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The Call for More Sheep and Wool

By N. A. CLAPP

At the present time the whole world is astir seeking to secure the necessities for the comfort and the sustenance of humanity. There is a world shortage of many of the necessities of life. We can not point to a nation where there is a surplus of food and clothing material. Even in our own country, popularly known as the granary of the world, some important food stuffs are held at almost prohibitive prices.

In former years a custom prevailed which encouraged every farmer, no matter whether he had a large farm or a small one, to keep a flock of sheep on the farm to supply the necessities of the family. Wool was needed for yarn for the family with which to knit foot-wear and hand-wear, while a fat sheep with which to meet an emergency requirement for meat in harvest or threshing time served an excellent purpose. Fresh mutton was esteemed a luxury after the family had been using salt pork for several months. Those were the days when the families on the farms were living on the farms and on the produce raised on the farm. The cattle, the sheep, the hogs and the poultry all contributed towards the sustenance of the family.

Things have changed. We have gone commercially insane. Industrial manufacturers have specialized in order to meet keen competition successfully. Farmers have in too many cases specialized on one thing or another, producing all one thing and buying for

family requirements instead of meeting the needs on the farm. As changes have been made the flocks of sheep kept on the farms have been reduced in numbers or abandoned altogether, and Michigan is in the list of states where sheep raising has, during the last decade, been greatly neglected. The census reports disclose facts that are startling to contemplate. When we consider where we might have been with prices for mutton and wool where they are, and the condition we are in at present, it looks as though many farmers have followed the wrong path in search for wealth and happiness.

The decrease in flocks and numbers in the flocks has not been caused by low prices for sheep products. Wool has been bringing good prices and mutton sheep have been abnormally high in price. It has been a long time since fat lambs, or sheep under a year of age, have sold for less than ten cents per pound on foot, and during the last year quotations have been creeping up, new high records made each month until fifteen and sixteen cents per pound for lambs on foot has been reached.

During recent years when the sheep shortage was becoming more and more apparent and prices were climbing higher and higher, there has seemed to be no effort on the part of farmers in Michigan to increase their flocks. There has been a seeming drifting

with the crowd toward other branches of farming.

In 1900 Michigan had 2,747,690 sheep. In 1910 her flocks had shrunk to 2,306,476, and today there are but 1,742,000. Notice the rapidity of the shrinkage during the last six years.

The outlook for high prices for mutton and wool for many years to come is good. It is not the war that has caused the extremely high prices for sheep. There is a shortage of sheep, not only in the United States but in all the countries in the world where sheep have been kept in large numbers. There is not any likelihood of there being a heavy inflow of wool the present year from any part of the world. Other meats are abnormally high and the prices for which mutton will sell will only be controlled by the limits of the consumer's ability to buy. Only the well-to-do and the wealthy can indulge in the delicious lamb mutton. The high prices paid for labor make it possible for laboring men to furnish their families with meat a part of the time.

When we survey the situation and take in account the high prices for sheep, and the fact that less labor and expense is required where sheep are kept than with other branches of live stock farming toward which there seems to have been a popular drifting, it seems as though there must be a turn in the tide.

When we take into consideration the present conditions, the outlook for the sheep business, and the great advantages that can be secured by embarking in the business of keeping sheep on the farm, it seems as though there must be a revival in the sheep business. The sheep business is just as safe to engage in as any other branch of live stock farming, and just as pleasant to follow.

In all of those portions of the country remote from market towns, keeping sheep is far better than any business which requires a frequent trip to market. The products of the flock, such as the clip of wool, the crop of fattened lambs or sheep, do not have to be taken to market only at widely separated intervals. All of the products can be transported long distances at little expense. The money taken in can be made largely profits.

Much of the cut-over lands that are too rugged for any other class of farming can be profitably utilized for sheep pasture. Many of the waste places on the large farms in all parts of the country can be profitably utilized for sheep pasture. When the sheep are again returned to the farms the unsightly weed pestered places can be cleaned up and made to put on a more tidy appearance than that which prevails in many places in the fall of the year.

Agitation Needed.

For some time there has been a lack (Continued on page 678).



Wheat Field on the Farm of Hon. A. B. Cook, of Shiawassee County, Showing the Wisdom of Testing Out New Varieties on a Small Scale.

The accompanying picture of my wheat field shows where I sowed one peck of a much lauded variety, but one not endorsed by the Experiment Station as far as I know; same amount of seed, same amount of fertilizer, sown same day as the Improved Egyptian, which constitutes the remainder of my wheat crop. The Egyptian is good for a full crop, the other will hardly pay harvest expenses, and hundreds of acres of it in Michigan are no better, and I expect the farmers who planted it are blaming their luck, the weather or the general helplessness of the farmer, when the trouble is that while they are trying to grow a crop that is suited to Michigan conditions, they are using a variety of crop which is not. If you do your part Dame Nature will come right up, purr and rub her head against your knee. Too many refuse to accept her terms, and insist on pulling her backwards.—A. B. Cook.

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DETROIT, JUNE 9, 1917



CURRENT COMMENT.

The Patriotic Phase of Dairying. Specialists in no other one line of farming have been confronted by such serious and discouraging conditions during the era of rapidly advancing prices for all products as have dairymen, particularly where their product is sold as whole milk, either for shipment to market milk centers or when sold to condensaries which are large buyers of whole milk in Michigan. Notwithstanding the fact that through the organized effort of dairymen, prices have been forced up considerably from the low point which prevailed two years ago, yet they have not kept pace with the advance in the price of feed stuffs required for the securing of profitable milk yields, and today as heretofore, dairymen are finding themselves confronted with a deficit when the cost of production is compared with the receipts from milk sales.

In the majority of cases dairymen are in the business of producing milk because they have a peculiar talent and liking for that branch of agricultural production. In a majority of cases their herds have been built up by years of painstaking selection and breeding, and the abandonment of the business means the loss of the effort which has been required to bring their herds to present standards of production. Our dairymen are among the most progressive element of our farmers, and are probably above the average in patriotism, and not a few of them have continued in the business because of their appreciation of the importance of their product to the consuming public, coupled with the hope if not the conviction that ultimately the business might be gotten onto a basis where the material rewards would be commensurate with the effort and cost expended.

But with beef prices at their present high level it is a great temptation to market the more ordinary cows through the medium of the live stock markets, get out of the business in which it is so difficult under present conditions to keep the balance on the right side of the profit and loss sheet

and engage in the production of staple food stuffs for which there is such an unprecedented demand at the present time. Unfortunately for the country, a good many dairy farmers are following this course, with the prospect that prices for dairy products must necessarily be advanced because of their increasing scarcity, and without prospect of relief to the consuming public because of this sacrifice of dairy stock. This economic result is in direct contravention with the policy of the government in conserving and promoting the increased production of needed food stuffs.

From a patriotic standpoint, every dairyman should not only remain in the business, but should save the best of his dairy bred calves, to the end that the supply of dairy products may be increased to meet the country's growing needs for this essential line of food stuffs. The very first appeal made to the farmers of Michigan by the recently appointed Food Preparedness Committee was along this line, and in the present emergency, notwithstanding the discouraging conditions with which dairymen are at present confronted, we feel that we would be falling short of our full duty if we did not urge the dairymen of Michigan to continue in their well-doing in the building up of the dairy industry of the state to more substantial proportions, depending, if necessary, upon their own initiative through the medium of their comprehensive and now well-financed organization to ultimately put the business upon a profitable basis, should present abnormal conditions continue to prevail. The investigations which have been and are being conducted by the Dairy Department of the Agricultural College afford a more exact knowledge of production costs than have heretofore been available, and will prove a powerful argument in the adjustment of milk values at a fairly compensatory price in the making of future contracts.

In the meantime two courses of action have been suggested which may be considered patriotic rather than otherwise, and which promise possible hope of relief from present conditions without any hardship whatever to the general consumer. In view of the fact that large quantities of condensed milk and other milk products will be required by the government for use in the army and navy, it has been suggested that the dairymen of Michigan who contribute to the supply of the condensaries and other manufactories contributing to the government supply, offer their product to the government at cost plus a small profit which would make the business of milk production a living enterprise under present conditions. This action would be in line with that taken by manufacturers of various kinds of goods required by the government, whose patriotism has been lauded for offering their factories and manufacturing facilities to the government on a similar basis in the present emergency.

In view of the fact that the dairy products most extensively used in provisioning the army and navy are now bringing a very high price as compared with the prices which prevailed before the war, a similar patriotic offer from the manufacturers supplying these products and using the dairymen's milk as raw material would undoubtedly reduce the cost to the government and at the same time establish more compensatory prices to the primary producers. To the local student of the situation, it would appear that the function of food control could nowhere be better applied under present conditions than in a manner to insure the continuance of a normal supply of dairy products largely needed by the government in the present emergency. Such action would in effect automatically bring about equitable price regulation in the industry as a whole in a manner which would at once stabilize

the market and insure an adequate supply of dairy products.

Another suggestion has been advanced by State Market Director McBride which holds possibilities of relief for dairymen without hardship to consumers if the details could be satisfactorily worked out. As a consequence of the decision of the people of Michigan to prohibit the manufacture and sale of intoxicating liquors of all kinds in this state after April 30, 1918, the breweries, of which there are many in the large consuming centers of the state, will necessarily have to be devoted to other uses. These plants have excellent refrigerating facilities as well as facilities for the distribution of product which could be readily converted to the handling of market milk. The suggestion above noted is for the promotion of the co-operative use of such facilities for the distribution of market milk in large cities where they exist. It is believed by many who have studied the question carefully that the cost of distributing market milk does not exceed the cost of its production, and that a plan might be worked out whereby the producers contributing to such centers could arrange for the distribution of their product on a basis approximating such a division of proceeds, or at least on a basis more equitable to the producer and consumer alike than is afforded by present methods of distribution in some of our larger cities.

The feasibility of these proposed plans are well worthy of the careful consideration of both the officers and members of the Michigan Milk Producers' Association. Their practicability can be established only through such careful consideration and study. In any event, such consideration will prove beneficial, as it may lead to other suggestions of a more practical nature.

But in the meantime, the attitude of the commercial dairyman should be one of perseverance as well as patriotism, to the end that the years of patient effort which he has expended in building up his business may not be wasted, and that the future supply of wholesome dairy products may be insured to the country at a time when they are more badly needed than ever before.

Feeding the World. A forecast of the part which the United States will be called upon to take in the stupendous task of feeding the peoples of the world, engaged with us in a common cause, is contained in recently published semi-official statements. In a recently published interview, Herbert C. Hoover, who will have charge of food control in this country, stated that the requirements of the allies and the European neutrals had been put at 971,000,000 bushels of grain, 555,000,000 bushels of which are bread grains and 416,000,000 bushels fodder grains. While recognizing that it will be impossible for North America to furnish all of this quantity, Mr. Hoover expressed the opinion that the United States and Canada can this year export at least 600,000,000 bushels of grain, and that under favorable conditions this amount may be increased to 800,000,000 bushels.

A recently published bulletin issued by the Bureau of General Statistics of the International Institute of Agriculture, with headquarters at Rome, clearly shows that the countries of the southern hemisphere will be unable to contribute their usual share toward the feeding of European countries. This statement shows that the aggregate production of the five principal cereal crops in the countries of the southern hemisphere are not only far below last year's production, but materially below the average. The wheat crop is placed at 63.4 per cent of the 1916 crop and 93.1 per cent of the average; rye 46.3 per cent of the 1916 crop and 65.9 per cent of the average;

barley 61.2 per cent of the 1916 crop and 85.7 per cent of the average; oats 56.6 per cent of the 1916 crop and 66.7 per cent of the average; maize 40.1 per cent of the 1916 crop and 33.4 per cent of the average.

In the language of the bulletin, these figures show in a very expressive way the present agricultural position in the southern hemisphere where the results usually provide one of the food resources for the northern hemisphere. Commenting upon the necessity of satisfying the requirements of the allies and neutral countries so far as possible, Mr. Hoover emphasizes the necessity for eliminating all waste, so far as possible, and a probable necessity for the consumers of all countries affected to eat less wheat and more of other cereals than usual during the coming year.

HAPPENINGS OF THE WEEK.

Foreign.

The European War.—The British have again taken the offensive on the Arras front, but after forcing the Germans to fall back just south of the Souchez river, a heavy counter-attack by the Teutons regained the ground lost. On the other hand, to the southeast of Arras an early success in a German offensive was wrested from the invaders when British infantry retaliated. Violent artillery engagements on the Belgian frontier north of Dixmude has revived attention to the Belgian section of the western lines. The French repulsed heavy German attacks against the Vaulerc and Californie plateaus in which the attacking parties lost heavily. During the past two months 52,000 German prisoners have been taken by the French and British on this front. In May 713 aeroplanes were lost by the forces here, of which 271 were British and French, and 442 German.—After a short respite the Italians have launched another drive on Triest in which they advanced on a front of over a mile on the difficult territory about Duino. The Austrians, who have suffered the loss of 85,000 casualties since this recent drive began, are withdrawing troops from eastern territory to strengthen their defense on the Italian frontier.—The Russians have renewed fighting in the Caucasus district and reports from Petrograd state that three heights have been captured in the Sakis region and the Kurds have been prevented from disturbing Russian communications.

The political situation in Russia is very much disturbed by the demands of extremists of all classes. Last week labor organizations were asking for advances of 50 to 100 per cent in wages. Munition plant workers have in many instances gone on strike and the inhabitants and others on Kronstadt, an island commanding the harbor at Petrograd have revolted. Notwithstanding the many handicaps under which the defacto government is working, some progress is being made. The American commission has arrived at a Russian port to give whatever aid it can in the reconstruction of Russia's political machinery along democratic lines.

Eleven of the provinces of China have revolted from the central government and are now controlled by military governors. President Li Huan Hung intends to introduce a bill this week asking parliament to declare war on Germany. The southern provinces are said to remain loyal to the central government.

National.

A plot for the establishment of a German submarine base close to the Panama Canal has been disclosed. The intrigue which contemplates the purchase by Germany of the Island of Margarita on the north coast of Venezuela, from that government, was discovered by United States agents and the South American republic has been notified that such a transfer of the territory would be regarded by this government as an unfriendly act.

United States Census Bureau figures given out in preparation for the taking of the country-wide army draft, show Detroit to be the fourth city in the country in number of inhabitants, now having 850,000. In 1910 the Michigan metropolis was ninth in the list. The increase during the seven years amounts to 384,234, or 82.4 per cent.

A CORRECTION.

Through an error the article on "Potato Scab," published in the last issue, was credited to Prof. McCool, instead of to its author, Prof. G. H. Coons, of the Michigan Agricultural College.

Bulletin No. 5 Research Dept.
The Michigan Farmer

Farm Experience with the Automobile

Although the automobile is now quite generally accepted as a part of the progressive farmer's equipment it was deemed worthy of the trouble to learn from 25 owners their views as to the value of the automobile upon the farm. The following tabulation is the result of our inquiry. We submit it with the hope that readers will find it instructive and interesting. No selection of reports was made—the first 25 coming to the office being included in the table. Where blanks appear no answers were given.

No. of Automobile Owner.	County in which Owner Lives.	Size of Your Farm.	No. of Persons in Family.	Cost of Your Automobile.	Date of Purchase.	Give H. P. of Engine.	Give Rated Passenger Capacity of Car.	How Many Miles Was Car Driven the Past Year?	What Have Your Annual Repair Bills Been?	What Accessories Have You Added to Car?	How Much Time Is Required Per Week on Car?	Do You Use Car for Both Business and Pleasure?	Do the Women and Children Make Use of Car?	Do You Consider Investment in Car a Good One?	Would You Buy a Larger or Smaller Car if Purchasing Again?	Do You Insure Your Car?	What Do You Consider the Life of a Car Under Average Farm Use?	Do You Favor a Low Requiring Sleights to be of Standard Tread?	How Many Months of the Year Do You Use Auto?	Below are given brief statements by each of the automobile owners on the utility of the motor car upon the farm.
1	Lapeer	120	2	\$750	May 1915	35	5	1,500	\$7.00	None	Hrs. 3 to 4	Both	No	Yes	Same	No	Years 8	No	Mths. 7	We do a great deal of routine work like hauling cream with the car. Saves much time in making long trips to town and other points.
2	Calhoun	300	5	650	1915	30	5	3,000	15.00	Dashlight	1/2	Pleasure	No	Yes	Larger	No	5	Yes	8	Saves us time and money in securing repairs for machinery. Our cash crops are cloverseed, wheat and rye.
3	Ingham	120	3	875	Apr. 1916	.....	5	2,275	None	Lock and chain	.....	Pleasure	No	Yes	.....	No	8 to 10	Yes	12	If smaller cars were reliably equipped would prefer to the larger machine. We carry grists and many other things that can be gotten into car. With it we go many places we would not get to if dependent upon horses.
4	Eaton	106	2	550	1914	22	5	.....	2.50	Horn, lights, tool box	1	Both	Yes	Yes	Same	No	10	No	9	We can get about quicker. Are little delayed by break-downs. During three years we have purchased five new tires besides the ones on car when new.
5	Livingston	60	3	395	1915	15	3	2,000	5.00	None	1	Both	Yes	Yes	Larger	Yes	5	Yes	8 1/2	My car lacks power on heavy roads. Much time is saved in doing the many errands that must be done on every farm.
6	Sanilac	40	2	450	1916	22	5	1,800	None	.....	.....	Pleasure	No	Yes	.....	Yes	Long time	Yes	12	We use our car largely for pleasure. It saves much time in going to town. An automobile conserves the health of members of the family.
7	Eaton	240	5	1250	May 1914	.....	5	3,500	50.00	None	.....	Both	Yes	Yes	Larger	No	5	No	9	Has reduced number of horses we keep. Requires time to care for car, but much is saved in doing the many errands about the farm.
8	Cass	100	3	370	1916	22	5	1,500	9.00	None	6	Both	No	Yes	Same	Yes	5	No	9	While time is required to care for car and it entails an expense in operating, there is a great deal of pleasure had that we could not otherwise secure. We deliver milk with our auto and save time in going to town.
9	Calhoun	240	5	400	1913	22 1/2	5	2,000	5.00	Spotlight	2	Both	Yes	Yes	Smaller	No	10 to 12	No	9	Automobile is a time saver in busy seasons when one is looking up help and making trips to mill and town.
10	Washtenaw	160	3	400	1916	.....	7	3,000	50.00	Spotlight	3 to 5	Both	No	Yes	Smaller	Yes	5	Yes	9 to 10	The great advantage of the automobile is in the saving of time that would otherwise be absolutely wasted. The extra hours spent on the road with the horse can be turned to account where one has a car.
11	Gladwin	40	3	360	1914	22	5	6,560	.....	.....	.....	Business	Yes	Yes	Same	.....	3	Yes	8 to 10	I believe every farmer should have a car. The automobile not only saves man's time but the horses on the farm are relieved of much hard travel in the busy seasons.
12	Eaton	110	5	825	May 1916	.....	7	3,500	20.00	.....	1	Both	Yes	Yes	Same	.....	4 to 7	Yes	12	I consider my investment in the automobile a good one.
13	Eaton	220	4	440	1915	20	5	2,500	None	Horn	.....	Both	No	Yes	Same	No	20	Yes	7	Farmers are obliged to do a certain amount of running about and the car saves him money in this by reducing the time required.
14	Branch	85	5	1090	(?)	45	5	.....	None	.....	1	Business	Yes	Yes	Same	No	10	No	8	The economy of the automobile to the farmer lies in the reduction of time required to make the many necessary trips.
15	Ingham	200	3	875	May 1916	.....	5	2,000	None	None	1/2	Both	Yes	Yes	Same	No	.....	Yes	10	An automobile is very serviceable to the farmer. Convenience makes the car worth while and much time is saved.
16	Calhoun	133	4	575	1914	22	5	3,000	15.00	.....	1/2	Both	Yes	Yes	Same	No	10	Yes	10	The car saves my horses from road work. I carry cream to station, run to town for groceries and repairs.
17	Lake	400	4	440	1914	22	5	6,551	22.16	Added many	2	Both	No	Yes	Same	Yes	8	Yes	9	A car gives pleasure to all the family after work. One can do his road work while his team is home putting in the crops.
18	Branch	60	2	595	Sept. 1916	25	5	.....	10.50	None	3 to 4	Both	Yes	Yes	Same	No	.....	No	12	Use car to handle milk and many other products. It gets one to his destination quickly.
19	Arenac	120	10	500	Mar. 1916	22	5	1200	10.00	Shock absorber, oilgale	1	Both	Yes	Yes	Same	Yes	10	Yes	9	I save a half day's time each trip to town. In season I do custom sheep shearing and find the car convenient for this.
20	Lake	60	5	454	Apr. 1916	22	5	5,000	30.00	Speedometer	.....	Business	No	Yes	Same	No	.....	Yes	6	The car saves the team from the road and makes it possible to spend less time traveling which gives me more hours to devote to my farming.
21	Gladwin	120	2	985	1916	40	5	2,000	None	None	2	Both	No	No	Same	Yes	.....	No	8	I do not see where the car has saved me any money.
22	Livingston	250	4	440	Aug. 1916	22	5	9,000	125.00	None	2	Both	Yes	Yes	Medium	Yes	3	Yes	12	We toured to Denver, Colorado, last year. I have owned in all five cars. I consider them a good investment for the farmer.
23	Hillsdale	120	7	450	Mar. 1916	22	5	3,000	.....	Added many	1/4	Business	No	Yes	Same	No	.....	No	12	I value the time saved by the use of the car during the rush season. We save railroad fares also.
24	Livingston	240	4	1100	July 1916	.....	5	2,500	5.00	None	1	Pleasure	No	Yes	Smaller	No	5	Yes	10	With the auto we can run to town for repairs, etc., while the horses are taking their nooning. The pleasure from autoing is about all the pleasure that the farmer gets.
25	Shiawassee	80	3	785	Oct. 1915	.....	5	1,500	None	Clock	.....	Pleasure	No	Yes	Same	No	Don't know	Yes	7	The advantage of the automobile to the farmer is that he can go and come quickly. I have not paid out a cent for anything on the car except for gasoline and oil.

Sweet Corn for Drying

By JAMES N. McBRIDE

BEANS will be grown as never before in Michigan, but these are largely a field crop handled by machinery. Potatoes are so costly as to seed this year that the expense of planting is an item of consideration that is a deterrent to normal acreage.

There is still a crop that can be planted and secure the maximum of food at the minimum cost of seed and labor, viz., sweet corn, to be used for drying. Approximately one dollar's worth of seed will plant an acre. Late Minnesota, Stowell's Evergreen or any of the standard, heavy yielding varieties are preferable for the main crop.

For church organizations desirous of cultivating a piece of land for adding food stuffs primarily, and secondarily to secure church revenue, sweet corn offers great possibilities. For best results a manured sod field is the ideal. If the land is not fully up to standard, 400 pounds of commercial fertilizer may be added. If modern machinery is not at hand for planting, the seed can be dropped and covered by hand with the hoe. A small handful of fertilizer dropped from a bucket by hand and spread out before planting, or mixed with the soil, is not difficult. If the corn is planted in hills, four grains in rows, thirty-eight to 42 inches apart is good practice. If the rows are cultivated one way, some old-fashioned hoe work may be necessary. Cultivate two or three times, not over deep the last time. One bean of the climbing puller bean type, "Lazy Wife" variety will add to the food supply. Also a few pumpkin seeds scattered through the field at time of planting adds still more of food sources.

Drying the Corn and Pumpkins.

Many people prefer dried sweet corn to the canned article, and those who do not may have to forego the canned corn on account of the scarcity of tin cans. An acre of sweet corn, when grown for the canning factory, will produce three to four tons of corn ears in the husks, and if canned, between two and three thousand No. 2, or pound cans. As corn is packed twenty-four cans to the case, 100 cases of corn, approximately, are secured from one acre which, if retailed at ten cents per can, would be \$240. The way to obviate a portion of the high cost of living and still live well, is to dry the aforesaid acre of sweet corn and store away in new grain sacks for use at home or for sale. There does not seem to be at hand exact knowledge as to just how many pounds of dried sweet corn this acre would produce, but it is estimated or rather, guessed at by some fairly good guessers, as around 600 pounds. One church organization with four acres of sweet corn dried would, at twenty-five cents per pound, have a lot of food stuff, and a snug sum if sold to apply on the minister's salary. In fact, a bushel of dried sweet corn and a few bushels of choice hand-picked navy beans would, if cooked at home, save many trips to the delicatessen store and a lot of money and be equally good food.

As to drying the sweet corn, it can be cooked on the early slightly, cut from the cob and dried in the oven in dripping pans. For larger quantities steam driers which can be used on the cook stove are available at low cost. A yard square of cheesecloth tacked on frames with one frame above the other to keep out flies, and dried in the sunlight, is another very good plan. My special advice of a householder of long experience is to handle the corn within two hours after pulling off the stalk. Corn left on the ear standing over night sours and is of poor flavor. The sour taste found in sweet corn canned is the result of souring before canning, being hauled a long distance. Another advice is to see that the dry-

ing is complete before putting away.

Preserving the Beans.

The beans planted in the corn can also be dried, but are not so meritorious over canned beans as is the dried corn, being inclined to be stringy. In the absence of cans for preserving the beans, these can be brine salted in crocks. This method of preserving can be used with the corn also. With a favorable season there may also be a ton or more of pumpkins. The seeds of the pumpkins should be saved and sold to seedsmen and the pumpkin sliced thin and dried in the air or oven. Canning is only about fifty years in use and many of the older people remember and are still expert in the matter of drying, and their advice is well worth seeking. The inability to obtain tin cans in quantity and at a reasonable price is going to add enormously to the cost of canned goods. It is also a patriotic duty to allow the canned goods that may be packed to go to the army and navy when conditions for cooking dried material is not equal to that of the home. Ladies' aid societies might contract for an acre or more of sweet corn and set up their drying operations in the church kitchens.

Flint Corn for Cereal.

Another scheme for a most nutritious food, and at very small cost, is to plant or secure a few bushels of Flint corn. Do not husk, but hang up in a dry room somewhat after the manner of seed corn, and with a coffee mill type of corn grinder manufacture your own breakfast cereal as you need it. Sift out the corn hulls in a meal sieve, and you have a corn meal mush, dainty and delicate, with the corn flavor preserved in the original package "husk." The old-fashioned southern way was to preserve the corn in the husk until ready to take a few bushels to the mill for grinding into meal. Anyone who remembers the toothsome corn "pone" of the southland, can live those days over again by using the plan outlined, if he has patience to do the grinding. Commercial milling practices prevents its realization now, even if we do our part with the corn. The Flint corn lends itself to this process a little better than the Dent varieties, although not an absolute prerequisite. The modern corn flakes have the germ removed before the grain is cooked, and then passed through heated steam rolls to make the flake. The home-made meal contains the germ, or as old-fashioned folks call the "chit," the especial delectable part that is eaten first by squirrels. The germ center also contains the corn oil which seems to evaporate when meal has been ground a long time. The battles of the Confederacy were fought on corn meal, and the great drive of civilization through the middle west was corn fed.

Some forethought of the individual and of societies in the matter of field and sweet corn is now the most promising additional source of food supply at hand, and can be a feature of the 1917 Thanksgiving if we get busy on the job immediately.

CROP AND FERTILIZER QUESTIONS.

Time to Plant White Beans.

Is June 1 to 5 too early to plant white beans? I thought if planting early a person could harvest them before the fall rains came, but they tell me if planted early the blossoms will fall off when the hot weather comes. Kent Co. J. H.

No one can tell to a certainty just the time to plant white beans, it all depends on the season. Bean plants are very susceptible to frosts and we are running a risk at both ends of the crop. If you plant too early in the spring and a frost should come the

beans are killed. If you plant too late in the season and there comes early frosts then they are killed at that end of the season. The thing to do is to avoid a frost at either end of the season. I should think that along the first or fifth of June would be about the right time to plant, certainly all danger of frosts ought to be over by that time and yet many people don't plant before the fifteenth of June.

It is an excellent thing to get the beans in early enough so that they are harvested before the early wet weather comes, but sometimes it is impossible to avoid these things. There is always a certain amount of risk to run, no two years are alike, but beans certainly ought to be planted early enough in the season so that they mature fully before frosts in the fall.

Seeding Red Clay Land.

I have a piece of red clay land and for years I have tried either corn or oats, or something, and always fails to catch, then turn the stock in the remainder of the season. What is the best way to get it seeded? Which kind of clover should I sow? The land is high and dry, and most always is so hard one cannot cultivate it. It has lots of Canadian thistles on it. Wexford Co. C. H.

If this land is well prepared in a favorable season, one ought to get a catch of clover with oats when not more than one bushel of oats per acre is sown. If you sow the oats too thick then they smother out the clover, especially if they grow large.

As this land has been pretty well run, with little or no manure, I think it would pay to use about 200 or 300 pounds of acid phosphate per acre when you sow the oats.

If it is too late now to sow to oats and you planted the field to corn, I would cut this corn and seed to wheat this fall, using 250 or 300 pounds of acid phosphate and then early next spring before the frost is out of the ground I would seed to common red clover and timothy, about six quarts of clover seed and two quarts of timothy per acre. I never have any trouble in getting a catch under this plan.

You say the field is covered with Canada thistles. Now, this indicates that this is pretty good soil and that it isn't so very much exhausted. It is now so late in the season that I think the best thing to do is to plant the field to corn, fertilizing the corn, and then take particular pains in cultivating this summer thoroughly enough to kill these Canada thistles.

I would prepare the ground for wheat after the corn by disking or cultivating and would not attempt to plow it. If the corn is late in maturing you could sow the wheat among the standing corn by using a one-horse fertilizer drill. I believe in this way you could get a good fair crop of wheat which bids fair to bring a good price and also to be pretty sure of getting a good seeding of clover.

Sowing Cover Crop in Corn.

We have a nine-acre field that had sod plowed under three years ago; it was cropped twice with corn and once with oats. This spring I intend to put it into ensilage corn, then sow it to wheat and seed it next spring. As this field was never manured much I wondered if there was anything I could sow to get a good catch of clover the last time cultivating, to plow under as green manure this fall. The field is partly low, black soil. Oakland Co. SUBSCRIBER.

It would be well-nigh impossible to sow any kind of a crop in this growing corn at this last cultivation that would yield any considerable amount of vegetable matter to be plowed down for wheat this fall. Sometimes we sow rye or clover or vetch in standing corn but it never makes much of a growth until after the corn is cut, then under favorable conditions it will make quite a growth to be plowed down the next spring. But, in this instance, H. M. wants to put this field into wheat this fall; he will want to prepare the land just as soon as the corn is put into the silo and there will have been no con-

siderable amount of growth of any cover crop that may be used. I don't think one could figure on getting growth enough from any crop that could be planted to pay for the seed and time.

My way of putting in wheat on this land would be to cultivate the corn thoroughly, keep it free from weeds, and then as soon as the corn was put into the silo to cultivate the ground up good and sow to wheat without plowing. If you plow this ground after the corn is harvested it takes an immense amount of work to pack it down and get a good seed bed for wheat. Wheat ought to have a firmly packed soil with two or three inches of loose, fine, mellow dirt on top and where you plow ground immediately before sowing the wheat it is next to impossible to get the proper conditions.

Some people would go on this corn stubble with a disc and cut the stubble all up, but this ground stubble bothers so about sowing the wheat, and I have had splendid success by simply cultivating, straddling the row as you would when the corn was young, and then drilling the wheat lengthwise of the corn row.

The Grimm Variety of Alfalfa.

I see in the Michigan Farmer you were trying out Grimm alfalfa, and I would like to know how you like it. Do you think it better than the other kind? I have raised the other for several years and like it very much. Some years would not have much hay if I had not had the alfalfa. I tried out four acres three years ago for a hog pasture and I sowed lime and inoculated it with alfalfa soil and I had a good stand, but it does not suit me to leave it, for it is not as good as at first, so I covered it with manure in the winter and am going to plant to corn and I expect to sow the alfalfa after the last cultivation, and I am thinking of sowing the Grimm variety for they say it will bear more pasturing and not hurt it. I see you said a while ago you did not advocate sowing in corn for the stubble would bother, but for a hog pasture I thought that would not make so much difference. Now I would like your opinion. If I sow in the corn it will give me a crop keep the weeds down and save a year's time. Hillsdale Co. E. S.

I think the Grimm variety of alfalfa is probably the most hardy variety that we know of at the present time. I believe it will do better on heavy land, land that needs tile draining, than any other variety. But I think on land that has a poorer subsoil, that is, land that don't need the draining, that any good Dakota or Montana seed will give good results, probably as good as the Grimm, and it doesn't cost half as much. This is the conclusion I have come to after having experience with different varieties of alfalfa. If you have land where clover is liable to heave by the freezing and thawing of ground in the spring, the Grimm variety is the safest, but, on the other kinds of soil you can get probably just as good results from other varieties. We have now on the market varieties of alfalfa that have had continuous growth on fields in Dakota and Montana for thirty years. This proves beyond question that they are hardy and I think the natural drainage of the land has more to do with our selection of a variety than any other thing.

Now about sowing alfalfa at the last cultivation of the corn. To say the least, this is rather risky business. You have got to have a most favorable season if you get even our common hardy red clover to grow at that time. If you have got a good crop of corn it is taking all the moisture it can get from the land, there is practically little left for anything else, in fact, during the dry year there is not sufficient moisture for the corn itself. Now this is a mighty poor place to sow alfalfa seed. Of course, if we have a wet July and August, plenty of moisture, you might get a good stand of alfalfa but I would not risk high-priced alfalfa seed under such conditions.

COLON C. LILLIE.

The Trouble Department

Scab on Pears.

My pear trees blossom full every spring and when the pears are about half grown they crack open and fall off. They never come to full size. I also have one plum tree that does the same way. Can you tell me what to do for them? A. R.

Your pear trees are affected by a very common fungous disease called scab. Some varieties of pears, such as the Flemish Beauty, are very susceptible to this disease, and if not given good treatment in the way of spraying, they will invariably be covered by scab, and will crack as the result of this disease.

To control the disease, the trees should be thoroughly sprayed with Bordeaux mixture, which is made of four pounds of copper sulphate and six pounds of lime to fifty gallons of water. The copper sulphate should be dissolved in the water, and the lime slaked to a smooth paste. Then the copper sulphate and lime should both be diluted to about twenty-five gallons each, and then mixed together.

The first application of this spray should be made just before the blossoms open. When about half the blossom petals have dropped, and again two weeks thereafter, other applications should be made. If the season is a very wet one, a fourth spraying should be made two weeks after the third one.

In order to control insects which attack the pear, arsenate of lead at the rate of two pounds to fifty gallons should be added to each spraying after the blossoms have dropped. Your plums drop because of the attack of the curculio, and this insect can be kept in control by following the spraying directions given for pears.

Blossoms on Young Trees.

We have several pear trees, Keifers, planted three years ago. They are now covered with blossoms. What would be the proper thing to do, leave the blossoms on or take them off? We also have two Windsor cherry trees, planted at the same time, with a few blossoms on. Should I leave them on or take them off? A. R.

I would not advise you to pick the blossoms off your young pear and cherry trees.

Very often these fruits will blossom heavily and not set to fruit, and even though these young trees should set to some fruit, it would not hurt the pear trees to mature one or two fruits if they are thrifty trees. The cherry trees could also mature a small amount of fruit without injury.

The Squash Bug.

Please tell me how to get rid of brown squash bugs. They are green when first hatched out and smell offensive. We are pestered every year with them. Have put on several different things, but none seem to do any good. SUBSCRIBER.

The squash bug is very difficult to control, as there is no spray known which will kill the adult beetles without injuring the vines.

A ten per cent kerosene emulsion will kill the young, but kerosene emulsion, if not properly made, will likely cause injury to the vine. This emulsion is made in a stock solution, first by dissolving by boiling, a half pound of laundry soap in one gallon of soft water. As soon as the soap is all dissolved remove the solution from the fire and add two gallons of kerosene, after which agitate the mixture violently. This can best be done by pumping the mixture into itself with a bucket pump. The agitation should continue until the mixture is a smooth creamy emulsion, without any free oil. This stock solution will keep if sealed from the air. For a ten per cent solution add five and two-thirds gallons of water to one gallon of stock solution and mix thoroughly. If there is any free oil, injury to the vines will result.

Other means of control are, the destruction of the egg masses and the

use of boards or stones under which to trap the adult beetles. The adults should be looked for frequently under these boards and destroyed. The eggs are laid in batches on the under side of the leaf, and are orange or red in color.

FOR CABBAGE LICE.

For cabbage lice take a lump of salt-peter, the size of an egg, and put in a sprinkler of water. Sprinkle the cabbage once or twice and there will be no more lice on them. As soon as I see the white butterfly flying over my patch, I think it time to get out the sprinkler. H. C. HURT.

CONTROLLING CABBAGE WORMS.

The method used to control cabbage worms, which is simply to apply hot water, pouring it on the forming heads with a dipper. This effectually cooks the worms, and while it may turn some of the outer leaves slightly brown, I have never known it to do the cabbage and harm, as the heads seem to form and grow all the faster after the application. I have even used hot water on cauliflower without harming them in the least. This method I learned from a man who raised cabbage for market and shipped them by the carload. He used a large kettle placed in the middle of his cabbage field to heat the water.

For small patches I heat it in a kettle or wash boiler on the kitchen range and carry it out in a pail.

Ingham Co. A. E. WOODMAN.

PRUNING ONLY REMEDY FOR FIRE BLIGHT.

In recent years a disease has been spreading through the apple orchards of Michigan, killing much of the newly set fruit and many of the young growing shoots of the trees. This disease is fire blight. It attacks the pear as well as the apple and quince. It develops to a serious degree almost every year in pears. It rarely causes as much injury in apples as it did two years ago. It is caused by a bacterial parasite which develops in the growing layer of the tree, causing the tissues to die during spring and early summer.

There is no other known preventive than cutting out and burning the blighted parts.

The best time to cut out blight is in late winter or early spring just before the blossoming season. It winters over mostly in pears, though occasionally in a few apples, like Jonathan and Yellow Transparent. While in June the blight shows in millions of the blighted places on the twigs, it will winter over only in a few places in the trunk, main limbs or occasionally in the twigs. In early spring these winter pockets of blight may be seen in blistered areas on the bark which give off honey-like exudations. Insects feed on these honey-like masses. These honey-like masses are full of germs of the disease which are carried by the insects to the blossoms and growing points in spring. If these winter pockets can be cut out, and the wounds painted no blight germs will be left and the disease will not spread during the spring and early summer. If a blight pocket here and there is overlooked near the blossoming time, the disease will spread from it to the flower clusters and growing twigs. The first blighted parts in the flower clusters and new twigs put out honey-like exudations which stand in little beads on the young twigs, lead stems or young fruit stems. If these are cut out just after blooming period, enormous spread of blight can be prevented. It will be well to keep this point in mind this spring and cut out blight early before it spreads through the orchard.



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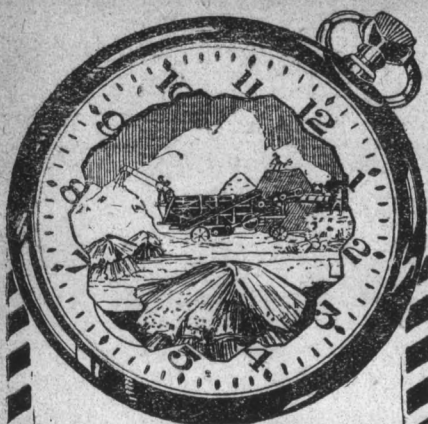
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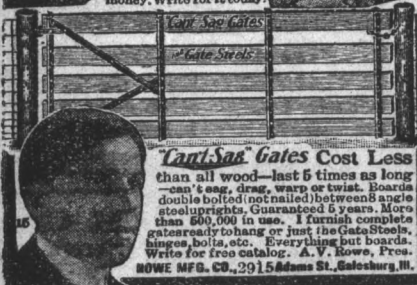
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The Self-Feeder

SEVERAL requests have recently come to hand for plans and specifications for building self-feeders for hogs. While the principle of self-feeders is practically the same in every case, yet the details of construction are varied according to the needs of the feeder. The accompanying cut shows one type of feeder used and recommended by the Iowa Agricultural College. The editor recently built a feeder of this type, except that the capacity for grain was considerably larger. This feeder works very well, except that the ground feed in it will not always feed down well. To remedy this difficulty the spreading de-

fifty fattening hogs and the smaller one will serve for half that number of growing pigs.

THE CALL FOR MORE SHEEP AND WOOL.

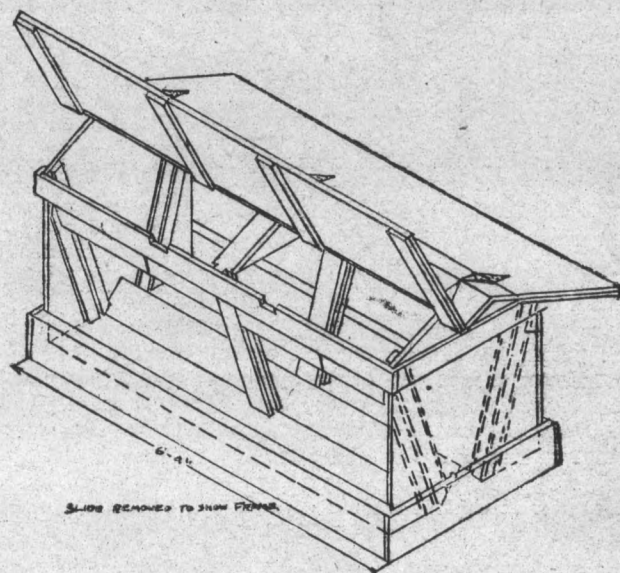
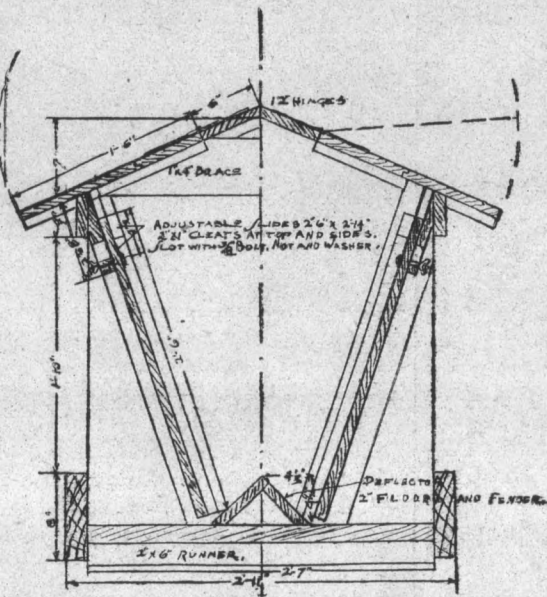
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of agitation of the sheep raising business at farmers' meetings. The name of sheep has but rarely appeared on the programs at farmers' institutes in recent years, while the dairy business has been very thoroughly discussed at most if not all of the meetings.

As a healthful kind of meat to use in the family sheep meats are among the best. If more attention is paid to raising, slaughtering and cooking mutton

the manure and apply it at the proper place and in the proper manner, there is a great waste of fertility, and it is a difficult matter to maintain the original fertility of the soil without the aid of commercial fertilizers.

The sheep is the "animal with a golden hoof." He gathers where he has not strewn and distributes the richest of manures wherever he goes. At night the sheep occupy the highest and poorest ground, always enriching it and bettering its physical condition, making the light, sandy places more adhesive and the heavy, clay knolls richer and more easily reduced to a fine tilth. Wherever sheep are kept as the leading stock on the farm, and the manure properly handled, the fertility of



vice will be removed and made narrower, and other alterations and adjustments made until this particular feed works satisfactorily in the feeder. Another one will be constructed for the spring pig crop soon to be weaned. This will be made narrow and with straight sides with gains for movable partitions to permit the feeding of a variety of grains in the same feeder. As above noted the feeder should be adapted to the work required of it. The larger feeder is supplying about

on the farm it will be more and more appreciated, otherwise it will become a lost art. To those who have the good of humanity at heart it looks as though it is the duty of those who know the merits of keeping sheep on the farms to spread the gospel of sheep raising and mutton eating among the farmers and not let all of this most healthful and delicious kind of meat go to the cities.

In all parts of the country people are promoting different branches of farm business by organizing. There are corn clubs, potato clubs, fruit raising clubs, pig clubs, calf clubs, etc., and thus far I have not seen any mention of

Sheep and Lamb Clubs.

It is just as dignified a business for children to learn as any of those promoted by the organization of the clubs mentioned. It is believed that an interest in sheep raising can be stimulated by a little concerted effort on the part of those who are familiar with the merits of the business. A persistent agitation of the subject will make it popular. If lamb clubs are organized it will not be the remark that "Mary had a little lamb," but that not only Mary, but Susie, Ruth, Katie, Lily, Jennie and Alice, as well as Johnnie, Walter, Henry, Herman and Charley are all engaged in raising lambs and are learning and operating in the sheep business.

If in communities where farmers take an interest in the welfare of the young people, and are trying to give them the right start in business, they will hold community fairs, and when the various products are brought together the keepers of the flocks will be entitled to as many honors as those who show fruits, potatoes, calves, pigs or poultry. A community can make a business popular or let it drop into a condition of neglect and decline until financial losses are sustained.

The Fertilizer Question Important.

Most farmers are loyal American citizens. They have the good of their community, state and nation at heart. They realize that where stock is not kept on the farms the fertility of the soil is being lessened each and every year. They also know that where stock is kept, especially cattle, that unless there is great care taken to conserve

the soil is increased, and the necessity for commercial fertilizers ceases.

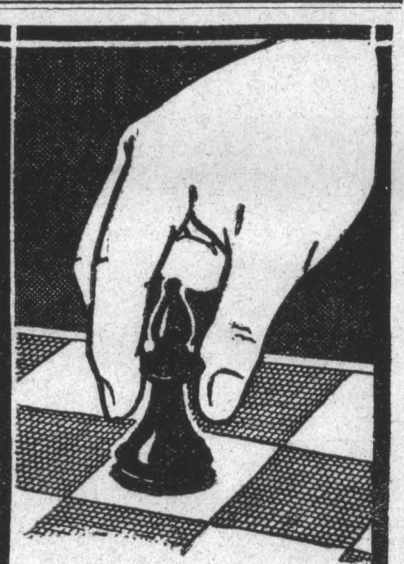
When sheep are kept on clayey farms they do not poach up the ground while it is wet as do cattle or horses. Sheep running on light, sandy soils compact it, which enables it to hold moisture better and retain the fertility. While sheep are running on the land their light weight does not injure tender plants as do cattle.

Sheep are consumers of a great variety of plants and shrubs, and are, therefore good scavengers, gleaned their food from such as other stock will not consume, and convert what is otherwise worthless into a rich fertilizer at the same time there is growing on their backs wool, which always has a commercial value.

The Call is Imperative.

The demand for more sheep and more wool is becoming more and more imperative. At the present time the high price for mutton and wool is coming from all sides. The armies are demanding more wool for clothing for the men who are being exposed to rigorous conditions on the field of carnage and strife. The millions of workmen in our manufacturing industries are calling for more mutton for themselves and their families. The wealthy who revel in wealth and luxury, are calling for more delicious lamb mutton with which to satisfy their trained appetites for something more delicate and expensive than can be indulged in by the great masses of the people.

The great question at the present time is, will the demand be heeded and the interest in the sheep business be stimulated to a degree sufficient to encourage those who can to embark in sheep raising and wool growing on an extensive scale? Will the farmers who have large farms divide their attention between sheep and wool raising and other kinds of live stock? Will the farmers on moderate sized farms heed the call and re-establish the old custom of keeping some sheep on nearly every farm? If so, the benefits which can be derived from keeping sheep can again be realized and the influence of the flocks can again make its modifying influences felt on the dwellers in the rural communities. It is a call which, if heeded, will be a general benefit to humanity.



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Dairying on a Business Basis

LITTLE attention has been given heretofore to dairying in its relation to the farm as a whole, or in its economic relations, notwithstanding the fact that much attention has been devoted to methods of production, feeding and care. What dairy farmers must come to appreciate is the actual value of determining the cost of production in detail, and the relation of that cost to the product and income therefrom. The object should be to show the exact status of the dairy industry and the cost of dairy products to the producer, endeavoring to reduce therefrom the economic principles that govern the dairy industry.

Factors entering into the cost of producing milk, though consisting of many different items, may be definitely divided into the following classes: Labor of man and horse, feeds, depreciation, cost of shelter, general expense, interest on investment, and use of machinery in equipment. These factors represent the actual cost of the maintenance of a herd on a dairy farm.

Figuring Labor Costs.

The two classes of labor used in the dairy business are man labor and horse labor. In cost data all labor performed in the care of cattle should be charged to that enterprise at current rate of wages. This rate is based upon the employment of hired men, and is obtained by dividing the aggregate monthly wages paid, plus the aggregate cost of board by the aggregate number of hours' work performed each month. This gives a base figure of cost per hour upon which all wages are calculated for any enterprise.

The cost of feed contributes to the cost of maintenance and to the final cost of the product. Low prices for roughage and concentrates and high prices for product means profit; while with high-priced food stuffs and low prices for product profits are materially lessened.

In a Minnesota investigation, all the feeds consumed by cattle were charged at the farm price, not at the cost of production. The farm price of farm-grown feeds is the market price, less the cost of transportation from the farm to the nearest market. To illustrate: If barley is forty-five cents per bushel at the market where the farmer sells his grain and the cost of transportation from the farm to the market is one and a half cents a bushel, the farm price would be forty-three and a half cents per bushel. However, when roughage or concentrates are purchased, the cost of hauling to the farm is then charged to the cost of maintenance of the stock to which it is fed.

Value of Farm Feeds.

When feeds have no market price, as is frequently the case with corn fodder, millet hay, shredded stover, root crops, silage, etc., the cost is based upon the feeding value as compared with that of hay or feed which has a market value.

Pasturage changes were charged on a uniform rate for each route or county. The importance of pasturage in the economy of the farm is well illustrated by the small quantity of grain or roughage fed during the pasture season. For practically five months of the year the cattle were supported almost entirely from the grass crop. During this same period the production was greater than at any other time of the year.

Under farm conditions, with stock of mixed type, milk production is seldom proportionate to food consumption. The general practice of farmers is to make the greatest possible use of roughage and to reduce feeding of grain to a minimum, especially those grains which are of ready market sale. The quantity of grain fed tends to vary somewhat with its price and availability, but there is a decided tendency to use farm grain rather than purchas-

ed concentrated mill feeds; this may or may not be good farming. However, if the grains fed are largely those containing high percentages of carbohydrates and fat, and are fed with wild or timothy hay rather than clover, the purchase of concentrated mill feeds becomes imperative.

Lack of Liberality Greatest Fault.

Theoretically, at least, the greatest error in feeding the dairy cow is lack of liberality. A comparatively small proportion of cows may receive at times a ration sufficient for maximum milk production, but the greater number are constantly underfed. During June, July, August and September, little or no roughage or concentrates are fed. This leaves a period of 243 days during which partial or full feeding has to be resorted to. With an average pasture season of 163 days for Minnesota, there remain 202 days during which a full ration must be provided.

The quantity of milk or butter-fat produced per cow affects to a large extent the cost of production per unit of product. Cost of maintenance is approximately the same for a cow producing 5,000 as for one producing 6,000 pounds of milk annually. The only difference is the 1,000 pounds of milk. Therefore, it is economy to produce milk from herds with high yields. Other conditions being the same, a cow with an average of 7,000 pounds per year will produce more cheaply than one with a yield of 4,000 pounds per year, notwithstanding that the latter will show a maintenance cost several dollars less than the former.

In sections near important markets and centers of population the cost of maintenance is enormously increased over that in Minnesota. With roughage averaging \$5 per ton or less and grain feeds less than one cent per pound, the farmers in the rural districts of the central west have a decided advantage over those located where grains are one and a half to two cents per pound and roughage from \$15 to \$20 per ton. In the latter instance a cow can not be maintained for less than \$75 to \$100 per year. It is safe to state that the average cost of maintaining a cow is about \$60 per year. This cost may be kept at a minimum through care and economy in feeding and judgment in marketing and handling the product from the farm.

Well-bred Cows Most Economical.

Certain tendencies exist in the dairy industry where cows of better breeding, carrying dairy heredity, are being introduced and better shelter and care provided. Under these conditions an increasing percentage of expenditure for shelter, depreciation, and interest on investment is natural. Prices remaining the same, the proportionate expenditures for labor and feeds would decrease. Thus, as herds become better bred and of more value a relative decrease in cost of care and of feed may be expected. This is especially true after stock reaches a value of \$100 per head.

The expenditures for food, prices being on a stable basis, remain practically the same, even with an increase of productivity of cows and consequently of value. Well-bred herds with an average of 5,000 or more pounds of milk per cow per year, as compared with herds producing 4,000 pounds per cow, require less roughage and less concentrates in the production of milk. Deductively, at least, these figures show the value of breeding and the generalization may be made that with increasing productivity and values, the relative percentage of expenditure for feeds, price remaining the same, decreases, while depreciation, shelter, and interest increases.

Dairymen have been more interested in the prices of their products than (Continued on page 689).



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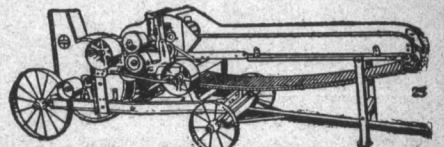
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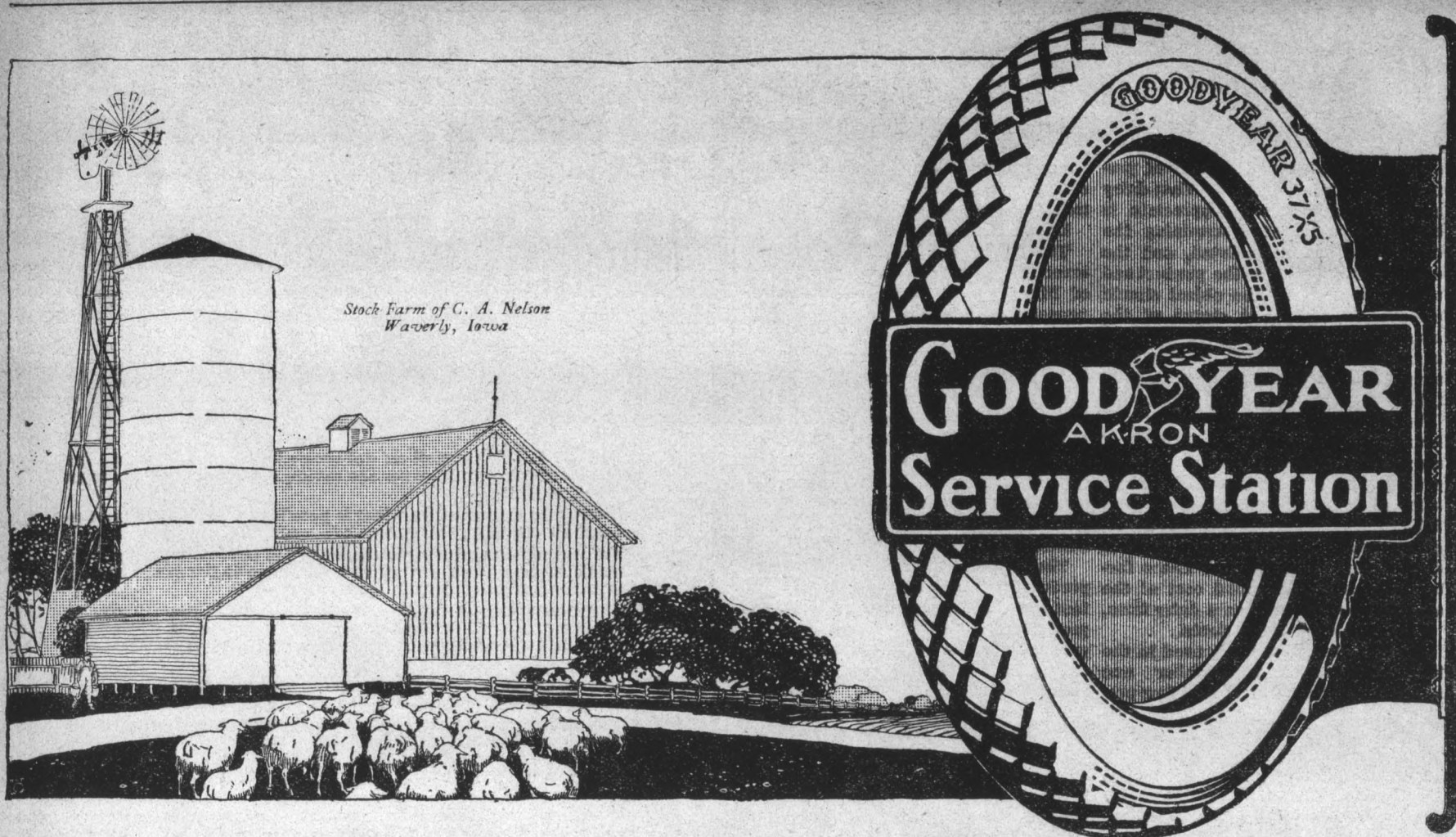
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and GIRL
SCIENTIFIC and
MECHANICAL

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

NEARLY everyone is familiar with ants and knows something of their habits, structure, mode of living, etc. They vary in size from the tiny red ant that is so frequently found in the kitchen and pantry, about one-sixteenth of an inch in length, to the large black carpenter-ant that lives in decayed stumps or old timbers. They occur in all parts of the world from the dry and arid deserts to the damp tropical forests, and from the torrid zone to the arctic circle.

We all know that ants are a nuisance where they get into the house and many people have wondered if they are truly destructive, or if they have some beneficial habits. An affirmative answer may be given to both

Keeping Ants from the Home

By DON B. WHELAN

of these questions. There are many species of ants that we may classify as being of negative importance, that is, neither beneficial nor injurious. Some of the benefits that may be attributed to ants are their habits of going deep into the ground and bringing up particles of soil and scattering them on the surface. They are constantly stirring and working the soil and so may be classed with the earthworm in this respect. Ants also aid in the decomposition of organic substances, this is slow but is constantly

going on throughout the season. They feed on the body-juices and tissues of dead insects which they find or kill for themselves. It is reported that there are twelve species of ants known to attack immature stages in the cotton boll-weevil. "In some cases more than half of the immature stages in the field have been found to be destroyed by ants alone." The writer has seen the large carpenter-ant devouring the pupa of the seventeen-year locust. One observer said that he had seen several red ants attack a bed-bug,

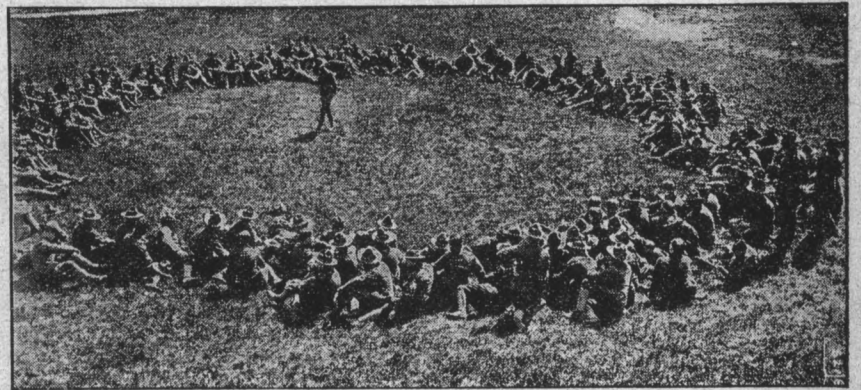
tear off its legs and carry it away. It has been said that a good way to rid a house of bed-bugs is to turn in a colony of red ants as they will seek out the bed-bugs and completely eradicate them. But the ants will remain in possession of the house, so that one gains nothing.

Ants also may be considered to be injurious, not only in the house but in the field as well. They are very fond of the sweet honey-dew that is secreted by the plant-lice. Sometimes they carry these insects to their nests and care for them in order that they may use this sweet fluid. An example of how ants harbor these pests is shown in the case of the corn root aphid. One species of ants, living in corn fields,

WORLD EVENTS IN PICTURES



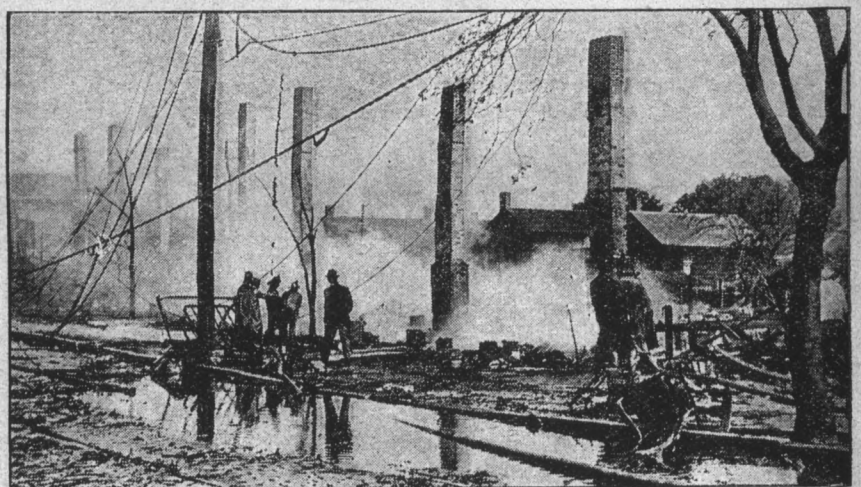
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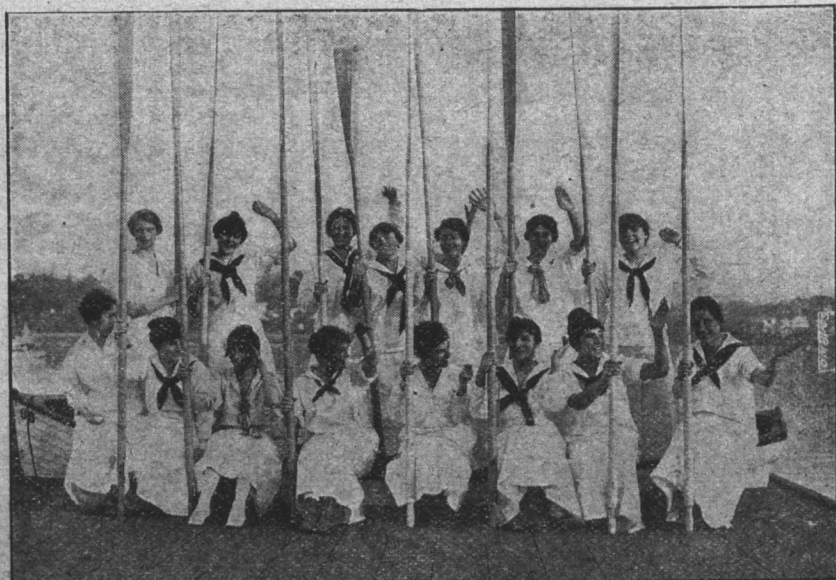
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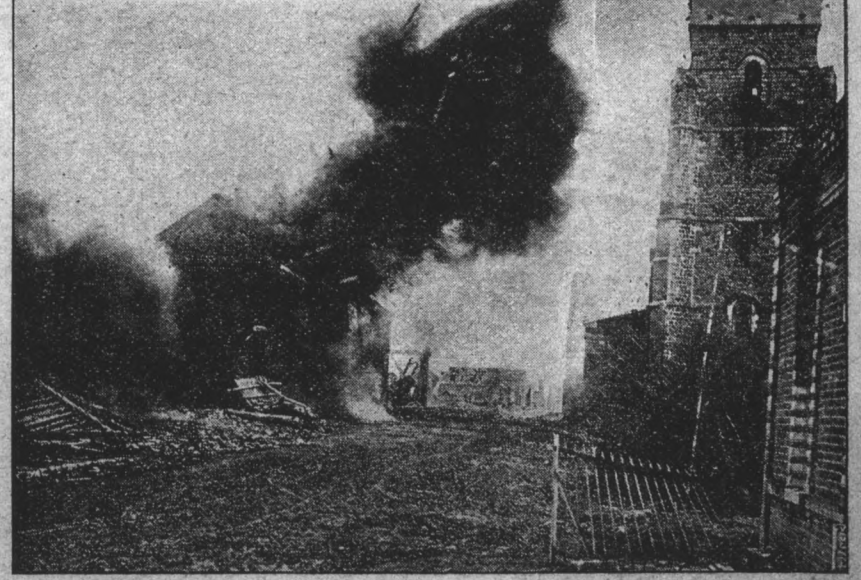
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Champion College Girl Crew Bested Every Girls' Crew of Western Coast.



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collects the eggs of the corn root aphid in the fall, carry them to their own nests and care for them during the winter. In the spring the newly hatched aphids are carried out by the ants and placed on the roots of an early food plant, later being transferred to the roots of corn where they do much damage.

The housewife goes to the pantry, some summer's day, to get some cake and finds that the frosting is covered with tiny red ants. Further investigation reveals them in the butter, sugar, and running all over everything apparently. Sometimes it is the larger black species which carried its love for sweet things to the sugar bowl. How am I to get rid of them? It is, of course, useless to try and kill them one at a time, like "swatting the fly."

The first step is to take everything out of the infested place, clean everything, burning papers, and throw away or clean out any infested foods. Any foods that are likely to attract this insect like cake, bread, sugar, meat and similar substances, should be placed in ant-proof metal containers or set over a dish of water in which the ants will drown in trying to get at the food. The source of the colony should be located. If it be under the floor or in the wall the liberal use of carbon bisulphide will soon kill the queen and attendant ants. An old wood-box may

be the seat of the trouble or its nest may be in the ground near the back porch. In using the carbon bisulphide care must be taken that no light or fire is near, as it is very inflammable.

If ants like the sweet things in the cupboards one of the best remedies, worked out and recommended by Prof. R. H. Pettit, Entomologist of the Experiment Station, is to mix one part of tartar emetic with twenty parts of extracted honey. Syrup may be used in the absence of the honey. Put this in small saucers and place where the ants will have access to it, but where it is inaccessible to the children or household pets. If the ants are grease eaters use grease instead of the honey in the same proportions as above.

If ants are troublesome in lawns or in the garden, where they are building their nests, they can be killed even more rapidly than in the house. Drench the nests with boiling water or pour into them a small quantity of kerosene or coal oil. Another method is to inject bisulphide of carbon into the nests, the quantity of the chemical depending upon the size of the nests. After this fluid has been poured in, the entrance to the nest should be closed by a blanket or inverted pan placed over it in order to retain the chemical. The fumes of the bisulphide will penetrate slowly through the underground channels and kill the ants.

"Contraband" RANDALL PARRISH

"Whom have we here, Masters?" he asked, his eyes on my face. "Is there another vessel near us?"

"No, sir," and the engineer stood, hat in hand, awkwardly shifting his weight. "We have picked up some castaways. This man here is Captain Hollis, late of the Atlas Line."

"Indeed," he held out his hand to me, his eyes looking direct into mine. "I regret your misfortune, sir, but your coming is a Godsend to us. Your ship was wrecked?"

"Sunk in collision," I answered. "But it was not my ship; I have not been to sea for several years in any position of command. On this occasion I was a guest on board a steam yacht belonging to Gerald Carrington, of New York. The name of the vessel was the Esmeralda. I need not relate the details just at present, but three of us have been picked up by this ship."

"Three—all passengers?"

"Yes—one was a woman."

"Yet, if I understand Masters aright, you have been in the merchant service?"

"In every capacity; when I retired I was captain of the freighter Vulcan."

He stood silent a moment, thoughtfully considering me, and I could not determine whether or not he was altogether pleased. Finally, having apparently reached some decision, his gaze shifted to the face of the burly engineer.

"I will talk with Captain Hollis," he said, "and perhaps you had better return on deck, Masters, and keep an eye out; the fog thickens, and we are in the track of ships."

"Very well, sir."

As the door closed behind the engineer's bulky figure, the owner motioned me to a chair, while he took another himself. He seemed doubtful just how to begin, opening a drawer in the desk, and bringing out cigars.

"You smoke, doubtless?"

"I thank you—yes."

"I hardly know how best to approach my subject," he said soberly. "If you were merely a shipwrecked merchant captain, I could make you a rather attractive offer; but, as you have retired from the sea, that would probably prove no special inducement."

"The pay, you mean? Well, hardly; I have no desire for a berth."

"So I supposed, or else you would scarcely have been one of Carrington's guests for a yachting cruise. I presume Masters told you the fix we are in?"

"Yes, as strange an accident as I ever heard of at sea. You have got to have a navigator, and I am perfectly willing to serve you as far as I can. I owe you this for picking us up from an open boat. With your permission, sir, and without mentioning pay, I will agree to take command of the Indian Chief, and sail her to the nearest American port, where you can procure officers, and, if necessary, a new crew."

He sat silent, one white hand crumpling a paper on the desk, his forehead creased, the lines of his face showing clearly. He appeared to hesitate, uncertain how best to answer me.

"I—I certainly appreciate your offer, Captain Hollis. It is a most liberal one, because, if I know anything of maritime law, you would be justly entitled to high compensation for thus saving both ship and cargo. I had intended offering you—at least that was my first thought—the sum of three hundred a month to take command, the contract to remain in force after the conclusion of this voyage, if you so desired. This you will not consider? The money argument has no weight?"

I smiled, but shook my head.

"Then there is nothing left me, except to appeal to your humanity," he went on, leaning forward, his eyes on mine. "If you were an ordinary, rough sea dog, I should hesitate to make such an appeal, or reveal to you the desperate position in which I find myself. But you are not; while, undoubtedly, you are a good sailor, you are also a gentleman. You belong, I suspect, to my class, and I can give you my confidence, trust you with my secret. Is this not true?"

"I hope I am worthy of such faith," I answered wonderingly, as he paused.

"I repose that faith in you, and ask you to face this situation from my standpoint. I am the sole owner of the Indian Chief, and also of her cargo. Every dollar I possess on this earth is tied up on board this vessel. That is

why I sailed as supercargo; I dare not trust the venture to anyone else. Under the hatches I have a cargo valued at nearly half a million dollars. It was purchased and shipped on the strength of a contract signed by a high official of one of the European governments, yet the responsibility of payment rests upon myself and a few intimate friends. If the Indian Chief safely discharges this cargo, within a designated time, at a certain port, or contingent thereto, I shall make a fortune, and retain my honor as a merchant. If not, then I am a ruined man, Mr. Hollis, and my reputation is gone also."

"What port?"

"Hamburg."

"Your contract then is with Germany? Who was the purchasing agent?"

"The military attaché at Washington."

"You have his signature?"

"Yes; but not with me here. I took precaution to forward that by mail to an American banker in Berlin."

I leaned forward, deeply interested by now in his unusual story.

"Then I presume your cargo is large—munitions of war?"

"Of that nature—yes."

"From what port did you sail?"

"Baltimore, July twenty-sixth; we were held back within the capes for two days by a severe storm."

"Then you have not heard of the declarations of war in Europe?"

His eyes widened, his pale face grew whiter than ever.

"War in Europe; already declared!" he exclaimed. "Is that actually true? We carry no wireless, and have spoken no vessel since we left the Chesapeake. What nations are at war?"

"The last message we received on the Esmeralda was that Germany and Austria were already pitted against France, Russia and England. The German troops had invaded Belgium in an effort to reach Paris. The night before our accident a great British battleship, racing toward New York, passed us. She was under orders to bottle up the German liners. May I see your manifest?"

He took the list from an inner drawer, and handed it over to me without a word, evidently stunned by this unexpected news, and unable to speak. I turned the typewritten pages slowly, glancing over the various items. They were astounding.

"Why, really, I can hardly credit my own eyes," I exclaimed. "You tell me these goods were actually contracted for by the German government agent in the open market?"

"Not exactly in the open market, Mr. Hollis. It was all accomplished in my name; I alone am known in the transaction. Certain intimate personal relations won me the contract, my mother being a relative of a high official. The negotiations were conducted secretly."

"I should suppose so; yet such purchases would look as though war had been anticipated. When were you first approached?"

"July second, but most of the cargo had been already collected. It was to have been shipped from New Orleans, but there was some mistake. As soon as I accepted the offer made me the goods were forwarded to Baltimore by train."

"There were other shipments, then?"

"I think so, from southern ports."

I arose to my feet, walked across to the port, and stared out into the thickening mist overhanging the water. The man did not move, or speak, and I turned again to find him with head buried in his arms on the desk. His attitude of complete despair was full of pathetic appeal.

"I am no international lawyer," I said gravely, "but there is scarcely an item on that manifest which is not

contraband of war. The getting of this cargo into Hamburg, or any other port of Germany now, will be almost impossible, a mere gambler's chance. The guard lines are probably not yet entirely closed; luck and good seamanship might indeed discover an opening, but English and French war vessels are no doubt gathering along the coast like birds of prey."

He lifted his head.

"The German navy is strong."

"Yes; but not strong enough to cope with both Great Britain and France. For a while, however, they may succeed in keeping open a passage through the North Sea. That would be your only hope, for the English channel will be closed already."

"You have sailed the northern course?"

"Twice; to Christiana, Norway; the route is a stormy one, but not especially dangerous at this season of the year. The Indian Chief sails under the United States flag?"

"Yes."

"That might prevent a search, providing you had a good explanation ready, especially as you left port before war was declared. However, spies are everywhere, and the nature of the cargo aboard may be known. If so, every cruiser on watch has already been notified by wireless."

He arose to his feet facing me, his slender hands opening and closing nervously, his face white and drawn.

"I realize all this, Captain Hollis," he said, his voice trembling, "and also that there still remains a chance of success. I like your face, your manner of fronting things. I think you are the very man whom God has sent to me in this emergency. Listen; I tell you I am absolutely ruined unless I complete this voyage. I am a young man, not over thirty, but my health is gone. You can see I am practically a physical wreck, yet I am the only support of an aged mother, and three younger children. Two years ago no one had brighter prospects in life than I; now I am struggling desperately for mere existence. A little more than a year ago I met with a serious accident; I need not go into details—the result you can see by looking at me. For eight months I was in a hospital in New York, lingering between life and death. There was no one to attend to my business affairs, and everything went to the dogs. When I got out again all that was left me was this vessel, a reputation for business ability, and a few thousand dollars. This contract came to me as a Godsend; it was so arranged that I was able to carry it with a little help. If successful, it will put me on my feet again."

"You are not German?"

"Not a drop of Teuton blood is in my veins, so far as I know. I never dreamed of the possibility of war, or even asked the nature of the shipments."

"I understand. Of course it makes little difference where one's sympathies chance to be in a case like this." I put my hand on his shoulder, and looked into his eyes. "You have been perfectly frank with me; now I am going to be just as frank with you. I believe your story, and my whole inclination is to stand by, and help you through. I have got a fair amount of sporting blood in me, and, while I confess, I'd rather do my fighting on the other side in this particular affair, yet, for your sake, it would give me sincere pleasure to shove the bow of this old hooker into a German port. It would be some trick that, to test both nerve and seamanship. I don't say it can be done; but there is a fighting chance, and every wild drop of blood in my veins urges me to try it—"

"You will!" he interrupted eagerly, his eyes glowing. "You mean you are going to make the attempt?"

"No, I don't say that, my friend; only that such is my natural inclination."

tion. If there was only my own peril, my own time, to be considered, I would shake hands with you instantly, and accept the adventure. But there is another on board this ship to be considered—a woman, whose comfort and wishes I cannot ignore. We have been shipwrecked together, and my first duty is to her. I can give you no pledge, sir, without her permission. I cannot compel her by force to take such a voyage as this will be."

"But she could be transhipped!"

"Which would at once reveal our whereabouts, and probable course. Any vessel speaking us would make report as soon as it reached harbor. Our only safe method of procedure will be to keep far enough away from any passing vessel during daylight to escape recognition, and to run the main European routes by night. If we so much as speak a ship, it will double our peril of capture; the wireless is our greatest enemy."

"Then what is it you propose doing?"

"Just this; I'll go out now, and talk with the lady. I'll explain the whole situation to her fully, so that she will understand every detail."

"But is this fair to me?"

"Yes, perfectly fair. She is no weak-nerved creature, to be awed by peril. She is a healthy, sensible girl, ready to do her part anywhere; her sympathy will all be with you. Anyway, I shall leave the affair entirely to her decision. I'll give you my answer in thirty minutes."

I shook hands with him, conscious again of the pathetic pleading of his eyes as they met mine. As I turned to go, he sank down into the chair, a disconsolate figure, with haggard face toward me. As I closed the door, and stood outside in the main cabin, it suddenly occurred to me that I did not know the man's name. Masters had not mentioned it; I had not asked, nor did I recall noticing the signature on the manifest.

CHAPTER XII.

We Accept Adventure.

AS I emerged from behind the butt of the mizzenmast the only person visible was a long-legged cabin boy industriously rubbing away at a grease spot on the deck. He was not aware of my presence until I spoke, when he gazed up at me across his shoulder, with seeming little intelligence in his dull eyes.

"Do you know which of these state-rooms the lady was given?"

"How's that, sir?"

"The woman who came on board an hour ago," I explained. "Where was she put?"

"Oh, yes, sir; over there; I just took her in a needle and some thread."

"All right—what is your name?"

"Joe—Joe Moon, sir."

I crossed over and rapped at the stateroom door, which had a figure five stenciled on the upper panel. The boy stood up, and watched me curiously, rag in hand.

"Who is there?" she asked.

"This is Hollis; could you spare me a few moments?"

"Certainly; I will come out directly," she laughed. "I have been doing some emergency mending."

I picked out a chair, and sat down.

"Joe," I said, rather firmly, not altogether enjoying his rigid scrutiny. "I am going to command this steamer until we make port, so you will take your orders from me. You understand?"

"Yes, sir."

(Continued next week.)

REVELATION.

BY TERESA G. MORRIS.

Into the heart of a rose I gazed,
Nor found there a trace of guile;
The beautiful flower disclosed to me
Its counterpart—God's smile.

Into the face of a babe I looked,
Saw no cravings for power or pelf;
The innocent child revealed to me
God's goodness, His glory, Himself!

Heap big mileage!

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Keyed—

Savages are "keyed" by means of serial numbers. And are distributed by our own organization, not sold to middlemen in huge quantities and carried in stock sometimes for a year or more.

We know just where a casing is and how long it has been there. The minute a tire reaches the doubtful age, the point beyond which there is possibility of deterioration, it is replaced by a new casing.

You are always sure of getting live tires, full of "pep" and miles, when you buy

SAVAGE TIRES

Heap big mileage!

Distributors Everywhere
The Savage Tire Corporation,
325 East 33rd Street, Chicago, Illinois

Branch Store:
MICHIGAN SAVAGE TIRE SALES CO.,
Grand River Ave., Detroit, Michigan.

Watch for the red Savage sign

SAVAGE GRAFINITE TUBES

The only tubes that have graphite vulcanized into the surface. Prevents deterioration, sticking, friction and heating. Makes soapstone unnecessary. Lengthens the life of the tubes.

Canada's Liberal Offer of Wheat Land to Settlers

is open to you—to every farmer or farmer's son who is anxious to establish for himself a happy home and prosperity. Canada's hearty invitation this year is more attractive than ever. Wheat is much higher but her fertile farm land just as cheap, and in the provinces of Manitoba, Saskatchewan and Alberta

160 Acre Homesteads Are Actually Free to Settlers and Other Land Sold at from \$15 to \$20 Per Acre

The great demand for Canadian Wheat will keep up the price. Where a farmer can get over \$2 for wheat and raise 20 to 45 bushels to the acre he is bound to make money—that's what you can expect in Western Canada. Wonderful yields also of Oats, Barley and Flax. Nixed farming in Western Canada is fully as profitable an industry as grain raising.

The excellent grasses, full of nutrition, are the only food required either for beef or dairy purposes. Good schools, churches, markets convenient, climate excellent. There is now an unusual demand for farm laborers to replace the many young men who have volunteered for service in the war. Write for literature and particulars as to reduced railway rates to Supt. of Immigration, Ottawa, Can., or to

M. V. McINNES,
178 Jefferson Ave., Detroit, Mich.
Canadian Gov't Agt.

160 ACRE FARMS IN WESTERN CANADA FREE

Sewage on the Farm

Get rid of it without sewers. Enjoy toilet and bath conveniences and kitchen sink drainage just as though you lived in a city. Install a **Perfection Septic Tank** and forget it. Requires absolutely no attention. Digests all solid matter without the use of chemicals. Sewage goes in; nothing but water comes out; no offensive odor. Works summer and winter; is buried out of sight. Never requires cleaning out. Fully guaranteed.

Write for folder and detailed explanation.
Sewage Disposal, 315 Board of Trade, Indianapolis, Indiana.

Bee Keepers Supplies

Bee Hives, Sections, Comb Foundation, Smokers, etc. Everything for the bees including Beginners Outfits. Send for catalog. 34c per pound cash for average beeswax delivered here. General agents for Root's bee supplies in Michigan.

BERRY SUPPLIES

Send for prices on berry baskets and 16 qt. crates. Special 200 A grade berry baskets postpaid for \$1.35 or 200 B grade for \$1.25 within 150 miles of Lansing. No waxlined paper baskets this season.

M.H.Hunt & Son, Box 525, Lansing, Mich.

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Fox and Wolf Hounds

of the best English strains in America: 40 years experience in breeding these fine hounds for my own sport. Save your pigs, sheep and poultry. Send 4 cents for catalog.

T. B. Hudspeth, SIBLEY, JACKSON COUNTY, MO.

Fox Hounds of all ages, Skunk and Rabbit dogs
W. E. LECKY. Send 2c stamp. Holmesville, Ohio

FOR Sale:—Thoroughly broken beagle, rabbit and fox hounds, good hunters, also puppies of all ages ready for shipment. Rockfield Kennels, West Chester, Pa.

COLLIE PUPS A few fine bright females also a three-year-old brood bitch. G. A. WIGENT, Watervliet, Michigan.

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88 Bu. Oats Per Acre

Mr. A. Taylor writes: "I had 315 acres in oats that averaged 88 bushels an acre, 30 acres in wheat that averaged 50 bushels an acre, 20 acres in barley that averaged 50 bushels an acre." This is only one of thousands of good reports from Western Canada. Yet nowhere can you buy good farm land at such low cost as along the Canadian Northern Ry.

BEST FARM LANDS at \$15 to \$20 per acre

Here you can buy specially selected, centrally located lands close to the railway, that will produce crops that can only be equalled on farms costing \$150 to \$200 the acre in a more densely settled community. This includes the best grainland, land also adapted to dairy and mixed farming. Here the man with limited cash can become the owner of one of these fertile farms through the liberal installment payment plan.

Low Fares Low round-trip home-seekers' fares to Western Canada are in effect every Tuesday, to November 27th inclusive.

Free Homesteads

If you have not the capital to buy land you can still get one of the recently surveyed 160 acre fertile Homesteads along the Canadian Northern Railway, the newest transcontinental railroad, "The Road to Opportunity."

Free Book Be sure to write today for a free copy of the "Home-Seekers' and Settlers' Guide," full of complete and authentic information. A fortune is waiting for you.



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NORTHERN RY.**

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Lift Corns Out with Fingers



A few drops of Freezone applied directly upon a tender, aching corn stops the soreness at once and soon the entire corn or callus loosens and can be lifted off with the fingers without even a twinge of pain.

Freezone

Removes hard corns, soft corns, also corns between the toes and hardened calluses. Does not irritate or inflame the surrounding skin or tissue. You feel no pain when applying it or afterward.

Women! Keep a small bottle of Freezone on your dresser and never let a corn ache twice.

Small bottles can be had at any drug store in the U. S. or Canada

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"Always Does the Work and Does It Right!"

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DIE IN THE HOUSE**

Unbeatable Exterminator of Rats, Mice & Bugs
Used the World Over. Used by U. S. Government
It Can't fail—It's All Exterminator
Stop Fattening Rats, Mice & Bugs!
On Your food or on Catch Penny read-to-use
Substitutes—whose bulk is inert flour and grease
Why Trap Rats & Mice, One By One
while Those Uncatched rapidly increase!!
End Them All—Te-Night With a Box of Rough on Rats
The Recognized Standard For Half a Century
At Drug & Country Stores

WRITE FOR OUR PRICE LIST We Buy WASTE PAPER and all kinds of Scrap Material.

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Save Your Fruits and Vegetables!

What you don't eat now, save for winter meals. The Granger Evaporator does it—easy to run, a child can do it. Takes no sugar, no cans, no jars

20,000 in use, 2 sizes, \$6 up. You save the cost several times over in one year on sugar alone. Write for FREE booklet in all about the Evaporator and all about evaporating, too.

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Buy Your COFFEE WHOLESALE IN 5-LB LOTS

Get the BEST and SAVE 10 cts per pound.
WE PAY POST, EXPRESS or FREIGHT
If you love good coffee send for price list

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Woman and Her Needs At Home and Elsewhere



Canning Greens, Rhubarb and Pineapple

Household Editor.—Will you please publish a recipe for canning greens, dandelions and beets?—A Subscriber, Conklin.

Canning greens is a simple process, and one that more and more housewives are learning. Greens not only make a welcome and an appetizing addition to the bill of fare after the winter when heavier foods have been served, but they fill a want of the system, in that they furnish valuable mineral salts to the blood. The Department of Agriculture gives no less than seventeen varieties of cultivated greens which may be canned, and ten kinds of wild ones.

Needless to say, they should always be picked and canned the same day. Look over carefully and remove all grass and old leaves. Wash through several waters to remove sand. If you have running water put in a colander, and if not be sure to lift the greens out of the water, as pouring the water off leaves a great deal of sand in the vegetable. Use several waters for washing. Then place in a steamer and steam for fifteen or twenty minutes, remove and dip quickly in and out of cold water and then cut in lengths easy for packing. They are then ready to be packed in the cans, which, with the tops and rubbers you have sterilized. Fill the cans as tightly as possible, and pour in hot water to fill all crevices. Add a level teaspoon of salt for every quart of greens. The salt may be dissolved in the water with which the cans are filled. Adjust rubbers and screw on tops so they just touch the rubbers and then lower the cans into your wash boiler, which has been fitted with a false bottom and filled with hot water sufficient in quantity to cover the cans and come at least one inch above the top. Place on stove and bring to a boil and sterilize one and a half hours. Remove cans, tighten tops, and set away in a cool dark place. This method may be used for all greens. The following vegetables and herbs may be used as greens: Cultivated: Swiss chard, kale, Chinese cabbage leaves, upland cress, French endive, cabbage sprouts, turnip tops, New Zealand spinach, asparagus, spinach, beet tops, cultivated dandelions, Dasheen sprouts, native mustard, Russian mustard, collards, rape. Wild: Pepper cress, lamb's quarter, bitter dock, smartweed sprouts, purslane, commonly called pusley, pokeweed, dandelions, Marsh marigolds, mustard, tender sprouts, and young leaves of milkweed.

As rhubarb and pineapple are ready for canning now, recipes for canning these fruits follows:

Rhubarb may be canned by the cold water method. To do this, wash the rhubarb, remove tips and root ends and cut in inch-long pieces. Fill the cans as tightly as possible, of course, cans must be sterilized, and fill to overflowing with cold water. Seal at once and set in a cool dark place. The natural acid of the rhubarb prevents the growth of bacteria.

To can by the hot water bath method, as sterilizing in the boiler is called, wash the rhubarb and cut in inch pieces, plunge in boiling water for two minutes and then dip in cold water. Pack the cans as tightly as possible and pour in a thick syrup till cans overflow. By thick syrup is meant a syrup made in the proportion of four pounds of sugar to three quarts of wa-

ter, boiled until it is hard to pour it from the spoon. The syrup should be boiling when poured on the rhubarb. Proceed as in canning any product and sterilize fifteen minutes.

When canning pineapple, be sure to remove all eyes. Cut in slices and then in pieces to suit your individual taste, in dice, eighth-sections, half slices, or leave the slices whole if your cans will take them in without breaking slices. Blanch, which means to plunge in boiling water, ten minutes, dip in cold water and pack in jars, covering with boiling syrup of a consistency to suit your own taste. If you like a sweet fruit boil the syrup until it rolls up over the edge of the spoon when you try to pour it out. If you do not like the pineapple very sweet, use a syrup which has not boiled so long. Sterilize thirty-five minutes, then tighten covers and store in a dark place.

Pineapple is the only fruit which contains a vegetable pepsin. It is easily digested and useful in many ways as it may be used for a dessert, a salad, in the making of cooling drinks, in fruit cocktails, or finely diced and added to whipped cream, to be used as a dressing for stale sponge cake.

How many have tried to add pineapple juice and the fruit to gelatine in place of lemon juice and other fruits? Two housekeepers used pineapple in this way, and the gelatine refused to solidify. Have other cooks had similar experiences?

DEBORAH.

HOW MICHIGAN WOMEN WILL ORGANIZE.

A great field for service will within a few days be opened to Michigan women, who in the war days now dawning wish to make themselves useful to Uncle Sam. Under plans which have been drafted and will soon be put into operation by the Woman's League for Patriotic Service, co-operating with the Home Economics Department of the Michigan Agricultural College, the entire feminine forces of the state will be mobilized for a highly important though peaceful duty. To them, under Michigan's war program, will be entrusted the triple task of promoting gardening, encouraging thrift, and instructing the foreign elements in Michigan's population in the principles and ideals of Americanism.

The plans which the women have formulated are of a sort calling for deeds rather than words, for it is a gigantic work which the women, under the leadership of Mrs. Caroline Bartlett Crane, have undertaken. It will begin with thorough organization of the women of the state into a methodical working unit. Representatives of the Woman's League will make their way to every city and hamlet between Detroit and Ironwood, and in each they will bring together the various women's clubs, missionary societies, suffrage organizations, and so on, and unite them into compact community bodies. When these organizations have been perfected, and this is expected to be accomplished in the briefest time possible, each will be advised what it is to do.

This advice, which has been outlined concisely as follows, will take three specific forms:

First. The league will recommend participation by women in the movement to produce more food stuffs,

through making use of idle land and vacant lots, and raising particularly corn, beans and potatoes, and as much poultry as possible.

Second. The league will promote plans for the conservation and preservation of food. This will be done through literature, and by directly demonstrating how food stuffs may be used more economically and wisely, how better combinations of food can be prepared, and the like. It will be advised as a food conservation measure; for instance, that only one protein food, as beans or meat, be served at a meal, and that protein foods be served not oftener than twice a day. Another phase of this work will be the demonstrating of how one food may be replaced by another, as rice, hominy and macaroni for potatoes. Finally, it will be urged that there be more preservation of excess food products by canning and drying.

Third. Women will be invited to promote Americanism by instructing the foreign elements and alien in Michigan's population in the ideals of American citizenship, and what it means.

POTATO DAYS.

Tut! tut! tut! now, Mr. Michigan Farmer, don't go advising us farmers' wives to have "Potatoless Days." This is economy run to hysteria. Don't for a minute imagine that our "Johns" preferred to feed potatoes to the hogs, and go buy rice. That is the hysteria of it. I noticed that an agricultural association in Iowa advised the same. Probably the writer lived in a city apartment house, landless. In that case the advice was good. But not for the farmer. Your recipes for cooking rice were excellent, and rice is an excellent food, but it must not elbow out the staunch old stand-by, the spud. If potatoes are high, there is not a farm from Maine to Texas, that can not add a little space for potatoes.

All potatoes for market should be sorted. All the undersized put by themselves, and all the abnormally large ones sorted out. The remainder, the even sizes, are then number ones, and will sell for more per bag than the price that would be obtained for more potatoes, unsorted, which would make them all come in the classes as No. 2 or No. 3. I don't advocate selling the best of everything, and keeping the unsalable stuff for home use. The farmer's family are justly entitled to the very best the land produces, but those overgrown, and the undersized potatoes can be used at home, and made into delicious dishes. If you want a batch of the very top-notch recipes for cooking small potatoes, I'll give you mine.—M. M.

Most people seem to be unaware that they have an abundant supply of delicate greens in the common narrow-leaved dock, also known as bitter dock, yellow dock, etc. The roots of this plant are somewhat poisonous but the leaves at this time of the year make a very delicate, wholesome mess of greens. They should be cooked exactly as one cooks spinach. The broad-leaved dock may also be used but is not so tender. Sour dock or sorrel should not be used as it is poisonous to many people. No one will make the mistake of attempting to use burdock leaves for greens more than once, as the taste will prevent anyone from wanting a second mouthful.

M. A. C.

E. A. BESSEY.

Farmers' Clubs

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

Associational Motto:

"The skillful hand with cultured mind is the farmer's most valuable asset."

Associational Sentiment:

"The Farmer: He garners from the soil the primal wealth of nations."

LADIES ORGANIZE FOR FOOD PREPAREDNESS.

A committee meeting was held at the Pantlind Hotel, Grand Rapids, on May 25, called by Dr. Caroline Bartlett Crane, of Kalamazoo, State Chairman of the Michigan Women's Committee of the Council of National Defense. A propaganda of work for the Michigan division of the department on food production was launched. This committee is to have oversight of all woman's work; see that there is a community canning center established that can take care of all surplus fruits and vegetables; inspect and encourage all gardeners; make an appeal for all women to put up their own supply and furnish all surplus to the canning centers to supply home markets, and ask all gardeners and farm producers to volunteer for our nation's defense in the army of food producers. The slogan is to be: "See it through."

Chief of the department on food production, viz., Mrs. Dora H. Stockman, chose the following as her agricultural committee in the Michigan Division, Council of National Defense: Mrs. Joseph S. Brown, Howell; Miss Jennie Buell, Ann Arbor; Miss Emily Green, Dowagiac.

The literature to be sent to each local Club describing the lines of work to be undertaken will be forwarded by the associational secretary as soon as received by the State Chairman, Dr. Caroline Bartlett Crane.

CLUB DISCUSSIONS.

Patriotism.—The Richmond Riley Farmers' Club met in May at the home of Mr. and Mrs. Chester Shirkey, in Riley township. The session was opened with an instrumental solo by Miss Mildred Labear, after which the Club repeated the Lord's prayer. The question box followed and the inquiries touched upon many of the different phases of farming. A. E. Stevenson, of Port Huron, addressed the meeting, describing the critical conditions occasioned by the war. He said in part: "We have as yet only begun to realize the seriousness of the situation." He emphasized, too, that the man who cultivates his farm to the limit and goes ahead regardless of risk and remuneration is just as patriotic as though he dons the khaki and goes to the front. He also said we should not make the same mistake Canada has made in depleting the agricultural ranks for the army because food and not munitions will win the war. His remarks constituted one of the strongest and impassioned appeals for loyalty and service to the nation, ever delivered in St. Clair county.

The county agent made inquiry as to the needs of the community and directed a number of people present to sources of potatoes, beans and corn for spring planting. It was found that the Memphis community, too, could take care of its labor needs fairly well until harvest time. It was believed, however, by some of the leading farmers present that a few good men located in the vicinity would have practically steady work during the season, and that there are plenty of places for men

with families to live was evidenced by the report that there were twenty-two empty houses in the village of Memphis. William Webb, of Wales township, whose son, Hugh, is with Company C, also made a few remarks to the point and emphasized that it is our duty to see that our soldiers and those of our allies do not suffer from lack of food. The singing of America made an appropriate closing for this most excellent meeting.

Ladies Will Hold Canning Demonstration.—The people of Brockway and adjoining townships of St. Clair county, held a most successful Farmers Club meeting Thursday afternoon, May 17, at the home of Mr. and Mrs. Thos. Corless in Brockway township. Shortly after noon they began to arrive and at two o'clock when President Wallace Adams called the meeting to order, the yards and all available space in the adjoining roadside were filled with rigs and automobiles, and the spacious home was packed to the doors with interested folks who had come to take part in the program, there being about 100 present. The meeting was opened by singing America, followed by prayer by Walter Brown. A song by a quartette of young people of the community was next enjoyed and well rendered readings which followed by Mrs. Hugh Hodgins and Miss Matilda Willey, gave abundant evidence that the Club was not dependent upon outside talent for its programs. This was further shown by the recitations given by Gladys Edgerton and Marjorie Connell, which were thoroughly enjoyed by all.

A. E. Stevenson was then called upon, and for an hour interested his hearers by delivering a most powerful patriotic address appealing to the loyalty of the farmer and emphasizing the importance of the man next to the soil doing his utmost to produce and conserve farm crops to meet the war emergency. The clear and forceful manner in which the speaker drove the important points home made his hearers wish that hundreds of others were present to hear this message. A housewife kit, including a small pair of scissors, needles, thread, buttons, etc., which the Red Cross women are preparing for the soldier boys, was passed around during the course of his remarks, and the discussion of woman's opportunity for service in this war was a leading feature. The supreme effort put forth by the speaker to present this most serious subject, together with the large audience and the very sympathetic attention shown by the people, all served to afford the most ideal conditions for the consideration of the enormous problems confronting us at the present time. This meeting was particularly fortunate, too, in having County School Commissioner E. T. Blackney, present, who delivered a short address endorsing Mr. Stevenson's remarks. Among other things, he stated that, while social features of the Farmers' Club were regarded as an important part, he believed this was the time above all others in which the organization should devote itself to the critical matters confronting our country. He also said that he was allowing the teachers to excuse boys from school with their credits in order that they might assist on the farms in producing food stuffs. A number of local men were then called upon, including Messrs. Cavanaugh, Darling, Rapley, Patterson and Adams. Some of the older men recounted their experiences in Civil War times, describing the scant rations upon which they lived, and the strenuous times imposed by the conflict between north and south. It was their opinion, too, that we were facing even more serious hardships at the present time.

The matter of holding a canning demonstration was presented to the ladies of the Club, and they were very glad to take advantage of the opportunity to obtain reliable information in regard to conserving the products of the orchard and garden. Miss Morris, of the Michigan Agricultural College, will be in the county to conduct this work during the week beginning with June 11, and arrangements were made for a meeting to demonstrate the most approved methods of canning at the home of Mrs. Hugh Hodgins in Brockway township, on Thursday afternoon, June 14. A noticeable characteristic of the people at this meeting was that they were not wasting any energy lamenting over the losses caused by the two disastrous seasons that have just passed, but are putting their farms into the best possible condition to produce maximum crops, and are meeting the situation bravely. The Brockway folks have surely put their hands to the plow and are not turning back. The next meeting of this Club will be held at the home of Mr. and Mrs. Wallace Adams in Brockway township, Thursday, June 28.

Grange.

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

STATE GRANGE OFFICERS.

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

Secretary—Jennie Buell, Ann Arbor.
Treasurer—Frank Coward, Bronson.
Executive Committee.—Jas. Helme, Adrian; Geo. B. Horton, Fruit Ridge; J. W. Hutchins, Hanover; W. F. Taylor, Shelby; Wm. H. Welsh, Sault Ste Marie; N. P. Hull, Dimondale; Burr Lincoln, Harbor Beach.

AMONG THE LIVE GRANGES.

Nunica Grange.—The corn program at a recent meeting was evidently a success as indicated by the interest shown among the men. The ladies, too, were unusually attentive, and to speak of the lunch, it surely was enjoyed, considering the time spent at the tables. The purchasing agent has price lists on soft coal. The matter was taken up at the Meeting of May 12.

Newark Grange.—Meeting called to order by Worthy Master R. J. Knowlton. Minutes of last meeting read and approved. A motion was made to buy a United States flag. Motion carried. Music by orchestra; select reading by Carl Woods, entitled, "The Way Dad Did when he was a Kid." Question box: Who wrote "The Star Spangled Banner," and where was he when he wrote it? Who made the first flag of stars and stripes and in what battle was the first flag of stars and stripes carried? Select reading by Carl Woods, Samuel A. Daniel and Jay Knowlton. Question: When is the best time to plant potatoes, and is it a good plan to harrow the ground before plowing? What is most useful planted in the garden? When is the best time to plant beans? How many beans to plant to the acre? What is the right date to plant melons? What is the most expensive? What is the cheapest food? What kind of plow is best adapted for all purposes on the farm? Instrumental music, penny march.

Kent Granges Back War Crop Campaign.—Plans for intensive farming, planting gardens to supply every home, and conservation of food supply to aid America during the war were formulated at a conference of Kent county Grange representatives at a recent meeting. More than a score of Grange leaders from practically every community in the county were present. The program for the summer is that outlined by the National Woman's Defense League of Michigan. Every effort will be made to increase the production of the farm, to grow a sufficient supply of garden truck, to can the surplus products and to urge all others to do the same. This conference is similar to others which will be held throughout the state among the various Granges. Mrs. Dora Stockman, woman State Grange lecturer, and Miss Jennie Buell, state secretary, were present.

Gives for Red Cross Work.—Star Grange, of Hastings township, gives evidence of the right sort of patriotism. At their last meeting this organization voted to give \$100 to the Barry County Red Cross Chapter. That makes a fine beginning toward the \$20,000 which the organization meeting voted to raise in Barry county for Red Cross work.

COMING EVENTS.

Mecosta County Pomona will meet with Chippewa Lake Grange at the town hall on June 21. The morning meeting will be called to order at 10:30 a. m. Reading of reports, and miscellaneous business. Dinner will be served. An open meeting will be called promptly at 1:30 p. m. An interesting program has been arranged. Readings, recitations and discussions, interspersed with music. Address by A. B. Cook, of Owosso. We feel sure the farmers will enjoy Mr. Cook, as he is a very pleasing speaker and earnest Grange worker in the interests of the farmer. He will be remembered as one of the enthusiastic workers at the meeting of the State Beet Growers' Association. He is also president of the Bean Growers' Association, and former Pomona Master of Owosso Grange, Shiawassee county. No effort has been spared to make this meeting instructive as well as entertaining.

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28x3	\$7.00	\$8.25	\$2.35
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30x3½	9.95	11.10	2.80
31x3½	10.50	11.60	2.75
32x3½	11.50	12.95	2.90
34x3½	12.15	13.35	3.00
31x4	14.75	16.00	3.50
32x4	15.05	16.85	3.60
33x4	15.75	17.20	3.65
34x4	16.10	17.55	3.75
35x4	17.00	18.60	3.85
36x4	17.20	18.65	3.95
34x4½	21.65	22.65	4.55
35x4½	22.70	24.70	4.65
36x4½	23.05	25.15	4.75
37x4½	24.90	27.25	5.40
38x5	27.10	29.60	6.65
37x5	28.40	28.85	6.90

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GRAINS AND SEEDS.

June 4, 1917.

Wheat.—While cash wheat is steady with a week ago, future quotations rule a nickle higher. The week has witnessed an end to the unbroken decline in wheat values which started a fortnight ago. Private reports on crop conditions fail to uphold the expected increase in the condition of the growing plant. These reports also showed the present acreage of the crop in this country to be less than the trade had been figuring on. The flour demand has been materially decreased because of stocks put away by householders following the announcement of war. Business, however, shows some improvement, and there is evidence of a renewal of export activity which has been somewhat inactive for a short time past. Offerings of wheat at the markets the past week were comparatively small. One year ago No. 2 red wheat was quoted at \$1.11½ per bushel. Last week's Detroit quotations are as follows:

	No. 2	No. 1	July
	Red.	White.	
Wednesday	2.67	2.62	2.00
Thursday	2.70	2.65	2.05
Friday	2.70	2.65	2.13
Saturday	2.75	2.70	2.17
Monday			
Tuesday			

Chicago.—July wheat \$2.15 per bu; Sept. \$1.95.

Corn.—Although warmer weather promises to improve the outlook for corn, trading on Saturday and Monday indicated considerable strength in this grain. The market has suffered from the decline in wheat. There has been good general buying by the trade. One year ago No. 3 corn was quoted at 71c per bushel. Last week's Detroit quotations were:

	No. 3	No. 3
	Mixed.	Yellow.
Wednesday	1.59	1.61
Thursday	1.60	1.62
Friday	1.61	1.63
Saturday	1.61	1.63
Monday	1.61	1.63
Tuesday	1.61	1.63

Chicago.—July corn \$1.48½; Sept. \$1.34½.

Oats.—This cereal is being sold on a lower basis, with the market, however, showing strength from the lowest point reached last week. The new crop is growing well, although much seeding was done at a comparatively late date. There is a fairly good domestic demand for the cereal. One year ago standard oats were quoted at 42c per bushel. Last week's Detroit quotations were:

	Standard.	No. 3
		White.
Wednesday	66	65½
Thursday	66	65½
Friday	66	65½
Saturday	66	65½
Monday	65	64
Tuesday		

Chicago.—July oats 58c; Sept. 50½c.

Rye.—This cereal is steady with a week ago, cash No. 2 being quoted at \$2.20 per bushel on the local market.

Beans.—There is very little dealing in beans, owing to the short supply. Prices issued by the local board of trade are merely nominal, and are 40c below those published a week ago. Cash and June shipment are quoted at \$8.75 per bushel. In Chicago Michigan pea beans are quoted at \$9.75@10 per bushel; red kidneys \$7.50@7.75.

Seeds.—Prime red clover \$11.20; October \$11.85; alsike \$11.50; timothy \$3.75 per bushel.

FLOUR AND FEEDS.

Flour.—Jobbing lots in one-eighth paper sacks are selling on the Detroit market per 196 lbs., as follows: Best patent \$15.60; seconds \$15.20; straight \$14.90; spring patent \$16; rye flour \$13.50 per bbl.

Feed.—In 100-lb. sacks, jobbing lots are: Bran \$36; standard middlings \$41; fine middlings \$44; cracked corn \$64; coarse corn meal \$64; corn and oat chop \$56 per ton.

Hay.—In carlots at Detroit: No. 1 timothy \$18.50@19; standard timothy \$17.50@18; No. 2 timothy \$16.50@17; light mixed \$17.50@18; No. 1 mixed \$14.50@15; No. 1 clover \$13.50@14.

Pittsburg.—No. 1 timothy \$18.50@19; No. 2 timothy \$16.50@17; No. 1 light mixed \$16.50@17; No. 1 clover, mixed \$16.25@16.75; No. 1 clover \$16.25@16.75.

Straw.—In carlots, on track Detroit, rye straw \$10.50@11; wheat and oat straw \$9.50@10.

DAIRY AND POULTRY PRODUCTS.

Butter.—The market is easy and demand at present prices very moderate. Creamery extras, none offered; creamery firsts offered at 42c, no bid.

Elgin.—Restricted buying at last week's high prices brought the price down 3c. Price, based on sales, is 40c.

Chicago.—A nervous and unsettled feeling exists in this market and prices are about 1c lower. Extra creameries 40c; extra firsts 39½c; packing stock 32c per pound.

Eggs.—The demand is steady and bids are a little higher than last week. Fresh firsts were offered at 37c and bid 36@36½c.

Chicago.—Prices are slightly higher than last week but the feeling is easy and demand light. Fresh firsts 34@34½c; ordinary firsts 31½@32½c; miscellaneous lots, cases included 32@34c.

Poultry.—Supply is good; prices unchanged. Market easy. Recent high prices of grain have undoubtedly caused selling of farm stocks. No. 1 hens 23@24c; small and medium do 22@23c; broilers 40@43c; ducks 22@23c; geese 14c; turkeys 24@25c.

Chicago.—Supply and demand are both light. Price changes are slight. Fowls 20c; roosters 15c; broilers 1½@2 lbs. 35@36c per lb; ducks 16@18c; geese 12@14c; turkeys 12@18c.

Dressed Calves.—Market at Detroit is steady. Fancy 20@21c; No. 2, 17@18c per lb.

Chicago.—The trade is light, receipts being small; 50@60 lbs. weight 17@17½c; 60@80-lb. weight 17½@18½c; 90@110 lbs. 19c.

Dressed Hogs.—Best quality quoted at Detroit at 18@19c per lb.

Chicago.—Market rules firm with prices unchanged. Heavy hogs in demand. Quotations: 20@40 lbs., \$19; 40@60 lbs., \$17@19; 60@100 lbs., \$17@18; 100@250 lbs., \$18@19.

FRUITS AND VEGETABLES.

Apples.—The market is steady and prices remain unchanged. Baldwin \$6; Steele Red \$9 per bbl. At Chicago the market is dull, only a small supply on hand. No. 1 stock sells at \$3.50@6.50 per bbl; No. 2 at \$2.25@2.75; orchard run \$3.25@3.50.

Potatoes.—No old potatoes quoted in Detroit. At Chicago no Michigan stock was reported. Market is slow on account of light supplies. Prices range from \$2.70@2.90 per bushel.

WOOL.

The demand for wool to fill government orders has been a bullish factor in the wool trade and has strengthened the market as well as influenced holders to demand higher prices. At the present range, fine wools are considered cheaper than other grades, and as a result of attention being attracted to these stocks values show a tendency to advance to a relative position with other kinds. Farmers are firm in their demands for prices which they believe the present condition of the wholesale market is able to support, as they do not care to permit dealers to obtain full advantage of the present high market. Among last week's Boston sales were 400,000 lbs. of fleeces which sold at prices ranging from 49@52c.

LIVE STOCK MARKETS.

June 4, 1917.

Buffalo.

Cattle.—Receipts 3,300; strong; shipping steers \$10.25@13.50; butchers \$9@12.35; heifers \$7.50@11.50; cows \$6@11; bulls \$7.50@11; stockers and feeders \$8@9.50; fresh cows and springers steady at \$50@125.

Veals.—Receipts 2000; active, closing weak at \$5@15.50.

Hogs.—Receipts 8,800; steady to strong, heavy \$16.40@16.50; mixed \$16.35@16.50; yorkers \$16.25@16.35; light yorkers \$15@16; pigs \$14.50@15; roughs \$14.25@14.50; stags \$12@13.25.

Sheep and Lambs.—Receipts 3,000; active and steady; spring lambs \$8@19; yearlings \$6@15.10; wethers \$11.50@12; ewes \$5@11; mixed sheep \$11@11.50.

Chicago.

June 4, 1917.

Cattle started off last week with too much on sale and an irregularly lower scale of prices, the Monday receipts aggregating 20,387 head, and steers generally sold off from 15@25c. At least for once the general run of heavy cattle caught the worst part of the decline, the best big long-fed steers excepted, for they were in small supply, as usual. Cows and heifers went off 10@15c and canners and cutters broke 15@25c, canners declining the most. By Wednesday the general market was in better shape, with much smaller

supplies, and prices averaged some higher, there being a good local and shipping demand. Taking the week as a whole, the bulk of the beef steers found buyers at \$10.75@12.75, the better class of heavy steers selling for \$13@13.70, while sales took place all the way down to \$7.50@8.50 for a very limited number of inferior little steers, but no considerable number of steers sold below \$10.50. Steers grading as good found buyers at \$12.25 and upward, with sales of a medium grade of steers at \$11.25@12.20, and fair light weight steers purchased at \$10.50@11.20. Yearlings of any quality were taken at \$11.50@13, with a Monday sale of 23 head of choice 1094-lb. yearlings at \$13.25, but scarcely any such cattle have been coming on the market of late. Yearlings sold down to \$9.50 for an ordinary grade. Butchering cattle were in good demand most of the time, cows selling at \$7.65@11.50 and heifers at \$7.40@12.10, while canners had a fair outlet at \$6@7, with cutter purchased at \$7.10@7.60 and bulls at \$7.50@11. Calves were sold at much below the unusually high prices paid during the previous week, with light vealers fetching \$12.50@14 and sales all the way down to \$7@9 for the heavier weights. There was a small amount of trading in stockers and feeders, the former selling at \$8@9.90 and the latter at \$9@10.50. Milkers and springers sold fairly at \$70@125 per head for common to prime kinds. At the close of the week beef steers sold much the same as a week earlier, but canner and cutter cows were much lower.

Hogs experienced a number of sharp declines in prices quite recently, with the big packing firms acting practically as a unit in insisting upon better terms, and sales were made several days ago at the lowest prices touched since the fourth day of April. However, after prime hogs sold on Tuesday of last week for \$15.75, there was a reaction, and advances took place, the week's receipts being on a much smaller scale than for the preceding week or for corresponding periods of recent years. Pigs kept on selling at a liberal discount from prices paid for matured hogs, with the eastern shippers calling at times for more of the lots averaging from 125 to 135 lbs. than could be obtained. Part of the time country owners insisted upon their hogs being carried over in the stock yards at night because the prices offered were lower than they were willing to accept. On Saturday hogs sold up to \$16.12½ for one carload of prime heavy shipping barrows, with sales of light bacon hogs at \$14.75@15.75; light shippers at \$15.80@15.90; heavy shippers at \$15.95@16.12½; heavy packers at \$15.45@15.95, stags at \$16.10@16.60 and pigs at \$10.50@14.60. A week earlier hogs brought \$14.75@16.20.

Lambs and the few lots of sheep offered on the market last week sold far higher than in any former year, despite the fact that highly sensational declines in prices took place all along the line, with killers firmly insisting upon liberal concessions. Shorn western and Colorado lambs, with a moderate number of clipped ewes, made up most of the offerings, a bunch of 330 head of Colorado spring lambs which averaged 65 lbs. selling at \$18.25 per 100 lbs. Although the sheep and lamb receipts last week were 29,400 head smaller than a year ago, prices declined \$1.50@2 per 100 lbs. for clipped lambs, mostly \$2 for sheep and \$2.50@3 for spring lambs. Spring lambs closed at \$12@18, and clipped flocks closed as follows: Lambs \$9@15.35; yearlings \$8@14.35; wethers \$6.50@13; ewes \$5@12.25; bucks \$9.50@10.50; shorn feeding lambs brought \$11.50@12.75, and shearing lambs sold at \$16@17.50.

Horses were in much smaller supply last week than a year ago, and prices ruled firm, with a fair general demand, drafters selling at \$175@275, ordinary to fair farm chunks at \$60@140 and most drivers at \$90@175. French inspectors were buyers of army horses at \$120@160, and the British inspectors started in once more to buy 1200 to 1400-lb. geldings at \$165@175. Prime heavy horses were scarce.

LIVE STOCK NEWS.

Of late conditions in the corn trade have changed radically, the enormously increased corn acreage in the corn belt states and possibility of a greatly enlarged crop causing many holders to let go of their remaining surplus. The marketings would be still larger could plenty of cars be had, and lack of cars prevents numerous farmers of Nebraska and other states from selling. Obviously, the lowered price of feed enables stock feeders to reduce the cost of feeding operations, but corn is still bringing far higher prices than in former years, and many owners of live stock are as averse as ever to holding their stock until well matured.

Hogs have started recently on a downward course of prices, and the packers in the Chicago stock yards have been able to fill their orders at greatly lowered values. Cattle have joined in the downward movement, going off sharply, and at last the downward movement extended to lambs, which suffered large reductions in prices. Monday continues the big day for marketing cattle, hogs, lambs and sheep, with Wednesday usually coming second.

Baird Brothers, of Louisa county, Iowa, sold on the Chicago market a short time ago 15 head of prime fat steers which averaged in weight 1647 pounds at \$13.70 per 100 pounds, this transaction proving that southern range cattle can top the market when they are prepared by men who practice the most approved methods of feeding. These cattle were bought in Kansas City market as feeders last November, the entire purchase numbering 98 head of the Goodnight, Texas, "J. A." brand, and costing at that time \$7.30. They were fed on the big Baird farm of 2000 acres, their ration consisting of corn and clover hay, with hogs following to take up the waste. The cattle were marketed on four different days, the prices paid running from \$13.30 to \$13.70. Samuel Baird accompanied the last shipment to market, with three carloads of yearlings, in addition to the heavy cattle.

For two weeks in succession the Chicago marketings of hogs averaged in weight 215 pounds, and then the average weight jumped to 221 pounds, or the same average as a year ago, comparing with 231 pounds two years ago, 238 pounds three years ago, and 245 pounds four years ago. Prime heavy barrows adapted for shipment to eastern packing points have remained the highest sellers, as they comprised but a small proportion of the offerings, while light hogs have sold at marked discounts. The hogs marketed have shown a falling off in average quality, and this has helped to depress prices.

The time for starting the marketing of the crop of lambs of the south has been placed at about the middle of June, and a good many southern lambs are expected to arrive on the Chicago market during June and July. It is stated that their average quality is very poor and that the crop is smaller than usual, this being especially true in Tennessee. High prices may be expected right along, although it can hardly be expected that grass flocks will command as high figures as have been paid for dry-fed lambs. Range lambs from Oregon and Idaho are going to move to market later than usual, and it is quite likely that they will come on the Chicago market in competition with southern lambs, although no one looks for glutted markets this year.

The demand for breeding ewes is beginning to make itself felt, as many farmers are at last aroused to the importance of building up the mutton and wool industry after it has fallen to such small proportions. Many small buying orders for breeders are being placed in the markets of the country, and there are also some large orders for choice breeding ewes. A Chicago commission firm which handles sheep and lambs exclusively made a sale a short time ago of four thousand yearling breeding ewes at \$12 per head at a feeding station near that city, and about the same time it purchased a flock of clipped yearling wethers on the Chicago market at \$13@13.50 per 100 pounds for shipment to the country for grazing purposes. It has been observed that many farmers who a year ago were afraid to venture in buying breeders because of their dearthness have seen their neighbors make big profits from doing so, and now they are ready to pay much higher prices.

R. G. Howell, of Arcanum, Ohio, known widely as one of the largest stock feeders in his part of the country, showed up in the Chicago market a short time ago with 21 head of grade roan Shorthorn steers which averaged 1391 lbs. and brought \$13.60. They were bought as feeders in the Chicago stock yards last autumn at \$7.25. He sold at the same time a carload of Shorthorn cattle which averaged 1311 lbs. for \$13.

While owners of well matured cattle should market them without delay, other cattle should be carried well into June or July, as there is going to be a scarcity of fat beefs during the summer period as a result of general premature marketing of cattle. Many owners are afraid the federal government will establish maximum prices for cattle, but this is not probable. A short time ago an expert in the Chicago cattle business remarked that on a recent day there were relatively more little cattle in the stock yards than had ever been seen before in the memory of the oldest traders in the Chicago stock yards.

THIS IS THE LAST EDITION.

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

DETROIT LIVE STOCK MARKET.

Thursday's Market.
June 7, 1917.

Cattle.

Receipts 1541. Dry-fed cattle steady; bulls, cows and all common grass grades were 50c lower; dry-fed opened steady, closing 25c lower than the early opening. Best heavy steers \$12@12.50; best handy weight butcher steers \$11@11.25; mixed steers and heifers \$10@10.25; handy light butchers \$9@9.50; light butchers \$8.25@9.25; best cows \$9.50@10; butcher cows \$8@9; common cows \$7@7.50; canners \$6.25@6.75; best heavy bulls \$9.50@9.75; bologna bulls \$8.50@9; stock bulls \$7.50@8; feeders \$8.50@9.50; stockers \$7.50@8.50; milkers and springers \$50@100.

Erwin, S. & J. sold Mason B. Co. 3 heifers av 601 at \$10; 1 do wgh 720 at \$9.50, 2 steers av 905 at \$11, 1 cow wgh 960 at \$8; to Bresnahan & Co. 1 do wgh 800 at \$7.50; to Nagle P. Co. 1 canner wgh 1000 at \$6.50, 1 do wgh 770 at \$5.50, 1 do wgh 1000 at \$6.50, 1 do wgh 1100 at \$7.50; to Newton P. Co. 5 cows av 1070 at \$9.25, 8 do av 960 at \$7, 5 do av 1016 at \$8.25, 3 bulls av 960 at \$9.25; to Walk 5 butchers av 492 at \$8; to Thompson 4 cows av 1045 at \$8; to Nagle P. Co. 1 do wgh 920 at \$6.75, 4 do av 812 at \$6.60; to Thompson 1 bull wgh 1270 at \$9, 2 steers av 930 at \$10, 10 do av 865 at \$11.65; to Sullivan P. Co. 4 cows av 1127 at \$8.75, 1 steer wgh 780 at \$7.75, 4 do av 702 at \$9, 3 steers av 790 at \$10, 3 cows av 813 at \$7.25, 2 do av 1030 at \$8.50, 9 do av 908 at \$8.50, 3 do av 1150 at \$8; to Mason B. Co. 3 steers av 990 at \$11.75, 5 do av 924 at \$10.35.

Bishop, B. & H. sold Mich. B. Co. 19 av 1113 at \$12, 1 do wgh 970 at \$10, 1 bull wgh 900 at \$9, 41 steers av 1130 at \$12.50; to Breitenbeck 15 butchers av 706 at \$9.10, 9 do av 828 at \$9; to Thompson 2 cows av 1175 at \$9, 5 do av 744 at \$7; to Parker, W. & Co. 5 do av 846 at \$6.75, 3 do av 970 at \$7.50, 4 steers av 817 at \$9.50, 1 bull wgh 1070 at \$9.50, 12 butchers av 535 at \$8, 2 cows av 650 at \$6.75; to Sullivan P. Co. 4 do av 967 at \$8.50, 1 do wgh 1070 at \$8, 2 do av 1085 at \$9, 11 steers av 1136 at \$11.85, 9 do av 1152 at \$11.85; to Kamman B. Co. 4 do av 1087 at \$11.25; to Thompson 2 bulls av 895 at \$9.25; to Garber 2 cows av 990 at \$8.75, 3 butchers av 433 at \$8.75; to Fineman 2 cows av 930 at \$8.75; to Mich. B. Co. 28 steers av 775 at \$10.75, 26 do av 767 at \$10.35, 25 do av 884 at \$11.50, 22 do av 940 at \$11.35, 3 do av 1330 at \$10; to Sullivan P. Co. 6 cows av 960 at \$8.50, 3 do av 953 at \$6.75, 5 do av 846 at \$8.50, 3 steers av 770 at \$10, 13 do av 890 at \$10.25, 2 do av 710 at \$9, 1 bull wgh 1500 at \$10, 1 do wgh 820 at \$8.75, 1 cow wgh 1060 at \$8.

McMullen, K. & J. sold Newton P. Co. 1 bull wgh 840 at \$9, 2 cows av 870 at \$7, 1 do wgh 850 at \$3.50; to Nagle P. Co. 1 do wgh 910 at \$7; to Thompson 1 bull wgh 1770 at \$11; to Hammond, S. & Co. 33 butchers av 765 at \$10.10; to Brown 11 stockers av 720 at \$8.40; to Nagle P. Co. 2 cows av 935 at \$7.75, 5 do av 920 at \$7; to Johnson 9 steers av 811 at \$10.75; to Thompson 21 do av 846 at \$10.75; to Breitenbeck 14 do av 860 at \$10.60.

Veal Calves.

Receipts 718. Market strong. Best \$14.75; others \$8@14. Sandel, S. B. & G. sold Newton P. Co. 8 av 150 at \$14.75, 19 av 135 at \$14.50, 5 av 145 at \$14.50, 15 av 130 at \$14; to Nagle P. Co. 1 wgh 130 at \$14, 5 av 155 at \$14.50, 13 av 145 at \$14.75, 5 av 150 at \$13.25, 3 av 155 at \$10.50; to Shipiro 8 av 150 at \$14.50; to Sullivan P. Co. 7 av 155 at \$14.50, 3 av 148 at \$14; to Shipiro 13 av 135 at \$14.75.

Sheep and Lambs.

Receipts 1230. Market steady at Tuesday's prices. Best dry-fed lambs \$15; best grass lambs \$13@14; light to common lambs \$11@12; heavy ewes \$9@9.25; fair to good sheep \$10@10.25; culs and common \$6@8.

Bishop, B. & H. sold Michigan B. Co. 226 lambs av 68 at \$15.75, 278 do av 75 at \$15.40; to Thompson 20 do av 70 at \$15.40; to Hammond, S. & Co. 129 do av 75 at \$15.40; to Parker, W. & Co. 129 do av 75 at \$15.40; to Thompson 6 sheep av 100 at \$10.50; to Sullivan P. Co. 67 lambs av 75 at \$15; to Hammond, S. & Co. 80 do av 75 at \$15; to Parker, W. & Co. 80 do av 75 at \$15.

Hogs.

Receipts 2716. Market steady. Pigs \$14; mixed \$15.25@15.60.

Veterinary.

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

Indigestion.—We have a cow that freshened four weeks ago, she is gradually shrinking in milk yield, but appears to be in good health and runs on good pasture and so far as I can tell has no under trouble. A. P. E., Holt, Mich.—It is possible that your cow takes too much exercise and perhaps if you would feed her some grain twice a day, she would produce more milk. I do not believe giving her drugs would help her any.

Loss of Appetite.—Have a cow that calved four weeks ago, but carried her calf two weeks overtime; calf was unusually large and only lived two weeks. This cow has rather a poor appetite and does not give as much milk as we believe she should give. C. S., Bendon, Mich.—Give her a tablespoonful of ground gentian, a tablespoonful of ground red cinchona and a tablespoonful of cooking soda at a dose in feed two or three times a day. A change of feed usually helps in a case of this kind.

Distemper.—Nasal Gleet.—I have a pair of mares that had distemper 12 months ago; since then they have had some discharge from nose, worse at times than others, but neither of them appear to be sick. M. R. S., White Cloud, Mich.—First of all they should be well fed, not overworked, and give each mare a teaspoonful of powdered sulphate of iron, a tablespoonful of ground gentian and a tablespoonful of cooking soda at a dose in feed two or three times daily.

Garget.—Teat Polypus.—Have a cow that has diseased udder; one quarter is caked, also one teat has movable bunch in upper part of teat which seems to interfere with milk flow. F. B., Ensign, Mich.—Apply one part of tincture iodine and two parts camphorated oil to caked portion of udder once daily, the polypus can perhaps be removed with instruments; however, this is work for an experienced Vet. or dairyman.

Weak Young Pigs.—Have sow with a litter of five pigs three weeks old; everyone of them tremble and have rather poor use of their hind quarters. None of them have been right since birth. F. G., Middleville, Mich.—It is perhaps needless for me to say that the sow should be well fed, kept very clean and dry; avoid feeding her kitchen dish water containing soap. Give sow a teaspoonful of cooking soda in feed twice a day. Don't feed too much corn.

Open Joint.—I have a mare that got kicked in the hock joint about six weeks ago; this injury resulted in open joint. As I did not know how serious anything like that was, I failed to first call a Vet. I syringed the wound with carbolic acid lotion, also applied peroxide hydrogen. After treating her myself for three weeks I called a Vet. who syringed it out with iodine and gave me paste to apply. He also recommended placing her in slings. Quite a quantity of pus escaped from joint and she holds foot in air, resting no weight on this leg. She has a good appetite. B. L. P., Fowlerville, Mich.—An open joint is always a serious ailment, requiring the very best surgical treatment or else recovery seldom follows. Ask your Vet. to thoroughly wash out joint with a normal tepid salt solution, using fountain syringe, then inject one part red iodide of mercury and 12 parts of strictly pure olive oil into joint, then cover with clean cotton the entire joint to be held in position with bandages. A mistake is often made in not packing enough cotton over joint and not leaving it alone for a sufficient length of time for the wound to close. Keep her in sling for at least two weeks, also leave packing on same length of time.

Depraved Appetite.—(Pica).—My cattle have the habit of eating wood, especially pine and hemlock. They are fed on silage and have plenty of salt. What makes them do so, and what can be done to prevent it? J. A. G., Frankenthuth, Mich.—This disease arises from an imperfect assimilation of food by the affected animals and cattle pastured on low swampy land become seemingly predisposed to this ailment, besides feeding an unbalanced ration has the effect of producing a depraved appetite. Change the feed; grass is best, but add some grain to this ration. Mix together 4 ozs. of carbonate of iron, 4 ozs. of ground fenugreek, 6 ozs. of ground gentian and ½ lb. of salt and give each cow two tablespoonfuls at a dose in feed twice a day; also give the same quantity of powdered wood charcoal in feed three times a day.

Indigestion.—Weakness.—We have a 12-year-old mare that has a good appetite for all kinds of food, but when doing ordinary work she tires quickly and is inclined to stagger. I feed her 18 quarts of oats daily, but she is not satisfied with this quantity. C. J. Q., Warren, Mich.—Feed her one part of wheat bran, three parts of ground corn and four parts oats; also let her have plenty of grass with hay or other roughage. Give her 1 dr. of fluid extract of nuxvomica, ½ oz. of tincture cinchona, 1 oz. tincture gentian at a dose in feed or drinking water three times a day.

MEETING OF MICHIGAN JERSEY CATTLE CLUB.

The summer meeting of the Michigan Jersey Cattle Club will be held at the home of Mr. H. L. Probert, Jackson, Mich., June 13, 1917.

Arriving at Jackson take the Vandercook Lake electric car, get round trip ticket for ten cents. Get off at stop "Huntton," and go west on cross road to farm.

As we hope and expect that there will be a large company it would be overstepping even Mr. Probert's large hospitality to expect him to provide dinner for those attending. There is ample provision in the way of hotels and restaurants in Jackson, or better still, take your lunch and eat it at the farm.

It would seem that "Oakcroft Farm" is surely so well known to all Jersey people of the state that no special mention of it would be necessary, but lest there be some who have not heard about it I will just say regarding it, that it is one of the most beautiful farms in the state. Also the herd of Jerseys is one of the best in the United States and is famous throughout the nation. Owing to sickness and death in the family of the secretary of the club, it has been impossible to send out the large number of personal invitations which we hoped to, and so of a necessity we ask that this notice be considered an urgent and cordial invitation to every breeder and lover of Jerseys to attend this meeting. Do not forget the place, Jackson, the time, June 13, 1917. Plan your work so as to go. We are hoping that Mr. M. D. Munn, President of the A. J. C. C., and also Mr. Hugh Van Pelt, of Waterloo, Iowa, will be in attendance.

P. H. WALKER, Sec.

WALNUT CREEK SHORTHORN SALE.

The Shorthorn sale conducted by J. E. Wilkinshaw, of Bellevue, Mich., on May 8, was well attended. The day being fine there was a good attendance from away, all the thoroughbreds going out of the country excepting two, and many of the grades. Twelve of the thoroughbreds averaged \$169 per head. Fourteen grade cows averaged \$109 per head. The sale reached a total of \$4,921.50.

See These Wonderful UNITED Farm Engines 1½ to 12 H.P. \$51 AND UP KEROSENE OR GASOLINE

They develop 20 percent more power than rated power—the biggest engine value in America. 1917 MODELS. Years ahead in design, features, improvements. Easy to operate, easy to start, smooth running. GUARANTEED FOR FIVE YEARS. Write for description, and FREE demonstration offer. United Engine Co., Dept. 323 Lansing, Mich.

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Successful Wool Associations

THE enthusiastic support given by the Canadian government to the development of co-operation within its territory is well known, as are the excellent results already obtained by the organizing work it has inspired.

Wool production and the trade in wool afford another example of the usefulness of co-operation to farmers. An effort which had its co-ordinated beginning only three years ago has given rise to a new situation which is full of promise for the future and is already of great benefit to the producers as well as to the wool industry.

The central government's propaganda and that of the provincial governments in favor of the co-operative sale of wool has been fruitful more or less everywhere, although in some provinces this method of sale is still in its initial period.

Most farmers having a flock of sheep were formerly at the mercy of wool merchants who wandered about the country, from farm to farm, making offers which the producer was in most cases obliged to accept, however little he liked them, unless he wished not to market his produce. The prices paid on the spot by these dealers or their agents were naturally much lower than those obtained in the large markets, and the small sheep farmer was thus deprived of the greater part of the profit which ought to have accrued to him. It followed that he almost ceased to take interest in the improvement of his flock and was at no pains to inform himself as to the condition and the needs of the wool trade.

The organization of the co-operative sale of wool, which is described in the February number of the International Review of Agricultural Economics, published by the International Institute of Agriculture, did away with these disadvantages. In the measure of its still limited adoption it has ensured to farmers owning sheep a just price for their produce. It has, in the first place, eliminated the middleman; either because—as is notably the case in Saskatchewan and Manitoba—the Department of Agriculture undertakes to sell the wool sent to it by producers, or because the responsibility of marketing the wool of the members has been assumed by a large association of sheep farmers. The latter expedient is employed in Alberta, Quebec and Prince Edward Island. Centralization has solved the problem of transport, complete carloads of wool being made up, and a considerable economy has thus been effected.

But it soon became apparent that for the remunerative marketing of wool there was another necessary condition. Co-operative selling of wool, without preliminary grading of its different classes, is an improvement on individual selling but can be of only limited benefit to sheep farmers. The Dominion Department of Agriculture made a new forward step possible when it placed expert graders freely at the disposal of the provincial governments who asked for them. Thus a uniform system of grading has been established in various Canadian provinces and has allowed a firm basis to be given to the value of wool.

The scientific grading by experts has further enabled those numerous improvements to be ascertained, which it was necessary to introduce into the methods of shearing and of preserving and packing fleeces in order entirely to obviate their deterioration. Carefully drawn-up rules have been communicated to the farmers as being the sine qua non of the sale of their wool by the Department of Agriculture. Short courses of instruction in the rural centers, lectures and practical demonstrations—organized or provided by the Department of Agriculture—

modification of sheep farming in accordance with the principles of science. Farmers have become aware of the importance of selecting the breed of their sheep with a view to wool production and they attempt to remedy the defects of their wool. Thus the flocks of Canada increase while their intrinsic value is augmented.

Such are the general results of government intervention in favor of the co-operative sale and the grading of Canadian wool.

Altogether, according to the official

Michigan's Apple Standards

In last week's issue was published in full Michigan's new standard apple barrel law as passed by the last state legislature. Below is given the text of another law enacted by the same legislature on standard apple grades. We suggest that all readers who grow apples in a commercial way save this copy of the law for future reference.

Section 1. The standard grades for apples grown in this state when packed in closed packages shall be as follows:

First, "Michigan Standard Fancy" shall consist of hand-picked, properly packed apples of one variety, which are well-grown specimens, normal in shape, uniform in size, of good color for the variety, and which are free from dirt, insect injury, fungus dis-

Preliminary Report of Wool Grading Operations in 1916, the government experts, who have worked in all the provinces of Canada, have graded 140,178 fleeces, weighing 1,004,512 pounds all of which was produced on the farms.

The importance of this form of co-operation, now in course of development, cannot be too much emphasized, especially at the present time. Facts concerning it are instructive because it is fitted both considerably to increase the production of wool and to improve its quality; and might well be adopted in the states and contribute to augmenting their wealth in sheep.

fifteen per centum in the Standard B grade. Such tolerances shall apply to size, color and other grade specifications and shall be computed by counting or weighing the specimens which are judged to be below the standard for the grade in any respect, and those which are found to be smaller than the minimum size, marked on the package.

Section 3. In all of the grades specified in this act, the apples included in the face or shown surface shall fairly represent the size and quality of the apples in the package.

Section 4. Every closed package containing apples grown in the State of Michigan which is sold, offered or consigned for sale, packed for sale, or shipped for sale, shall bear upon the outside of one end in plain letters or figures, or both, the name and address



The Farmers' Co-operative Elevator at Chesaning which, Besides Paying Six Per Cent on the Money Invested, Returned a Patronage Dividend of Six Per Cent to those who Sold their Products Through the Institution.

ease, bruises and other defects, except such as are necessarily caused in the operation of packing. "Uniform size" shall be construed to mean that apples contained in any one package shall not vary in size more than one-half inch in diameter;

Second, "Michigan Standard A" shall consist of hand-picked, properly packed apples of one variety, which are well-grown specimens, normal in shape, of not less than fifty per centum of good color for the variety, and which are practically free from dirt, insect injury, fungus disease, bruises and other defects, except such as are necessarily caused in the operation of packing;

Third, "Michigan Standard B" shall consist of hand-picked, properly packed apples of one variety, which are well grown, and practically free from insect injury and fungus disease: Provided, That the apples having healed-over insect punctures, small scab or blotch infections, fruit spots, or other defects which, taken singly or collectively, do not materially deform or discolor the fruit or injure its keeping quality, shall be admitted to this grade;

Fourth, "Michigan Unclassified" shall consist of apples which do not conform to the foregoing specifications of grade, or which though conforming, are not branded in accordance therewith.

Section 2. In the interpretation of this act a tolerance of six per centum below the standard shall be allowed in the Standard Fancy grade, ten per centum in the Standard A grade, and

of the person by whose authority the apples were packed, the true name of the variety, the grade of the apples therein contained when packed or repacked, and the minimum size or the numerical count of the fruit in the package. If the true name of the variety is not known to the packer or the person by whose authority the apples are packed or branded, then such varieties shall be designated as "unknown." Every package of apples which is repacked shall also bear upon the same end of the package the name and address of the person by whose authority it is repacked, such name and address to be preceded by the words "repacked by." The letters and figures used in marking or branding closed packages of apples under the provisions of this act shall be of a size not less than twenty-four point gothic: Provided, That closed packages containing apples which cannot be readily marked on one end, so as to bear conspicuously the information herein specified shall be marked or branded in such other conspicuous place as may be prescribed by the regulations promulgated hereunder.

Section 5. The marks and brands prescribed in this act may be accompanied by any additional marks or brands which are not inconsistent with or do not in any way obscure the marks and brands required by this act. Apples packed and branded in accordance with the United States apple grading law, approved August third, nineteen hundred twelve, shall be exempt from the provisions of this act.

Section 6. The minimum size of the

fruit in all grades shall be determined by taking the transverse diameter of the smallest fruit in the package. Minimum sizes shall be stated in variations of one-quarter of an inch, as two inches, two and one-quarter inches, two and one-half inches, two and three-quarter inches, three inches, and three and one-quarter inches, and so on, in accordance with facts. Minimum sizes may be designated by either figures or words and the word "minimum" may be designated by the use of the abbreviation "min."

Section 7. It shall be unlawful for any person to pack for sale, ship for sale, offer or consign for sale, or sell, in closed packages, any apples grown in this state which are not graded, packed and marked or branded in accordance with the provisions of this act and the regulations made hereunder, or closed packages of apples bearing any false statement, design, or device regarding such apples within the meaning of this act.

Section 8. Any person who violates any of the provisions of this act, or of the regulations promulgated hereunder, shall be deemed guilty of a misdemeanor and upon conviction thereof, shall be punished by a fine of not more than fifty dollars for the first offense and not more than one hundred dollars for each subsequent offense: Provided, That no person shall be prosecuted under this act who can establish satisfactory evidence that no part of the packing or branding of the apples concerned was done by him or under his authority and that he had no knowledge that they were not packed and branded in accordance with said provisions and said regulations.

Section 9. The word "person" as used herein shall be construed to include individuals, corporations, partnerships, and associations. The act, commission or failure of any official or employee of any person, when such official or employee is acting within the scope of his employment or office, shall in every case, be deemed also the act, omission or failure of the person, as well as of the official or employee. The words "closed package" shall mean a box, barrel, basket, or other package, the contents of which cannot be inspected when such package is closed.

Section 10. It shall be the duty of the Dairy and Food Commissioner to diligently enforce the provisions of this act and his officers, employees and agents are authorized to enter upon the premises of any person within this state for the purpose of inspecting packages of apples and securing evidence of violation of this act, and the said Dairy and Food Commissioner is hereby authorized and empowered to make, promulgate and enforce such regulations as may be necessary for interpreting the grade specifications prescribed in this act, and for otherwise enforcing its provisions: Provided, however, That any grades or classes of apples packed in closed packages, or any requirements for making closed packages containing apples, mandatory as applying to interstate commerce, which may hereafter be established by the authority of the Congress of the United States, shall forthwith, as far as applicable, be established and promulgated by the Dairy and Food Commissioner as official grades, classes and marks for apples packed in closed packages in the State of Michigan.

Section 11. All acts and parts of acts in conflict with this act are hereby repealed.

LIVE STOCK NEWS.

An Iowa stock feeder had on the Chicago market recently nine carloads of choice hogs which averaged from 257 to 266 pounds. He specializes in feeding live stock, mainly swine, and never breeds any stock, figuring that he has no room on his farm of 150 acres for breeding stock. He raises some corn and alfalfa and buys mill feed, tankage and corn. He is highly optimistic of the future, relying on a large demand for meats for feeding the allied forces.

An Illinois stockman was in Chicago recently with a carload of hogs of his own feeding, and twenty steers which averaged 1209 pounds and sold at \$12, while the hogs brought \$16.20. The steers were bought as feeders the first day of last November at \$6 and were started slowly on corn, with a little cottonseed meal. They were followed by about 100 hogs. During the last ten weeks the cattle gained on corn and cottonseed meal 210 pounds per head, selling for double their feeder cost, and there were over 100 per cent net profits on the cattle and hogs. The owner said his experiment in feeding the cattle and hogs convinced him that cottonseed meal should always be used to balance the rations.

DAIRYING ON A BUSINESS BASIS.

(Continued from page 679).

in the cost of production, apparently forgetful of the fact that profits accrue to the business dairyman as they do to the manufacturer. First, from a price for his product sufficient to more than cover the average cost of production; secondly, from cheapening the cost of production sufficiently to obtain a profit. The latter method offers the greater opportunity to the dairyman with a well-organized business, one who will study and apply economies to the industry.

The time of the year during which the major part of the milk is produced may materially affect the cost of production as well as income from the dairy. Milk can be produced much more economically during the pasture months than during the winter when stall feeding is necessary. There are other items to be taken into consideration. Labor conditions in summer often make it difficult to properly care for the stock; during the winter, stock, even though dry, must be fed and cared for; a small amount of feed and care additional to that required for maintenance may prove profitable, and, lastly, prices for dairy products are so much higher in winter than in summer that the total income per cow is larger and net profits more satisfactory, provided the milk flow is produced during the winter months. The strongest argument in favor of winter dairying is its adoption by the most capable dairymen and the constant tendency in the dairy sections towards maximum production during the winter months.

The cost of feed and labor, the cost of the cow, and all other items of cost of maintenance determine the quantity of the product a cow should yield in order to give the owner a profit. And as the cost of feed, labor, and the investment per cow increases or decreases, in such proportion must the efficiency of the herd increase, price of product remaining the same, to give a profit to the owner.

The Worth of a Cow.

In order that the cow may be profitable, cow and investment should bear a certain and definite relationship to the product that must be obtained. The question frequently arises: "What is a cow worth that gives a certain quantity of milk, and how much milk must a cow of a certain value give before she makes a profit for the owner?" This question may be answered definitely, providing the cost of feeding, care, etc., is known, and the average price received for the product can be ascertained. It can only be answered exactly from a productive standpoint. It is imperative that cows of high values, to be profitable, should be more productive than the average. From a productive standpoint a farmer can not afford to pay \$80 to \$100 for a cow unless she will produce 5,500 to 5,900 pounds of milk per year. While the value of the calf and the manure may enter into the consideration of ordinary farmers, yet the dairy farmer, who gains eighty per cent of his income from dairy business, must consider only the productive capacity as related to the annual profits.

One of the most difficult tasks of farm managers is to keep all capital employed in such a way as to produce maximum profits. The investment of money in live stock which do not bring a return commensurate with the cost of maintenance and capital invested is a common source of loss. It is easy to pick out a herd of cows at \$70, or over per head, that will not give an adequate return for the cost. The principal cause for such loss is that prices have been paid for the stock on the basis of gross income without regard to maintenance cost.

The Investment in Dairying.

The same economic forces apply to the investment of capital in cows as

to its investment in lands—that is, as either increase in value or are purchased at high prices, they must, to be profitable, become more productive because of gross increase in interest and depreciation charges.

Both interest and depreciation are very high when cows are purchased at \$100 per head or over. The annual charges are then \$15.58 or more per year, as compared to \$4.36 for the \$40 cow. The average cow producing 4,000 pounds of milk annually would, under such circumstances be kept at a loss of more than \$5 per year, and would not only be valueless from a productive standpoint, but would represent a liability to the farm, rather than an asset, unless the value of the manure and of the calf were considered sufficient to offset the loss occasioned by her use.

With an average annual return of \$1.20 per hundred pounds, or twenty-seven cents for butter-fat, and with food and labor requirements at the prices determined, a cow has no value, based on productivity, until her annual product is between 4,500 and 5,000 pounds of milk. When 5,000 pounds of milk are produced annually a cow has a value of \$25. That is, the difference between the sum received for her product and the cost of obtaining it capitalized permits of a valuation of \$25 on which interest must be earned and a sufficient sum set aside to cover depreciation. As the annual product increases over 5,000 pounds, the productive value of the cow increases very rapidly. When 6,000 pounds are produced annually, her value is more than two and a half times that of a cow producing 5,000 pounds annually. The cow giving 10,000 pounds of milk is worth \$230 as a producer. Her breeding value is to be added onto this sum. Obviously, a cow giving 10,000 pounds of milk annually has a higher value than that based upon her productivity, for dairymen everywhere desire to build herds on just such stock, and demands for young stock would swamp any dairy farmer.

The Profitable and Non-Profitable Cows.

No better illustration can be made of the value of productive cows than the comparison between the cow giving 10,000 pounds and the one giving 4,000 pounds. The former represents a capital investment that is extremely productive, that pays for all she receives and gives an ample return and protection on her own value; the latter nets a loss of more than \$5 per year.

Placing the dairy farm upon a profitable basis means putting brains and energy into the business; making it a business, just like manufacturing any other marketable product, and making it at the lowest possible cost with the most profitable stock.

New York.

E. W. GAGE.

KEEPING BUTTER.

In your issue of May 26, J. L. K. asks for a recipe to keep butter. In the first place, make the butter just as you have been accustomed to making it. By that I mean not to put in more salt than usual. To every twenty pounds of butter take three pounds of salt, one pound of loaf sugar, one-quarter pound of pulverized saltpetre; mix and put a layer of butter about eight inches thick; then sprinkle on a light covering alternately, until your cask is full. Pack in air-tight casks. Butter packed in this way will keep sweet for two or three years.

Livingston Co. C. CHAMBERLIN.

This is no time to hesitate in the production of any food stuffs. The crying need is more food, and on that account the production of food of any kind will be profitable because the demand will be greater than the supply.

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Homestead Farms

On account of abundant orders, we cannot promise Day-Old Chicks until into June. We can still supply **Eggs for Hatching**

Rocks, Reds, Wyandottes, Black Minorcas and Leghorns; Geese, Ducks and White Holland Turkeys. Cockerels and pullets of our several breeds can be supplied from July on thru the autumn months and we invite inquiry from any, who want any of these fowls. **HOMESTEAD FARMS**, Bloomingdale, Mich.

Bred-to-Lay Eggs, S. C. W. Leghorns and Barred Rocks, Alpine Poultry Farm, R. 2, Grand Rapids, Mich.

R. and S. C. Reds. Good breeding hens at \$1.50 each for short time. Also Belgian Hares. **O. E. Hawley**, Ludington, Mich.

S. C. W. Leghorn eggs from a 240 egg strain, \$2 per 15. Utility eggs, \$5 per 100. **HILL-CREST POULTRY FARM**, Ypsilanti, Michigan.

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Single Comb Black Minorcas Great big cockerels sired by a 10 lb. cock bird. **R. W. Mills**, Saline, Mich.

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Everything we sell is guaranteed. You can return any goods you buy from us and get your money back. We ship C. O. D. if desired, quote very lowest prices and carry the most complete line in the country. Here is a partial list:

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Brooders	Bone Cutters	Chick Markers
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If you don't find what you want in the above list write us anyway. We have everything a poultryman needs. A post card will bring the 40 page catalog by return mail. We will gladly send it free, whether you buy or not.

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S. C. White Leghorns 200 egg strain. Tom Barron hens. Baby chicks 15c each. Hatching eggs 5c each. **C. W. Gordon**, Fowlerville, Michigan.

S. C. White Leghorns. Size, shape, vigor, egg production. Hatching eggs \$5, Baby Chicks \$11 per 100. 15 years in the hen business. **A. O. Howard**, Tecumseh, Mich.

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BREEDERS' DIRECTORY.

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We Offer a Few Special Bargains

In S. C. White Leghorn cockerels, Ram-bouillet rams, Hampshire pigs (either sex) and Holstein bulls. A good chance for a small investment to reap the benefit of a large expenditure of capital and years of expert breeding.

Flanders Farm, Orchard Lake, Mich.

CATTLE.

ABERDEEN-ANGUS

Bulls by **BLACK QUALITY** ITO, sire, First prize. Breeders and Calf Herds Mich. State Fair 1916. We also won first on Exhibitors Herd, Jr. Champion Bull, Jr. Champion Female and Grand Champion Cow. Also breeders of Percheron, Hackney and Saddle Horses. **WOODCOTE STOCK FARM**, Ionia, Mich.

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Two Choice Registered Guernseys Two year old Heifers in the next 60 days, fine individuals, and well bred, \$300 each, don't wait a month if you want these, they will go to the first man sees them. **J. M. WILLIAMS**, North Adams, Mich.

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

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

GUERNSEYS Bull calves for sale, from A. R. dams and cows on test. **GEO. N. CRAWFORD**, Holton, Mich.

"TOP NOTCH" HOLSTEINS

Many years of careful management and systematic handling of our three large herds find us the breeders and owners of a cow that heads one of the only eight combinations of three direct generations of thirty pound cows in the United States. We have young bulls for sale sired by a son of this great cow. The blood of this cow in them, combined with that of other great animals of the breed in our herds, would insure most pleasing results in almost any herd. **McPHERSON FARMS CO.**, Howell, Michigan.

Bigelow's Holstein Farms, BREEDSVILLE, MICH. Have Some Fine Registered Stock For Sale

Registered Holsteins. Very fine Young bull five months of age A. R. O. breeding. Satisfaction guaranteed. **W. B. Jones & J. F. Lutz**, Cohoctah, Mich.

Holstein Calves, 10 heifers, and 2 bulls 15-16ths pure. H5 weeks old, beautifully marked, \$20.00 each, crated for shipment anywhere. **Edgewood Farm**, Whitewater, Wis.

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OAK LEAF FARM Herd Sire Ypsilanti Sir Pictetle De Kol Service bulls all sold. Buy a calf and raise it. Fine individuals 4 and 6 months old. **E. H. Gearhart & Son**, Marcellus, Mich., R. No. 4.

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REG. Holstein Bull, ready for service. Sired by a half-brother of World's Champion cow. Send card for pedigree & price. **E. R. Cornell**, Howell, Mich.

842 Lbs. BUTTER

In the average of the semi-official records of our herd bull's dam (at 2 yrs.), his grand-dam (at 5 yrs.) and his great grand-dam. Three choice young bulls from A. R. O. dams. Herd tuberculin tested annually. Holsteins of course. **Peaceland Stock Farm**, Three Rivers, Mich. Chas. Peters, Herdsman. **C. L. Brody**, Owner, Port Huron, Mich.

A Simple Method of Chick Feeding

IN order to make a success with chicks it is very essential to feed them for quick and vigorous developments. The following method which is very simple and has been thoroughly tried out:

After the chicks are hatched and removed from the nest, or hover give them buttermilk or sour skim-milk, slightly warmed to take chill off. If you have plenty of either give nothing to drink but buttermilk or sour milk for two weeks or longer. The first afternoon give coarse sand or fine chick grit mixed with bran. Feed this on a shingle and tap on shingle to call the chicks' attention to it. Also, put the bills of some of the more vigorous chicks in the milk to start them drinking. Be very careful not to allow the chicks to get chilled. The bran, with the grit, makes a good first feed as it starts digestion and the chicks cannot very well overeat of it.

A Good Chick Feed.

On the second day of feeding the chicks should get five feeds of bran, oatmeal and raw egg. This should be mixed as follows: One raw egg without shell, one handful of oatmeal (rolled oats), and three handfuls of bran. The egg should be thoroughly mixed with the bran and oatmeal, so that a little of the egg is on each particle of grain, and the mash is not moist or sticky. The chicks will not eat much of it the first day so it will go a long ways. Remove the feeding board after about fifteen or twenty minutes of feeding at each feed.

Chick grit should be fed in a hopper from the start. Give sprouted oats to teach the chicks to eat green feed, but do not give them more than they will clean up in twenty or thirty minutes at any time. If fresh sod can be obtained it will be much better than the sprouted oats, as the chicks will eat grass and roots and will receive benefit from scratching in the fresh earth. If the chicks are kept in a brooder, keep a pile of fresh earth in one corner of the brooder. Hard coal ashes are also good for the chicks to pick at.

A Gradual Substitution.

On the third day some chick feed comprising equal parts of cracked wheat and finely cracked corn, should be added to the raw egg mash to teach the chicks to get used to it.

On the fourth day only four feeds of the raw egg mash should be given and one feed of chick feed given instead of at the three o'clock meal. The chick feed should first be thrown in small piles in the litter to teach the chicks to scratch for it. Later it should be scattered in the litter and the depth of the litter gradually increased to three or four inches. In starting to feed the chicks chick feed give it to them at the rate of two-thirds to one teacupful to 100 chicks.

Don't overfeed; always keep chicks on the alert for the next feed. If their disposition indicates that they are not hungry, reduce the amount of feed given.

On the sixth day feed the raw egg mixture at morning, noon and night and give the chick feed at ten o'clock and at three o'clock. On the seventh day replace the noon meal of raw egg mixture with the chick feed. Also start feeding a dry mash consisting of equal parts of bran and rolled oats and five per cent of beef scraps. Feed the mash in shallow dishes or pie tins at ten and three o'clock. Give just enough of the mash so that the chicks will clean it up in an hour or so.

Hopper Feeding.

This mash feeding should continue until the chicks are six weeks old, when it can be put before them all the time in a hopper. Ground oats may be substituted for rolled oats at this time.

On the tenth day give four feeds of chick feed and only one of raw egg mixture; the first feed in the morning.

On the fourteenth day discontinue the raw egg mixture and just give the four feeds of chick feed. On the twenty-first day reduce the feeds to three, morning, noon and night.

This method is especially to be recommended because of its simplicity and efficiency. It has been thoroughly tried by poultrymen and at the M. A. C. poultry plant. The raw egg mixture is valuable because the raw eggs contain vitamins, an unknown principle found in eggs, milk and other similar food which is essential to thrifty animal growth.

While the above feeding system is suggested for brooder chicks it is just as valuable for hen raised chicks after making a few slight changes to suit changed conditions.

Ingham Co.

B. A. KNOWLES.

HANDLING THE BEES.

Luckily, it is not necessary to urge the beginner with bees to read as much as he can in regard to their management. The person who is of such a temperament as to attempt bee keeping is most apt to be the sort of a person who will avail himself of every possible opportunity to secure "advance" information on the subject.

First of all, the bee-keeper must recognize the fact that the bee has a great amount of good common "horse sense." In fact, I have known a great many bees that exhibit much more real wisdom than a great many men whom I happen to know. The bee, first of all, recognizes the necessity of having a queen and the queen, on the other hand, stays industrially at home attending to the rearing of as high as some 2,000 children a day.

Handle Bees Carefully.

Thus, like any other person of sensible habits, the bee seems to prefer that its keeper shall be conservative in his demeanor and that he shall dress to suit his habits. Bees do not like rough handling and are apt to show their resentment of such treatment.

For my part I always knock before opening the hive, and I really mean what I say. I always knock three or four times on the side of the hive with my knuckles to let the bees know that I am coming.

Just as soon as I have knocked there begins a low rumbling and humming within the hive. This tells me that the bees are filling up their honey stomachs as they always do when warned of the approach of intruders. The reason why they do this I do not know, but one thing is certain, they are like men in this respect; they are always in a better humor when their stomachs are full.

Subduing the Bees.

I usually puff two or three good puffs of smoke in at the entrance, but not too much for fear of suffocating the bees. I then take off the top of the hive and puff some more smoke down between the frames. This is about all that is necessary to subdue even the most vicious of bees and they are now ready for handling in any manner that is desired.

The frames may be taken out to inspect the brood and even the bees may be taken up by the handful. I have seen this done by other people, but for myself I prefer not to handle the live bees any more than necessary. Whenever I see a man pick up a handful of live bees I always place him akin to the man who heard that his wet tongue would stick to a frosty steel rail; he tried it on the railroad one day to prove it.

J. R. CAVANAGH.

A Guaranteed Quality Sale of Registered Holstein Cattle

At the West Michigan State Fair Grounds in
Grand Rapids, Mich.
on Tuesday June 19th, 1917

Eighty-nine head of high class cattle that are carefully Tuberculin tested and are guaranteed to be breeders of breeding age.

25 choice Heifer Calves out of high class sires. A handsomely marked bull calf from a 30.27 lb. junior three year old dam, and out of a high class sire.

A bull calf from a 26.65 lbs. junior three year old dam and sired by a son of King Segis Pontiac.

A bull calf sired by a 30 lb. son of Friend Hengerveld De Kol Butter Boy and out of a high record dam.

Daughters of the 40 lb. bull Johanna McKinley Segis and of the 34 lb. bull Traverse Dutch Weg. Daughters of other 30 lb. sires that space does not permit us to mention.

Young A. R. O. cows with 7 day butter records from 20 to 28 pounds. Choice A. R. O. cows and heifers bred to bulls out of dams with A. R. O. records from 30 pounds to 38 pounds of Butter.

All cattle in sale have been carefully inspected by the Sale Committee, and all undesirable animals have been rejected.

An unusual opportunity to buy high class foundation stock from herds that are carefully tuberculin tested. A majority of the herds from which these cattle are consigned are under the supervision of the Bureau of Animal Industry, and tested regularly by Government Veterinarians. If interested, write for a Sale Catalog.

COL. KELLY, W. R. HARPER,
Auctioneer, Sale Manager
MIDDLEVILLE, MICHIGAN



Purebred Registered HOLSTEIN CATTLE

A Holstein owner knows that he holds as an asset something more than size, weight, individuality, breeding, and the highest standard of productivity. He knows that he is a partner, directly and indirectly, in all of the progressive efforts of the Holstein-Friesian Association, and also in its financial soundness and mighty prestige. He benefits from its annual prize offerings of \$25,000, and its yearly educational publicity campaign costing \$25,000. The official records of Advanced Registry Office establish for his cows positive and relatively high market values. Since 1908 the average auction price of Holsteins has increased to \$225 per head. There's a big money in the big "Black and White" Holsteins.

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CLUNY STOCK FARM

100 REGISTERED HOLSTEINS 100

Offers For Sale the 3-year-old Sire:
SEGIS COLANTHA MOONLIGHT KING, No. 149,542, about three-fifths white and an excellent individual.

HIS SIRE: a grandson of King Segis Pontiac out of Princess of Oakdale (30 lbs.); head of one of the nine only families of three generations of 30-lb. cows.

HIS DAM: a granddaughter of Colantha Johanna Lad, has a record of 535.9 lbs. milk and 27.02 butter as a 3-yr.-old giving promise of a much better record with age. Her dam a 16-lb. 2-yr.-old daughter of a 33.6-lb. cow who made a semi-official record of 838.4 lbs. butter and 18,675.6 lbs. of milk.

Pedigrees and Prices Sent on Application.

R. BRUCE McPHERSON, HOWELL, MICH.

For Sale at a Bargain 2 young reg. Guernsey Cows and bull calf 4 mos. old. **PAUL RUEHS, Calcedonia, Michigan.**

Buy Your Bulls From Parham's Pedigree Stock Farm
Choice Registered Holstein calves from A. R. O. cows.
RAY B. PARHAM, Bronson, Michigan.

Need Reg. Holsteins??

You can't find better bred bulls than we are offering for service. You don't need cash. We'll let you. Get our descriptive booklet, **LONG BEACH FARMS, Augusta, (Kalamazoo Co.), Michigan**

1200-lb. Bred Young Bull

Ready for service. The sire Maplecrest De Kol Hengerveld own brother to a world's champion junior year old, 1235 pounds of butter in a year. Brother, in blood, to the ex-champion cow, record 1322.93 lbs. butter in a year. Write for pedigree and price.
HILLCREST FARM, F. B. Lay, Mgr., Kalamazoo, Mich.

WINNWOOD HERD

John H. Winn, Inc., Holton, Mich.

Reference: Old State Bank, Fremont, Mich.

Have for sale 6 Maplecrest Korndyke Hengerveld Holstein bulls. One 12 months; one 6 months; one 2 months; all out of A. R. O. dams. One made 19 lbs. butter in 7 days as a Jr. 2 year old. Another 21 lbs. in 7 days as a Jr. 3 year old. Also have five others, same breed from 2 to 6 months. Must sell at once, need the room. Our prices will surprise you. **John H. Winn, Holton, Michigan.**

Ten Good Young Holstein Cows For Sale

I want to sell as soon as possible, TEN GOOD YOUNG cows. Most of them are bred to "The Milk & Butter Champion" a son of a world's record butter cow. We will have more cows than we can milk this Spring. So this is your chance to get a few good ones. Also have bull calves and a few bulls ready for service.
L. E. CONNELL, Fayette, Ohio

Butter Fat Counts

Holstein Bull Calves from a 30 lb. 6.53% Sire. Dam are grand daughters of the King of the Pontiacs. Their dams grand daughters of Sadie Vale Concordia the first 30 lb. cow. **Edwin S. Lewis, Marshall, Mich.**

For Sale A Yearling Heifer, pure bred Holstein, Sire, Colantha Johanna Cream-ette Lad, Dam, Elizabeth Segis Lyons. If you want something good, write, Geo. D. Clarke, Vassar, Mich.

FOR SALE Reg. Holstein heifers, 8 months old. Large, finely marked and thrifty. Price \$100, orated at depot. **C. L. HULETT & SON, Okemos, Mich.**

High Grade Holstein Heifers

Fresh or soon to freshen. Also grade Holstein Bull Prices reasonable. **THE JENNINGS FARMS, V.M. SHOESMITH, General Manager, Bailey, Mich.**

2 Holstein Heifers by a 24 lb. bull in calf 22.92 lb. dam. 30.21 lb. sire. Terms if wanted.
M. L. McLAULIN, Redford, Michigan.

Jerseys and Duroc Jerseys

The most important thing in buying a Jersey bull is to get one backed up by generations of high producers.

Brookwater offers to sell a few choice bull calves of this kind. They are selling—get yours soon. Also Duroc Jersey Fall Boars ready for spring service. Full particulars and price on application. Better yet, visit the farm.

H. W. MUMFORD, O.W.N.E.R., BROOKWATER FARM, O. F. FOSTER, MANAGER, Ann Arbor, Mich., R. 7.

Registered Holstein Friesian Heifers, 3 to 6 mos. old. Some from 30 lb. sires. Priced to sell. **Fred J. Lange, Sebewaing, Mich.**

Reg. Holstein Friesian Cows and Heifers, some A. R. O. \$125. Heifers nine months old, \$100; Bulls \$40 up, with papers. **FRANK STAFFEN, R. 3, Howard City, Mich.**

BULL CALF for sale, Pontiac Korndyke Breeding. Dam gives 60 lbs. milk per day at 2 years. Farmers Prices. **JOHN A. RINKE, Warren, Mich.**

Registered Holstein Bulls, ready for service, closely related to the 50 lb. cow. Priced to sell. **B. B. REAVY, Akron, Mich.**

On Our Easy Payment Plan we will ship you a registered Holstein Bull calf in our stables. Prices from \$50 up. Ypsilanti Farms, Ypsilanti, Michigan.

Ixi-on Farms are offering pure-bred Holstein young herd sires at attractive prices. For information write S. O. Rathfon & Son, R. 4, Ypsilanti, Mich.

HEREFORDS

10 Bull Calves from 4 to 12 months old.

ALLEN BROS., PAW PAW, MICH.

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

The All-Around Jersey

is the farmer's cow. She's his friend and pride—the beautiful, gentle, ever-paying milk machine that lifts the mortgage, builds up the fertility of the farm, and puts the whole business on a sound, paying, permanent basis. She adapts herself to all climates and all feeds and does not need fancy care. She matures early and lives long. And she's so sleek, clean cut and handsome, as to be the family pet and pride. She produces well and sells well. Learn about her in our fine, free book, "About Jersey Cattle." Write for it now.



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For Sale Jersey Bull Calf

Dropped Nov. 3rd 1916. The sire and dam are both from R. M. cows. This calf is an extra good individual, and will be sold cheap. Address: Newman's Stock Farm, R. 1, Marlette, Mich.

Jersey Bulls for sale, ready for service. Out of good producing dams. Prices right. **R. B. FOWLER, Hartford, Mich.**

FOR SALE Yearling Jersey bull from registered sire of merit stock. **HILLSDALE FARM JERSEYS, Great producers, O. & O. DEAKE, Ypsilanti, Michigan**

Maple Hill Farm Registered Jersey Cattle
Stock under 2 1/2 years all sold.
J. R. Worthington, R. No. 7, Lansing, Michigan

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

Notten Farm Jerseys—One bull ready for service; heifer calves by Foxhall Croton. **NOTTEN FARM, Grass Lake, Mich.**

The Wildwood Farm

Breeder of Line bred Majestystrain of Jersey Cattle. Herd on R. of M. test. Tuberculin tested. Bull calves for sale. Type & Production is our motto. **Alvin Balden, Capac, Mich.**

Maple Lane R. of M. Jersey herd offers for sale tuberculin tested cows, bull calves and heifer calves, carrying the best R. of M. blood of the breed. **IRVIN FOX, Allegan, Mich.**

Shorthorn Cattle of both Sex for Sale

W. W. KNAPP, Howell, Michigan.

RICHLAND SHORTHORNS

Sires in service. Village Archer and Albion Crest. 1st prize 2 year old and Junior Champion at the Mich. Stat Fair in 1916. We offer a number of young bulls and females for sale. Also some Aberdeen Angus bulls of serviceable and reasonable prices. Write your wants, Tawas City, Mich. **C. H. Prescott & Sons, Prescott, Mich.**

Bidwell Shorthorns

"For Beef and Milk"

This heifer at 6 months has bone, size and quality—our own breeding. The blood of Scotch bulls. Imp. Shensstone Albino and Imp. Village Registered stock always for sale.

BIDWELL STOCK FARM, Box B, Tecumseh, Michigan.

Francisco Farm Shorthorns' Big Type Poland Chinas

"They're rugged—They pay the rent." Nothing for sale at present. **P. P. POPE, R. R. 3, Mt. Pleasant, Mich.**

FOR Sale—Reg. Short Horn Bulls by Maxwellton Monarch 2nd, a son of Avondale, from 1 to 9 mos. old. **John Schmidt, Reed City, R. No. 5, Michigan.**

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Shorthorn Bull Duke of Oak Crest 16 mos. old, heavy milk ancestry \$200. **DAVIDSON & HALL, Tecumseh, Michigan**

SHORTHORNS Maple Ridge Herd, Established 1867. No stock for sale. **J. E. Tanawell, Mason, Michigan.**

For Sale Two Reg. Shorthorn Bulls. One Scotch Bull, Son of Imp. Shensstone Albino. One Red Yearling. **RALPH BUTLER, Calhoun Co., Eckford, Michigan.**

HOGS.

Durocs and Victorias

Heavy bone, lengthy Spring Boars and Gilts from prize winners sired by one of the best Sons of the Great Defender & other noted strains. **M. T. STORY, Lowell, Mich.**

BERKSHIRES

We have 10 selected gilts bred to farrow in August and September. All long bodied, growthy type. Are bred to our Junior Champion boar, Detroit 1916. They will go fast at \$55 each. All stock guaranteed as represented.

SWIGARTDALE FARM

PETERSBURG, MICH.

Berkshires, Boars, serviceable age, best blood lines. Registered. **ELMHURST STOCK FARM, Almont, Mich.**

Berkshire Pigs 7 weeks old, registered and blood lines. **RIVERVIEW FARM, Vassar, Mich.**

CHESTER WHITES—Gilts bred for July and Aug. farrow. March pigs ready to ship. Large type. **F. W. ALEXANDER, Vassar, Michigan.**

Duroc Jerseys bred gilts for sale priced to sell. **Hastings, Mich. Carey U. Edmonds.**

DUROCS A few fall boars at \$30 to \$40 each. One 2 yr. sow, sired by Oak, Ohio Chief 28753 bred to Brook. Am. Col. 81333 due to farrow June 20th. A very dependable sow, raised 9 pigs last litter. Price \$75. **NEWTON BARNHART, St. Johns, Michigan**

Duroc Jerseys. Breeding Boars and Sept. Gilts **J. H. Banghart, East Lansing, Mich.**

Durocs For Sale

Big heavy boned fellows, Spring Pigs ready to ship, and a good lot of Fall Boars and Gilts. **M. A. BRAY ESTATE, Okemos, (Ingham Co.), Mich.**

Duroc Sows and gilts bred to Eureka Cherry King and Crimson Critic son of Critic Model 1916 champion Iowa Fair. **W. C. Taylor, Milan, Mich.**

DUROC Jersey fall Boars, ready for spring service Dalso Gilts bred for Aug. and Sept. farrow. Spring pigs, pairs not akin. All stock shipped on approval. **F. J. DRODT, R. 1, Monroe, Michigan**

PINEHURST DUROCS. Choice fall boars. One great yearling boar. Choice Yellow Dent Seed Corn for sale. **Orlo L. Dobson, Quincy, Michigan.**

DUROC Sows bred for Aug. and Sept. farrow also spring pigs either sex. Write for description and prices. **E. D. Heydenterk, Wayland, Mich.**

Duroc Spring Pigs sired by Fancy Orion King, the \$1285 boar, for sale at \$30 at weaning age. Reg. and Del. **J. R. HICKS, St. Johns, Michigan.**



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 these fine early developers—ready for market at six months old. Write for my plan—More Money from Hogs. **G. S. BENJAMIN, R. F. D. 10, Portland, Michigan**

O. I. C's. have some last fall gilts bred for Sept. farrow, and a fine lot of this spring pigs either sex, not akin. Farm 1/2 mile west of Depot. **Otto B. Schulze, Nashville, Mich.**

1/2 Ton O. I. C's & Chester Whites 1/2 Ton 10 Oct. and Nov. boars sired by our undefeated Grand Champion School Master. The boar that has size and quality combined. All sold any age. Write and get our Catalogue its free and describes our champions. We do not say our hogs are the best but we win the championships to prove it. We have 100 sows bred to our champion boars for May and Apr. farrow. **HARRY T. CRANDELL & SON, Cass City, Mich.**

CHOICE SPRING PIGS

Ready to ship. The big smooth, growthy type, sired by noted boars. Registered and shipped C. O. D. **J. CARL JEWETT, Mason, Mich.**

O. I. C. Boars and Gilts all sold. I am booking orders for March and April pigs either sex, single, or in pairs not akin. **A. J. BARKER, Belmont, Mich. R. R.**

O. I. C. Thorough bred O. I. C. Swine all sold out except fall pigs. **R. D. 4. O. D. Somerville, Grass Lake, Mich.**

O. I. C'S. All sold. Booking orders for the best of our winter and spring pigs. **C. J. THOMPSON, Rockford, Michigan**

O. I. C's. Spring pigs and Reg. Holstein heifers from 5 to 15 months old. **OLIVER LEAF STOCK FARM, R. 1, Monroe, Mich.**

O. I. C. bred sows and gilts all sold. A few long bodied heavy boned fall boars to offer. **G. P. ANDREWS, Dansville, Michigan**

O. I. C. SWINE. Nothing to offer at present. **H. W. MANN, Dansville, Michigan.**

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So is starvation, every one should do their bit. You can raise more pork on less feed if you breed Butler's big type Poland Chinas. We have some dandy fall pigs at \$20 each for quick sale. **J. C. BUTLER, Portland, Michigan, Bel' Phone**

Large Type P. C.

Fall pigs and bred gilts all sold. Nothing for sale at present. **W. E. LIVINGSTON, FARM, MICH.**

L. S. P. C. yearly Gilts for August farrow. A few long bodied heavy boned boars ready for service. 2 nice fall boars by Smooth Jumbo H. O. Swartz, Schoolcraft, Mich.

LARGE type P. C. Some very choice summer gilts bred to farrow in August. Will sell 1 of my yearling herd boars. **W. J. Hagelshaw, Augusta, Mich.**

Large Stiled Poland China, fall and spring pigs. at farmers prices. **B. P. Rock eggs \$1.50 per 15. Robert Neve, Pierson, Mich.**

POLAND Chinas bred gilts all sold, still have some choice fall pigs of large and medium type, at farmers prices. **F. D. LONG, R. 8, Grand Rapids, Mich.**

Big Type Poland Chinas Sept. farrow, either sex, etc. hog. **A. A. WOOD & SON, Saline, Michigan**

Hampshire Swine. Nothing for sale but fall boars and gilts. Write for prices. **FLOYD MYERS, R. No. 9, Decatur, Ind.**

Big Type Poland China fall boars. Am booking orders for spring pigs, satisfaction guaranteed. **G. W. Holton, R. 11, Kalamazoo, Mich.**

Spotted Poland Chinas Big boned spring pigs not related. Bred sows and gilts for Aug. farrow. **L. O. CLAPP, R. R. 1, Adrian, Mich.**

HAMPSHIRE SWINE My herd contains the blood lines of many of the most noted champions of the breed. My herd boar, Claytons Lad, 18233 is a brother of Look Out Lad, who was grand Champion at the National Swine Show. I am booking orders for spring pigs, to be shipped about May 1st. Write me for prices. **George E. Starr, Grass Lake, Mich.**

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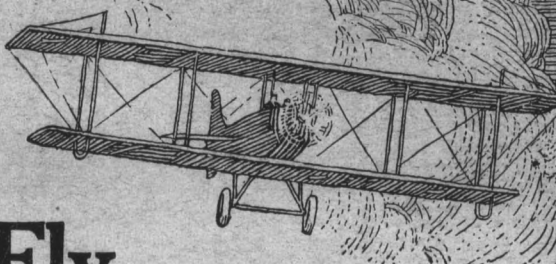
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