop such shipments as well as shutting out the Canadian wheat.

SEEDS

Demand for clover and timothy seed is gradually ebbing although the northern and eastern sections are still buying in limited amounts. Stocks of old seed were not fully disposed of but there is no great pressure on the market. Recent cold weather is said to have done considerable damage to the young clover crop.

FEEDS

Prices for wheat by-product feeds advanced \$1@3 per ton in primary markets as values on the recent decline became attractive in comparison with corn and oats. Hog buyers were after standard middlings and this feed advanced to a premium over bran in some middlewestern markets. Where dairy interests predominate bran re-

mains higher than middlings. Linseed meal reversed the action of the wheat feeds.

HAY

Receipts of hay remain light as the growers are unwilling to sell. Demand is light and confined to best grades but prices are practically unchanged. The recent cold weather in the southwest destroyed the possibility of new crop alfalfa arriving earlier than usual.

POTATOES

Prices show little change during the past week, consuming markets in the middlewest being quoted mostly at \$1@1.25 per 100 lbs. for sacked northern round whites U. S. Grade No. 1. Shipments total about 500 cars per day for the entire country, of which about 400 cars are of old stock. Supplies of old potatoes are larger than usual at this season. Prices at Detroit are \$1.75@2 for 150-lb. sack.

BUTTER

Shipments are heavy and consumptive demand unable to absorb the complete supply. Prices declined 2@3c during the week and are expected to maintain a downward trend until a price is reached at which buyers for storage will be willing to take hold. Prices for 92-score butter as quoted by the bureau of markets on April 23 were: Chicago 40c; New York 41c; Philadelphia 43c. At Detroit fresh creamery is quoted at 39c.

EGGS AND POULTRY

Receipts continue to run large and prices average slightly lower for the week although they have held near the same level for several weeks. Storage holdings of frozen poultry decreased during March and the combined total on April 1 was slightly smaller than on the same date a year ago. Quotations at Detroit were as follows: Eggs, fresh current receipts 23¼@24c. Live poultry, spring chickens 32@33c; heavy hens 33@34c; roosters 18@20c; geese 20@25c; ducks 35c; turkeys 40c.

WOOL

Although the strong probability of the passage of the emergency tariff has failed to stimulate a big increase in wool buying, the undertone is more

confident and the softness of the last few weeks may disappear. Net changes in price have been small for some time. The pooled wools are fairly well cleaned up but some wools held over in private hands are being forced upon the market through bank pressure. Advances on the new clips of western wool range from 12@15c on the choicest sorts down to 5@7c for low grades. Mills are sealing down the orders recently received for cloth showing a sound condition at the manufacturing end. The Boston market is quoted as follows: Ohio and Pennsylvania fleeces, delaine unwashed 40@42c; fine unwashed 30@32c; half-blood combing 32@34c; three-eighths blood combing 29@30c. Michigan and New York fleeces, delaine unwashed 36@38c; fine unwashed 30@31c; half-blood unwashed 31@32c; three-eighths blood unwashed 28@29c.

CATTLE FEEDERS LOSE ENTHUSIASM.

COMPETITION for feeder cattle has waned as a result of the performance of the fat cattle market and reports of losses, especially by those cashing in heavy steers, are more frequent. Values declined during the past week but there is little increase in the margin between stockers and feeders and fat cattle, some Wisconsin buyers again outbidding the packer market. The movement to the country from sixty-eight markets during the last three months is 26.7 per cent below 1920 which in turn showed a decrease compared with the preceding year.

FROM WHENCE COME THE HOGS?

HOG markets are overwhelmed with numbers, the combined total for the year to date being now almost equal to that of last year. At the same time weights remain high. If the run continues at the present rate it will soon overtake that of last year and the price outlook for the summer market will not be encouraging. Early winter estimates upon the hog population evidently were in error, otherwise the country would be unable to continue disgoring at the present rate.

LIGHT RUN HELPS THE HORSE MARKET.

RECEIPTS of horses decreased nearly fifty per cent during the past week and were disposed of without further price cuts. Farm chunk demand is rapidly waning. Wagon horses for city use can be sold to advantage and there has been buying of mares at Chicago for export to Belgium.

AMOUNT OF SILAGE.

How many tons of silage would there be in a silo fourteen feet in diameter and filled twenty-five feet from the bottom with well-settled silage? Livingston Co. A. G. H.

According to calculations made by King there would be about seventy-five tons in this silo.—W.

TO CONDUCT CAMPAIGN FOR FUNDS.

BECAUSE of the unemployment situation throughout the state during the past few months, an unusually heavy demand has been made upon the relief finances of the Salvation Army. This organization is therefore planning for a financial campaign in this state, to be conducted May 6-17. Those interested should correspond with Chas. F. Drake, Second and Michigan avenues, Detroit, Michigan.

NEWS OF THE WEEK.

(Continued from page 552).

roads with extravagance and mismanagement.—Five million dollars of counterfeit American money has been confiscated in Lemberg by Polish authorities.—A cuttlefish cast aboard the liner Caronia fights crew, severely injuring several men before being subdued.—Berlin sends trade delegation to Russia.

Tuesday, April 26.

GERMANY offers two hundred billion marks as final reparation offer; asks loan to pay cash, and will offer customs revenue as guarantee. Offer not acceptable to French government.—Standard oil announces three cent reduction in price of gasoline.—England has cash to pay interest on United States debt.—Seamen refuse to discuss pay cut; threaten tieup of shipson May 1.

COMING MEETINGS.

May 3-4.—National Dairy Marketing Conference, Congress Hotel, Chicago, Illinois.
Mid-west conference of farm bureau officials at Huron, South Dakota, May 24.

COMING LIVE STOCK SALES.

Holsteins.—East Lansing, E. P. Kinney.
Polled Shorthorns.—May 5, Southern Michigan Polled Shorthorn Breeders' C. L. Nash, Secretary, Coldwater, Michigan.
Guernseys.—May 10, F. E. Fox, Sales Manager, Eau Claire, Mich.
Holsteins.—May 18, Livingston County Holstein Association, J. G. Hays, Secretary, Howell, Mich.
Aberdeen-Angus.—June 9, Michigan Aberdeen-Angus Breeders' Association Sale, East Lansing, Michigan. Ward Hathaway, Ovid, Mich, Secretary.
Aberdeen-Angus.—June 22, Ohio Aberdeen-Angus Breeders' Association Sale, Fair Grounds, Columbus, Ohio. C. D. Littleton, Kenton, Ohio, Secretary.
Aberdeen-Angus.—September 23, Eastern Aberdeen-Angus Breeders' Association Sale, Eastern States Exposition, Springfield, Mass. F. W. Burnham, Greenfield, Mass., Secretary.
Aberdeen-Angus.—October 12, Indiana Aberdeen-Angus Breeders' Association Sale, Indianapolis, Ind. Prof. C. F. Gobble, LaFayette, Ind., Secretary.
Guernseys.—October 19, Michigan State Sale, Lansing, Mich. F. E. Fox, Waukesha, Wis., Sales Manager.

Live Stock Market Service

Wednesday, April 27.

BUFFALO

Hog prices are on a lower level. Yorkers and pigs are bringing \$8.90@9, other kinds \$8.50@8.75; lambs are steady at \$11@11.35; calves \$10.50.

DETROIT

Cattle.

Market slow but steady; heavy cattle are very hard to move.

Best heavy steers \$ 7.00@ 7.50
Best handy wt bu steers 7.00@ 7.75
Mixed steers and heifers 7.00@ 7.25
Butchers 6.50@ 7.00

Best cows 5.50@ 6.00
Butcher cows 4.50@ 5.00
Common cows 3.50@ 4.00

Canners 2.50@ 3.00
Best light weight bulls.. 6.00@ 6.50
Bologna bulls 5.00@ 5.50

Stock bulls 4.75
Feeders 6.00@ 7.50
Stockers 5.00@ 6.00

Milkers and springers... \$ 45 @ 95

Veal Calves.

Market 50c lower.

Best \$ 8.50@ 9.00
Culls and common 4.00@ 7.00

Hogs.

Market 15@25c higher.

Mixed \$ 8.15@ 8.25
Pigs 8.25
Heavy 7.75@ 8.00

Sheep and Lambs.

Market steady.

Best lambs \$10.00@10.25
Fair lambs 7.00@ 8.50
Light to common 4.00@ 6.50

Fair to good sheep 5.00@ 6.00
Culls and common 2.00@ 3.00

CHICAGO

Hogs.

Estimated receipts today are 21,000; holdover 7,173. Market fairly active and mostly 10c higher. Bulk of sales

\$7.95@8.30; tops \$8.40; heavy 250 lbs up medium, good and choice \$7.85@8.15; medium 200 to 250 lbs medium, good and choice \$8.10@8.30; light 150 to 200 lbs common, medium, good and choice \$8.05@8.40; light lights 130 to 150 lbs common, medium, good and choice \$7.90@8.35; heavy packing sows 250 lbs up smooth \$6.50@7.50; packing sows 200 lbs up rough \$6.35@6.60; pigs 130 lbs down medium, good and choice \$7@8.

Cattle.

Estimated receipts today are 8,000. Market steady to 15c higher. Beef steers medium and heavy weight 1100 lbs up choice and prime \$8.10@9; do medium and good \$7.25@8.25; do common \$6.75@7.25; light weight 1100 lbs down good and choice \$7.75@9; do common and medium at \$6.25@7.25; butcher cattle heifers, common, medium, good and choice \$5.25@8.25; cows common medium, good and choice at \$4.75@7; bulls, bologna and beef \$4.75@6.75; canners and cutters cows and heifers \$2.25@4.75; do canner steers \$3@4.50; veal calves light and handy-weight medium, good and choice \$7.50@9.75; feeder steers common, medium, good and choice at \$6.50@8; stocker steers common, medium, good and choice \$5.25@7.60; stocker cows and heifers, common, medium good and choice \$3.50@6.

Sheep and Lambs.

Estimated receipts today are 20,000. Market about steady. Lambs 84 lbs down medium, good, choice and prime \$9.65@11.65; do 85 lbs up medium, good, choice and prime \$9.25@11; do culls and common \$7.75@9.50; spring lambs medium, good, choice and prime at \$6@9.50; ewes medium, good and choice \$5.50@7.25; ewes cull and common \$2.25@6; yearling wethers medium, good and choice \$7@8.50.

ELECT DIRECTORS.

A SUCCESSFUL meeting of the members of the live stock shipping association at Breckenridge was held Saturday, April 16. State Manager E. E. Compson was present and gave a talk on matters pertaining to cooperative live stock shipping, and organization work. A general discussion followed, after which the business of the meeting was taken up, among which was the election of the directors for the year. It was unanimously voted to cease doing business under the St. Louis Grange Association, and organize under the name of The Breckenridge Cooperative Shipping Association, which association has taken a membership in the Michigan Live Stock Exchange, and voted to take shares in the proposed terminal commission house to be established at Detroit or elsewhere.

ELEVATOR PURCHASED BY FARMERS.

AT a meeting recently held at Haslett, the Cooperative Live Stock Shipping Association completed the purchase of the elevator at that place. E. E. Compson was called to appraise the elevator and help in the purchase of same. Mr. Compson reports that they are all ready to join the elevator exchange of the State Farm Bureau.

COOPERATIVE BUYING INCREASES.

THE Cooperative Buying Association of Richland Farm Bureau has received a car of fertilizer on hand for early distribution among a large number of buyers who appreciate the advantages of community purchasing. This local held a meeting at the town hall, Wednesday evening, April 6, with Thomas C. Price and Arthur G. Boyay, president and manager, respectively, as principal speakers.

Seed for the planting of six hundred acres of Grimm alfalfa in Saginaw county was distributed from the farm bureau office during the week of April 2. The demand for the seed, which is furnished by the State Farm Bureau's cooperative seed department, has far exceeded expectations. County Agriculturist Arthur G. Boyay said the other day. The yield of alfalfa per acre and the value per ton is greater than hay, and Saginaw county soil is adapted for its growth.—M.

TUSCOLA FARMERS ABOUT TO BUY ELEVATORS.

FROM Tuscola county comes the news that committees are at work in the vicinity of Cass City, Gagetown, Unionville, Kingston, Silverwood and Fosteria securing necessary finances to purchase the already existing local elevators, or, failing to secure a fair price, to build new ones. These elevators will be operated on a strictly cooperative basis, and will be the center through which the local membership of the bureau will have access to its buying and selling powers.

The Cass City Cooperative Mercantile Company opened a new meat market recently, and a grocery store will be opened by the company in the near future. The latter store will be in charge of George C. Hooper, manager and Hugh Gardner, assistant.

The Reese creamery, which has been closed for many months, will resume operations the latter part of April. A. M. Randall will be the new manager, succeeding Herman Holterman, who has accepted a position with a Saginaw concern.—J. C. M.

GERMANY SEEKS AMERICAN POTASH TRADE.

GERMANY is willing to make liberal concessions to re-establish her potash trade with the United States.

The department of commerce announces that Germany is willing to give independent holders of German potash who bought during the high-price period, a forty-five per cent rebate on present stock, provided they promise to buy eighty-five per cent of their requirements for the next five years from the German kali syndicate. An added concession is that if a competing importer offers potash at a lower price the contract will not be binding.

GRANGES IN CLOVERLAND.

THE 1920 report of the Michigan State Grange recently received from Ann Arbor, shows that, of the aggregate number of 638 subordinate granges in Michigan, ninety-one are in the upper peninsula, with Delta, Chippewa and Marquette counties in the lead here. The figures for these three counties are fourteen, eleven and eleven granges respectively. The grange membership in the upper peninsula counties runs thus: Delta, 626; Chippewa, 569; Marquette, 607; Menominee, 451; Gogebic, 82; Houghton, 240; Ontonagon, 176; Schoolcraft, 170; Iron, 240; Dickinson, 248; Mackinac, 102; Alger, 75, and Baraga, 418. There are less than 200 gleaners in upper Michigan.—CHASE.

The Kansas State Farm Bureau is selling government harness to its members at reduced prices.

MR. FARMER
Leather is High in Price. Hides are Cheap
BEAT THE PROFITEER.
Get your Cow, Steer and Calf hides tanned into **HARNESS LEATHER**. We can SAVE you big MONEY. Write us for information and prices on doing this class of work. We also tan and make Fur Coats and Robes for \$15.00, where you furnish the hide.
THE BLISSFIELD TANNERY
W. G. White Co., Inc., Blissfield, Michigan

Do You Want To Become An Auctioneer
and a better judge of livestock and pedigrees? If so, send for catalog of Col. Reppert's Auction School. Mr. John Letham, known as one of the best judges of livestock and an authority of pedigrees, will have charge of the livestock judging and pedigree work. Col. Reppert will personally instruct each student. Term opens June 27, 1921. Address:
Reppert's School of Auctioneering, Decatur, Indiana
Please mention this paper when writing for free catalogue.

SAVE 2/3
Sew at Home, the "HOMEWOOL" WAY
It is the way by which thousands of women have dressed better, at a price of ready-made. Write for free samples of famous "Homewool" Cloth—all Virgin Wool; handsome, durable, variety of colors. Sold direct from mill to you. **ESTD. 1872.**
HOMES WOOLLEN MILLS
504 Main St., Eaton Rapids, Mich.

I will condition a Horse or Cow in twelve days.
Put flesh on its bones. Give it life and vigor. Can add 50% to looks and value. Satisfaction guaranteed or no pay. Send postal for free offer.
P. M. FAUST, BRYN MAWR, PA.

Fistula Poll Evil
10,000 horses successfully treated last year with Fleming's Fistulose. \$2.00 a bottle postpaid. Money back if it fails. Send for FREE VEST POCKET VETERINARY ADVISER, describing Fistula and 200 other "Cures and Cattle Diseases."
FLEMING BROTHERS, 252 Union Stock Yards, Chicago

CLOVER SEED
Is the best paying crop there is today. If you write me today I will tell you all about it in my booklet "Clover Lands that pay mortgages."
THAD. B. PRESTON, Onaway, Mich.

LIGHTNING RODS
Exclusive agency and quick sales to Live Dealers selling "DIDDLE-BEETZEN RODS". Our copper rods are **PURE**. Write for agency. Prices are right. **L. D. DIDDLE CO., Marshfield, Wis.**

HAY Apples, Potatoes Wanted Highest prices paid.
E. L. RICHMOND CO., Detroit, Mich.

HAY Ship to The Old Reliable House
Daniel McCaffrey's Sons,
623-625 Wabash Bldg., Pittsburg, Pa.

For Sale cheap complete threshing outfit—Red River Special 3-52 separator new 1920. Bidwell Beamer new 1919. Russell Engine 20 h. five years old. Tank wagon, belts and etc. all in A. 1 condition.
W. J. McCallough, R. 1, Durand, Mich.

FARM HELP
Farm Hand Wanted, married and a man of proven ability. Must furnish good references. Position is on stock farm, near Michigan School, church, store, R.R. station on farm. Michigan Farm, Pavilion, Mich., Kalamazoo Co.

Best Locking Device Ever Made

West Bend BARN EQUIPMENT
An improvement found only on West Bend Barn Equipment. One lever locks in or releases from 2 to 50 cows instantly, and also operates cow-stops. Saves thousands of steps. Simple, practical and indestructible. Used on the best dairy farms everywhere. Our steel stalls, mangers, pens, litter carriers, ventilators, water bowls and other dairy barn necessities are your best investment. Get our
Big, FREE Barn Equipment Book
Explains entire line, also our special FREE service to farmers building new or replacing old barns with the best labor-saving devices. Blue prints furnished. Drop us a postal for full information. We are helping thousands of farmers make more profit out of their barns. Why not you? Write TODAY
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280 South Water Street WEST BEND WIS.

BERRY BASKETS

Special offer. To points within 150 miles of Lansing, we make the following postpaid price on our berry baskets.
200 A-grade wood baskets postpaid \$2.50
200 Waxlined paper baskets \$1.95
Our A-grade baskets are the best wood qt. basket made. If your market demands a wood basket, you will like these.
The waxlined paper basket holds a standard quart, is neat and clean, and fine for the home market. Order early.
By express f. o. b. Lansing, we quote as follows:
1,000 A-grade baskets \$10.50
1,000 Waxlined baskets 7.25
16 qt. Crates in flat, 10 for 2.80
Send for price list. Rates given for larger quantities.
M. H. Hunt & Son, Box 525, Lansing, Mich.

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Leather is High in Price. Hides are Cheap
BEAT THE PROFITEER.
Get your Cow, Steer and Calf hides tanned into **HARNESS LEATHER**. We can SAVE you big MONEY. Write us for information and prices on doing this class of work. We also tan and make Fur Coats and Robes for \$15.00, where you furnish the hide.
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Reppert's School of Auctioneering, Decatur, Indiana
Please mention this paper when writing for free catalogue.

Tractor Bargain one used Bates Steel Clark tractor disc harrow, one three bottom fourteen inch tractor plow all in first class condition, nearly new am leaving the farm. G. A. EATON, 210 1/2 S. Washington Ave., Lansing, Mich.

PEACH TREES Large stock, straight, well rooted trees. Free catalogue. Special prices on early orders.
MITCHELLS NURSERY, Beverly Ohio

Free Sample Annual Sweet Clover genuine Hughes strain, 2c postage. James Kitchen, R. 5, Springfield, O.

Kentucky Tobacco, NATURAL LEAF smoking, 10 lbs. \$3; 20 lbs. \$5. R. F. Veal, Sedalia, Ky. Agent boy 14 years old would like work on farm during summer vacation, not too far from Detroit. Give full particulars. F. Kiel, 1811 Field Ave., Detroit, Mich.

DOGS
Trained American Fox Hounds Rabbit and Skunk dogs all ages. Send stamp.
W. W. LUCKY, Holmesville, Ohio

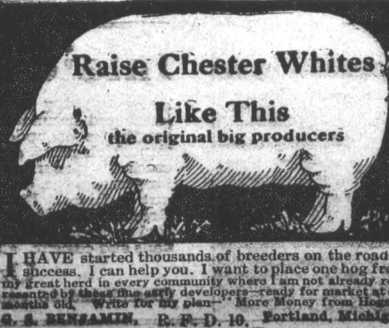
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Central Mich. O. I. C. Swine Breeders Ass'n.

Hogs of all ages of popular blood lines. Every sale guaranteed by association.
DR. H. W. NOBLES,
Sales Mgr. Coral, Mich.

O. I. C. Big type serviceable boars, weigh from 150 to 250 lbs. Gilts bred for May and June farrow. Write for prices. G. P. Andrews, Mason, Mich.

Saginaw Valley Herd. Prize winning O. I. C's. Jan and Feb. pigs, priced reasonable.
F. Gibson, Fosters, Mich.

O. I. C's choice boars and spring pigs at farmers prices.
CLOVER LEAF STOCK FARM, Monroe, Mich

Raise Chester Whites

Like This
the original big producers
I HAVE started thousands of breeders on the road to success. I can help you. I want to place one hog from my great herd in every community where I am not already represented by those who are ready for market at any time. Write for my plan. "More Money from Hogs."
S. A. BENJAMIN, R. F. D. 10, Portland, Michigan

SPOTTED POLAND CHINAS

Our herd boars Rio Grand Giant, a litter mate to the \$2100 Marshall Giant boar, his dam Arb One, the largest sow of the Spotted breed. King Onward known as one of the greatest back and color breeders. English Back Builder, a wonderful breeder. 50 Last spring gilts bred for July and August farrow. \$50 per head while they last. Fall pigs either sex, \$35. Will take orders for spring pigs for June shipment, either sex, \$25. Cholera immunized. Satisfaction guaranteed.
SAMUEL GERBER, R. 4, Bluffton, Ind.

Big Type Polands. Some very choice fall boars, ready for spring service for sale. They are sired by The Clansman; dam, the \$1025 Miss Columbia, a littermate to the \$40,000 The Yankee. Also a few choice boars by The Clansboy, son of The Clansman.
WESLEY HILE, Ionia, Mich.

L. T. P. C.
Spring boar pigs \$15 to \$25. Fall gilts sired by Harts Black Prince, \$30 to \$50. Also have two gilts which are granddaughters of the Yankee and were bred to Harts Black Prince March 24th. They will go quick at \$30. **HART, FULCHER & OLIVE, address P. T. HART, St. Louis, Mich.**

P. C. Bred sows. Fall pigs singly or in pairs. Also S. C. Minorca cockerels all big type of the best of breeding. Satisfaction guar. **R. W. Mills, Safford, Mich.**

Francisco Farm Poland Chinas

Offering a dozen choice gilts and a few tried sows bred to such boars as Michigan Mastodon and Michigan Clansman.
P. P. POPE, Mt. Pleasant, Mich.

Write for Prices on Feb. and March pigs both sexes. Sire C. C. Callaway Boy. Good long ones the kind that fills the Pork-bills. Some good bull calves of the Albertas Jubilee kind. All stock reg. in buyer's name.
VILLAGE STOCK FARM, Jeddo, Mich.

L. S. P. C. a few choice boars bred gilts all sold. Also a grandson of The Clansman and Harrison Big Bob.
H. C. SWARTZ, Schoolcraft, Mich

Big Type Poland Chinas. Choice spring boar pigs \$15 by Clansman Buster and their dam being a prize winner at the State Fair. Also gilts bred for Feb. farrow for \$40 and up. Guarantee Satisfaction.
DORUS HOVER, Akron, Mich.

Leonard Farm BIG TYPE P. C. boar pigs at weaning time, \$25 from Mich. Champion herd. Satisfaction guaranteed. Call or write. **E. R. LEONARD, R. 3, St. Louis, Mich.**

Big Type P. C. some very choice boars double im. Mune, out 1100 lb. sire and mammoth sows from Iowa's greatest herds, E. J. Mathews, Burr Oak, Mich.

Bg. Type Poland Chinas at lowest prices. Both sows and gilts. All ages, and bred.
G. A. BAUMGARDNER, R. 2, Middleville, Mich.

Large Type Poland Chinas. Nothing for sale at present.
A. A. FIEDKAMP, R. 2, Manchester, Mich.

L. I. P. C. If you are looking for something good, in bred gilts at a right price. Write
W. J. HAGELSHAW, Augusta, Mich.

Cows bred for spring litters all sold. Have some Schoch gilts bred for Aug. litters, also some Sept. boars for sale. **Clyde Fisher, R. 3, St. Louis, Mich.**

PINE GROVE HAMPSHIRE

We are offering a few tried sows bred for March and April farrow. These sows are all closely related to our winning show herd and of popular blood lines, and the price! Way Down!
Geo. Coupar & Sons, Marlette, Mich.

Hampshires Bred gilts, all sold. Spring and fall boar pigs at a bargain. **JOHN W. SNYDER, R. 3, St. Johns, Mich.**

SHEEP.

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CANKER WORM CONTROL.

IN 1920 many of the apple orchards in southern Michigan had the appearance of having been burned with fire during the months of May and June. This in most cases was the work of the canker worm, although in some orchards the injury was done by the Tussock moth and leaf-roller. Whatever the insect may have been, the treatment will be the same.

The canker worm is a greenish black insect about one inch in length which eats away all of the leaf except the leaf-stalks and ribs. The eggs hatch shortly after the leaves develop, and soon after the fruit has set the worms complete the stripping of the trees. While most common on the apple, they also feed on the elm and other shade trees.

They are likely to reappear this season in all orchards which were attacked last year, as well as in the neighboring orchards, and steps should be taken to fight them before they appear. The treatment is to spray the trees, using two pounds of dry arsenate of lead in fifty gallons of water, adding two or three pounds of hydrated lime. The trees should be thoroughly sprayed just before the blossoms open; and again as soon as the petals have fallen from the flowers.

The addition of one and a quarter gallons of lime-sulphur solution to fifty gallons of the arsenical spray at each of the above applications will guard the fruit and foliage from the attack of apple-scab and other fungous diseases, and will give excellent returns for the time and material.

Persons who have this insect in their orchards and fail to take the proper measures to control it are subject to prosecution, and the township inspectors are authorized to do the work and assess the cost against the property. Anyone knowing of infested orchards in their vicinity should report the same to L. R. Taft, State Inspector of Orchards, East Lansing, Michigan.

GARDEN NOTES.

Set small fruit plants now. They grow best during the cool, moist weather of early spring.

Cuthbert (red), and Cumberland and Plum Farmer (black), are dependable varieties of raspberries.

Perfection is the best variety of currant, London Market and Fay's Prolific are good.

Downing and Pearl gooseberries are good varieties to grow in Michigan.

Don't wait until fall to set the new strawberry bed. Spring planting is the best. Senator Dunlap is a good garden variety.

Don't leave the plants in the packages in which they are shipped. If not ready to plant, remove them as soon as they are received and "heel them in."

Most plants should be set a little deeper than they were in the nursery rows, all except strawberries.

Don't set strawberry plants too deep. Place the crown so that it is just at the top of the soil.

All the roots should be well spread out and the soil well firmed around them.

This is a good time (with the possible exception of northern Michigan), to plant peas, radishes, lettuce, onions, spinach, and other hardy vegetables.

"Sulphur occurs in many of Michigan's soils in somewhat smaller amounts than phosphorus," says Dr. McCool. "About eighteen pounds are washed out of an acre of soil annually. Some, but not all, of that removed from the soil is made good by rain and air that enter the soil mass, and it seems that sulphur should eventually become deficient in soils unless it is added in some form."

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