

# MICHIGAN FARMER



THE GENTLEST MEMORY OF OUR WORLD

DETROIT MICHIGAN

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# The Michigan Farmer

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DETROIT, FEBRUARY 10, 1917

## CURRENT COMMENT.

Nothing demonstrates Our Break with Germany the mettle of the average American citizen so well as a momentous crisis in our international relations. Long familiarity with distressing conditions attendant upon the world's greatest war, together with the passing of repeated crises without materially affecting our neutral status, has induced in the average mind a degree of complacency over the situation, coupled with thankfulness that our country had successfully avoided complications which might draw us into the great struggle. In the meantime, Americans of every grade have quite freely indulged in the typical prerogative of criticising the administration for the course followed in the conduct of our foreign relations. But with the rude awakening from our complacency caused by the formal withdrawal by the German government of former pledges relating to the observance of international law in the conduct of submarine warfare, and the consequent severance of diplomatic relations with Germany by our government, the nobler phase of Americanism becomes everywhere evident, and the President was at once assured of the united approval of Congress and the people of the country at large in the adoption of the only course which could be consistently followed in this emergency.

There is still hope that the severance of diplomatic relations with Germany may not involve us in the war. The patriotic support of this inevitable act of the administration by Congress and the people cannot help but have a potent moral effect on the future action of Germany, and may well prevent the commission of overt acts in violation of the established principles of international law which would force the United States to protect its rights and the rights of its people. The probable effect of this unfortunate break with one of the belligerents, upon the future of the war, cannot, of course, be accurately determined. If other neutral nations follow the example of the United States, there is a possibility that it may be a potent force for peace and the shortening of the conflict, but there is ever the danger that the United States and other neutrals may become actively involved before this result is accomplished, hence the desirability of adjusting ourselves to the situation and being prepared for the worst while hoping for the best.

One desirable result which we believe may become evident is a better public appreciation of the loyalty of our large element of foreign-born citizens, particularly German-American citizens. We have every faith in the

patriotic loyalty of this substantial element of our population, and little patience with the writers who dwell upon what they term the uncertain if not unfavorable attitude of so-called hyphenated Americans. Our substantial citizens of German birth cannot but regret even more keenly than other loyal Americans the advent of complications with Germany which may soon lead to actual combat, but loyalty to the land of their adoption will in this event far outweigh a sympathy for the land of their birth.

The economic result of present complications would not at this moment appear to be a cause for serious apprehension. So far as our farmers are concerned, the advent of war would tend to stimulate rather than depress prices of food stuffs, a condition which would possibly be further aggravated by a necessary withdrawal of active workers for military purposes. Manufacturing would be taxed to their limit in the production of needed military equipment and the supplying of stable domestic demands. More than ever, the plain duty of American farmers is to plan for a maximum of production at a minimum of cost for the ensuing year.

Electricity on the Farm. On the next page of this issue appears a tabulation of the experiences of thirty Michigan users, mostly farmers, of farm electric plants. As these plants are now being introduced as a part of the equipment of many up-to-date farms and as many of the readers of this journal are and will be considering the advisability of purchasing such plants, it is with much satisfaction that we find ourselves in the position to give readers this first-hand information. Every precaution has been taken to interpret the experience of these men, faithfully, accurately and fully. Questionnaires were sent out to a large number of users and the first thirty that came to the office were selected to go into the report. The unanimous vote of satisfaction that these men cast for this product of American ingenuity proclaims again the resourcefulness of our engineering men who are ready to undertake the solution of problems involving real needs of our people.

Certainly one of the perplexing problems confronting the farmer of today is the provision of good lights and of mechanical power adapted to the many duties that must be done about every home. Help to do these tasks has been constantly growing more scarce and the increased burden on those left to do them is in many instances getting to be almost unbearable. In our cities these tasks have been largely taken care of by a number of conveniences made possible by the availability of electricity, and it is probably not far from the truth to say that many families have left the farm for life in the city because of these very helps. But with the success attending the installation of the small electric plants upon the farms practically all the advantages now so common in the city home are brought within the reach of the farmer and his family. He can now make his home more cheerful with bright clean lights, he can relieve many a weary muscle by having water available in every part of the house and about the out-buildings by the introduction of an automatic water system and he can save much valuable time and physical energy by the use of the power supplied by these plants.

As we review the many things that are being and have been presented for the comfort and help of the home-makers of our farms we cannot put our fingers on another thing that seems to offer greater possibilities than these very plants. It is because of this belief that we are pleased to give our readers the benefit of the experience of the men who have already tried electric plants and we trust the

table will receive the careful consideration that it deserves.

The Outlook for Horse Breeding. Official figures show that during the period since the advent of war in Europe, the exports of horses and mules from this country have exceeded one million head, with a total value of one than \$200,000,000. Most of these animals went directly to the war zone, and purchases are still continuing on a large scale. A prominent Chicago firm which has handled more than 70,000 head annually for the past two years gives the following as the average prices which have been paid to farmers for horses of the different classes purchased for war use; cavalry horses \$115 per head; French artillery horses \$140 per head; British artillery horses \$165 per head; draft horses weighing from 1,650 pounds and over \$215 to \$240 per head.

This reflects accurately the relative market value of horses of different weights and classes on the farms of Michigan and the other states of the Union. The day of long prices for small horses is past, but horses with a preponderance of draft blood having size and any pretensions to quality still bring remunerative prices and seem certain to continue in demand for many years to come. Undoubtedly large number of horses will be required for the rehabilitation of the agriculture of warring European countries. In case of the actual entry of our own country into the war, large numbers of horses will be needed for army use.

While the auto truck is replacing the draft horse to a considerable extent in city transportation, it has been determined that for short hauls horses are economic competitors of mechanical power. Farm tractors will in future years care for much of the heavier work upon the farms, but cannot entirely displace the horse, and needed agricultural development in our own and other countries will increase the demand for horses probably more rapidly than the supply is increased. Under present conditions the future outlook for the horse breeding business is undoubtedly good, notwithstanding the pessimism which has been expressed by many farmers on this score.

Live Stock Sanitary Work. In another column of this issue will be found the substance of an address delivered by the president of the State Live Stock Sanitary Commission at the recent live stock meeting at M. A. C. Every stockman should carefully read this address to familiarize himself with the work accomplished and the views held by the members of this commission who are charged with the enforcement of live stock sanitary laws in this state.

Particular attention is directed toward the description of the work done looking toward the eradication of hog cholera. The record made in the control of this disease in the co-operative effort made in Branch county, together with similar successes in other counties, where the disease has been particularly prevalent, and where the county agent has devoted considerable of his time to co-operation with live stock owners in the control of this disease indicate quite clearly that what is most needed to bring about the effective control of the disease is the co-operation of all farmers in infected sections.

The state law passed two years ago for the purpose of making possible the state-wide control of this disease has worked satisfactorily in operation, and there is every prospect that with universal co-operation between farmers and live stock sanitary officials, the future losses from hog cholera may be kept at a very low point in this state.

President Halladay's comment on certain features of the tuberculosis problem is also worthy of more than passing notice by every owner of cattle in the state. There is an increas-

ing apprehension among consumers of milk with regard to the danger of tubercular infection from this source, and an increasing number of municipalities are demanding that the tuberculin test be applied to cattle contributing to the city milk supply. The question of dealing with bovine tuberculosis is perhaps one of education rather than legislation. It is a serious question viewed from any angle and one upon which cattle owners should keep themselves well informed. Other phases of live stock sanitation touched in this address are also worthy of the reader's careful attention. We believe that there should be a better understanding and more general co-operation between stock owners and sanitary officials all along the line.

## HAPPENINGS OF THE WEEK.

### Foreign.

The European War.—Overshadowing every other feature of the great struggle are the new factors brought into the contest through the announcement by Germany last week that she and her allies would stake all on the renewal of an active submarine warfare despite the promises made to the United States after the sinking of the Lusitania and Sussex ships. The United States responded to this announcement by severing diplomatic relations with Germany and President Wilson has asked other neutral nations to bring pressure against the prosecution of a ruthless U-boat campaign by joining this country in opposition to it. Brazil and Argentina have already moved to support this country and other South American nations will probably fall in line. Sweden considers the matter this week and sentiment in Spain appears to be in line with the lead taken by America. German ships interned in the harbors of this country will not be seized, but have been placed under heavy guard. Count von Bernstorff, German ambassador to the United States, has been given his passports and American Ambassador Gerard has already entrained for Basel, Switzerland. A large number of Americans in Germany are also leaving.—In the Riga district on the Russian front the Teutonic offensive has browned down.—The British succeeded in entering German trenches near Ancre in northern France. At other places on this and other fronts there were reported only minor raiding and artillery engagements.

The Canadian parliament voted unanimously a war credit of \$500,000,000 for the next fiscal year.

It is announced, and generally understood in England, that soon the entire population of the United Kingdom will be put under a ration system.

A Japanese battle cruiser built in 1907 was sunk by an explosion of her magazine in the harbor of Yokosuka recently. There were 153 of her crew killed and 157 injured. The cause of the explosion is unknown.

A trade report from South America indicates that France is rapidly securing control of the rubber industry in Brazil.

An explosion and fire in a tenement house in Chicago where 80 persons were sleeping resulted in the death of a score or more and in many others being injured.

Rear-Admiral Benson has been appointed ranking officer of the United States Navy and succeeds the late Admiral Dewey as president of the general board of the navy. Admiral Benson will also retain his duties as chief of naval operations.

Following the break in diplomatic relations with Germany the United States finds itself with a war footing of about 18,000,000 men, 10,000,000 of whom range in years from 18 to 45.—A call has been sent to the 265 chapters of the American Red Cross to be prepared for doing relief work.—The war and navy departments are awaiting developments that may call for measures to protect American rights at sea.

The Indiana legislature has enacted a law providing for state-wide prohibition to become effective April 2, 1918. Tennessee and Oregon have both placed on their statute books laws absolutely prohibiting the importation of alcoholic liquors.

The University of Michigan is to have military training. For fifty years the board of regents has discussed the question. A United States army officer will be detailed to take the chair of military science in compliance with the action of the regents last Friday.

The Michigan Agricultural College is planning to celebrate its sixtieth anniversary. Tentative plans call for a masque in which nearly 1000 students, alumni and members of the faculty will take part.



Number of Owner	County in Which Owner Lives	Give Size of Your Farm.	How Long Has Lighting Plant Been Installed?	Did you install Plant yourself?	Is Plant Located in Residence or Out Building?	What is Your Motive Power?	What Horse Power Required to Operate Generator?	Has Power Plant Given Any Trouble?	Give Voltage of Your Plant	Do You Use Current Direct From Generator or From Batteries?	How Many Cells in Batteries?	How Many Lights Have You Installed?	Do You Get a Strong, Steady Light?	Enumerate Kinds of Work Performed by Plant.	Give Monthly Upkeep Expenses.	Give Annual Repair Expenses	Have You Had Difficulty in Securing Accessories?	How Much Attention Does Plant Require?	Are You Pleased with Your Plant?	Would You Purchase a Different Size if Buying Again?	Can Work Be Done More Efficiently with These Lights?	Do Better Lights Increase Young People's Interest in Farm Life?	Would You Recommend the Purchase of These Plants by Farmers?	Give disadvantages of Your Lighting Plant?
1	Saginaw	157	3 yrs.	No	Out'b'dg	Gas engine	10	Some	110		Yes	22	Yes	Lighting, Cooking, Cleaning, Churning, Dish Washing, Heating					Yes	Same	1/2 the time	Yes	Yes	None
2	Kent	240	2 mo.	No.	Out'b'dg	Gas engine	1 1/2	No.	30	Batteries	16	40	Yes	Lighting			No	Very little	Yes	Same	Yes	Yes	Yes	
3	St. Joe	235	6 yrs.	No.	Basement	Gas engine	1 1/2 & 3	Some	30	Either	26	36	Yes	Lighting, Cleaning, Pumping	\$4.00	\$15.00	No	Very little	Newer plants better	Per-haps smaller	Yes	Th'ks so	Yes	Lacks new appliances
4	Wexford	320	1 mo.	Yes	Basement	Gas engine	2 1/2	No.	32	Batteries	16	31	Yes	Lighting	75c @ \$1		No	5 min. per day	Yes	Same	Nearly 1/2 the time	Th'ks so	Yes	None
5	Lenawee	In village	3 mo.	Yes	Out'b'dg	Gas engine	4	No.	32	Batteries	18	23	Yes	Lighting			No	Very little	Yes	Same	1/3 faster	Yes	Yes	
6	Kalamazoo	135	5 yrs.	No	Out'b'dg	Gas engine	3	No	32	Batteries	16	35	Yes	Lighting		None in 5 years	No	Very little	Yes	Same	Yes	Th'ks so	Yes	
7	Ottawa	80	10 mo	No	Barn	Gas engine	3	No	12(?)	Batteries	6	26	Yes	Lighting			Yes	Very little	Yes	L'gr	Yes	Yes	Yes	
8	Cass	2 1/2	3 mo.	No	Out'b'dg	Gas engine	1 1/2	No.	32	Batteries	16	32	Yes	Lighting	.80	None	No	Very little	Yes	L'gr	Yes	Yes	Yes	None
9	Kent	In shop	1 mo.	No	Out'b'dg	Gas engine	2	No	32	Batteries	16	18	Yes	Lighting	1.00		No	Twice a week	Yes	Same		Yes	Yes	None
10	Eaton	170	3 mo.	No	Out'b'dg	Gas engine	1 1/2	No	32	Batteries	16	43	Yes	Lighting	1.00	None	No	5 min. per day	Yes	same	1/2 the time	Yes	Yes	None
11	Berrien	45	2 mo.	No	Basement	Gas engine	2	No	32	Batteries	16	21	Yes	Lighting ironing	2.00	None	No	Very little	Yes	Same	Yes	Yes	Yes	None
12	Kent	160	4 mo.	No	Out'og	Gas engine	2	No	32	Batteries	16	25	Yes	Lighting	1.20	None	No	Very little	Yes	Larg'r	Yes	Yes	Yes	
13	Saginaw	110	2 mo.	No	Out'b'dg	Gas engine		No	32	Batteries	16	30	Yes	Lighting, cleaning, pumping	1.12		No	Very little	Yes	Same	Saves 1 hr. a day	Yes	Yes	
14	Livingston	Country store	6 mo.	No	Basement	Gas engine		No	32	Batteries	16	35	Yes	Lighting, ironing	.90		No	30 min. each wk.	Yes	Same	Yes	Yes	Yes	
15	Macomb	30	3 mo.	No	Basement	Gas engine	1 1/2	No	32	Batteries	16	35	Yes	Lighting, pumping	1.20		No	5 min. per day	Yes	Same	Yes	Yes	Yes	
16	Calhoun	40	3 mo.	No	Garage	Gas engine	1	No	32	Both	16	45	Yes	Lighting	1.00		No	Very little	Yes	Same	1/4 the time	Th'ks so	Yes	
17	Manistee		2 mo.	Yes	Residence	Gas engine		No	32	Generator			Yes	Lighting	Just for gas and oil		Little	5 min. each day	Yes	Same		Yes	Yes	
18	Oakland	300	3 mo.	No	Out'b'dg	Gas engine		No	32	Batteries	16	60	Yes	Lighting	1.38	None	No	Very little	Yes	Same		Yes	Yes	
19	Huron	200	5 mo.	No	Out'b'dg	Gas engine	2	No	32	Batteries	16	62	Yes	Lighting	1.20	None	No	30 min. a week	Yes	Same	Yes	Yes	Yes	
20	Montcalm	160	3 mo.	No	Out'b'dg	Gas engine		No	32	Batteries	16	26	Yes	Lighting			No	Very little	Yes	Same	Yes	Yes	Yes	
21	Calhoun	157	2 mo.	No	Out'b'dg	Gas engine	2	No	32	Batteries	16	39	Yes	Lighting	.95		No	30 min. per week	Yes	Same	Yes	Th'ks so	Yes	None
22	Berrien	160	4 mo.	Yes	Out'b'dg	Gas engine	1	No	32	Batteries	16	60	Yes	Lighting, pumping	1.00		No	Very little	Yes	(?)	Yes	Yes	Yes	None
23	Macomb	211	2 mo.	No	Basement	Gas engine	2 1/2	No	32	Both	16	80	Yes	Lighting	1.90			5 min. a day	Yes	Same	Save 1/2 hr. pr. day	Th'ks so	Yes	
24	Kent	80	2 mo.	No	Residence	Gas engine	1 1/2	No		Batteries	16	(?)	Yes	Lighting, churning, washing	1.00		No	10 min. a day	Yes	Same	Yes	Th'ks so	Yes	None
25	Saginaw	360	5 mo.	No	Basement	Gas engine	2	No	32	Batteries	16	28	Yes	Lighting, cleaning, pumping, electric fan	2.00		No	5 min. a day	Yes	Same	Easier	Yes	Yes	None
26	Kalamazoo	Country store	3 mo.	No	Store	Gas engine	2	No	32	Batteries	16	24	Yes	Lighting	4.00	None	No	15 min. per day	Yes	Larger	Yes	Yes	Yes	None
27	Eaton	120	3 mo.	No	Residence	Gas engine	2	No	32	Batteries	16	34	Yes	Lighting	.50	None	No	Very little	Yes	Same	Yes	Yes	Yes	None
28	Montcalm	320	3 mo.	No	Woodshed	Gas engine	2	No	32	Batteries	16	35	Yes	Lighting	2.10		No	Very little	Yes	Same	Yes	Yes	Yes	
29	Emmett	160	3 mo.	No	Basement	Gas engine	2	No	32	Batteries	16	30	Yes	Lighting ironing			No	15 min. per week	Yes	Same	1/4 less time	Yes	Yes	
30	Montmorency		3 mo.	No	Residence	Gas engine	2	Some		Batteries	16	125	Yes	Lighting, cleaning, washing			No	Very little		Larg'r	Yes	Yes	Yes	

## Experience With Thirty Farm Electric Plants

Second of a Series of Investigational Reports by Our Research Dept.  
**NOTE**—To give our readers first hand information on the adaptability of the modern small electric plant to farm conditions, the Research Dept. of the Michigan Farmer, has arranged in the accompanying table the experience of thirty users representing 91 counties of the state. These reports were the first 30 to reach this office—no selection for the purpose of making a favorable showing, being made. Where spaces are blank no answers were given.

REMARKS
Furnishes better lights. Is safer than oil. Work is done easier and better.
Would not take \$1,000 for it if I could not get another.
Plant has done good service although the later models have many improvements that save time and safeguard the machinery.
Easily looked after, clean, economical.
Saves time and labor. Reduces danger of fire. Very convenient.
These plants furnish a safe, clean, convenient and economical lighting system.
With better lights one can work to better advantage.
Furnishes lights with less work than oil lamps do.
Is very handy.
Find the plant an advantage from every standpoint.
These systems are cleaner than lamps, less dangerous and very convenient.
No danger to children. A protection against fire from overturned lamps. Enjoy the splendid light.
Plant operates water pressure system automatically, that furnishes water to all parts of house. Convenient.
Lights are always ready to use. Have perfect light on one's work.
Always ready—night and day. Have the best light with both hands free to work.
Gives fine light. Gives city lighting advantages to the farmer.
Find it the most economical system tried.
Clean, always ready and furnishes a very superior light.
Would not be without it. Child can care for it.
Besides an excellent light we have a plant that will provide many economies as we add further equipment.
No matches needed around. Eliminates the cleaning of oil lamps. Decreases danger of fire.
Uses a cheap fuel—kerosene—requires little care and not much intelligence.
No danger of getting shocks from wires nor of setting fire where 32 volts are used. Safe and convenient.
Can have all the lights in our buildings, that I need. Makes less work in house. Highly pleased with it.
Nothing will give farmer and his family more satisfaction. Good lights and power, small running expenses.
I find that the bright lights attracts attention of prospective customers. Safe and convenient.
Gives us a very fine light, is clean, convenient and economical.
Saves labor, have better lights and they are more convenient than oil lamps.
Would not put in basement unless exhaust is carried away. Gives convenient and clean light and is safe.
Use about 15 to 20 lights every night.





**Y**OU have heard of the man whose wife and daughters were so tired of the old place that they wanted to sell it, but who changed their minds after the man had it painted up so that it would sell.

There isn't an expenditure or an investment about your building that counts for more than good painting—or that counts in so many ways:

**Increase in market value.**  
**Added beauty to the neighborhood.**  
**The example of thrift.**  
**Pleasure to your family and friends.**  
**Actual protection to your building.**  
**That prosperous look which helps bring prosperity.**

To make sure of these results, use

## Dutch Boy White Lead

Paint made by mixing this long-tested, reliable pigment with pure linseed oil comes pretty close to meeting every paint requirement. It makes a smooth, hard, beautiful, non-cracking, long-wearing film that sticks close to the wood and is ready for repainting without expensive preparation.



For full information on painting,  
ask us for Paint Points No. 91.

### National Lead Company

New York Boston Cincinnati Cleveland  
 Buffalo Chicago San Francisco St. Louis  
 (John T. Lewis & Bros. Co., Philadelphia)  
 (National Lead & Oil Co., Pittsburgh)

Red lead is the best known preventive of rust.

### Dutch Boy Red Lead

comes in paste form like white lead, in steel kegs. Stir in linseed oil and drier and it is ready to apply. It will be money in your pocket to have a keg of Dutch Boy Red Lead always at hand to touch up the numerous bits of metal about the farm.

## Tractors on Small Farms

**O**NE of the questions that the prospective purchaser of a tractor is called upon to give careful consideration is whether his farm is large enough to provide sufficient work for one of these machines. Before he invests the money necessary to buy a tractor he wants to satisfy himself that such an investment can be made to bring in good returns.

There is a general belief that the tractor is a machine for the big farm. As one contemplates what one of these machines will do he at once concludes that they would work most economically in a place where fields are large and where there is a great deal of each kind of work that is suited to traction power to be done. And as we go about our state it appears that this belief has generally prevailed, for the first tractors to be introduced in the various communities have gone almost invariably to the large farms.

### Horses Cannot be Eliminated.

The tractor has not as yet been developed to the state where it will eliminate entirely the need of horses. When the farmer contemplates the use of these machines he must count on keeping at least a team of horses for the performance of those tasks to which the tractor cannot supply the motive power. He must, therefore, see that he has productive work sufficient to keep the tractor and at least one team busy for a reasonably large portion of the year.

On the other hand, while the tractor can in a given length of time perform a much larger amount of work than can a single team, users have arrived at the conclusion that they can afford one of the smaller types of farm tractors where they can replace a single team. From these two propositions it would appear that the farmer who has work sufficient for two teams of horses can afford to consider carefully the introduction of a tractor.

### More Work in Less Time.

As a matter of fact, on many Michigan farms having an area ranging from eighty to 160 acres, the tractor is being used with a great deal of satisfaction and advantage. These farmers have discovered, not only the fact that the tractor can be operated for practically the same expense that is required to keep a team, but what is more important they can perform their work in season and thereby increase the probability of good crops. With the tractor and one team they can put in a field of grain much quicker than they can with two teams, for besides doing the work of two or three teams the gas engine can be kept at its task continuously. Incidentally this concentration of power also saves much more labor. These advantages have made the farmer on the smaller farm particularly enthusiastic over the use of this machine in his farm work.

Then the use of tractors for belt power as well as for doing field work and hauling, has added to their economy on the smaller farms. From a recent inquiry in which farmers were asked the uses to which they were putting their tractors it appears that they have already put them to a very wide range of employment. And besides the duties on their own farms many of these men found opportunity for custom work at remunerative prices.

### Less Tractor Troubles.

Another reason for the general success of the tractor on the smaller farm is that the owner usually operates the machine. As is the case with every other property the owner will invariably look after it much better than a hired servant. From a recent tractor survey there was a much larger number of complaints by owners of tractors who were operating large farms and were obliged to have a hired man run the machines than there were

from farmers who followed the tractors themselves.

It would appear therefore that while at first thought we might think that the tractor was a machine peculiarly fitted to the economy of the large farm in practice it is being demonstrated that farmers with limited acreage are meeting with satisfactory results in the use of these machines. Of course, the type of farming one is following determines to a considerable degree whether his operations are on a large or small scale. A forty-acre truck garden is a fairly large truck farm while 200 acres is a comparatively small area for grazing purposes. A rule that might be followed in a general way, however, is that where one has farm work that requires the use of two or more teams he can reasonably consider the use of the tractor.

### "SAFETY FIRST" WITH THE LANTERN.

Two tools that are almost indispensable about a farm are a good lantern and a good ladder. Not many persons will find use for either a ladder or a lantern every day in the year, but they are pretty sure to be needed at some time. A great many farm buildings would be saved from burning if a ladder was at hand when the fire was first discovered.

Besides being a necessity at times when it is necessary to do chores after dark, a lantern is often required when sick animals must be looked after during the night. Every farmer should own a good lantern.

A good lantern costs less than a poor one, if the latter should happen to be responsible for a costly fire. Do not set the lantern on the floor, as it is often liable to be upset by some unlooked-for accident, and the ladder is very likely to be needed. String a wire the length of the stable, just behind the stock, and, before attaching both ends, slip a harness snap on the wire, leaving it so that it can be moved the whole length of the wire. Hang the lantern on this snap by the bale and it can be moved along while doing the work at each stall, but be sure to hang it as high as possible so that it will not come in contact with the fork handle or any other tool that is being used. In any place where it is inconvenient to string a wire procure a small chain of the right length with the snap attached to the end, and suspend from an overlay or rafter, and then perfect safety is assured. Furthermore, insist that everyone using a lantern in the buildings so equipped, takes the time and precaution to always hang the lantern on the wire or chain. "Safety First" should be the motto of everyone who has occasion to use a lantern in the farm buildings.

Shiawassee Co. D. H. M.

### UNGLAZED LAND TILE.

I am contemplating laying some laid tile this spring. I do not know anything about the lasting qualities of the unglazed tile. Can you tell me anything about them?

Kalamazoo Co. W. E. B.

The unglazed tile if thoroughly burned will last indefinitely where they are laid two or three feet below the surface. At the outlet of the drain these tile freeze and crumble, because, being porous they absorb moisture and then when they freeze the water expands and checks the tile. These tile laid at the outlet will all crumble away in two or three years, but back in the ditch, as stated above, they will last indefinitely. Glazed tile should always be used for the last three or four tile at the outlet.

Unglazed tile breaks easier in handling than the glazed, and your loss from that source will be a little more, though this is not much.

COLON C. LILLIE.

# Armour's Fertilizers

**Y**ou know where the **ANIMAL MATTER** in Armour Fertilizers comes from. You may have grown the hogs and cattle.

Armour Fertilizers are **GOOD** for your land—**GOOD** for your crops—**GOOD** for your pocketbook—**GOOD** for your disposition—a **GOOD** all 'round investment.

*From the farm —  
back to the farm*

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# Building Up a Run-Down Soil

By W. F. TAYLOR

**I**N my first article upon this subject I mentioned sand vetch as a means of restoring nitrogen and organic matter to a badly depleted soil. I doubt if any one of the many leguminous plants will improve soil conditions faster than vetch where it will grow. But vetch is peculiar in this respect. It may be depended on to grow everywhere where it is not wanted, if once it has gotten a start, and to fail quite often where it is sorely needed.

It is hard to account for some of these failures. In some cases it may be the lack of inoculation, in some the absence of a sufficient amount of organic matter, and in others to the fact that seeding was done too late in the fall and an unfavorable winter killed the plants.

But there are failures with vetch that cannot be accounted for in any of these ways, neither are we able to discover the causes of such failures. Some of the locations where vetch fails to grow well are not poor. The soil is pretty well supplied with organic matter and other crops do ordinarily well, but the vetch refuses to make a good stand. In some instances manure has been applied in liberal quantities without correcting the trouble. At the same time, only a few miles away, on much poorer soil vetch will grow well. Now, reader, do not

year to year until it completely covered the ground. There may not have been a single nitrogen gathering plant in the field, and all the nitrogen may have come from the soil, but if we were to plow this field after it had been left idle until thus covered with grass and weeds, we should probably succeed in growing a good crop upon it. While we should have added no plant food to the soil, we should have put back plant food which was borrowed, in available form, and while the grass and weeds were decaying more plant food would be liberated and made ready for use.

So while it is best always to grow a leguminous crop to improve the soil if we can do so, we need not give up in despair if we have a field where neither clover nor vetch will succeed. If rye will grow, let us use rye and put back the organic matter of which the soil has been robbed. After we have done that, it will be easier to grow a leguminous crop.

### Cover Crops Are Valuable.

Too much can hardly be said about the use of cover crops on light soils. It is a bad mistake to leave our sandy fields bare during the winter. Blowing and washing are bad and practically sure to get in their work. The labor and expense of a catch or cover crop are small indeed when measured by the advantages to be secured. Rye



First Cutting of Alfalfa on the Farm of A. E. Gunn, of Oceana County.

ask us why. We simply do not know, and to date we can not find anyone who does.

It may be accepted then for a fact that on some soils, for unknown reasons, vetch will not do well, and so may not be depended upon as a soil builder. But more often it happens that where this plant will not succeed the soil is badly worn and needs but an application of stable manure, or the plowing in of some green crop to put it into condition to grow vetch in paying quantities.

In northern Michigan are large areas where paying crops of vetch can not be grown until something is done for the soil. In many cases where stable manure can not be had, rye must be grown in the beginning.

### How Green Manure Crops Are Beneficial.

Land that is too poor to produce rye is too poor to be used for agricultural purposes. Rye adds no plant food to the soil except what it has borrowed while growing, but it does add organic matter, and this improves the physical condition, and while it is decaying it assists in liberating latent plant food already in the soil.

If we will but look around us, we may see frequent applications of this principle. We plow an old meadow and we add nothing to the soil that the grass has not taken out, but we add organic matter and better crops are the result.

We have seen unproductive fields abandoned for a period during which grass and weeds took possession of them. The growth increased from

and vetch, or rye alone, may be sown with corn at the last cultivation with but little additional labor. In the building up of a run-down farm this practice should be followed persistently. Nitrogen and organic matter are needed in practically every well worn soil, and we can add them in no other way so cheaply and quickly as in the growing of a cover crop.

It is often well to pasture light lands for a time if grass is growing on them. We are often asked whether or not any man can afford to pasture high-priced lands. We are now speaking of poor land, but it is a fact that if labor conditions are not improved in the near future, much good land will be pastured because there is not the necessary labor to be had to work it intensively. But it is good practice to pasture light soils one year in the rotation. Sand soils are generally too loose and pasturing them tends to make them more compact. The principal objection to such a practice is the additional fence that must be built. If we rely wholly upon permanent pasture and do not pasture our tilled fields, we may save largely in having to build less fence.

### Live Stock for the Run-down Farm.

But what about live stock? Should not the owner of a worn farm immediately invest in live stock? Yes, if he manages the animals in a way to build up the soil, but otherwise not. Because a man keeps a large amount of live stock does not prove that he is building up his farm. On the contrary, many keepers of live stock are not building up their farms, but rather are

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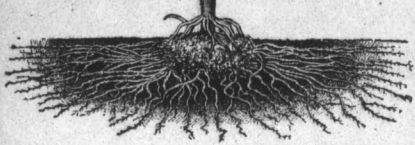


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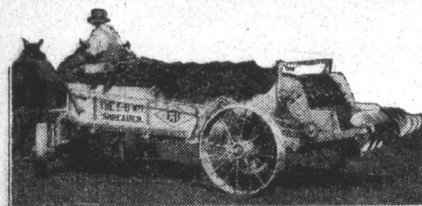
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allowing them to get poorer year by year. It is the intelligent handling of the stock kept on the farm that builds the soil.

But, says someone, "If we feed out all we grow, will not our soil improve?" The answer to this question will depend upon circumstances. If we take care of the manure resulting from such practice, if we grow our crops in a short rotation, using clover each time around, if we sow cover crops in our corn at the last cultivation, then we may be sure of good crops for a number of years. In fact, our yields may increase. But even under such a system of farming there will come a time when the mineral elements of the soil will be unequal to the demand of our crops and the yields will fall off.

Take the dairy cow for an example. She returns a larger proportion of what she eats, to us, in the manure than most farm animals, but she gives back scarcely three-quarters of the plant food, and she burns up eighty per cent of the carbon to keep her warm and furnish fat and carbohydrates for her body and its work.

So it may be easily seen that even under the most favorable conditions, there must be a steady decline in fertility if we put back into the soil only what remains of our crops after they have been consumed by the live stock on the farm.

However, as we have before stated, production of farm crops may not decline for a time. In fact, it may increase if our rotation is right, and if the manure is properly cared for.

brought into contact with performers whose acts are of the degrading nature all too prevalent among the shows for which space on the midway is asked.

The fairs which are best filling their mission as an uplifting factor in agricultural life are those which are forcing the midway features into the background, replacing them with free amusements appropriate for presentation in front of the grandstand and which may be secured at an outlay proportionate to the amount of money set aside by the board for such features.

(To be continued).

**FARM NOTES.**

**Fertilizing Beans.**

We have a field which we wish to plant to beans. Is it advisable to fertilize for same, or will the fertilizer burn the seeds and injure germination? What effect would lime have upon the bean crop if sown before seeding? How much lime is usually sown, and when is the best time to sow it?

Sanilac Co.

L. H. Y.

It depends upon the type and condition of the soil as to whether a supplementary fertilization of the bean crop will prove profitable. On most clay loam soils growers who have experimented for some years are quite uniformly of the opinion that a moderate application of fertilizer is profitable. Some of the most successful growers use 200 pounds per acre, sowing only part of same in the drill with the beans, and distributing some through the drill hoes on either side of the bean row. A fertilizer containing much potash is likely to injure the germinating quality of the seed if sown in any quantity in the row with the seed. As the bean plant does not reach out as far for its plant food as some other cultivated plants, it is generally thought more economical to apply a small amount of fertilizer in the row, or as above described, in preference to sowing broadcast.

On ordinary soils phosphorous is needed for the development of the bean plant as for the grain crops. Lime would prove beneficial to the bean crop if applied to an acid soil when same is in preparation for beans. On soil where clover has succeeded uniformly well, this condition would not be likely to prevail. The quantity of lime to apply to the soil should depend upon the degree of acidity, but on soils needing lime it will generally pay to apply as much as two tons per acre of ground limestone, since the effect of the application will be more permanent and the cost of labor is not much greater than where a small quantity is used.

**Concrete Granary Floor.**

I want to build a granary in one corner of my stable, which is two feet below the ground at this point. The outside wall is of concrete. If I lay three-inch tile drains about every two or three feet under the granary floor, which will be of concrete, can I keep the floor dry enough to keep grain from moulding?

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It is possible to build a concrete granary floor in such a manner as to prevent any seepage of moisture which will cause the grain stored in same to mould, although there is often trouble from this cause in improperly constructed granaries.

The first essential is a dry foundation. If the ground is tiled around the outside, it will be helpful in keeping the moisture from seeping underneath, then if a good thick coat of cinders or washed gravel is placed under the concrete, it will break the capillarity at this point and prevent the rise of moisture from below. There are a number of methods of making moisture-proof floors, but the safer way in construction for this purpose is to provide a dry foundation which will obviate the necessity for moisture-proof construction and be better assurance of safety for the grain stored in such a granary.

**The County Fair**

By H. L. ALLEN

(Continued from last week.)

THE difference between a secretary capable of evolving plans and successfully carrying them out and one who simply looks upon the office as a matter of routine work means the difference between success and failure for the fair. For instance, a county fair in one of the counties of New York, a county which has no large city from which the fair can draw a big attendance, was faced by steadily decreasing receipts from the gate. A new secretary, after considerable work, induced the directors to adopt plans which means a vastly better fair. He then set about it to get the people of the county to come and see it. After a study of the conditions he was confronted with, he adopted this plan: To the pastor of every church in the county, regardless of denomination, he wrote a letter outlining the plans he was pushing to make a better and bigger fair and made the pastor a proposition by which his church would be given a commission of ten per cent on all season tickets sold, enclosing in each letter a certain number of such tickets. The money for the tickets sold, and the unsold tickets, were to be turned in to the secretary on the Saturday night preceding the week of the fair and the checks for each church's commission were made out and sent to each pastor the following Monday morning.

The first year this plan was tried fifteen hundred season tickets—meaning fifty-five hundred single admissions—were sold and the money for them was in the treasury before the gates of the fair were thrown open. The next season the same plan resulted in the sale of nearly twice as many season tickets by the churches in the county, and the number sold in that manner has steadily increased each year since. It should be noted that no season tickets were permitted to be sold before the opening of the fair except through the churches.

By prevailing on his board of directors to adopt his rather radical ideas regarding the conduct of the fair and giving to the people a fair worth seeing, this secretary held the increased attendance gained by his novel scheme and he is still secretary of the association, and probably will be as long as he feels willing to devote his time and his ideas to the duties of the office.

**Profit Should be a Secondary Consideration.**

Cause number four: More than one fair association has been wrecked or has assumed a position in which it failed signally to fulfill its mission because the directors—and officials—placed financial profit first in their calculations and the actual good of the community second; or, perhaps gave this phase of the fair almost no consideration. Such men invariably fail to realize that, in the end, a fair's success will depend upon the position it

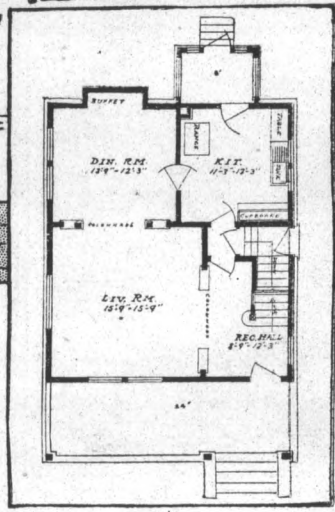
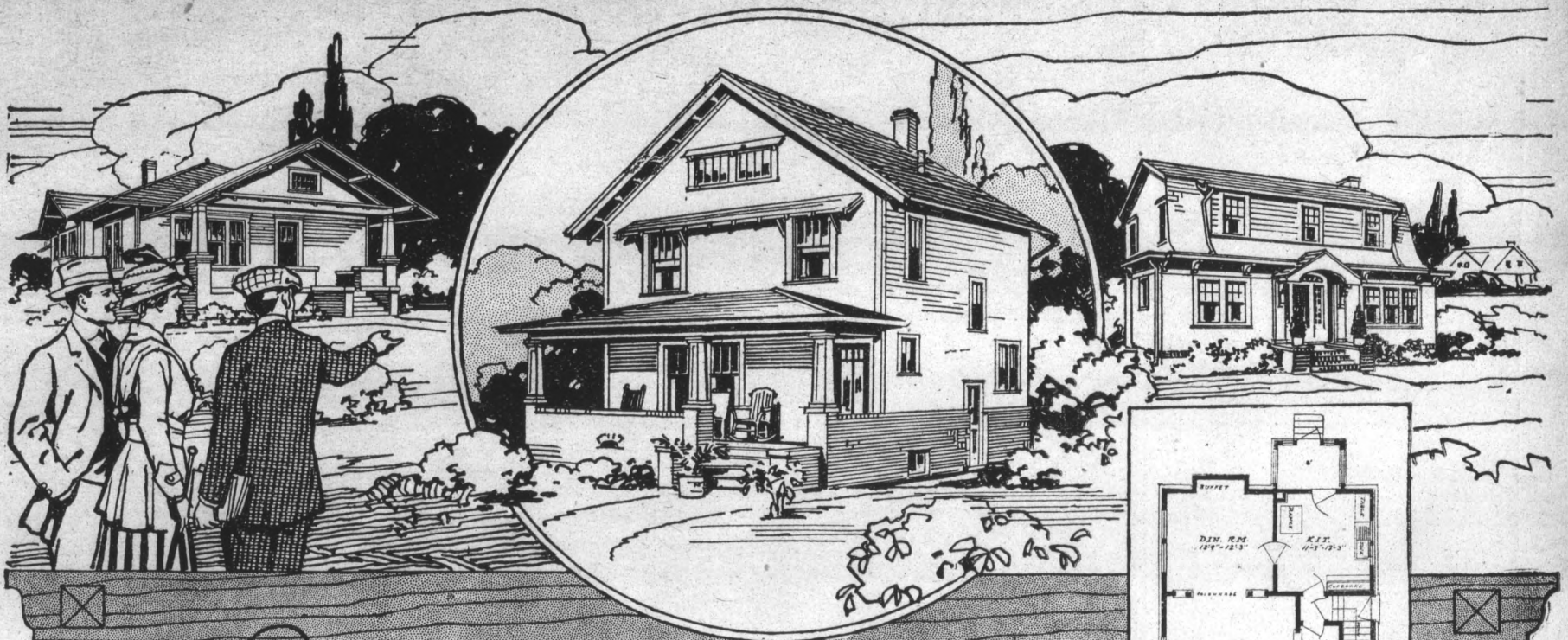
assumes as an educational factor in the community it represents. It may, for a time, make a satisfactory showing, financially, when the books are balanced, managed with that result in view, but, eventually, if it fails to provide the educational features which draw the attention and support of the thinking persons in the county, features which make the winning of prizes worth while to the exhibitors and to draw exhibitors whose products afford both a lesson and an incentive to those who are striving, in numbers far beyond those which marked our rural communities a score of years ago, to make their farms more productive and their efforts more successful, profits will grow smaller and smaller, the fair will attract fewer and fewer people, the exhibitors will drop off and its failure, from every viewpoint, will be pretty nearly complete.

This is not at all overdrawn. There are today any number of county fair associations which have reached the position of uselessness this policy always relegates a fair association to and hundreds of readers of this paper know of others rapidly retrogressing towards that position.

**Amusements.**

Cause number five embraces a subject which is productive of a wrangle, annually, in many boards of directors. There are many persons concerned in county fair management who have a magnified idea of the importance of midway attractions, just as there are others who believe a fair would be better with the absolute elimination of such features. Under existing conditions in most parts of the country, neither of the groups which take part in the controversy over this subject is entirely right. A certain portion of the persons whose attendance at a fair is desired, must be amused. And this class of persons is not confined strictly to those who are not actively interested in agriculture in all or some of its branches. The desire to be amused is a healthy one; the persons who does not possess it is an exception. The amusement features of a fair, however, especially those which are confined to the midway, should never occupy more than a very subordinate position in the plans for building up a successful fair. With the free amusement features which nearly all fair boards now provide in front of the grandstand and the racing, which has always been the best asset, as an amusement, which a fair can have, when rightly conducted, there is less excuse for a midway than existed in former years and unless owners of midway attractions can give convincing proof that their shows and acts are entirely innocent of objectionable features, they should be given no place on the grounds. No amount of privilege money can pay for the lowering of the morals of the boys and girls





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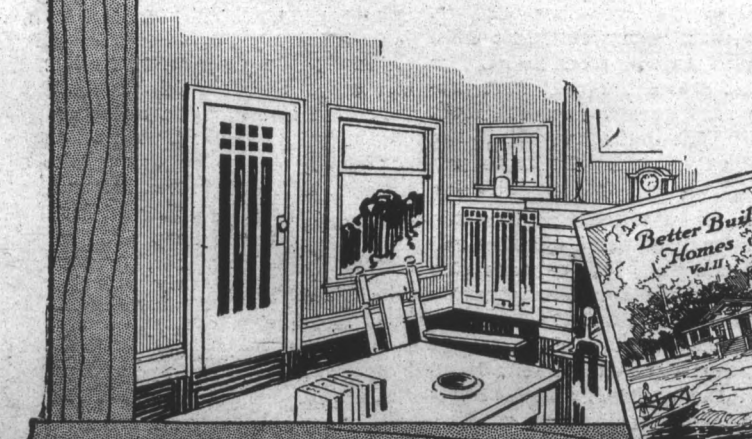
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**The Fertility of the Orchard Soil**

THE most serious problem confronting the orchardist—more serious, perhaps, than many are aware—is that of maintaining the fertility of the soil, in many instances restoring it. Under ordinary cultural methods the soil fertility quite commonly gradually declines. Some old orchard sites present conditions as desperate as some of the abandoned farms we hear about in the east. Thirty years ago in the fruit growing districts of western Michigan men thought and spoke of fruit in terms of peaches. This was the one tree fruit grown in large quantities, and in some instances men even went so far as to cut down good apple orchards to make room for peach trees. Clean cultivation was universally practiced and men took pride in keeping their orchard grounds so clean that not a weed could be found in them. No systematic effort was made towards fertilizing the ground and for the most part no thought was given to the matter. Occasionally spasmodic attempts were made toward this end, sometimes a little stable manure being spread in the orchards, and at intervals enterprising itinerant fertilizer venders went through and unloaded a car of commercial fertilizer or wood ashes, and even salt was in some instances put into the orchards as fertilizer. But in the earlier years of the industry cover crops were rarely used and no adequate system of soil maintenance was practiced.

**The Problem of Wornout Orchard Soil.**  
Ten years ago a hard freeze visited western Michigan and killed outright many of the peach orchards, and building up those old impoverished orchard sites has been a slow and expensive undertaking. Some of them even at the present time have not been brought to a profitable condition of productiveness. Rye and vetch, the standard renovators, on some of these soils do not do the work. Some of the money gained in those former remunerative peach orchards is now being required in rebuilding the soils, and the easy money then taken in is found

to have been won at a greater expense than was then dreamed of.

Similar practices in orchards now standing have produced similar results, and soil conditions in numbers of orchards are far from being ideal, and in orchards so handled the productiveness is much below what it might be under more favorable system of handling. Men are more alive to the importance of this matter than formerly, and cover crops of some description are now quite generally grown in the orchards, but even these do not always succeed in maintaining proper soil conditions. The ground became too far depleted before the work was begun, to grow sufficiently large amounts of vegetation to turn back and so the downward conditions gradually continue. Mid-summer, when usually cover crops are put in, is a poor time fre-



The Product of a Fertile Soil.

quently for starting crops. A long drought is likely to come on and germination is slow, or the young plants may be killed outright after starting, and so the work of soil maintenance under this system is slow and very uncertain.

**Orchard Soils Lack Humus.**

There is little doubt that the serious lack in these soils is humus. The trees do not draw very heavily upon the mineral elements of plant food in the soil, particularly where some vegetation grows to catch the leaves as they fall, but the continual working of the ground with nothing, or an insufficient amount in the way of vegetable matter turned into the soil soon depletes it of this essential element and the depleted condition increases. Restoring a sufficient supply of this vegetable matter to the soil is undoubtedly the solution of this problem, but how to do this is the question. Some are undertaking it by keeping cows or other stock and applying the manure to the orchards, but this cannot be adopted as a rational system, and the fields of farmers who presume to follow this method very soon show the effects. No farmer who devotes his whole farm to growing crops to feed stock would think of disposing of any of his manure and allowing it to pass off from his farm. Such men would like even more manure than they can make. The ground that grows the crop that produces the manure requires it right back, and to put that manure into the orchard is only robbing Peter to pay Paul.

If a man is near enough to some town where manure can be bought and applied at not too great expense this furnishes a good means, but not many orchardists are so situated. For most of us about the only feasible means of supplying the required element is to grow it in the orchard, and in order to do this in these depleted soils, it seems necessary to do some things not quite in harmony with recognized methods of orchard cultivation. Not very long ago I saw an old apple or-

chard in which a rank growth of yellow dock was growing. The ground was plowed and harrowed every spring but the dock soon came up and made a good groth under the treatment. The owner was inclined to apologize for the appearance of his orchard, but it occurred to me that conditions might have been worse. The dock grew in the early part of the season when the ground was well supplied with moisture and then ripened its seed and went down and made a good cover over the surface to prevent evaporation during the latter part of the year when the trees needed the moisture in maturing the fruit. But perhaps many might object to starting a crop of yellow dock in their orchards. I asked Mr. J. B. Case, the New York apple man who spoke at the recent state horticultural meeting in Grand Rapids, how he manages this proposition and he said that he sows mammoth clover in his apple orchards in June.

**The Need of Nitrogen.**

In an apple orchard of ten acres on rather heavy loam clay soil, the humus content of which has been growing less and less in spite of such cover crops as have been grown upon it, an experiment was undertaken not long ago with a heavy application of commercial fertilizer, (not as a soil restorer, by the way, but to note the effects on certain characteristics in the fruit), it was noticed that where nitrate of soda was applied either alone or in combination, the foliage presented a much darker and more vigorous appearance. While this would indicate that in this instance nitrogen is called for, yet this would be an expensive way of putting it on. It can be applied cheaper in other ways. Last season an experiment with clovers was undertaken in this orchard. It was the "off" year in bearing and so some neglect in cultivation might not be quite so disastrous as in a year with a full crop of fruit. A light seeding of oats was sowed as early as the ground could be worked and the orchard was thoroughly disked. A liberal seeding of equal amounts of mammoth and white sweet clover was then put on and harrowed in with a light harrow, the sweet clover seed having first been inoculated with dirt from an old alfalfa field. The season was favorable, there being a fair amount of moisture the greater part of the year, and the mammoth clover made a fair stand, but the sweet clover made almost no showing at all. The oats were clipped when heading and there is now a good promise that the mammoth clover will make a good growth for a humus supply. Some are seeding their orchards to clover once in two or three years, allowing it to stand over winter and then turning it down the next spring. It is evident that some such method must be adopted.

It is a very sure thing that the orchardist who is wise to the situation is one who begins early with his orchard while yet there is an abundance of humus in the soil and follows up very diligently the work of maintaining this important element.

Allegan Co. EDW. HUTCHINS.

**PARSNIPS AND OYSTER PLANT.**

Among the slow-growing, long-season crops that should be planted in very rich soil as soon as the garden can be gotten into shape are parsnips and salsify or oyster plant. The rich soil to which well rotted barnyard manure has been added, will hold the moisture better to keep them growing through the long, hot, dry summer months and the early planting will give a better chance for the roots to attain good size.

Parsnip seed should be dropped about four per inch in rows from 18 to 24 inches apart, then thinned to stand about three inches apart, but salsify may be sown more thinly as the seed is surer to come up and pulling the plants in thinning disturbs those that are left so that the roots are more likely to be branches and undesirable.

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Every table should have its daily ration of Grape-Nuts.

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### HELPING FRUIT GROWERS AND SHIPPERS.

The results of investigations carried on by the United States Department of Agriculture in the handling of north-western apples for and in cold storage, have been so conclusive that this work may be considered as completed, according to the annual report of the Bureau of Plant Industry.

The results brought out particularly the importance of picking apples of various varieties at the proper stage of maturity, of careful handling in all harvesting and storage operations, of prompt cooling, and proper storage temperatures. During past seasons the growers have frequently suffered very large financial losses from either too early or too late harvesting of apples of certain varieties, such as Jonathan, Rome Beauty, and others. The work has demonstrated clearly that the storage life of apples can be prolonged from weeks to months by picking at proper maturity, and have shown how the grower may know when his fruit is of proper maturity for best results in storage. In connection with the investigations of the cold storage of Newtown apples in the Watsonville district in California, the most important discovery is without doubt the relation of tree vigor to keeping quality of fruit in storage. Experiments extending over two seasons have clearly shown a marked and consistent difference in the keeping quality of fruit from different trees, particularly trees that for any reason differ in vigor and general healthfulness. During the past season the possibilities of common, or air-cooled, storages in different sections were carefully investigated.

### THE GROWING OF CAULIFLOWERS.

Seed of cauliflower should be sown in the house in March. Only first-class seed should be used. As soon as the seedlings are large enough to crowd each other they should be pricked out into a cold frame or a bed in the open ground where they can be protected against frost and rough weather and a little nitrate of soda worked in between the plants and frequent cultivation and watering given until time to plant out in the open ground, which will be about the twentieth of May at the north.

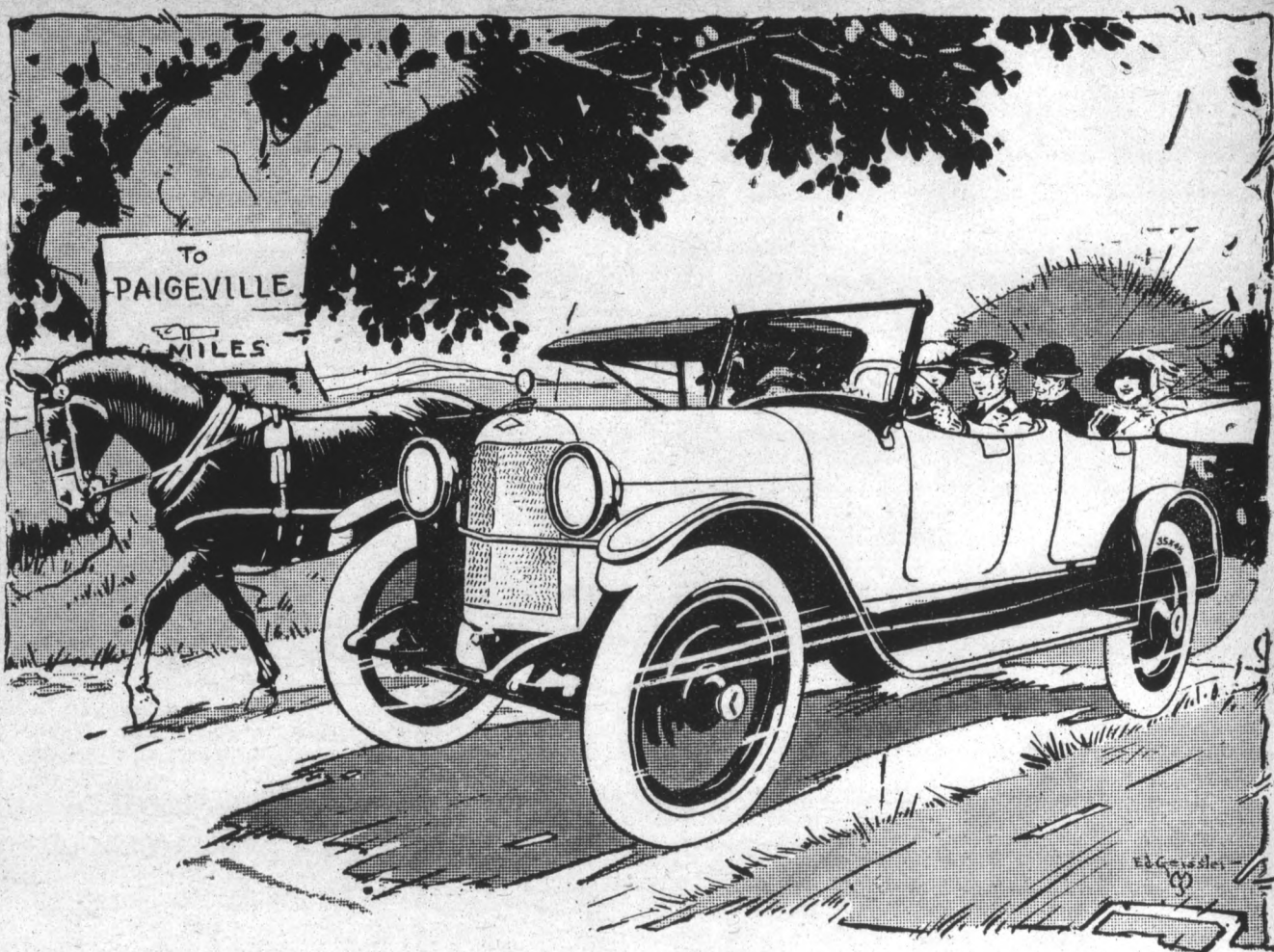
If there is a low moist spot in the garden, dedicate it to the growing of the cauliflower and make it rich with well rotted manure and friable with leaf mould or the soil from the compost. After setting the plants in permanent quarters a little nitrate of soda may again be worked into the soil about the plants to advantage.

Cultivate frequently and after the first few cultivations draw the earth up about the stem somewhat. The newly set plants must be guarded against cutworms, which are very destructive, by paper or wire collars about the stems, sinking them well into the ground or by making a ring of poisoned meal or bran about the stem.

As soon as the head or curd has formed the heads must be blanched by tying the leaves above them, drawing them together and tying their tips with strips of cloth or with bast. This must always be done when the plants are perfectly dry, otherwise the heads will decay. If not tied the partially developed heads will turn dark and start a growth of leaves through the curd, rendering them unfit for food.

To grow fine, large heads of cauliflower the plants should be watered freely in dry weather and a weekly dose of liquid manure applied. Where water is not available the dry weather cauliflower should be selected for culture. Cauliflower, though principally grown for pickling, is a most delicious vegetable either cooked and dressed with bread crumbs and fried.

IDA D. BENNETT.



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The "Stratford" model is, of course, considerably larger than the "Linwood." It is well worth the difference in price. But we want to point out at this time that both cars are *Paiges*—blood brothers of the same strain.

So far as a choice between these two motor cars is concerned, it is simply a matter of your individual requirements. If you can advantageously use a large, sumptuous, seven-passenger automobile, by all means invest your money in a Paige "Stratford-51."

On the other hand, if a five-passenger model is ample for your purposes, then, decide on the "Linwood-39."

It is merely a choice between a one karat or a two karat diamond. Both cars are clean cut, flawless gems. In their respective price fields, these two cars represent the *utmost* that you can secure in automobile value.

We are putting the matter before you in this frank way, because we want to be genuinely helpful. We also want to emphasize—just as clearly as we possibly can—that Paige builds only *good* cars—quality cars.

But—above all—make it a point to see the Paige line before you buy *any* car. As a business man, you can't afford to overlook the two greatest dollar-for-dollar values in the entire automobile field. This is a broad, sweeping statement, but you can establish the facts to your entire satisfaction.

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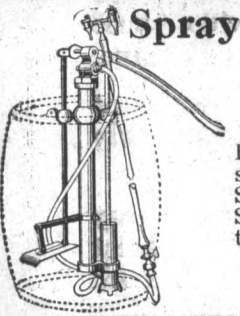
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# Modern Thought In Horticulture

IN speaking on the "Outlook for Profitable Apple Culture," S. W. Fletcher, Professor of Horticulture, State College of Pennsylvania, said at the meeting of the Western New York Horticultural Society, Jan. 24-26, that in the apple business, the boom period has passed and we are in a period of re-adjustment. We are not discouraged when we think of the new plantings because they will be taken care of by the natural increase of population in this country which, in due time, will double. Probably less than sixty per cent of the new plantations will ever become factors in the market. We have better storage facilities and better methods of distribution and there is but little new planting of the small farm orchards. These are going out and will figure less in the market which will be supplied by the large commercial orchards.

Discouraging factors are the increase of consumption of citrus fruits, and the labor problem. The future will require competition with other fruit industries and the public must have good fruit. Our fruit must be as well advertised as other fruits. It means that organization and standardization are necessary in the marketing of apples.

### Prospects Bright for Good Orchardists.

Some advantages growers in the eastern part of the country have are cheaper lands and nearness to the largest markets, better storage facilities, and a better outlet for culls. Ultimately it will be the survival of the fittest in the apple business and even now the process of elimination has begun. The prospect is bright, but not for all orchardists, but only for those who can produce the best fruit the most cheaply. The one who applies science and diligence to his business and stays with it year after year.

Prof. P. J. Parrott, entomologist at the New York Experiment Station, in his paper, "Insect Injury as a Factor in the Grading of Apples," gave in tabulated form the per cent of injury the various insects did to fruit, as follows: "Codling moth, 58%; leaf roller, 3.5-6; bud moth 1/2; case bearer 2/3; curculio, 4.5-6; red bugs, 9.5-5; San Jose scale, 1; lesser apple worm, 1 1/2; aphides, 12%; green fruit worm, 1.5-6; Palmer worm, 1/2; apple maggot, 1/4; other insects, 1 per cent.

### Fungous Diseases and Keeping Apples.

Prof. F. C. Stewart, botanist at the New York Experiment Station, spoke on "Apple Diseases in Relation to the Apple Grading Law." He said that scab and a few other diseases might be developed in ordinary storage, but not in cold storage. Seldom does scab spread from one apple to another in storage.

Sooty blotch, if started before storage, it is reasonable to believe, might develop in common storage, so as to seriously deform the apple. Apple rot may attack fruit, both on the tree and in storage. Fungi that produce rot, can make no growth in cold storage temperature, which prevents all the diseases from developing.

Paul Work, New York State College of Agriculture, on "Garden Vegetables," said market gardening has been greatly changed by the auto truck and canning factory. The scope of marketing has been enlarged so commercial gardening can be made profitable if done at points distant from markets.

### Vegetables Intercropping Orchards.

Vegetable growing is adapted to inter-cropping young orchards, and helps to pay expenses while the orchard is coming into bearing. The man who starts an orchard with a small capital must live while waiting for his fruit. There are instances where the vegetables have paid for the land and made a living for the owner before the trees bore fruit.

The trees are sure of getting good tillage, and the trees get the use of the

fertilizers applied to the vegetable crop. The vegetables prevent the soil of the orchard from washing or leaching. We should grow the vegetables we can, market, or which can be delivered to a large city or cannery market. Some of the most successful orchardists have developed their orchards almost without cost, by inter-cropping with vegetables and catch crops.

A. B. Katkamier, of Macedonia, New York, described his method of growing strawberries. Mr. Katkamier's own words are as follows: I set out strawberries in the late fall. This seems to me to be important information. For six years I have been experimenting and from this on I shall set about all my berry plants in the fall, beginning any time after the middle of October and continuing until winter shuts off the work, or until all my plantings are out. Of course, I operate on a small scale—beginning November 18 I set out 7,000 strawberry plants, and finish on December 8, 1916. On January 9, 1917, I set out a few score of strawberry plants. Mr. Katkamier thinks he gets more berries with less work with this plan.

### The Control of the Pear Psylla.

Wilber Chase, of Hilton, New York, told about a successful demonstration in the control of pear psylla, which is summarized as follows: The Monroe County Farm Bureau, in co-operation with the State College of Agriculture, directed the work, and much credit should be given these agencies for the results obtained. We delayed the application as late as possible and yet not injure the foliage, but at the same time gave the psylla flies a chance to lay most of their eggs.

On May 5 the entire orchard was thoroughly sprayed with lime sulphur at a strength of one to eight. This was at the time when the blossom buds were opening and spreading out. The trees were thoroughly sprayed from both the lower and upper sides at the rate of two and a half gallons to a tree, to be sure that each egg was hit with the spray. Angle nozzles, giving a very fine spray, were used. There was practically no injury to foliage.

This was the only spraying the orchard received for the season. The psylla was held comparatively in check throughout the year by this one application. For the first time in six years the fruit was smooth and clean and easy to handle.

New York. W. H. JENKINS.

### ORCHARD NOTES.

Air drainage is as essential as soil drainage. It is not always the high places that are free from frost. Frequently there are pockets among the hills where crops and fruit suffer late in the spring and early in the fall from the ravages of the frost despot. On low lands there also seems to be places which frost apparently avoids at unseasonable times. These locations have well established boundary lines which are known to people of the community. No fruit can endure wet feet. This principle obtains in all farm crops. If your ground is not worth tile draining, it is not worth keeping, much less establishing it to fruit.

Head your trees low. I would advise heading peach and cherry trees as low as one's knee, and apple trees just below one's waist. A low-headed tree is easier to spray, fruit may be harvested easier, and less damage is done to the fruit that falls. A little judgment can be used in handling those varieties in an upward direction, which tend to droop, and those which tend to grow upward, to train the branches horizontally. This can be done pruning off branches which extend outward on spreading varieties, and cutting those extending inward on the varieties which tend to grow a upright compact top.



## Feeders' Problems

### A Ration for Fattening Steers.

I am feeding grade Shorthorn steers weighing 800 lbs., on corn chop and mixed hay. I wish to feed them 60 or 90 days longer and hope to have them weigh 1000 lbs. Is this a balanced ration or would you suggest adding some concentrated feed, like cottonseed meal? I am new at the feeding business and any information will be most thankfully received.

Kalamazoo Co. S. R.

The nutritive ratio of the ration being fed to these steers is too wide for best results, being about 1:10. If they were receiving clover or alfalfa hay instead of mixed hay, the amount of protein given in the home-grown feeds would be considerably increased. Two or three pounds per day of cottonseed meal per steer would help to balance the ration which, for maximum results, should be not much wider than 1:7. This would give greater economy in the assimilation of the nutrients contained in the home-grown feeds, and if the concentrate is available it would be a profitable addition to the ration, since it would both shorten the time required to feed the steers to the desired weights and materially lessen the amount of home-grown feeds required for this result. Any change made in the ration should, of course, be a gradual one rather than a sudden change.

### Ration for Fattening Hogs.

I have 12 old hogs that I wish to fatten. I am feeding ground oats and cull beans at \$1.25 per cwt. Would it pay to feed corn at \$1.05 per bushel with the beans, or can you advise a better feed?

Iosco Co. T. D. G.

Cull beans make an excellent feed for fattening hogs if they are well cooked before feeding and fed in connection with a carbonaceous feed. At the Michigan station in three trials of from fifty-six to seventy days, with twenty-six pigs averaging 160 pounds, it was found that pigs fed equal parts of cooked cull beans and corn meal made average gains of 1.5 pounds per head daily, requiring 406 pounds of feed for 100 pounds of gain. Pigs fed on beans alone made daily gains of only 1.1 pounds and required 421 pounds of beans for 100 pounds of gain.

Some years ago when cull beans were very plentiful and very cheap some large feeding operations were conducted in which cooked beans were used as the sole grain ration for fattening hogs with fairly good economic results. The pork does not have the quality, however, which is secured by feeding part corn in the ration. There is no doubt that at present prices of pork, it would be profitable to feed corn with beans at the prices named, and it would be a more economical feed to use in connection with the beans than would oats at the present values.

### Management of Heifers for Beef.

Will you please advise as to the best way to manage some heifers I have got with a bunch of steers? They are going to be fresh soon and I want to sell them in June with the steers. They will be fresh in February. If I take the calves away from them at first and don't milk them, will they dry up without injury, or if I would leave the calves with them one month then remove them, would they have to be milked? I am intending to feed some lambs I have; I was going to shear them the middle of February and then grain them all they would eat up clean until the first of April and let them go. Would that be advisable or should they be fed longer?

Ionia Co. A. I. B.

The best method of handling these heifers would be to permit the calves to run with them until they reach a maximum value for veal, which brings exceptionally high prices at the present time. After the calves are sold for veal it will be necessary to milk the heifers for a time, but by milking them at less frequent intervals and reducing their feed for a time, it will be possible to dry up their milk flow without injury before the pasturing season. Or the late calves could be

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Both of the Mitchells embody hundreds of extras, paid for by factory savings. They give you at least 20 per cent extra value over other cars in their class. All because John W. Bate, the great efficiency expert, has cut our factory costs in two.

There are 31 extra features—things which other cars omit. On this year's output these extras alone will cost us about \$4,000,000.

There is much added luxury. We have added 24 per cent to the cost of finish, upholstery and trimming. That is all paid for by savings made this year in our new body plant.

And there is now 100 per cent over-strength in every vital part. That is, every part is twice as strong as need be. The evidence is that this double

strength makes the Mitchell a lifetime car.

### Twice as Strong

The Mitchell standard for many years has been 50 per cent over-strength. Under that standard Mitchell cars have proved marvels of endurance.

Two Mitchells that we know of already have exceeded 200,000 miles each. Seven of them have averaged 175,000 miles each—over 30 years of ordinary service.

But in 1913 Mr. Bate spent a year in Europe. When he came back he started out to double our margins of safety—to more than match the highest European standards.

It has taken years to do this. But we announce this year this double strength in every vital part.

Over 440 parts are built of toughened steel. All parts which get a major strain are built of Chrome-Vanadium. We use steel alloys which

cost us up to 15 cents per pound. And all the parts on which safety depends are made oversize.

One result shows in the Bate cantilever springs. We have used them for two years, on thousands of cars. And not one spring has broken.

That one fact will illustrate what this extra strength means in every vital part. For you know how springs break under shock.

### Exclusive Values

These extra values are exclusive to Mitchell cars. No other factory in the world could include them at the Mitchell price.

This model plant, covering 45 acres, was built and equipped by John W. Bate. Every machine is adapted to build this one type economically. The methods employed here have cut our factory cost in two.

That is what pays for these extras. That is what pays for this vast over-strength.

Now a new body plant—building all Mitchell bodies—saves us a vast sum more. That goes into luxury—into heat-fixed finish, into rare-grade leather, into countless dainty details. The latest Mitchells are the hand-somest cars under \$2000.

Go see these extras, which are numbered by the hundreds. See what they mean in a car. You will not want a fine car which lacks them.

There are Mitchell dealers everywhere. If you don't know the nearest, ask us for his name.

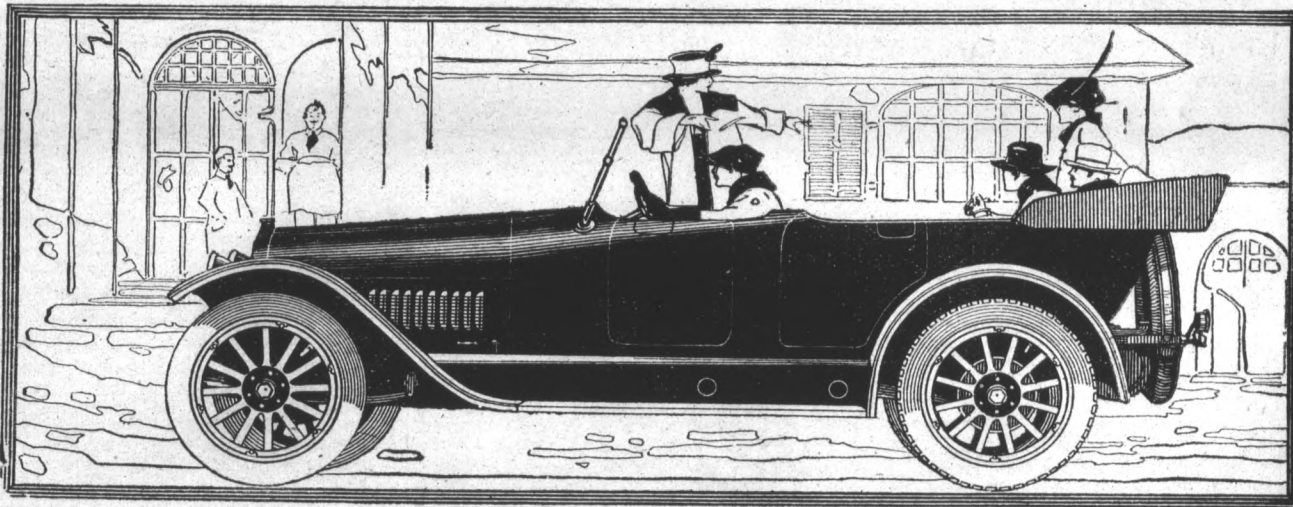
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Kerosene is its fuel, and it burns kerosene, not as a makeshift proposition, but continuously and at variable loads as well as full load.

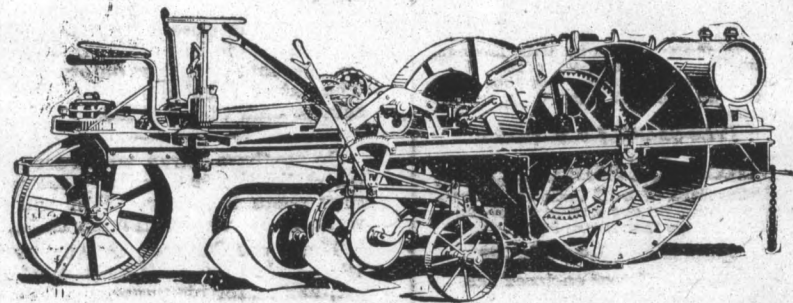
An Advance-Rumely "8-16" not only will plow, but it will draw your discs, drills, harrows, mowers and binders, and on the belt it will run a small separator, hay baler, silo filler, sheller, feed grinder, etc. In fact, it will deliver the same reliable, steady power on all jobs—draw-bar or belt. When used for other jobs than plowing, the plows are quickly detached.

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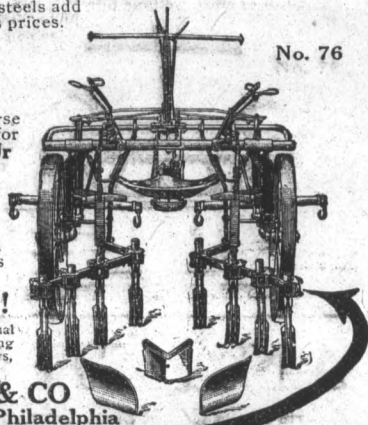
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allowed to suck them at less frequent intervals to the same purpose. This, of course, will delay the fattening process, but the revenue from the veal calves will make this profitable. They can then be finished on grass quickly and economically, and a better price secured for them than would be possible if they were sold with the steers, which will perhaps be ready to market at an earlier date.

### A Short Feed for Lambs.

The results which would be secured from the method suggested would depend very largely upon the size and condition of the lambs at the present time. If the lambs are in fair flesh, they could perhaps be put into condition to sell profitably on the present high market with six weeks' feeding, but if they are comparatively thin, they should be fed for about twice that period to put them in condition to bring a maximum price. The present weight and condition of the lambs is, of course, a factor which must be considered in determining the proper length of the feeding period.

### Fresh Water is Best.

Our well is eighty-five feet deep, and if the water stands in the tank a few days, it smells badly and the walls of the tank, which is of galvanized iron, become green. What is the cause, and can I do anything for it? The well is of the tubular type. SUBSCRIBER.

The green deposit on the walls of the tank is of a fungous nature and is probably due to the location of the tank and the fact that little water is used from it; rather than to the character of the water from the well. A storage tank which is exposed to the heat of the sun often provides conditions favorable for the development of this low form of plant life, and it is probable that the water contains some mineral salts also favorable for its development.

If this trouble is more pronounced in warm weather, this is probably the cause, and protection of the tank by building some sort of a cover over it may obviate the difficulty. If not, it is a better plan to drain the water off occasionally and keep a fresh supply for the stock than to treat it with chemicals which would prevent the trouble.

## Controlling Contagious Diseases

Address by H. H. Halladay, President of the State Live Stock Sanitary Commission, at the recent meeting of the Michigan Improved Live Stock Breeders' and Feeders' Association, held at Michigan Agricultural College.

I HAVE endeavored to secure information from the different live stock markets of the west, which would give us some idea of the enormous amount of stock which is being shipped into this state for breeding, feeding, and dairy purposes; but on account of the data being insufficient we can only give you a conservative estimate along those lines. I can, however, give you very definite information on the amount of live stock which is now owned in the state, which is taken from the 1915 Year Book of the United States Department of Agriculture. The number of horses owned in the state of Michigan is 680,000; mules 4,000; milch cows, 847,000; other cattle, 735,000; sheep, 1,931,000; hogs, 1,562,000. The total value of this live stock amounts to \$180,000,000.

We have other estimates which indicate that there have been brought into this state for feeding purposes during the present year; 50,000 cattle and around 900,000 sheep, which are fattened and turned back to Detroit, Buffalo and Chicago markets for slaughter. Herein lies the great danger of bringing infectious diseases of live stock into the state, and we are constantly watching for any cases which may appear among these shipments, which we commonly term live stock of commerce. This part of the live stock which is being transferred from one state to another is accompanied by certificates of health, but after we consider that they are shipped and unloaded for feed and rest in several different stock yards, and in stock cars which have not previously been cleaned and disinfected, perhaps for months, we can see the danger which confronts us in safeguarding the health of the live stock of the state.

It has been our purpose to furnish skilled veterinarians to answer all calls promptly which indicate that there are symptoms of contagious or infectious diseases in any part of the state; and I am glad to say that since the month of February, 1915, we have not had a case of the dreaded foot-and-mouth disease, but have often had calls which would seemingly indicate that the disease was present; but we are pleased to report that the state—as well as the entire nation, we believe—is absolutely free from this disease.

The work of this department has grown to such an extent that it will soon be necessary for us to add, as occasion demands, more veterinary assistants so that we can give you better service. Our work is not only to conserve the health of domestic animals,

but is a human problem as well. We are trying at all times to be as economical as possible in the dispensing of the state's funds in these matters; and when you come to consider that the total valuation of the live stock of the state is \$180,000,000 in round numbers, we are having a cheap insurance for the money which we have invested. Homes have been built and mortgages lifted through the prosperity we are enjoying in this great industry, and it stands the farmer and stock raiser in hand to be very vigilant in his watchfulness over his live stock, and to gain such information as may be possible for him to safeguard his own interests. We are indeed very thankful for the splendid co-operation which we have received from the live stock interests of the state, and we feel that to you we owe much towards whatever success we may have attained in this great work.

There is another very important factor in this work, and this is the local veterinarian. Upon him you depend for advice, and it stands you in hand to employ only such veterinarians as you believe can give you advice which will be beneficial. The veterinarians in general are progressive, and we should encourage such progressive measures and give them such encouragement and support as will raise the standard of their profession.

### Tuberculosis.

A practical and effective method of eradicating tuberculosis of live stock in this great state is to be desired. This is a human problem as well as a live stock problem, and our great scientists are telling us that large numbers of the infants which die of disease die of tuberculosis caused by drinking infected milk. This being the case, we should look upon it with more gravity than possibly we do. I am not an extremist in these matters, but rather conservative from the fact that I realize the necessity for the application of educational methods in the control of any of the live stock diseases; and as the figures will show in our biennial report which will soon be published, the number of cattle which have been tuberculin tested during the last year has given a material increase over the previous year. While the percentage of reactors has lessened, we feel that some progress has been made in this work. This is a problem which you should study carefully. You should be convinced that the tuberculin test is practical, and that it is safe and sure. In our experience, we have found very few cases where animals have

(Continued on page 174)



**DEVICE FOR CONTROLLING WINDMILL.**

In the last issue of the Michigan Farmer I read Mr. J. A. Palmer's description of regulator for windmill water supply, and thought some reader might profit by knowing my arrangement. Previous to four years ago there was a very good drive well on the farm, which was pumped by a windmill and we never knew what it was to be short of water. Four years ago the casing in this well rusted off, making the well useless. There was an old stone well at the barn which had not been used since the oldest neighbor could remember. This well was cleaned and found to contain 20 feet of crock in the bottom. The water came a little above these crocks. We pumped water from it for our stock for some time, never pumping it dry. So the windmill was moved over it and connected up with the piping to barn tanks. But after the mill had run about an hour the well was dry and we found that it took about one hour for the water to run in and fill the crocks. Of course, that meant watching it and shutting it off when dry, and let it back in gear in about an hour. This made a lot of bother. We were about to give it up as a failure when a plan came to me. This is it. I put a long enough wire on the mill to reach the top of the crocks (which were full of water) when the mill was in gear. Then I put a cedar post down in the crocks and fastened it to the wire. When the mill pumped the water down the post went down with it, and shut off the mill; when the water came back up it brought the post with it, thus letting it back in gear, and so on. In this way the mill has worked night and day for the past four years.

D. H. Macomb Co.  
This is certainly a very ingenious arrangement but the trouble is it cannot ordinarily be applied. Few people have wells of this kind. Most people don't wish to stop the mill when the well gets dry, but when the water tanks get full. There is a great difference. But desired results can be accomplished by having a float instead of a weight. When the water is drawn down in the tank the float settles and allows the mill to go in gear, and when the tank is pumped full of water the pressure of the water on the float which is connected with the mill by a wire and a lever, shuts off the mill.

In our own case the tank is only a few feet from the mill and a lever ten feet long does the business. The float is an empty oak oil keg. If the tank is a considerable distance from the well the work can be accomplished by changing the direction of the pull by means of pulleys.

COLON C. LILLIE.

**LIVE STOCK NEWS.**

Warren T. McCray, widely known as a Hereford cattle breeder, says that for a number of years he fed steers for the market and that he always noticed the ones to take on flesh the fastest were the ones with white face blood in them, and the better they were bred, the better they fed.

Now and then a sale is made in the Chicago stock yards of some fancy selected feeder steers requiring only a short finish at an especially high price and not long ago a country buyer had the courage to pay \$9.35 per 100 lbs. for a carload of 1,118-lb. steers, but they were already good fleshy killers and needed but a short finish that would place them in a decidedly higher class of beef cattle.

The Chicago market for stocker and feeder cattle varies a good deal from week to week, material advances and as large declines taking place from time to time; although the undertone of the market has become much firmer than was the rule not so many weeks ago.

An authority on the Chicago stocker and feeder market, C. O. Robinson, remarked recently that such cattle would advance in price as spring draws near. He added that for several years past there has been a good time during the last half of February and the first half of March to purchase a good class of medium to half-fat steers in the different markets of the country at reasonable prices, including a class of steers weighing anywhere from 900 to 1150 lbs. Such cattle would require to be held probably from four to five weeks until good weather set in. They could be put on full feed at once and marketed during May or June, or they could be fed corn on grass and marketed during July or August, or just before the western range cattle are ready to start marketward.

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**BOOK FREE** 156 page reference book—tells all about a complete line of farm implements and how to adjust and use many of them. A practical encyclopedia of farm implements. Worth dollars.

Wagons; Manure Spreaders; Inside Cup and Portable Grain Elevators; Corn Shellers; Hay Loaders; Stackers; Rakes; Mowers and Side Delivery Rakes; Hay Presses; Kaffir Headers; Grain Drills; Seeders; Grain and Corn Binders.

This book will be sent free to everyone stating what implements he is interested in and asking for Package No. X-5.

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**John Deere Plows for Light Tractors**

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**High and Level Lift.** Two, three and four bottoms. High and level lift means level plows out of the ground, no cutting of ridges when crossing or turning on plowed ground. Steady running furrow wheel—does not drag or bind against furrow wall. Stiff hitch—plow can be backed. John Deere bottoms, the standard for over 78 years. There is a John Deere bottom for every kind of soil. Equipped with John Deere Quick Detachable Shares—great labor and time savers.

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Syracuse Plows have an enviable field record among farmers in chilled or combination plow territory. Here is a feature that is appreciated by the man who buys a Syracuse Plow. Extras ordered will be duplicates of the original parts. Bolt holes will be in the right place. Every part will fit. In fact all necessary parts that go into a Syracuse Plow could be ordered as repairs and when received built into a complete plow. Extra parts are exact duplicates—no trouble results.

The John Deere Two-Way Plow works equally well on hill-side and level land. A slight foot pressure swings frame and accurately locates plow bottom. Automatic shifting hitch—clevis cannot fail to move to position. Automatic horse lift. Operator's foot engages latch—pull of team raises the bottom. Hand lever also provided. Wide tread—prevents tipping on hill-sides. Steel frame—strong. Made expressly for Eastern conditions. Can be equipped with all styles of bottoms.

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Accuracy in a corn planter means uniform drop—number of kernels the same in each and every hill. If the planter misses only six kernels in every 100 hills, the loss in yield is nearly two bushels per acre. Accuracy in planting has been the main object in designing John Deere planters. One of the many advantages of using a John Deere planter is that with proper handling it will plant practically 2, 3 or 4 kernels in every hill, as desired.

John Deere No. 999 is accurate. It has the John Deere Natural Cell Fill, Edge Delivery Seed Plate. Surface of hopper bottom and openings to seed cells are oblique, or sloping. Kernels move toward and enter the cells in their natural position. They do not have to be tipped on edge. Merely move foot lever to change number of kernels per hill. Drilling distances varied, and change hilling to drilling or back to hilling made easily.

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The Spreader with the Beater on the Axle. Mounting the beater on the axle simplified the construction, eliminated troublesome parts and made possible a successful low-down spreader with big drive wheels. There are no shafts to get out of line, no chains to cause trouble, and no clutches to adjust. The only spreader with beater and beater drive mounted on axle. Low down, with big drive wheels out of the way. Easy to load. Revolving rake, driven by manure moving toward the beater—no bunching of manure. Ball bearing eccentric spring drive—a new and exclusive driving device. Makes uniform spreading certain. Wide spread attachment for spreading seven feet wide can be furnished for the John Deere Spreader. No chains or gears. Quickly removed.

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Pedigreed Belgian Hares for sale. Does and Bucks for breeding purposes. Address The Unadilla Warren, Gregory, Mich., R. 2.

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Large 50c package, sold by druggists and feed dealers. Ask for free booklet, "Dairy Wrinkles."

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**EDITOR, LANDOLOGY, Skidmore Land Co. 308 HALL AVE. MARINETTE, WIS.**

**CONTROLLING CONTAGIOUS DISEASES.**

(Continued from page 172).

given typical reactions but that lesions of the disease were found. I know there are many who do not believe in the tuberculin test, who do not believe that tuberculosis is a destructive disease among the live stock of the state; but if it once ravages upon your own herd, you will then know what it means. We are always glad to talk with the dairymen in regard to these matters and to try to take them up and discuss them and act upon them in as practical a way as possible.

**State Herds.**

After systematic tuberculin testing of the state herds, we are finding practically all of them free from disease, and we hope to make these herds second to none in the state. On the other hand, we are trusting that you will be able to, as individual breeders, furnish us good stock and as free from disease as can be furnished by the state.

**State Accredited Herds.**

There has been some agitation among the different states relative to making up a list of state accredited herds whereby those herds which are under state supervision and which are free from tuberculosis will be placed upon this accredited list; and in this way, by making a systematic test each year, you will be permitted to ship animals at any time during the year by getting reciprocity between the states, which is to be desired. As soon as assurance is given us that the states which are interested in this subject will co-operate with us, we shall then proceed; but, before doing this, we will call a meeting of some of the breeders of the different breeds to assist us in working out this problem. In doing this, great care must be exercised in the selection of veterinarians who are not only honest, but who are capable of making the tuberculin test.

We have found within a short time where animals which have once given a typical reaction, were later given a retest and did not react, but were sold and later developed the disease and did untold damage. We, therefore, believe that only one test should be made, provided the animal shows a typical reaction. We do not compel the destruction of these animals, provided proper segregation can be had so that the disease will not spread to other cattle, but we do not believe that re-testing of cattle which have once reacted to the tuberculin test is practical and would strongly advise against it. We have received many valuable suggestions from the breeders, and we want you to feel free at all times to give us any suggestions which may be in your minds, as this may be the very point which we have not given the proper thought.

**Contagious Abortion.**

Bovine infectious abortion forces itself upon the attention of live stock sanitary authorities in a very unpleasant manner. The disease is not confined to any particular type, class or breed of cattle, to any particular section of this country or to this country alone, nor is it a disease that has only recently been the subject of observation. Serious abortions in cattle have been noted for many years, both in herds under modern stabling conditions and under the primitive range conditions of the west. The failure of live stock sanitary officers to take prompt, vigorous and effective measures to control and to prevent the spread of this, probably the most serious animal plague in the country is not due to a lack of realization of its importance but to causes which are in a degree beyond our power to control and which make it fundamentally impossible for us to formulate reasonably intelligent and workable regulatory measures for the control of this disease.

To be very plain and without wish-

ing to unfavorably criticize those in another field of endeavor, we must declare that careful research has only recently been seriously applied to the study of infectious abortion, that only little progress has been made to date, that those to whom we must turn for authoritative counsel are not agreed upon the essential facts concerning the disease, and that in short we don't know enough about the disease to warrant us in acting in an official sanitary capacity in attempting to control it. On the other hand, the future is not without its bright side. We hope that those who are studying the disease will agree upon many points in the near future, as a result of the appointment of a committee by the United States Live Stock Sanitary Association at its recent meeting in Chicago. The report of this committee should give us a good basis upon which to build. Our own state experimental station is actively engaged in studying the problem and we are in a very favorable position to assist in the station's efforts to co-operate with the federal B. A. I. which has been authorized by congress to expend \$50,000 to inaugurate a campaign of study and education relative to infectious abortion. No state in the Union is in a better position to undertake this work than is Michigan, and we hope to be able to report marked progress a year from this date. We trust that those of you who have had experience with this disease will not become discouraged, and by all means will not allow the quack and medicine vender to experiment upon your herd unless you know that such experiments have worked out beneficial results.

**Hog Cholera.**

The control of hog cholera has been one of the largest problems that we have been called upon to combat in Michigan. Consequently, special attention has been given to this disease, and extraordinary efforts put forth looking towards control during the last few years. The enormous and ever-increasing losses each year were menacing the entire hog-raising industry to an alarming extent. The normal production of hogs was gradually decreasing over the state, and in many sections, farmers were abandoning the industry entirely on account of the menace of cholera. The necessity that something in the way of control measures be undertaken was evident, but as no systematic plan had been devised and carried into practical application, it was necessary to inaugurate an experiment, and demonstrate and work out an effective and practical plan for the control of this disease. This experiment was carried out by the State Live Stock Sanitary Commission, in co-operation with the Bureau of Animal Industry, United Farm Bureau, State Department of Agriculture, Michigan Agricultural College, and in Branch county, which was at that time suffering a higher percentage of losses than any other county in the state. A survey showed that over four thousand hogs had been lost during the year 1913. This work was begun in 1914, and conducted during the succeeding two years, the results showing that cholera had been kept under control at all times during which the experiment had been in progress, and that upon completion of the experiment, cholera had been completely eradicated from the county. This experiment, while demonstrating the possibility of controlling cholera, was of more importance from the standpoint of experience and knowledge of facts concerning cholera and its control, which have been valuable in subsequent work throughout the state.

Before entering upon a state-wide legislation pertaining against cholera, the need of adequate legislation pertaining to this subject was evident. This fact had long been recognized, but nothing had been attempted until at the last session, when a bill was drafted and passed. Under this law,

local representatives are maintained in each county for the purpose of looking after the control of cholera. These representatives, act as local representatives of the State Live Stock Sanitary Commission, and are subject to the direction and guidance of that commission. Under this system, the commission is enabled to be kept in touch with the cholera situation in the different counties at all times, and have representatives who can be called upon to take charge of any outbreaks or epidemics which may occur.

At the time of the completion of the Branch county experiment, the bureau veterinarians engaged in that work were transferred to state-wide control work, in co-operation with the State Live Stock Sanitary Commission, local live stock sanitary agents, and local veterinarians. At the present time, this force consists of three veterinarians, one of whom is located at the office of the Live Stock Sanitary Commission at Lansing, another at Kalamazoo, and a third at Adrian. The duties of these federal men are to assist the county live stock sanitary agents and local veterinarians in all matters pertaining to the control of cholera, where their assistance is needed—such matters as diagnosis of cholera where questionable; demonstrations in the technique of serum and virus administration; advice regarding quarantine and sanitary measures; and instructions in handling individual outbreaks or epidemics. These men are paying particular attention to education of farmers and hog raisers in matters pertaining to cholera and its prevention, and are also organizing the veterinarians in the different counties and enlisting their sympathy and support in the control of cholera. The large experience these men have had in cholera control makes their co-operation a valuable asset to the work.

The results of the first year's work under the co-operative plan in state-wide control are very encouraging, and show an enormous reduction in losses over the previous year. While no accurate data is available concerning the losses in the state in 1915—except in Lenawee county, where a census showed a loss of over seven thousand hogs—it has been estimated that nearly one hundred thousand hogs died of cholera during that year. Accurate figures compiled from reports of county live stock agents show a loss of about three thousand hogs, or .002 per cent, during the year 1916, in the entire state, or less than one-half the number lost in Lenawee county alone during the preceding year. The success attending the plan of control work during the last year warrants its continuation during the coming year. As the plan of work becomes better understood by the hog raisers and local veterinarians, and its importance, even better results should be expected.

So long as Michigan is subject to exposure from neighboring states, the ultimate eradication of cholera must necessarily be a problem of great difficulty. However, the results of last year's work prove that the disease can be effectively controlled and the losses throughout the state confined to a minimum. It would seem, therefore, that for the time being we must content ourselves with as complete a control of the disease as possible, and look forward to the time when exposure from the outside will be eliminated and efforts of eradication will be practical.

(Continued next week).

**LIVE STOCK SHIPPERS, ATTENTION!**

Breeders east of Chicago who have in the past been compelled to pay on an arbitrary and unreasonable maximum weight when shipping animals in less than carload lots are particularly requested to take cognizance of the fact that the decision of the Interstate

(Continued on page 197).



# Winter Dairying Profitable

**H**UNDREDS of farmers are cropping, cultivating and harvesting at the same period that their dairy herd is producing the most milk. In other words, the most work comes at one period, while they lay around during the dull winter months, but are forced to remain at home and feed the stock. Milk prices are lowest in summer and highest in winter. This is a very good argument, from a profitable side, in favor of winter milk production in any section.

The farmers who are crying the loudest about dairying being an unprofitable business are the summer milkers. This kind of business does not pay. Suppose that a man has a herd of twenty cows, whether registered or grade. The quickest way he can get his cows out of the boarder class is to put them into the winter-producing class, making them produce when milk prices are highest. But you will say, I have to buy feed when it is highest. Oh, yes, but a practical farmer grains his stock anyway, for the cow resting needs grain to aid in calf development, and the summer and fall are the best for this. Again, labor is more easily secured in winter at a lower figure, and labor is a big item on dairy farms.

### The Difference in Favor of Winter Dairying.

One man secures \$1.05 for his summer milk and \$1.70 for winter, let us say. If his winter dairy should give an average of only twenty-five pounds each per day, the returns would be more than \$250 per month with twenty cows. His summer income would be but \$160. Practical dairymen know that a cow which will yield 3,000 pounds of milk during the season following spring freshening, will produce fully 4,000 pounds by fall freshening. And it is a fact that milk can be more economically produced in winter than summer. The cow is not bothered with flies, and when stabled in a well-ventilated barn is far more comfortable than hunting a blade of grass on a burned-out hill pasture. Therefore, when pressure is highest on the farm the winter dairy will lighten the summer work. This will permit giving more care to the cows at a time when they will need it most, allows greater attention to preparing and feeding rations, weighing and testing the milk, and leads up the glorious lane of better bred stock in the near future.

### Profitable Winter Rations.

Profitable feeding of dairy cows consists in supplying them with a plentiful supply of well-balanced, palatable feed in surroundings which promise health and comfort. Nature gives us a model in dairy feeds in the month of June and this is recognized to such an extent that the very words "June pasture" suggest the ideal condition for producing milk and butter-fat of highest quality and in greatest abundance. Therefore, the practical dairy farmer takes his cue from old Mother Nature, and endeavors to extend the favorable June conditions throughout the year to as great a degree as possible. His success will be measured by the profits resulting from this effort.

In the first place, our common grasses supply all of the required nutrients in the proper proportions. Besides, this forage is relished by animals to such an extent that they will consume it almost to the limit of their capacities. No measly measure full does nature supply, but all that the cow relishes. Many farmer's checks for milk receipts are small because they are knot-hole feeders instead of liberal caretakers.

### Essentials of Good Feeding.

Then, again, pasture grasses are succulent, thus keeping the digestive organs of the animal in a laxative condition which is favorable for the very best action of the organs for the very best assimilation of the food. Again, the cows grazing in the June pasture

are naturally supplied with an abundance of sunshine and fresh air, not to mention sparkling brook water. Is it any wonder that farmers keeping their animals in dingy, dark dairy barns fail to make a profit in the winter season?

Winter conditions bring their own problems and difficulties but there are also some possible advantages, as outlined above. Although the herd is kept under artificial conditions, these are under the direct control of the feeder, and it is the feeder behind the cow that in the final decides the profit.

Instead of allowing Nature to supply the ration, we must do this ourselves from various sources which will answer in its stead. We have to furnish nutrients, bulk and succulence, going about the task something like this: We will first consider what is available in the form of roughage, for upon the quality of this will depend the selection of the concentrates or grains intended to balance up the nutrients and supply them in sufficient amounts.

### Use Judgment in Feeding.

Alfalfa, clover, or alfalfa and clover hay are best, but of course, mixed hay and corn stover may be fed if these are not available. Alfalfa hay, being richer in protein, is perhaps most desirable as a portion of the roughage and permits a saving in high-priced grains. The grain portion is made up of a variety of means, chops and by-products selected according to the needs of the cows and market conditions in the community.

Good sound judgment will be required to achieve the best results and this means that the feeder must know both his cows and something of the effects of the feeds to be used. For illustration, corn meal is a good feed but a practical dairyman would never think of feeding it alone. The same is true to a greater extent with oil meal, cottonseed meal or other high-protein feeds, but when one of these is mixed the heat producing corn meal and other farm grains to compost a mixture possessing about the same bulk as well-ground corn and oats equal parts, the ration is improved in balance, and is in suitable form.

Without the aid of alfalfa or clover hay in the roughage, it will be difficult to make a satisfactory and economical ration entirely from home-grown material and very often the dairyman is able to exchange some of his home-produced grains for a by-product that will replace a portion of it in the ration at less cost and with actual improvement.

### Study the Herd.

Make it an aim to study the herd and note whether they fail to eat up the grain mixture because they are filled or because they do not relish it. Then locate the part not relished and replace it with something better, modifying the ration to meet the requirements and taste of the stock.

It is very necessary that succulence be supplied if we hope to come anywhere near an ideal dairy ration. The silo solves this problem best from all points of view silage is to be preferred. The second choice would be roots. These will be very satisfactory, either when fed alone or supplementary to the silage, and should be more generally fed than at present on all dairy farms. Lacking either of these, it will be important to secure similar effects through the grain ration with the aid of alfalfa or clover if available. In this connection oil meal is of great value because of its well-known laxative properties coupled with its high protein content.

### Some Practical Rations.

In the absence of silage or roots a grain ration that has given very good satisfaction is as follows: Oil meal, 20 parts; corn meal, 20 parts; ground oats or barley, 20 parts; bran, 40 parts. One great obstacle to dairy efficiency is constipation, aside from being a

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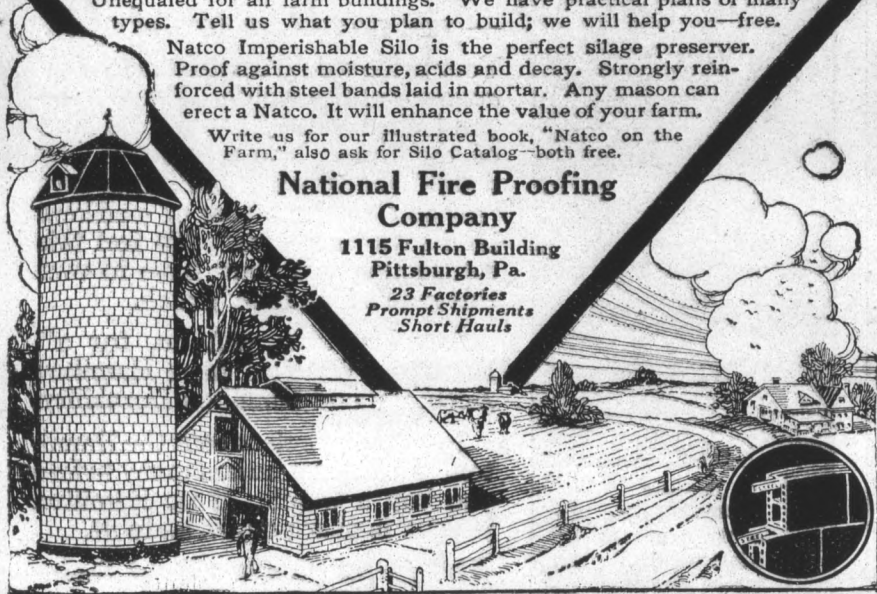
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menace to the animal's health and vigor. It is surely better to prevent ills by attention to ordinary rules of hygiene than to resort to the "dope" bottle after the damage has been done.

Much must be left of the judgment of the feeder and much depends upon the individuality of the cows fed, the stage of lactation, etc. It is safe to say that the following is a good ration: Ten to 15 pounds of hay, 25 to 45 pounds of silage, or 30 to 50 pounds of roots, varying the quantities according to the size and capacity of the cow. In addition one pound of the grain mixture should be fed for every three or four pounds of milk produced. If the cow tends to fall off in production without gaining in body weight it would seem that she is not consuming enough, but if, on the other hand, she gains in weight at the expense of production, it is very apparent that she needs more protein, relatively, in her ration, or that she is the wrong kind of a cow to keep. A good feeder will not let a cow run down and become too thin; he will keep his herd fat enough to kill at any time. If the cow tends to "go too much to milk" she can stand a wider ration, that is, more fattening feeds in proportion to those richer in protein.

It must be remembered that the dairy farmer can diversify his crops better than any other class of farmers, and that if we study our cows closely and remember that our "June pasture" ideal includes also fresh air, pure water, sunshine and liberty of movement, we shall be able to realize more profits.

New York. E. W. GAGE.

### MEETING OF JERSEY MEN.

The Michigan Jersey Cattle Club held a very enthusiastic meeting at Lansing, January 16-17. The feature of the first day was the banquet which was held at the Hotel Downey at 7:30 p. m. About thirty people were there and Mr. Probert acted as toastmaster. Mr. Hugh Van Pelt in responding to a toast told in detail of his work among the Jerseys at the St. Louis Fair, giving to all who heard him a great lesson in feeding the dairy cow. Mr. Jas. Helme gave a very plainly spoken talk on the Jersey, not in any way making prominent his splendid achievement with some forty Jerseys on a forty-acre farm. Prof. Dennison, of the College, Mr. Grombacher, Mr. Showers, field man for Wisconsin, and Prof. A. C. Anderson, Dean of Animal Husbandry at the College, also gave talks.

Wednesday morning at ten o'clock Mr. Van Pelt gave an address and demonstration in the pavilion at the Agricultural College. Immediately following this was the motion picture, "Love and the Jersey," depicting a story of a poor boy who, by industry and perseverance, earned money to go to Agricultural College. The picture shows how he learned the science of dairying and how he won not only the Jersey cow given as the prize in a judging contest, but also the pretty daughter of his employer, and also how they worked and were prospered and how they attended one of the large eastern sales and purchased more Jerseys. The film shows a number of the Jersey Queens sold at that sale.

#### Popularize the Breed.

After dinner Mr. Grombacher, from the Register of Merit Department of the A. J. C. C., said that in 1904 the Jersey breeders united and pushed the breed at the St. Louis Exposition. Then the Jersey people sat back and since that time the Jersey cow has been on her own merit. The Jersey breeder has been resting, but the Holstein breeders have been pushing their breed. The A. J. C. C. can do something, but needs the co-operation of the people. The efforts of the A. J. C. C. are national. It works in forty-six states and so has not time for all the problems of all the states. Each state must deal with its own problems.

It is easier to organize than to keep

Michigan having had four world's champions, it is a surprise that any other breed is talked of. The Jersey has all the other breeds on the run and there is greater activity all along the line than ever before. There were six thousand more sales in 1916 than in 1915. The demand for Jerseys in the south is very great, many orders for Jerseys in car lots coming from there. Jersey breeders should hold up their heads, inform themselves, and then talk Jersey, shout Jersey. Mr. Grombacher also urged the Jersey people to take up Register of Merit work. The work is growing. Three years ago three men handled the work, now the A. J. C. C. keeps thirteen men busy handling the register of merit records.

Mr. Showers was the next speaker. He told how Wisconsin Jersey breeders had become interested in shows, seven herds being in competition at the Wisconsin State Fair last fall. He told of the prices being paid for milk in Wisconsin. The scale of prices being \$1.95 for three per cent milk, \$2.25 for four per cent milk, and \$3.09 for five and one-half per cent milk, per hundred pounds. "The producer," said he, "ought to be paid according to the quality of his milk. We hear much talk about getting better prices but are we producing milk as economically as possible?"

#### A Profitable Dairy and Alfalfa Farm.

Mr. Showers has a forty-acre farm at Delavan, Wis. His farm is divided into four fields, twelve acres pasture, eleven and a half acres of alfalfa, ten acres of corn and four acres orchard, the remaining two and a half acres about the house and barns. He told how he raised his alfalfa at a profit of \$98.40 per acre after the labor is all paid for. He, in answer to a question, told how he does this. The land is plowed in the fall, then very early in the spring it is well disked and then harrowed from eight to eleven times. Then the soil is well inoculated. He puts one shovel of inoculated dirt to four shovels of limestone into the spreader. This is followed immediately with the harrow. Then twenty pounds of Baltic alfalfa seed and one-half bushel of barley is sown to the acre. The barley yields about fifty bushels to the acre. He cuts his alfalfa in the morning just as soon as the dew is off. In about an hour he uses the tedder, then lets it lie till after dinner, when it is cocked and 40x40 in caps are put on. Then it may lie six, eight, or even ten days. If it has to lie too long the cocks are moved over. On a nice bright day the caps are removed and the alfalfa is laid out carefully. Off of the eleven and a half acres Mr. Showers makes about seventy-five tons of hay. After feeding about fifty-eight tons he still has about sixteen tons to sell at twenty dollars a ton. This pays for all the mill stuff necessary for his herd.

#### For Best Results in Breeding.

Although Mr. Van Pelt had already spoken twice he was again called upon and responded very willingly. He said that there was no use in selecting a great herd and then breeding down. We have hardly grappled the rules of true breeding. Many breeders get just one idea and follow that for a while and perhaps the results are not satisfactory and that is dropped and a new method is adopted and he finds that he still does not succeed. One must combine rules and methods in order to get the best results.

At the business meeting the following officers were elected: Mr. Alvin Balden, Capac, president; Mr. Albert Henrickson, Capac, vice-president; Mrs. Phebe H. Walker, Kalamazoo, secretary-treasurer; Mr. H. F. Probert, Mr. F. P. Normington, Ionia, Mr. Fred Brennan, Capac, Mr. A. Balden and Mrs. Walker were chosen as the executive committee.

There were over fifty Jersey breeders in attendance. The meeting was one of the best ever held by the Michigan Jersey Cattle Club.

MRS. P. H. WALKER, Sec'y.

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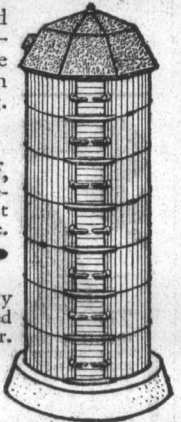
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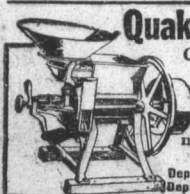
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DAIRY PROBLEMS.

Injury to End of Cow's Teat.

I have a young cow that is having trouble with one teat, that is to say, there seems to be a scab form over the end and I have to remove it night and morning before milking. It seems to be sore and she is very particular about anyone touching it. I am using a milk tube and am keeping it greased every day, but it does not get much better. I notice in the last three days that the milk from this teat is a little stringy. Can you tell me what to do?  
Wexford Co. F. E. R.

The end of the teat has been injured some way. The opening is so small that when the scab is formed to do the healing it covers the whole end of the teat, closing the opening. I have had some experience, sometimes successful, sometimes not. The milking tube must be left in the opening so it will not be closed by the scab that forms. Once or twice I was successful by using a small quill from a hen's feather. The trouble is to get the quill to stay in between milkings. The quill or milking tube must be sterilized. Use a healing ointment, and force some into the opening of the teat.

Theropy or gargety milk comes from the fact that the cow is not milked clean by using the milking tube or because the teat and udder has been bruised from some external cause, causing inflammation.

Warm Water and Frozen Silage for Cows.

What do you think of the feeding of silage from the silo in the ordinary method? As you know, it is fed from the ordinary silo and is very cold all winter and most of the winter it is frozen. I would think that the eating of this frozen silage would be more injurious than the drinking of ordinary well water.

Water doesn't want to be so warm that it is insipid. It ought to taste fresh. Of course, outdoor tanks will freeze up unless they are protected, or unless they are kept free from ice by a tank heater, but all that is necessary is to keep the tank free from ice. Have the water around forty or fifty degrees in temperature.

Cows ought not to eat very much frozen silage. The center of the silo never freezes. It is only around the outside. This can be helped by keeping the outer edge the lowest. If some of the silage is frozen, leave it in the warm stable over night and let it thaw out. If you will keep an oil stove in the silo during the coldest nights it will assist very much in keeping the silage from freezing. A large silo for winter feeding does away with the freezing of the silage to a very great extent.

Can the Percentage of Butter-fat be Changed?

Can the percentage of butter-fat in a cow's milk be changed by different methods of feeding?  
Washtenaw Co. W. C.

It must be more than a year since this question was asked. Two or three years ago I remember it came frequently and like the question of wheat turning to chess, I guess it will never down.

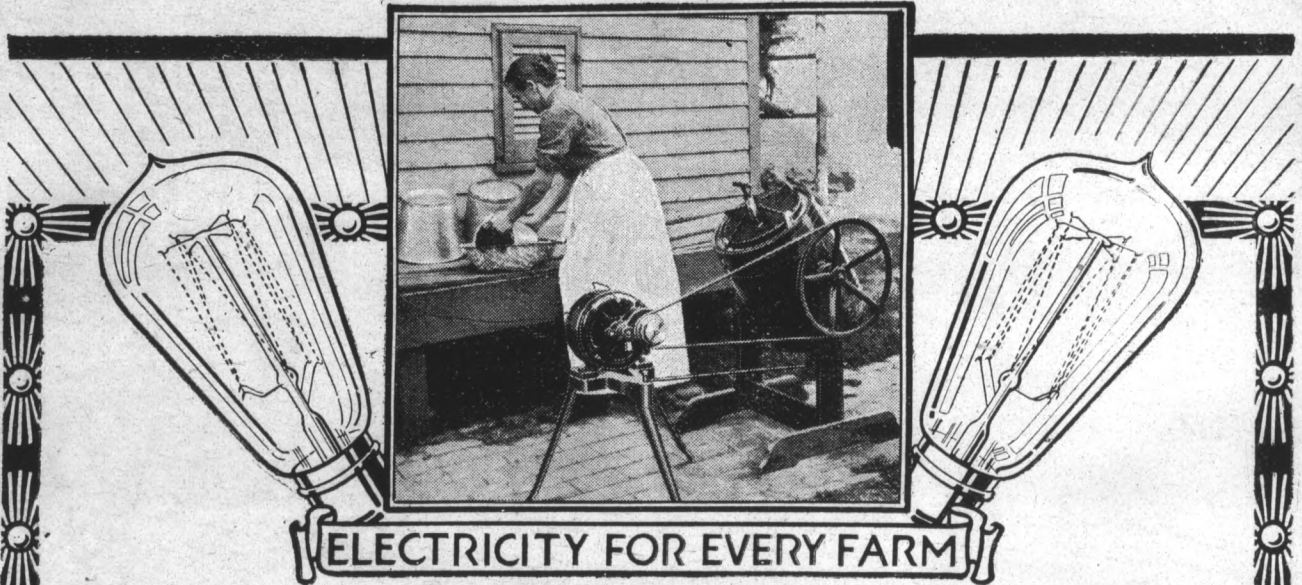
Careful experiments have been made time and again to ascertain this fact and every time the conclusion is the same. The per cent of fat in milk can not be changed by feeding, except temporarily. If there is a sudden and abnormal change in feed, the physical condition of the cow is changed from normal and the per cent of fat may vary, but it is as apt to be less as greater. The Geneva Experiment Station actively fed cows pure fat and it did not change the per cent of fat in the milk.

The per cent of fat is fixed by the individual and the breed and can not be changed by feed. If this were not so then we would feed Holstein cows such a ration that they would give as rich milk as Jerseys and Guernseys.

Often two cows of the same breed, fed and cared for the same, give widely different percentages of fat.

COLON C. LILLIE.

# DELCO-LIGHT

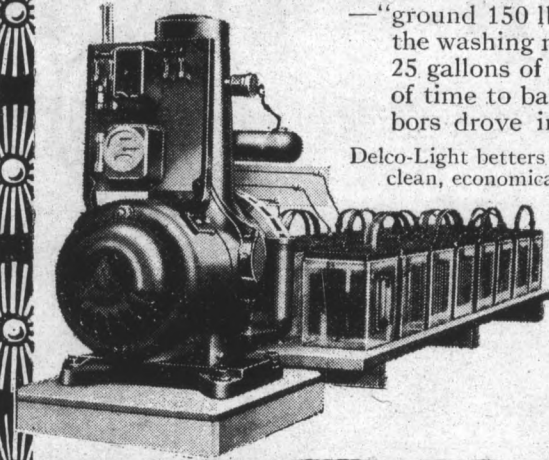


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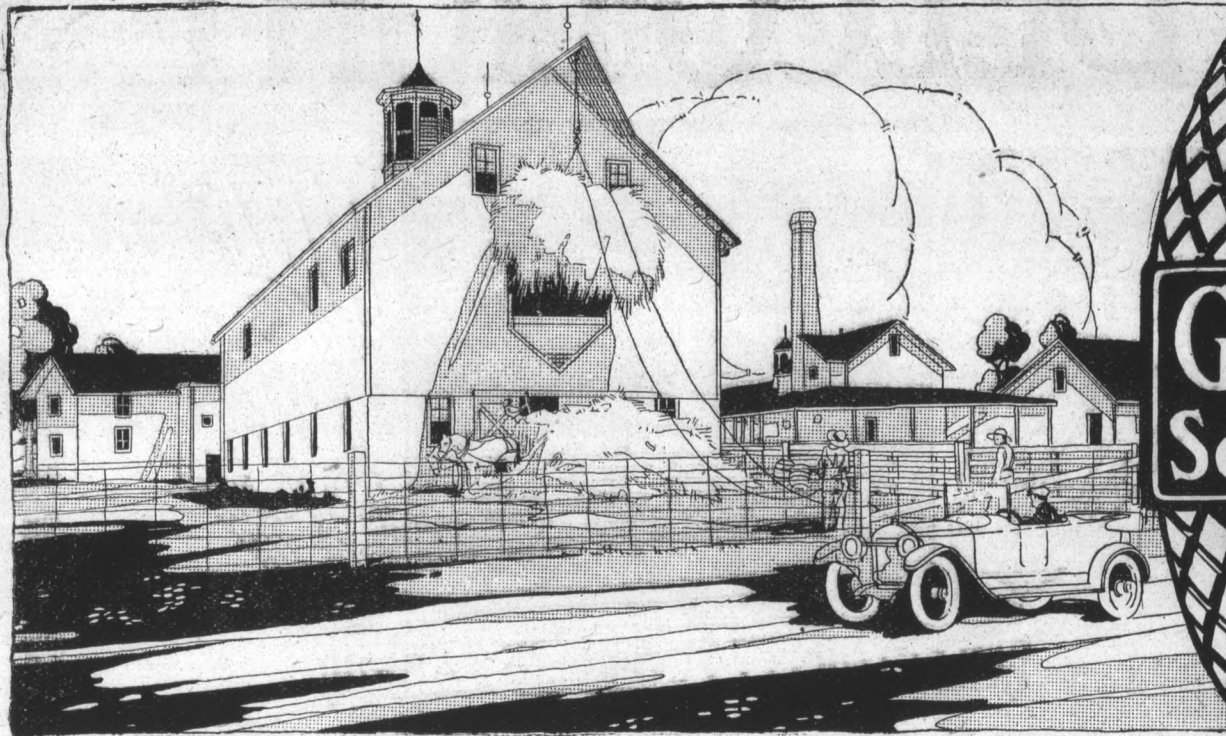
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# Magazine Section

LITERATURE  
POETRY  
HISTORY and  
INFORMATION



The **FARM BOY**  
and **GIRL**  
SCIENTIFIC and  
MECHANICAL

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

**N**O true son or daughter of this great state of ours can sing those words, "Thy Lake Bound Shores I Long to See," in "Michigan, My Michigan," without being stirred, as their thoughts turn backward to the days when the Red Man roamed the shores of our lakes and rivers, marked out trails through our dense forests, and lived in wigwams on the same ground where now stand our costly dwellings. Surely in dealing with the history of the trails of our state we can no more separate them, in our minds, from the memory of the Indians who made them than we can help thinking of Goethals when looking up the history of the Panama Canal. The trails in Michigan and in other states have been the

## Trails in Michigan

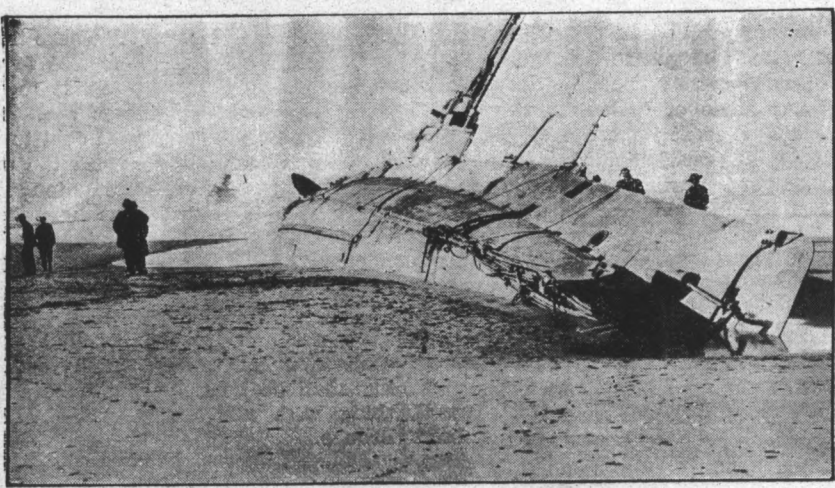
By EDWARD PICAE

paths that have led us to the civilization we now enjoy. In Volume III of the Michigan Pioneer collection for the years 1879-80, Major Abraham Edwards says that when he started out from Detroit in the year 1828 to make his home in western Michigan, which was then nothing but a trackless forest, the only guide he had was the Indian trail for at that time very few wagons had penetrated this region. Thus it has been since the early settlement of the French along the eastern shores of our

state in the seventeenth century, that the Indian has marked out the course of our daily travel. Trails are divided into several classes: namely, hunting, portage, war and trading trails. The use of the trail as you can readily see, gives it its name. The portage trails are more common between adjacent bodies of water. The war trail can be distinguished from all others because it is wider, and is usually worn to a greater depth; often times to a depth of two feet. All Indian trails followed a path of least re-

sistance and in most cases this path led over ridges and highlands. The valleys and the lowlands, as a rule, contained too many swamps and marshy places for convenient travel. Though many times the Indian had two trails, a lowland and a highland trail, leading to and from objective points, because in certain seasons of the year the lowland trail was more easily traversed than the highland trail. Mrs. B. L. Sterling says that it was characteristic of most of the trails to pass close to the base of any trees that might be on their routes. As a result of this fact, she says that one could stand in the path of a trail leading through great roots of the trees laid bare by the constant tread of the moc-

## WORLD EVENTS IN PICTURES



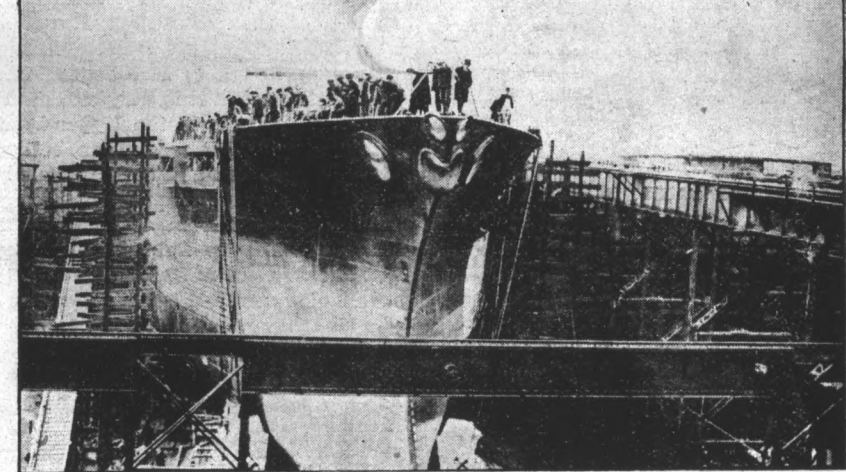
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by the constant tramping of the mocasined feet of the Indian. Early pioneers say that these trails were so firmly packed by years of constant use that it was very difficult to get a plow to go through them. Some authorities tell us that the Indian needed no outward mark on a tree along his trail for a guide but that the stars guided him and that he could glance at a tree or a hill and get his bearings as he would speed on. Other authorities say that he bent young saplings and twisted vines and shrubbery into various forms to serve as guides along his thoroughfares. We will at any rate have to give him much credit for being able to read nature in her wild forms.

The following trails come under the head of hunting, visiting and trading trails, yet I would not be surprised if at some time or other they served as war trails.

The old Washtenaw trail much spoken of in the Michigan Pioneer collection, will be worth our time to trace. Starting at Detroit, we follow it westward. At the town of Belleville, Wayne county it takes a course somewhat parallel to the Huron River, keeping on the south side of the stream. Following its course we pass through Ypsilanti, Ann Arbor and Dexter, and through the woods to Jackson. From Jackson it leads us across the Grand River and on to Albion, where it touches the Kalamazoo River. From this point we follow pretty well the course of the Kalamazoo River to Bronson. At Bronson, now Kalamazoo, we ford the river, near Riverside Cemetery. From Kalamazoo our course passes on through Paw Paw, Watervliet, Lawrence and Benton Harbor. From Benton Harbor our trail keeps in touch with the shore of Lake Michigan into old Fort Dearborn, now Chicago.

The Sack Trail diverges at Ypsilanti and taking a more southerly route than the Washtenaw Trail did it passes through the towns of White Pigeon, Coldwater and Niles and from Niles to Chicago.

The Pottowatomie Indians had a trail between Saugatuck and Battle Creek. We know it passed through the vicinity of Plainwell just a mile and about twenty rods north of Bridge street.

In our Pioneer Collection series, an old trail in the Upper Peninsula, is spoken of that connected Keweenaw Bay and Lake View Desert. It is seventy-six miles long and bears marks that indicate that it is very old. While speaking of trails in the Upper Peninsula, I will in this connection, tell you of the Chippewas and their trails.

A band of five thousand Chippewa Indians started from Ontonagon City for Green Bay to fight the Sack and Fox Indians. It is likely they traversed an old war trail or else they made one as they went along. I am told that their course led southeast across Ontonagon and Gogebic counties to Lake View Desert and down the Menominee river to Green Bay. In the meantime the Pottowatomie Indians of southern Michigan hurried in their canoes up Lake Michigan to the assistance of the Sack and Fox warriors and were probably responsible for the defeat of the Chippewas.

The Chippewa Indians had a trail from Sault Ste Marie to Mackinaw and from Mackinaw to Saginaw. If we were to follow this trail from Saginaw to Mackinaw, we would have to cross the Kan, Kawlin, Pin-Conning, Saginaw, Deep or Pine, Rifle, Augers and Tawas Rivers. From East Tawas we would go north until we came to the Au Sable River. Then following the Au Sable River northwest we would cross Iosco and Oscoda counties, and a part of Crawford county. From Crawford county our trail takes nearly a direct course north through Otsego and Cheboygan counties to Mackinaw.

The Okemas Trail, also known as a "Through Trail" from Mackinaw across the Lower Peninsula was eight

inches lower than the earth's surface. It passed through Alaiedon, Okemas and Williamston in Ingham county and was the only trail between Okemos and Williamston.

The City of Kalamazoo was once a large Indian settlement and very prominent because old Chief Noonday or Saginaw, lived there and from this settlement sixteen trails diverged. The John Annin Chapter of the Organization known as the Children of the American Revolution, have erected a marker on an old Indian Trail between Kalamazoo and White Pigeon. The ancestors of these children used to carry mail over this trail between Schoolcraft and White Pigeon.

Our main highways north and south, east and west, follow approximately the course of those old trails, as do also our railroad and telegraph lines. An early pioneer tells us that the cities of Mackinaw, Petoskey, Big Rapids, Grand Rapids, Plainwell, Kalamazoo, Schoolcraft, Three Rivers and Constantine, are located very near the old Main North and South Trail. Mackinaw and Constantine were its terminals. Also the cities beginning at Detroit and coming west to Chicago following what is now the Main Line of the Michigan Central Railroad, are located on what used to be the old Main East and West Trail. From Mackinaw, two other trails branched out, one to the east coast of the state and the other to the west coast. The East Trail led to Saginaw and from Saginaw to Detroit. The Western Trail followed pretty well the eastern shore of Lake Michigan to Chicago.

Barry county had a network of trails; some of little importance and others of great importance. The Canada Trail passed through Barry county and is of importance because over this trail the Indians filed on their way to visit Port Ponchartrain and to cross the Detroit River to Canada. A north and south trail through Barry county connected Watch-eben-ashi-wish, on the site of Kalamazoo with a village at the rapids of the Grand River, now the city of Grand Rapids.

A few miles northeast of Plainwell lies a little lake known as Selkirk

Lake. There in an early date was established a mission bearing the name of the lake. From this place a trail led past Shelp's Lake to Slater's Mission, over in Prairieville. From Selkirk's Mission, another trail led southwest to Green River to a little Indian village, where afterwards was located the Old Forbes Farm. On the land adjacent to this village, corn was raised by the Indians. From the Indian village the trail came south, and passed through this vicinity one-half mile west of the old Plank Road. The ravine between Mr. John Stewart's new home and Mr. Wm. Stamp's residence marks the place where this trail approached the Kalamazoo River. On this side of the river it made an approach near the old mill that stood on land belonging to Mr. Hiram Anderson. From Plainwell it led to Paw Paw where it made connections with the old Washtenaw Trail.

Often times a stranger in our village asks for directions to some home. We direct him by telling him to go so many blocks east and then south, as the case may be, but it was not so in the days of the trail and the dense forests. A lone pine on the bend of a trail, or twin pines on the bend of a trail or stream often served as a mark of distance.

Branching out from the Main Trails that I have been able to learn of are countless other trails, that find their way into the heart of Michigan. Each trail tells the story of a tribe that is rapidly passing from the scene of action to the world beyond. These trails have been of the same service to the early pioneer as the compass to the navigator on the trackless sea. The word "trail" means a great deal to me because it connects me with the past and brings me into communion with the things of nature that have been the foundation of Michigan's growth—her mines—her forests and her her mines, forests and streams.

Do not dare to live without some clear intention toward which your living shall be bent. Mean to be something with all your might.—Phillips Brooks.

**"Mister 44"** By E. J. RATH

CHAPTER XV.

"Out of the Frying-Pan—"

Stoddard made a megaphone of his hands and bellowed a series of hails, whereat Sadie took up the cry in long musical "Whoo-ooo." that carried far beyond his deeper notes.

The canoe, distant from them nearly a mile, seemed to hesitate, then increased its pace. Stoddard caught a series of yellow flashes as the golden sun, now low over the hills, played up on the wet blade of a paddle.

"All right, Sadie," called Stoddard. "He's coming!"

The fore-part of the Ark lay between Stoddard and the canoe, so that Sadie would be first to be rescued. Stoddard sat down contentedly on his craft, spreading his legs wide to hold the logs together.

Sadie beheld a birch-bark canoe cutting through the little waves at surprising speed. She was even more astonished to discover, when it drew near, that the paddle was being plied by a "shrimp"—a little, thin dark man, with extraordinary black eyes.

"An Injlan!" she whispered to herself as the bark craft drew alongside.

He gave her no salutation, but merely laid hold of the logs to steady his canoe and nodded to her to step in. She obeyed cautiously, for the bark vessel seemed to be singularly frail, even though it floated buoyantly. Pushing away from the Ark without a second glance at it, the Indian resumed

his paddle and headed in the direction of Stoddard.

As the latter climbed into the canoe the after-part of the Ark, relieved of his weight, quietly resolved itself into scattered drift-wood. Stoddard grinned at Sadie, and she in turn laughed at him.

"Got any tobacco John?" he demanded, addressing the Indian.

It was sunset as the canoe bearing the trio swung into the open water of the South Arm. Sadie, sitting amidships and facing the bow, had completely forgotten her recent adventure. She was giving all her attention to the Indian, John, who had exchanged places with Stoddard and was now wielding the forward paddle.

The redman did not look noble in Sadie's eyes; he was too small, and he did not dress as does the aborigine of the movies. It was the manifest power that came out of his almost emaciated body that astonished her, just as it had always puzzled Stoddard himself. John was a paddling machine, efficient and tireless.

Stoddard laid the bow of the canoe on a line for the Deepwater Hotel, now visible, at some three-miles' distance. He called Sadie's attention to the fact. She made no comment, but sighed. To her the hotel seemed to stand for the end of the story.

John presently ceased at his labor and faced about. Not once had he made an inquir concerning Sadie or the plight in which he found both her



and Stoddard, nor did he now. He merely asked:

"Hotel?"

"Yes; for the lady," answered Stoddard.

"You see folks," nodded John.

"She has no folks here."

"Your folks," corrected the Indian.

"Mine?"

"Sure."

"My folks are not here either, John."

"Yes; at hotel," remarked John.

"What!"

"Sure; come this morning."

"Caesar's ghost! Are you sure?"

"Two women," added John.

"You mean my mother—and sister?"

The Indian nodded; then started to resume paddling. Stoddard checked him abruptly.

"Hold on! Wait a minute. I want to think," he called. "Did you see them yourself?"

"Come to camp in launch," explained the Indian. "This afternoon."

Stoddard, dismayed, began a rapid fire of questions. He learned that his mother and Betty had arrived at Deepwater that morning to make a brief stop on their way westward.

They had visited the camp on the Northeast Arm, to find only Stoddard's camp-mate, Larry Livingston, and the Indian there. Larry was in a fret of indignation over his desertion by Stoddard. He had no explanation to offer. Neither had John.

The ladies had made a brief visit and promised to return. Following their departure John had set out on a hunt of his own for the missing one.

Sadie was no less dismayed than Stoddard himself as she assimilated the news. No. 44's folks were at the hotel, whither she was now bound, and she would meet them—arrayed thus!

The prospect terrified her. It was an issue she lacked the hardihood to meet. She turned to Stoddard appealingly.

"Take me somewhere else," she pleaded. "I can't meet 'em this way. I got to get some clothes."

She did not realize the boon her words bestowed upon Stoddard. He also had been reflecting swiftly upon the impossibility of introducing Sadie to the same hotel at which his mother and Betty were staying, not because he was ashamed of her, not because her dress was torn and soiled, not because her hair was flung loose to the wind, as if she were a wild woman, but because—well, because he could not invent a way to account for her.

He clutched at the opportunity Sadie offered.

"You really think you wouldn't care to meet them until you're fixed up a little?" he asked.

"Why, I just can't!" she exclaimed. "I'd die."

"Then I don't see anything to do for the present but to take you to camp," he observed.

To Sadie the suggestion was blessed relief.

"Take me there!" she urged. "I ain't fit to go anywhere else."

Stoddard, with a feeling that disaster had again been miraculously averted, quickly changed their course, and the canoe began the journey to the island where Larry Livingston was worrying, fuming, and cursing the Fates.

There was ample time for thought now, but Stoddard could not manage to see far enough into the future for satisfactory planning. Sadie would have to meet Larry, of course, while some sort of explanation would also be required. Nevertheless he was resolved to tell no more than he could avoid. Larry would neither appreciate nor understand; furthermore, it was really none of Larry's business. This was his affair—and Sadie's.

He was dazed at the turn of fortune that had brought his mother and Betty to the Deepwater. When he left New York there had been talk of their joining a party to travel from coast to coast by private car, probably through Canada, but there had been no suggestion of such a visit as this, which was

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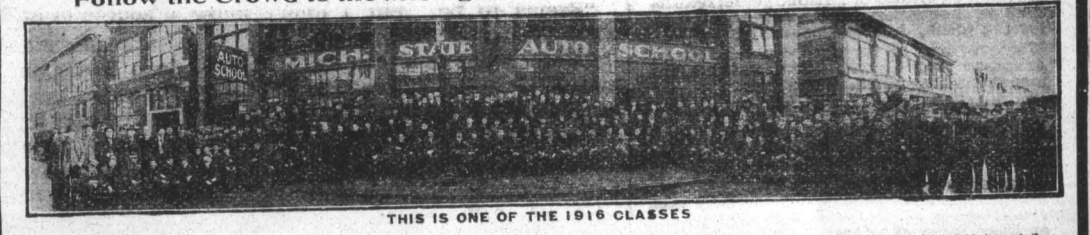
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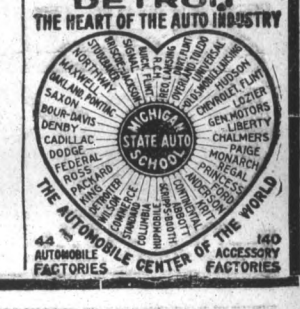
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evidently the result of whim or sudden change of plans.

"I bet you'll be glad to see 'em," observed Sadie.

"I never wanted to see them less," he declared earnestly.

"Why, No. 44! That don't sound good."

"Can't help it. This country is no place for them. And besides—"

He hesitated, embarrassed by the thought in his mind.

"Well, they shouldn't have come without sending word."

"You got to make allowances for us women," mused Sadie philosophically. "I came kinda sudden myself, even if I did telegraph."

It was dark when the canoe rounded into the Northeast Arm. Far ahead of them they caught the gleam of a camp-fire.

"Larry is certainly piling on the wood," commented Stoddard. "Got plenty," John assured him. "I cut it."

The figure of a man silhouetted itself against the blaze as they drew close to the island, then advanced to the landing place to meet the approaching canoe.

"That you, Stod?" called a voice.

"Yes. Hello, Larry."

"Where in blazes have you been?"

"Fishing, swimming, hunting," replied Stoddard nonchalantly. "How are you?"

"Safe enough—no thanks to you!" growled Livingston. "That's a nice trick to play on a fellow. Do you know your mother is here?"

"John told me. Is she well?"

"Seems to be. But I didn't know what the deuce to say about you."

"Mother knows I can take care of myself," laughed Stoddard as the canoe touched the rock. "She's used to having me go off on sudden expeditions."

He stepped ashore and reached a hand to Sadie. As her stalwart figure rose out of the canoe Livingston, unaware till then of her presence because of the gloom, uttered a cry of surprise.

"Miss Hicks, this is my friend, Mr. Livingston," said Stoddard calmly.

It was Sadie who managed to find Livingston's hand and give it a cordial grasp.

"Glad to meet you," she said.

Larry was speechless. Bending forward for a better view of this unexpected arrival, he discovered himself looking upward into her eyes.

Sadie had been prepared by Stoddard for an unfavorable impression of his friend, and she found herself making a swift classification of him according to her inevitable standards of stature. He was not much better than she expected.

"Miss Hicks?" Larry echoed when he recovered voice.

"Yes; Miss Hicks," affirmed Stoddard.

"But who—what—"

"Miss Hicks is a friend of mine," pursued Stoddard. "She is from Buffalo. This is her first trip to Canada. She has come here to accept a position."

"Here?" Livingston's tone betrayed amazed incredulity.

"No; not exactly here," laughed Stoddard. "That is, if you mean on this island. But she has come to Deepwater. I went to meet her two nights ago, to take her down to the hotel, where she expects to stop for a while."

Sadie was listening to this bland recital of her plans with almost as much wonder as Larry himself.

"We were caught in the storm, unfortunately," Stoddard continued, "and Miss Hicks had the bad luck to lose her baggage. In fact we also lost the canoe. We were forced to make a temporary camp. John found us a couple of hours ago. Anything ready to eat?"

Livingston merely stood and stared, first at Sadie and then at his friend.

"But I don't understand, Stod. Why didn't—"

"Listen, son! I asked if you had anything to eat. That's more important

to Miss Hicks and myself just now than anything else."

"Why yes; of course. John can get you something."

He turned to Sadie, who had not spoken since acknowledging the introduction.

"You see, Miss Hicks," Larry began, "I was not expecting company, and—"

"Sure you wasn't," interrupted Sadie, "I know. I ain't company anyhow. I'm just a butter-in. But, if you got a sandwich handy, Mr. Livingston, I certainly can use it."

Larry gasped anew. He fell back a step, as if pushed by some invisible force. He did not know whether he heard aright. Stoddard, sensing his dismay and fearful that he would reveal the cause of it, grasped him by the arm and urged him toward the camp-fire, where John was already busy at the grub-sacks.

"We'll eat first and talk afterward," he said.

"My middle name is Food," observed Sadie solemnly, as she followed the pair into the firelight.

Stoddard, despite his assumed manner of ease, was disturbed and greatly puzzled. He could not put a seal upon Sadie's lips nor upon Larry's ears. Nor could he, in Sadie's presence, make the slightest explanation to Larry of her manner of speech and of her very evident limitations of education. From his own experience he knew how her words sounded to the ears of his friend, and, although he was now somewhat accustomed to Sadie's lapses, he realized that to Larry they would be a source of amazement and shock.

As she stood close to the blazing logs Livingston viewed her with eyes in which there was an expression of horror and awe. The disorder of her costume appalled him. Her stature, her figure, her flying hair, seemed to stun him. She was like a young savage; magnificent, in a wild way, but uncouth, untutored and, from the conventional view-point of Larry, impossible.

Sadie in turn inspected Livingston with placid yet appraising glances. Little men she did not like, save that she was conscious of a very recent and odd exception. This was in the person of Indian John. Physically John was in every way to be catalogued with shrimps she had seen and met.

But John, because of the fact that he was fitly a part of her big outdoors, had mysteriously risen above his stature. She admitted, somewhat to the confusion of her ideals, that John was truly a man. She had heard No. 44 tell of his prowess; she herself had witnessed it. So she set John aside as an exception, to be correctly identified and classified later.

But Larry enjoyed no such dispensation in Sadie's eyes. He was merely a grade above the shrimp; he was a peewee. She had promised No. 44 to stretch a point and elevate him to the sparrow class, but as she viewed him now her conscience smote her, for she knew that he was unworthy of such arbitrary promotion. Sadie's first impression of him, moreover, did not cease with physical contempt.

Something whispered to her that she was looking upon her natural enemy. She was as sure of this as if he had thus declared himself. Her judgments were often swift and usually intuitive, but she rarely found it necessary to reverse them. She was certain of Livingston. He fairly radiated hostility, in glance, in action and in speech, although not in words.

"He's against me," she told herself. "I got his number. Maybe he's No. 44's friend—but he ain't mine."

But because he was Stoddard's friend Larry did not awaken the spirit of battle within her. She was content to avoid him if she could. Should avoidance be impossible, then she would endure him. She would run no risk of offending No. 44.

The rescued pair were too busy repairing the ravages of short rations

and venerable porcupine to do much talking. Between mouthfuls Stoddard furnished to Larry as much additional explanation concerning Sadie as he purposed giving. At times when Larry looked at her, Sadie herself would confirm Stoddard's narrative with vigorous nods.

Only John seemed to be quite indifferent to the advent of this young Amazon in camp. He accepted her without curiosity or question, as he would anything that concerned Stoddard. If the big man had fetched an aeroplane into the woods, or an automobile, or had navigated the Deepwater in a submarine, John would not so much as blink an eye in surprise; not because Stoddard was given to eccentric feats, but because whatever he did had a solid reason behind it, in the opinion of the Indian.

Larry, upon whom Sadie's speech exercised a spell of horrid fascination, tried to draw her into conversation, without signal success. He viewed her reluctance to talk with suspicion. There was something irregular about it all, he decided; it was too utterly mysterious and unconventional.

He was amazed at Stoddard. How and whence such a creature had come into his friend's life he could not even faintly speculate. Covert inquiries and hints yielded little satisfaction.

"I never heard Stod happen to speak of you, Miss—er—Hicks," he remarked.

"I know lots of people I never happened to mention to you," broke in Stoddard hastily. "Sadie and I have known each other a long time."

He cast a swift glance at her as he spoke. Sadie took her cue. She felt that at least she had known Stoddard ever so long. She knew him far, far back when she had begun dreaming of her outdoors.

"Sadie?" echoed Livingston involuntarily.

"Sure!" she laughed a little uneasily. "Jack and me are old friends."

Now that she had said it she was frightened. No. 44 would think it was brazen of her—calling him Jack! But she was desperately trying to play her part. She knew his name was John; he had signed it thus in his letter. Most of the Johns she knew were called Jack by their "old friends." And, of course, it was out of the question to call him by the arithmetical name she had bestowed upon him, for that was something only she and No. 44 could understand.

She was blushing redly as she glanced at Stoddard across the camp-fire. He grinned at her and winked.

"You're from Buffalo?" suggested Livingston.

"I was in business there," answered Sadie, with a magnificent air.

"What profession, may I ask, Miss Hicks?"

Sadie felt herself trapped. There was something pitiful in the swift look she gave Stoddard. His glance was on the tin plate that rested between his knees. Then she steeled herself as she turned to her accepted enemy.

"Packin' shirts in a shirt factory," she said in a steady voice.

There! It was out and she felt better. She knew it was of no avail to play the educated lady; it was a part far beyond her powers.

"And," she added sweetly, meeting Larry's eyes fairly, "I expect to be washin' dishes in the hotel as soon's the management and me reaches an agreement."

Stoddard was looking at her now. Her heart gave an extra beat when she found no pity in his eyes. Instead she saw admiration. He smiled at her too, and nodded.

"You see, Larry," he said, "Sadie has decided, very wisely, to quit the city. She likes to be outdoors, so I offered to help her get a position. We have discussed the whole matter quite fully, and we both agree she is doing the right thing. Don't we, Sadie?"

"Yes, Jack."



It slipped out that time, but she was no longer frightened at the sound of it. Livingston relapsed into silence. It was worse than he believed. A creature from a factory! He wondered if Stoddard was entirely sane.

As for the girl, there was no doubt of her sanity. She was shrewd and calculating, he felt, beyond all question. She was seizing an opportunity not to be missed. He secretly commiserated with his friend, who was too blind to see or understand.

The faint putt-putt of a motor launch came across the water. Stoddard inclined his ear toward the sound. "That'll be your mother and sister, I imagine," said Larry with affected carelessness.

"To-night!" Stoddard fairly shouted the word.

"They said they'd probably run up this evening if it was clear and pleasant," explained Larry. "They thought you might be back, and as they expect to leave tomorrow they won't have much time to see you."

Stoddard had risen to his feet and was looking at Sadie. He felt panic struggling within him. So did Sadie, who also arose and faced him.

"Yes; come tonight," volunteered John as he nodded toward the now clearer noise of the power-boat's exhaust.

"I can't see anybody in these clothes!" blurted Sadie. "Not ladies." "You would rather wait?" suggested Stoddard.

"Gracious, yes."

Livingston looked at the pair cynically and smiled in a shadowy way. They paid no attention to him.

"I can understand how you feel, Sadie," said Stoddard, yet ashamed of his sudden timorousness. "You don't have to see them now, of course."

"Hide me!" command Sadie briefly. "There's the tent," suggested Larry.

"Nix," said Sadie shortly. "I know women. If they see it closed up they'll go straight to it. Take me somewhere else."

Seizing her arm Stoddard walked her rapidly across the little clearing into the woods. A dozen feet beyond the rim of the trees was utter darkness; at least to the eyes of persons who stood in the firelight. He felt guilty and contemptible as he groped about until he found a rock upon which Sadie could sit.

"It doesn't seem right," he began. "But you understand—"

"Why, I want to be hid," exclaimed Sadie. "I wouldn't have women see me in this outfit for a thousand jobs. I'll just sit here till they go. They won't stay all night, will they?"

"Certainly not. It's good of you not to mind, Sadie."

"Why, I'm doin' myself a favor!" He hesitated; then his hand found hers in the dark.

"Don't mind Larry," he said in a low voice. "He doesn't understand. And that was brave of you, telling him about your work?"

"Was it?" she whispered. "Thanks—Jack!"

Something soft and cool brushed the back of his hand as he turned to leave her. Sadie, secure from his eyes, had laid her cheek against it.

CHAPTER XVI.

"Why Did Sadie Cry?"

When Stoddard reached the camp-fire Larry was starting for the landing-place to meet the arriving launch.

"Not a word, you understand," said Stoddard.

"About what?"

"About her." And he nodded toward Sadie's place of concealment.

"I don't see why," said Larry. "They're bound to hear of it sooner or later. It's too absurd to be kept concealed."

Stoddard gripped him by the arm. "This is my affair," he said shortly.

"It's my business to tell about it if I choose; nobody else's. You leave it alone."

"Piffle!" exclaimed Livingston lightly. "It's a good story."

"Well, you don't tell it son." And Stoddard put a pressure on Larry's arm that made the latter wince. "Mind now!"

"But suppose!"

"If you so much as drop a hint I'll pick you up and toss you into the lake. I mean that, too."

"Oh, all right, if you're so fussy about it! It's got you scared, has it? Ouch! You're hurting my arm. Let go!"

"Remember!" said Stoddard grimly, as he loosened his grip. "The lake for yours."

Out of the cool darkness came the launch, cautiously feeling her way to the rocky shore. Stoddard was awaiting her as the bow came within his reach. An instant later he was lifting his mother and Betty out.

"And where in the world have you been?" exclaimed Mrs. Stoddard as she greeted her son affectionately. "Larry said you deserted him for two days."

"Oh, I was just prowling around in the canoe," said Stoddard. "Larry was all right. He had John. And how are you both? This is certainly springing a surprise on me."

With an arm around each he led Betty and his mother to the camp-fire, where John had spread a blanket over a log to serve as a bench for the visitors.

As Mrs. Stoddard now obtained a view of her big son she uttered a cry of dismay.

"For mercy's sake, John! What in the world have you been doing? You are a perfect fright!"

Stoddard grinned at her cheerfully. "I'm not exactly dolled up for company," he admitted. "We don't pack evening duds up here, mother."

(To be continued.)

A VALENTINE.

BY L. M. THORNTON.

I know a miss, so dainty sweet From laughing eyes to dancing feet; That though I'm older, staidier grown I want her for my very own. And that is why I send this line To her—a tender valentine.

I know a miss, so pure and fair From slender hands to burnished hair. That thrice her age I fain would see Her smile, her kiss alone for me. And this is why with bud and vine I send to her this valentine.

I know a miss so kind and dear, I fain would have her ever near. I'll tell my love despite the years There is no cause for all my fears My little daughter's heart is mine To her I send a valentine.

SAINT VALENTINE'S DAY.

BY AUNT QUILLIA.

Saint Valentine's day, said the snow-flakes,

Let us each a gay partner seek, (Not for love, but for fun's sake only), Who will join us in frolic and freak; And so, with millions of others, Away they went whirling around, Spreading white rugs of ermine Star brodered on the cold ground.

Saint Valentine's day, said the sun-beams,

Let us each a bright partner pick, (Not for love, but for fun's sake only) Who will help us do a neat trick; And so, with millions of others, They glimmered, and shimmered, and burned,

Till every last little snowflake Into wet water was turned.

Saint Valentine's day, said the youngsters,

Let us each a brave partner hunt, (Not for love, but for fun's sake only), Who will help us do a big stunt; And so, with a dozen of valiants, Forgetting cap, mitten, and hood, They made for the ponds and the puddles,

That right in the highway stood.

Saint Valentine's day, said the mamas,

Saint Valentine's day—and, oh, dear, Just look at the job before us, Glad it comes but once a year; Off come the shoes and the stockings, The garments with mud overspread, Then for love, and love's sake only, They are spanked and put into bed.



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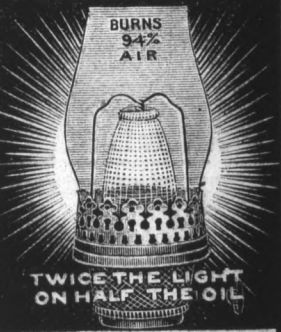
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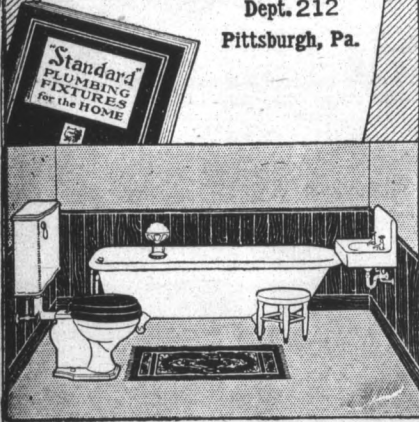
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A somewhat close personal acquaintance with many excellent physicians would seem to justify the statement that this profession demands men of more than ordinary equipment. The nature of work done, the close personal contact and conditions, and hours of effort required, are all such as to exclude the half-hearted, the impatient and the bungler.

A glance at the field of service is very informing. If located in the country town there is a broad expanse of actual field to be covered. Farm houses, more or less isolated, are the homes of the doctor's patients. To reach them often, even in these days of automobile and trolley cars, requires much of effort and when calls come for night service roads are somewhat blocked or impassable. The regular round of calls must be attended, regular hours kept, and so far as possible, regular habits maintained. But regularity is a thing almost impossible for the physician. Accidents occur at awkward moments, babies are born at no regular times, and sickness and distress have no normal office hours. The man who serves here must simply "fit in."

The same is true of the city doctor. Insist as he may that his hours be regular, the very nature of the case forbids it. With office help, and such system as can be afforded, there is still loop-hole for untimely calls and demands which cannot be denied. Calls come from far and near, hotel or hospital, alley or avenue, and they come in daylight or dark, sunshine or snow.

The people served are interesting. The ignorant and dirty, the poor and needy; young or old; male or female; cultured or otherwise, each patient has his special need and cannot be denied. Some undoubtedly are sick who fancy they are well, while others who fancy they are sick are really well. Some will follow instructions and others will not. Some need comfort and sympathy while others must have heroic treatment.

Moral questions are often involved in regular practice and the doctor's decisions are not always easily made. Like every other profession which deals with the secrets of men's lives, physicians often are made confidants, in intimate and hidden things the possession of which is both valuable and dangerous. A bright side to this particular phase of the work, however, is the fact that clear headed and honorable men are in position by the very nature of the case, to give excellent counsel on moral questions.

There is demanded of the physician a constant vigilance. This applies, as a matter of course, to the daily round. It is indispensable there. But it may go beyond the sick room and the consulting office. The general public health has a great safe-guarding army

in the rank and file of the profession. Questions of sanitation, clean water supply, orderly alleys, tidy streets, public parks and play grounds for children the ventilation of public buildings, and building regulations, all these are questions the health officer alone cannot deal with. He finds unofficial lieutenants in the men of the profession everywhere. This is peculiarly so in the cases of contagious diseases, where prompt action on the part of individual doctors prevent epidemics or control their ravages to isolated cases.

We are sometimes asked, "Why do we never have today such great plagues as devastated the world centuries ago?"

The answer is, "The modern physician and his work make them impossible."

The cost of a medical course at any of the approved schools is rather high. It is made more so by the fact that it should be preceded by the literary course. This is not absolutely necessary but would add much to a man's efficiency. The fitting of office is also a matter of considerable cost, due to the many and delicate working tools necessary for first-class business. It should be said, however, that when a course is finished and an office ready for work that the man has accomplished a notable thing.

Close in connection with the cost, of course, is the fact that many special lines are open to him who gets a foundation in medicine. The time is past when the special diseases were treated by the general practitioner. Nearly all of these are now handled by specialists. The medical directory of a great city gives much information along this line. The field of the specialist is said by many to afford a

splendid opportunity for intensive work.

The remuneration of the physician is a matter of much mis-information. Perhaps few doctors are wealthy. The very nature of the work done and the people for whom it is done automatically keep the dangers due to riches far away from most doctors. A large general practice is by no means indicative of large income. That depends in some measure, at least, upon the man himself. Many of the best physicians confess themselves to be poor business men.

Accounts are not painstakingly kept, charges are often overlooked and balances due are frequently cancelled. The cost of the upkeep in office and conveyance is comparatively large. The fees are never exorbitant.

Consideration should be given to the fact that many a general practitioner has little or no home life. His duties will not permit it. At the call of the community night or day the happiest companionships are broken up and most anticipated pleasure foregone. Without intent to enlarge upon the subject it may be stated simply that the sacrifice is a considerable one. Conversations along this line with one's family doctor will be a revelation of facts scarcely dreamed of.

But the work of this profession is a necessary one. Someone must step into the places men who this year finish their labors. If a young man who reads this article and goes beyond its brief paragraphs for larger information, will seek a useful calling, let him consider this as a possible field. With natural ability, a sound body, and a desire of a place among good servants he may hope for a measurable satisfaction in this way of working for life.

(Next article, "The Minister's Way.")

## Adventures of Azoto Bacter—II

By M. J. ERWIN

AZOTO had taken the run-down farm out of necessity but he had been glad that he could even have this opportunity to subsist. He faltered at the thresh-hold—peered into the dismal open glen before him. Horrors! What was that pale form he dimly saw on the other side of the clearing? He was frightened. He started. Suddenly the filmy form took shape. It was a deadly foe—a foreign germ. The foe sat up on its haunches then stood on all fours and lashed its ponderous tail as though shaken with anger. He yawned nervously at the same time emitting a low cry. In response to the cry, a pure white horse rushed out of the bushes. The wild germ leaped onto the horse's back and crouched. The horse and ferocious rider made straight for Azoto.

What to do? Should he take to the road and trust to fast approaching darkness to keep him from harm or should he await the onrush of the rapidly nearing foe? The blood froze in his veins whilst terror reigned supreme in his heels. The first impulse had been to run, but—No, he would stand his ground. Nothing was to be gained by running. If he could—if—if he only could come out victorious in the struggle, mastery of the farm would be his and he might remain in the good graces of June. The remembrance of her rosy cheeks and soft voice nerved him for the onrush of the mad germ and steed.

At a little distance from Azoto, the oncoming steed was suddenly wheeled to one side by her rider who proved to be none other than Azoto's arch enemy, B. Dentrificans. Stopping his horse, B. surveyed his old enemy in the meanwhile continually lashing his tail. The very air was chilled by his

blood curdling whoop whilst he jerked angrily at the rein and began to circle round and round the unfortunate Azoto. Azoto stood still, while faster and faster Dentrificans circled about him. B. crouched for the leap and staunch, yet fearful for the outcome, Azoto prepared for the fierce combat that would soon be on.

Poised on the rump of his steed, the ferocious B. balanced, then hurled himself straight at the head of Azoto. The air was torn with painful howls—the foes clinched. The crunching of teeth and the snapping of bones mingled with other strange sounds of the fight. They rolled over and over on the turf, neither seeming to gain an easy victory. The struggle was one for supremacy. On the one hand, it meant the holding of a title to all this broad farm while to Azoto, it means a home, a mate, a cheery hearth, with the ruddy faces of little Bacters rollicking and playing before the bright fires of the dull winter evenings. Small wonder that the fight continued long.

It was midnight. The solemn, silent moon cast his pale cold rays of reflected light on the bloodstained sand—the scene of the duel. Two shapeless forms lay with upturned faces, their eyes closed to the moonlight. Far away to the south, the hoarse croak of the tree toads made the scene more dreary, while occasionally the bark of a dog in the distance broke in upon the ears of an observer. As the moon gazed silently and intently on the scene before him, he thought, "It is all over with Azoto. His life of usefulness is over and the home to which he looked forward will never be built." He peered again! Was he mistaken? Could it be that Azoto moved?

(Part III next week.)



# Woman and Her Needs

## "Where Are the Nine?"

ONE of the most striking of the New Testament stories, to my mind, is the one of the ten lepers. Striking, because it illustrates perfectly the lack of gratitude which is so glaring a defect in human nature. Christ healed ten lepers and one returned to thank him!

"Were there not ten healed?" asks the Master. "But where are the nine?"

Those who do much work among the destitute, whether paid charity workers or private individuals who are interested in relieving distress, find themselves asking not only, "Where are the nine?" but "Where are the ten?" Where one person will thank you for assistance rendered, one hundred will accept the help as a matter of fact, in short as no more than their due, and positively act as though they were doing the favor in allowing you to relieve them.

Just as an illustration, a visiting nurse had for a week been going to a home each morning to take care of a mother and a new born baby. When Saturday came she told the mother she would not be in on Sunday, as she had to have one day of rest.

"You won't come Sunday," cried the mother. "Well, then, you need not come back at all. I don't have to have no nurse."

And the nurse who had been giving her time and strength to see that both mother and child had proper care was dismissed peremptorily. The woman actually thought she had been doing the nurse a kindness by allowing her to attend the case.

This is but one instance among dozens that every worker could tell you. People who have never done anything for themselves, to say nothing of doing for others, seem to think when hard times come that it is not only the duty of the more prosperous to care for them, but that the benefactor should look upon it in the light of a blessed privilege. Often the one who assumes the burden started life with less than the charity patient. It's the old story of the ant and the grasshopper, only now that the grasshopper is cold and hungry the ant feeds him instead of ordering him to begone and fiddle.

I've often noticed in the case of such a dependent relative, that said dependent lords it over the entire household. Instead of being grateful for a roof over his head, he demands the warmest nook, the easiest chair, the choicest bits at the table, and then growls at the people who feed him, snarls at the children and insists on impressing his wants and desires on everyone about. He is not thankful for the care he gets. He thinks rather, that his benefactors should thank him for giving them an opportunity to do good.

I wonder when I see such cases if it is not mistaken charity to do for such people. They really ought to be bundled off to the county house to learn something of gratitude. But they never are. Family pride, if nothing more, prompts someone to take them in and feed them on the fat of the land, although they have never done anything to deserve it. Indeed, they are cared for far better than the meek and grateful ones who take any crust that is tossed them and kiss the hand that gives it. So perhaps it is another case of the children of this generation being wiser than the children of light.

But just the same it's all wrong. No one enjoys having a stranger constantly in the home, and when the doors are opened to such a one the very least return he can make is to keep up a show of gratitude and to smile and be pleas-

ant. The world owes no man anything which he is not strong enough to take. And the ones who have dawdled through life without providing for emergencies have no right to expect the more provident to help them out when trouble comes. But they do. They not only expect it, they demand it. More, they curse you when you do not help them, and snarl at you when you do. And as soon as the sun shines again they walk away, scorning all your attempts to get them to provide against further storms. Why should they worry? There is always someone they can beg from. Agas gratitude! It is not necessary to get a living.

DEBORAH.

### HOME QUERIES.

Household Editor: Have been a reader of the Michigan Farmer off and on, for years, and would like a little advice. We, that is, the wife and I, are trying to cut the high cost of living all we can, and still, as farmers, live well. I myself, like most men, like good things to eat the year around, especially meat. In the summer time is when it gets the farmer for fresh meat or something that will take the place of it. We kill our own beef and pork in the winter and I have been thinking that perhaps we could can up the surplus for next summer's use, and save paying two prices to the butcher. Is there any way we can do this, especially with beef? Can it be canned fresh in glass cans the same as pork? Also, can you give me a good recipe for home-made bacon?—R. H. S., St. Johns, Mich.

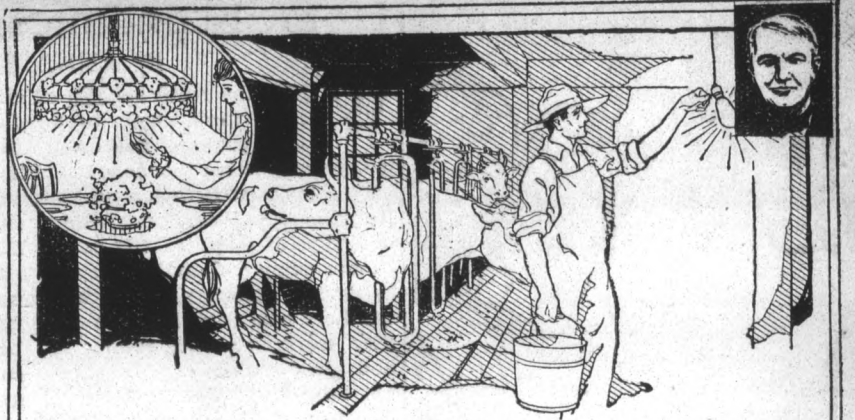
The United States government experts have furnished the following rule for canning meat: As soon as the beef is butchered, cool quickly and keep cool for about twenty-four hours. Cut into convenient pieces for handling, about three-quarters of a pound in weight, and roast or boil slowly for one-half hour. Cut into small pieces, removing bone, gristle and excessive fat, and pack directly into glass jars; fill with gravy from the roasting pan, or pot liquid, concentrated to one-half its volume; put rubber and cap in position, not tight, and sterilize length of time given below for the particular type of outfit you are using:

Water bath, home-made or commercial, five hours; water seal, 214 degrees, four and one-half hours; five pounds steam pressure, three and one-half hours; ten pounds steam pressure, three hours.

Remove jars, tighten covers, invert to cool, test tops for leakage, and wrap jars with paper to prevent bleaching. You can secure bulletins on canning all sorts of farm produce by writing the Publicity Bureau, Department of Agriculture, at Washington, D. C. The North Dakota Agricultural College has also issued a valuable bulletin on the preservation of food in the home, for which you might write.

#### Curing and Smoking Bacon.

Hang the strips of bacon up for a week or ten days. If kept perfectly sweet, the longer they hang, the more tender they will be. Mix one teacup of salt, one ounce of saltpeter and one tablespoon of molasses. Put the bacon in a tub; heat the mixture and rub well into the bacon; repeat this until the mixture is all used, then let them lie two or three days. Put them for three weeks into brine that is strong enough to float an egg; take from brine, soak in cold water for eight hours and hang up for a week or longer; smoke them for about three days, but be careful not to heat the bacon. Apple tree wood and corn cobs are good for smoking. Tie the bacon in bags until wanted for use.—From the People's Home Library.



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**Home Economics and the Rural Teacher**

By ANNA BRYANT COWLES

WHEN the rural schools of Michigan were about to open for the present season's work, many prospective teachers found themselves confronted with a new situation. Rural communities were asking for a new type of teacher. Six communities in one county offered to pay from five to twenty dollars per month more for teachers who were fitted to do community work, such as conducting boys' and girls' clubs. Such teachers could not be found. The agricultural press, the farmers' institutes, the granges, the farmers' clubs and various other organizations have been promoting better rural schools for the past decade. This work has had its effect. Today communities are asking for better-trained teachers for their rural schools. The vital problem now is to furnish the new type of teacher.

In this article I am going to attempt to describe two new methods for training rural teachers, and I shall confine

myself to the field of home economics. It is not enough to introduce agriculture in the rural school, because about one-half of the children who go no further than the eighth grade are girls. They, too, must remain on the farms if we are to have a normal type of country life; and, what is more to the point, they are going to be called upon to be modern home-builders. Where are they to receive the training which will fit them to meet the new demands of the home if they do not receive, at least the beginnings of it, in the district school?

sewing club. Officers are elected, committees appointed, meetings held just as a regular sewing club would conduct its work. Each prospective teacher is placed in the position of a girl in school. She must keep accurate record of the three garments which she is required to complete. This implies that she is to keep a record of the cost of materials, the cost of labor and all other costs in connection with her work. At the close of the project she must hand in a report and a story of her work.

It is apparent at once that this plan has some unusual possibilities. The teacher will be expected to be an organizer. In her county normal group she has learned the methods of organization. She will be expected to know how to teach sewing; in her teachers' club she has learned to sew. In short she has received a training in community leadership. She knows how to organize, how to conduct meetings and



Barry County Normal Training Class Studies Community Leadership.

The first new method for training rural teachers which has come under my observation is the summer session at the Michigan Agricultural College. Here teachers are offered various courses which train them for industrial and community work. In addition to courses in agriculture and nature study, these teachers may elect such subjects as sewing, cooking, recreation, manual training and other related subjects. This work is not book work, but these teachers actually learn to sew, cook and construct things. Due to the fact that many teachers must use this summer period for securing their necessary normal training, this course has had but a small number of enrolled students. It is confidently expected, however, that there will be a large increase from year to year. Rural teachers are just beginning to professionalize their work and many of them are not yet aware of what the rural communities are expecting of them.

The second method for training rural teachers for better community work originated with the principal of the Barry County Normal Training Class. This principal came to a realization that her pupils would soon be called upon to teach in rural schools. She also knew that her county was well organized so far as boys' and girls' clubs are concerned. This meant that many of her teachers would be expected to conduct boys' and girls' clubs. Her plan is very simple. She has selected one of the girls' club projects, namely—sewing. Her entire class is organized as a girls'

how to get results because she has actually done the work. It is the old principle of learning to do by doing.

**LAYING THE TABLE.**

BY M. A. L.

How to serve a dinner right is a question which is bound to bother every housekeeper at some time in her career. Even the most careless cook, who as a rule does not care how things are served so long as the family can eat the food, is bound to find herself confronted some day with the problem of "doing it right." A family wedding, if nothing else, will present the question, and there are bound to be anniversaries to celebrate, not to mention christening dinners and graduation

parties when the hostess finds herself at a loss to know just what to do. It is a doubly difficult task, too, when there is but one woman to do all. Few country homes nowadays have hired help, so great is the scarcity of girls, and not every woman is so fortunate as to have a daughter old enough to help serve. But a little care and forethought on the part of the housewife can forestall everything save accidents and the capable woman can serve a dinner well, even without help.

silver polished and china dustless and shining. Her decorations are arranged for and nothing is left to be done at the last day except the actual cooking of the food. Even part of the cooking may be done the day before, for rolls may be baked and warmed in the oven on the great day, fowls may be dressed, salad dressing prepared and kept on ice, and many other little things gotten ready. It is a sad breach of etiquette to tell things on a hostess, but at a dinner to which I was recently invited, the table was laid and the dinner cooked after the guests arrived at the hour set by the hostess. And as a crowning lapse, one of the guests was asked to go out and iron a few napkins. Two hours after the time set for the dinner, and about three hours after the usual dinner hour, the company were seated. The long wait had robbed everyone of appetites and the flushed and tired hostess was in no mood to entertain. So what should have been a happy time was a sort of funeral occasion.

But to return to the dinner. The first and most important thing, of course, is laying the table. A silencer should always be used, and if one cannot afford one of the asbestos covers or heavy double-faced cotton flannel silence cloths, something should be provided to take its place, if nothing better than two old table cloths cut to fit the table and quilted together. This not only protects the top of the table and deadens the sound of placing dishes, but greatly improves the appearance of the tablecloth. The cloth should be white, the best quality you can afford, and ironed with a single crease down the center. To prevent other creases when the cloth is put away after laundering, roll it around a thick roll of newspapers, if you have no wooden roller for the purpose. A round cloth is no longer considered necessary for a round table.

In inviting your guests consider the size of your table and be sure that you reserve at least twenty inches for each cover, as the individual places are called. Thirty inches is better, but twenty you must have. The napkins may be placed either at the left of the forks, on the service plates, as the plate in front of each guest is called, or if oysters or other appetized is to be served the napkin may be folded and placed above the oyster plate. At a formal dinner where butter is never served a roll or a few bread sticks are often placed inside the fold of the napkin.



Rural Teachers Spend their Summer at College Learning to Sew.

When a great deal of silver is used it is all placed on the table except that used for the dessert. The knives should be at the right, sharp side toward the plate, the one to be used first being farthest from the plate. Next the knives is the soup spoon and beyond that the oyster fork. The forks are at the left, times up, with the one to be used first farthest from the plate and so on till the last one to be used is next the plate. If only two or three knives and forks are to be used the dessert spoon may be put on at the beginning of the meal, being placed above the plate. Spoons for after dinner coffee and sherbets, or punch, are brought in with the course. The glass for water is placed at the tip of the knives.

Flowers for decoration should be massed in a low bowl, or one or two blossoms in a very tall vase should be



used so as not to obstruct the view. Bon-bons may be put on the table in pretty dishes, but are better served from the side table, or buffet. If candles are used they should be in plain candle sticks or in candelabra and should be sufficient in number to do away with other lights.

The table being ready, the next thing to consider is how to serve the dinner. This will be treated in another article.

**A SUBSTANTIAL COUCH COVER.**

BY EMMA GARY WALLACE.

Three couch covers had gone the ignominious way of the rag bag because the hooks of small shoes and the constant wear of four sturdy youngsters soon destroyed their pristine beauty and left them with yawning holes decorating them from end to end.

Grandma's busy fingers furnished the next one and it has stood the test of time bravely. First, she prepared rags just as for rag rugs, only cut finer, coloring several old sheets a beautiful deep blue. These were to form the main body of the cover because their color harmonized with the furnishings of the room. She sewed them with here and there—say one in a yard or a yard and a half—a white rag followed by a short scarlet one next to it. The balls were taken to a weaver and orders given to weave a piece two yards wide and three and a half long, and to use scarlet warp.

The finished rug was finished with scarlet and blue warp and presented the appearance of a fine Indian production. A stout bone crochet hook was used to pull in the thick fringe. The cover was a beauty, firm and soft and in the estimation of admiring beholders doubly discounted the ordinary cheap, boughten affair.

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# A Practical Farm Poultry House

By R. G. KIRBY

THE simple shed-roof type of farm poultry house is not as artistic as some other types, but many breeders find them satisfactory. They are much easier to construct than other types and one man can do the work with possibly a little assistance in holding the uprights while they are nailed in place, if such help is available. A house of this type which I have recently constructed is twenty-four feet long, and eighteen feet deep, eight and a half feet high in front and four and a half feet high in the rear. The material is matched lumber and the entire house is covered with two-ply roofing paper to make it absolutely air tight on the roof, sides and rear. Such a house will cost around \$75 for material. Some money can be saved by using cheaper lumber, and the building paper will

keep out the wind and rain even if unmatched sheathing is used. The floor of a house of this type will depend on the personal opinion of the builder. If the house is in a permanent location a cement foundation will be best, but if it is to be moved in a year or two to give room for a larger and better building the floor might be made of matched material and raised high enough from the ground to prevent dampness and keep rats and mice from gnawing through the boards. A cement floor in the building is substantial and will be warm enough if covered with a deep litter of clean dry straw. Many poultrymen like a cement foundation constructed at least one foot above the level of the outside ground and then the house is filled in with earth or gravel until the floor level is up with the concrete. This will prevent dampness rising into the house and makes a very satisfactory floor. If a cement floor is used moisture can be eliminated by placing a layer of thick building paper on the bed of cinders under the concrete. Some breeders of poultry on the farm are finding that houses for fifty to 100 fowls can often be moved around the farm to advantage and this prevents a contamination of the soil in any one locality. In a system of management of this kind it is, of course, necessary to construct the house with a tight board floor.

ty wide enough to permit the use of this handy implement inside the building. It will be very handy when cleaning out the house and filling feed hoppers and there is really nothing gained by building the doors in poultry houses too small for such a convenience and labor-saving carrier as the wheelbarrow. The interior of the house is of simple construction. The dropping boards are built of matched lumber and the roosts of two by three rounded on the upper edge. The roosts are divided into two sections of three ten-foot roosts and each section is fastened on two strips of two-by-four and hinged to the wall. The roosts can easily be raised and hooked to the ceiling when the dropping boards are cleaned. Plane the roosts as smooth as possible as this will leave few crevices where

eighteen feet deep and twenty-four feet wide gives a floor area of 432 square feet which should house 108 birds with comfort. Four square feet per hen is the space which practical poultrymen consider advisable and a house of this type can be built in the right size to accommodate the flock and sections can be added at any time they are necessary.

Ingham Co. R. G. KIRBY.

## FEED MILK IN WINTER.

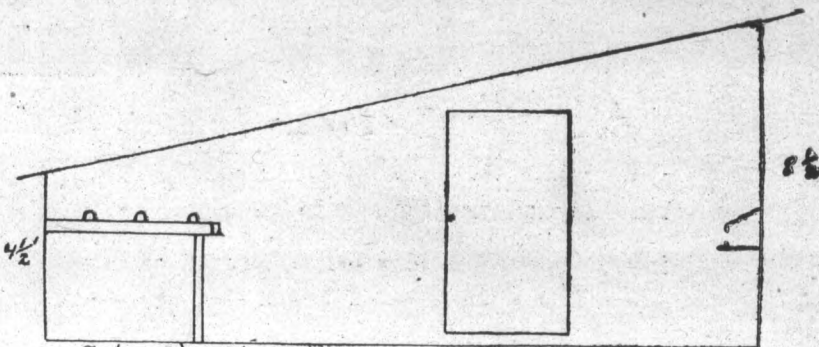
Milk can be turned into eggs in winter at a better profit than into any other farm product. It is not so much that the milk is a better food for the hens, but that it helps to balance the ration and thus makes the grains do full service. Few farmers consider the ration required to produce eggs, and they do not realize that in winter when bugs and worms are not to be had the hens are short one of the most important parts of their regular summer diet, and one that accounts largely for their failure to lay.

Milk is rich in protein, and when it is fed regularly little or no meat scrap is fed regularly little or no meat meal or beef scraps are required to keep the hens laying. Grains contain some protein, but even when they have enough it is in a condition less valuable to the hen than the protein of milk or meat.

## The Value of Milk.

One summer I reared several hundred chickens in a small town where I could get all the milk I wanted from a creamery. I bought a can every day, and kept sour milk always before them. The chicks grew as I have never had chicks grow since, and the hens laid well. Another feature of value was the fertility of the eggs, and the vigor of the young chicks when first hatched. One of the most discouraging things I have experienced was a flock of hens that produced a large percentage of infertile eggs, and eggs that produced weak chicks. I was thankful the flock was a small one, and that a little weeding out, and feeding a fertile egg mash brought them around all right, but if I had had plenty of milk to rear the pullets on, and milk to feed them in winter, I would have had no trouble with infertility or weakness I am sure.

The value of milk was shown very decisively in the care of a little flock I grew on a city lot. They had a good



Side Elevation. 18' Side View of Shed Roof Coop.

house either on the side walls or beneath the windows. At certain intervals they can be removed and cleaned then placed in the sun for a few hours and finally thoroughly spruced. This will usually eliminate all insect pests and it is much more satisfactory than the difficult task of cleaning out nests beneath the dropping boards.

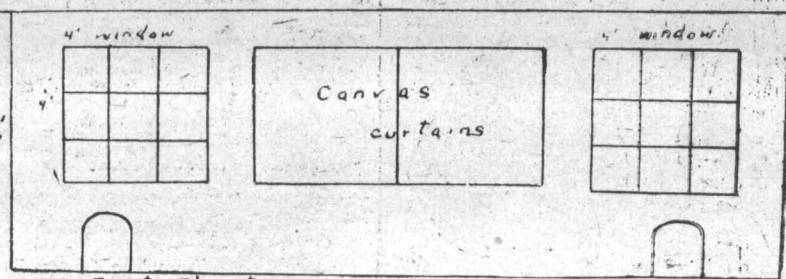
## Arranging the Windows.

Many houses of the shed roof type are made deep enough to prevent any draughts striking the roosting platform and then only canvas curtains are used on the windows. The house described contains two four-foot windows, one in each end of the front and the space between the glass is nearly entirely given over to canvas curtains. During stormy days when the canvas curtains are closed the windows will still emit a fair amount of light and in the summer the windows may be removed, leaving the space simply covered by a wire front which gives the house satisfactory ventilation. The house will, of course, face the south and it will hardly be necessary to place windows in either the east or the west ends.

Before placing the door in the house measure the handles of your wheelbarrow and be sure that the door is plen-

mites can hide, and it will be easier to control this pest by occasionally painting the roosts with kerosene oil and crude carbolic acid.

Some poultrymen place the nests under the roosting platform and allow the hens to enter from the rear while the eggs are gathered by opening the hinged fronts to the sections. Of course, this gives the hens dark nests in which to lay and helps to prevent egg eating. However, nests constructed in this manner increase the difficulty of keeping down mites and lice and the poultryman using such nests will increase the difficulty of keeping the poultry house in a sanitary condition. Nests can be built in sections of five or six, depending on the lengths of scrap that may be left over after finishing the house and these sections can be hooked along the wall of the



Front Elevation 24' Front View of a Practical Farm Poultry House.

A good grade of building paper will make the house airtight and assist in keeping it warm and dry. If possible, lay the paper on a warm still day as it will then spread out more smoothly and there is less danger of the wind tearing the strips. The seams can then be sealed with tar or the prepared solutions which sometimes come with the rolls of paper. In tacking down the paper galvanized nails will be found very satisfactory and they need no paint to prevent rusting.

## Covering the House.

A house of the above type is as simple as any efficient poultry house which the farmer can build. A house

range, plenty of blue grass, but not enough to supply much in the bug line for so large a flock. The man had an office down town and lost no chance to brag of his flock of hens, for they certainly laid eggs winter and summer far in excess of any flock around. He had a good Jersey cow, and his hens got all the milk not used in the house. Finally his business kept him at the office late quite often, and he decided to sell the cow, which he did. A month or so later he sold all his hens except a few to provide eggs for their own use, for his wife refused to let all her hens go. His tune is changed now, and hens are at a discount with him, for his hens stopped laying very shortly after their milk supply was cut off. He was not sufficiently interested in poultry to replace the milk by using meat meal or scraps for them, and his hens would not lay without the protein they were getting from the milk.

Milk can be fed sweet or sour, but I believe most authorities agree that

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Mrs. C. F. Merrick, Lockney, Tex., with her Ironclad incubator won the Mo. Valley Farmer and Nelly, Farm Journal Big Hatching Contest. She placed 148 eggs in the incubator and hatched 148 strong chicks. Think of that. You can now rest these famous winners, made of Calif. Redwood.

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A bigger bargain than ever—still sells at old price—same high quality redwood case—pure copper tank—double hot water and hot air heat—strong tray. Write today.

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sour milk is best. I do not know why it should be, but I never worried about that. I fed the milk sweet or sour just as it happened, and I never could see that the chickens objected to it, or showed any evil effects. I put sour milk in the sun and let it curd, pouring off the whey and feeding the curd to the chicks, alone or mixed with bran or corn meal. One of the best feeds I have used was this curd mixed with equal parts of bran and corn meal until the mass crumbled freely. The chicks are very fond of it, and I like to give it by calling them to get it between regular meals, tapping on a tin pan as a signal, so they will learn to come at the signal when I want to call them in on account of rain. Fed this way it makes almost a complete ration, and will induce the chicks to eat more than they would otherwise. Chicks on free range will scatter and remain seeking bugs when they should be coming in to get more grain unless they are called in at intervals.

Kansas L. H. COBB.

**HAVE A DISINFECTING SCHEDULE.**

One of the most successful poultry raisers, remarked the other day: "There is hardly a week passes that some part of our plant does not receive a good dose of disinfectant. Houses, coops, incubators, and brooders, all get their share." This man realizes that an ounce of prevention is worth a pound of cure, and that the best way of getting rid of mites, lice, and disease germs that chickens are heir to is to fight the pests consistently.

The idea that the presence of lice and other parasites on poultry is a natural condition, efficiently taken care of by nature, is a fallacy. True, they are found on very young chicks, because the mother hen unavoidably distributes them to her brood. Every nest is a refuge for them, likewise perches, dropping boards, brooder houses, and yarding coops. If the poultryman is not careful, baby chicks start life handicapped by these blood-sucking pests.

There is no better way to successfully combat germs and parasites than through the use of a good, strong disinfectant. One that will not only kill lice, mites and germs, destroy and neutralize foul odors, but at the same time one that will neither stain nor injure the birds in any way. Many breeders have been using crude and refined carbolic acid for this purpose. This is not only dangerous but expensive. There are many commercial disinfectants on the market three to five times stronger than carbolic, besides being safer and cheaper.

**MATING THE FARM FLOCKS.**

It is customary among the best breeders of poultry to select the females for the breeding pens some time in the late fall or early winter. The male birds need not be put in the pens, however, until a few weeks before eggs are desired for hatching. There is often too large a percentage of infertile eggs among farm flocks, for the reason that too many hens are allowed for each cock. The presence of the male bird has nothing to do with the production of eggs, notwithstanding a common opinion to the contrary, and if eggs for use at home or to sell in the market are all that is desired, there is no need for any male at all. On the contrary, the eggs will be much better without one. The rooster is needed only for a few weeks during the breeding season and the flocks should be mated in a manner that will produce the most fertility.

**The Fertility of the Eggs.**

Generally the lowest percentage of fertility is noted before the birds can get outside on the ground. When the snow is gone and plenty of green stuff

becomes available, the farm flock usually lays eggs that hatch much better than during the winter. The writer has seen flocks of fifty or sixty hens, served by only one male, that showed a fair percentage of fertility but anyone can readily see that this is exceptional. The farm flock of twenty or twenty-five hens, served by one vigorous year-old male, and allowed free range, will usually furnish fertile eggs during the spring months. Earlier in the season and again later, if hatching eggs are desired, a different method of mating should be followed.

A good method of assuring fertility is to have three pens of fifteen hens each, with four cocks. The first day, put a male in each pen and keep one in reserve. The next day, place the reserve cock in pen No. 1 and move the other birds along one pen. The male that served pen No. 3 the first day goes into the reserve pen. By this method, each male is alone every fourth day, while no bird remains in the same pen two days in succession. By this method there is no chance of any of the hens being neglected because of favoritism.

**A Good Plan.**

If a flock of about twenty or twenty-five hens is kept, it is well to have two males. The hens may be kept in one flock if desired and one cock shut up each alternate day. This plan usually assures an excellent degree of fertility. Where the cock is shut away from the hens part of the time, it is well to place him in a separate coop or building entirely out of sight of the hens. He will remain quieter and store up more vigor and strength than if kept in a coop in the same pen. The bird should be well fed on his day off.

We get the best chicks by mating two-year-old hens to a male one-year-old. Often, also, the cockerel is not more than ten months of age but we prefer the bird that is hatched very early in the spring to head the pen for the next February and March. If pullets are used for breeders we select those hatched at least as early as March and mate them to cocks two years old. Generally it will be better to allow a few less females in the pen when the two-year-old male is used. If hens have been running without a male, the eggs will be ready for hatching in a week after the cock is introduced. If the females are taken from a pen and it is desired to take no chances in connection with a previous mating, three weeks should be allowed to elapse before the eggs are set.

New Hampshire. C. H. CHESLEY.

**RECORD OF EGG PRODUCTION.**

I have kept a record of the egg production of nine single-comb Buff Orpingtons for one year, which is as follows:

Month.	No. of Eggs.	Price per doz.	Total returns
November	147	35c	\$4.29
December	159	33c	4.37
January	155	30c	3.88
February	151	24c	3.02
March	162	20c	2.70
April	173	18c	2.80
May	159	18c	2.38
June	154	19c	2.44
July	126	25c	2.26
August	115	30c	2.87
September	101	35c	2.95
October	72	40c	2.40

The Orpingtons were yearling hens when I started to test them. They averaged 188 2-9 eggs each and the eggs sold at an average of \$4.04 per hen and cost about \$1.00 for feed. The total number of eggs for the year was 1,694 and sold for \$36.36.

I feed oats in the morning, wet mash at noon, corn at night and dry mash before them all the time. This is mixed as follows: Six parts wheat bran, two parts wheat middlings, two parts meat scrap, one part charcoal, one part oyster shells and one-half per cent salt. I give them cabbage, carrots, turnips and beets every day.

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Weather 19° below zero. Jan. 2, 1916 I placed 40 chicks under the Candee Brooder, and up to date have not lost one. I have 28 on hand and have sold 12 that averaged 2 1/2 lbs. Chicks were kept under hover 8 weeks and during this time the thermometer showed as much as 19° below zero. April 5, 1916. L. L. Townsend, Richmond, Ind.

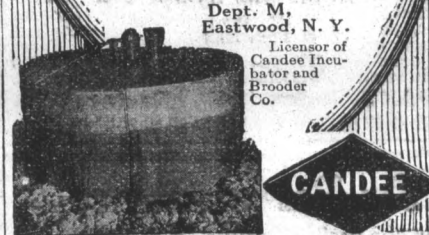
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**Barred Rocks** Parks 200 egg strain. Cockerels for sale. Circular Free. Fred Astling, Cons.entine, Mich.

**Barred Plymouth Rock** Cockerels, full blood \$3.00 each two for \$5.00. J. A. Barnum, Union City, Michigan.

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**Barred Rock** Cockerels, Cocks and Hens. Four pullets laid 850 eggs in one year. W. O. Coffman, R. 3, Benton Harbor, Michigan.

**Dr. J. Ackerson,** Manchester, Mich., Barred-P Rocks, both matings, cockerels and cocks for sale \$3 for 1 or \$5 a pair. Sold on approval.

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Great layers Pullets, hens, breeding males; eggs for hatching; day old chicks; from hens laying 200 to 264 eggs. Prices low, quality guaranteed. Free catalog and price list explains all. Write for it.

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**Utility-Strain White Leghorns**

Eggs and Day-Old Chicks

The Colony of Yearling Hens from which we offer Eggs and Day-Old Chicks, produced Pullets in 1916 hatched in April that began laying in September in December 40 per cent of this Colony of Pullets were laying. Will you write to us for further description of this Winter-Egg poultry stock adapted to natural and convenient farmer treatment? Anything unsatisfactory to the customer in either Eggs or Chicks, will be made good immediately. Do you want advice on "Success with the Practical Hen"? Homestead Farms, Bloomfield, Mich.

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**FOR SALE:** R. C. Brown Leghorn cockerels \$2.00 each. E. Bellen, Whittemore, Michigan.

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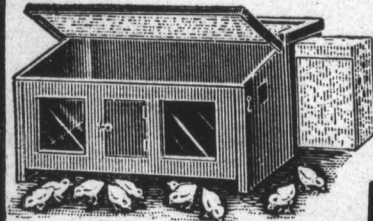
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Wisconsins have hot water heat, double walls, air space between double glass doors, copper tanks and boilers, self regulating. Nursery under egg tray. Made of finest, select, clear CALIFORNIA REDWOOD, not pine, paper or other flimsy material. Incubator finished in natural color—not painted to cover up cheap, shoddy material. Incubator and Brooder shipped complete with thermometers, egg tester, lamps, everything but the oil. This is the best outfit you can buy. If you don't find it satisfactory after 30 days' trial, send it back. Don't buy until you get our new 1917 catalog, fully describing this prize winning outfit. WRITE FOR IT TODAY. You can't make a mistake in buying a Wisconsin. On the market 15 years.

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**10-YEAR GUARANTEE**

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Judged on the basis of results—of profits earned—the Newtown is the cheapest brooder you can buy. There are imitations of the original Newtown which may be obtained at slightly lower prices, but when it comes to performance and efficiency season after season, the Newtown leads, is years ahead of its competitors. The

## Newtown Colony Brooder

is known among leading poultrymen the world over as the brooder "that raises the most chicks, the best chicks, with least labor and at lowest cost." Read this again and think what it means to you in dollars and satisfaction. First on the market, perfected through years of experience, exclusive features protected by early patents, the Coal-Burning, Self-Feeding, Self-Regulating, Freely-Ventilated, Safe and Dependable Newtown is the one brooder for the chick-grower who demands best results.

The Newtown is free from fire danger—operates in any building—broods (according to size) any number of chicks to 1200—reduces expense and labor—raises the chicks.

### See Your Dealer At Once

He probably has the Newtown in stock. If not, send us his name. We will mail free our catalog explaining how best to manage colony brooders, what buildings to use, etc., and tell you where to get the best brooder on earth—the NEWTOWN.

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 buys a popular size

## ALFALFA VALUABLE IN THE POULTRY RATION.

A flock of fowls will find nearly their entire living in an alfalfa field. Not only will they search out the insects which the plants shelter, but in the tender leaves themselves they will find food exactly suited to their needs. A hundred fowls will keep an acre of thrifty alfalfa looking pretty well trimmed down. Hens with growing broods if left at liberty, will lead the young far afield in the search for the tender blades which are about equal to wheat bran in flesh-forming elements. In winter nothing will set a flock of hens singing for joy more quickly than to throw into their coop a few baskets of alfalfa chaff. They seem to like the dried leaves fully as well as the fresh ones.

When young chicks cannot be given access to a field of growing alfalfa they will eat it greedily if cut with a scythe tied in bundles of convenient size and placed where they can get at it. They will trim the bundles down to the last leaf, but it will be necessary to turn them over after an hour or two so as to expose the lower side. Or the alfalfa may be spread upon the ground and a piece of poultry netting laid over it. The stalks have to be anchored in some manner to enable fowls to pick off the leaves, although mature fowls manage fairly well with the loose stuff. Dried, it does not matter, as the leaves become very brittle. Fowls display their fondness for alfalfa very quickly when the farmer is drawing it from the field for mow or stack, and follow the wagon to pick up the dropping leaves. Big and little, they will cluster around, making the chaff fly from their active feet. So fond are they of it that they often damage a stack to which they have access, by flying upon it in quest of food. And there is nothing better than alfalfa in the ration as an all round egg producer.

E. E. Rockwood.

## COMFORTABLE LIVING THROUGH GEESSE RAISING.

My friend had recently lost her husband and after the first shock had passed and things had begun to run naturally again, she was forced to consider some means of livelihood. There were various reasons why it seemed best for her to stay on the farm. The children were all grown and gone away and while she could not count on their help, neither would they require her help. There was an apple orchard on the farm and help to harvest the apples was all she could depend upon. She must have something which she could care for herself and which would require little feed. In the fall, simply as an experiment, she bought a trio of White China geese. They were young birds and she was able to obtain them for ten dollars. The geese began laying in March and continued until the first of July, averaging fifty eggs apiece. Contrary to the advise of her neighbors, she set the eggs from these yearling geese and raised thirty fine goslings. The little ones were fed for the first month and a half and then turned out to pasture where they remained until snow fell. Nothing whatever was given them in the way of grain, but they were kept well supplied with clear water deep enough to permit them to wash their eyes out. They had the range of the entire orchard and kept the apples cleaned from the ground until harvest time when they were turned into another field. After the apples were harvested, they were turned back, and in a short time had cleaned up all unsalable apples which were on the ground.

### The Holiday Goose.

About the last of September the largest ganders were sorted out to fatten for the Thanksgiving market and a month later she began to fatten the remainder for Christmas. They were placed in a darkened shed where noth-

ing could frighten or excite them, and fed five or six times a day. Because of the small size she was able to sell them all for private use in small families. The average price was a dollar and a half each and from the fifteen ganders she was able to realize over twenty dollars.

A floorless shed furnished shelter for the breeding stock during the bitterest of the winter weather, but most of the time the birds preferred to remain out of doors. About the first of February she began to feed especially for eggs. The mature geese averaged nearly ninety eggs apiece the second year and from the seventeen she had over nine hundred eggs. Through advertising, she was able to sell as many eggs as she wished to spare for breeding purposes. The birds were picked four times during the warm months, each yielding about a pound of feathers. These were carefully washed and dried and sold for a dollar and a half a pound. The twenty-five dollars gained in this way was very nearly clear profit.

### Profitable Results.

By the first of September, she had 250 fine young birds. Most of the ganders together with a few of the geese were sold for breeding stock.

When she came to consider her profits at the end of the second year, she found that the yearling geese had netted her five dollars each while the older geese had made a larger profit, besides paying for the keep of the ganders. Aside from this she had the droppings which made an excellent fertilizer for the orchard. The hundred geese with which she would start in the new year were a big asset because they would be good for breeding stock for ten or fifteen years and possibly longer. The farm was building up all the time but best of all, the work was something which she could do herself without being dependent in any way upon hired help and she naturally felt that geese had solved the problem of a livelihood for her in a very satisfactory way.

Hillsdale Co.

MARIE BETTS.

## THE EGG-EATING HABIT.

The egg-eating habit usually results from a lack of animal food in the ration, from close confinement, from the feeding of egg shells retaining the egg shape, and containing part of the egg substance, and from the accidental breaking of eggs in the nests.

Perhaps the most general cause of the trouble is a craving for animal food. Fowls on range during spring and summer months rarely eat eggs for the reason that the range furnishes them an abundance of animal food. During the fall and winter months it is advisable to feed animal food of some kind, beef scrap, green cut bone or milk. When this is done there will be little egg-eating.

Egg shells furnish the hens lime. In feeding egg shells they should be pulverized as finely as possible. Browning them in a hot oven does not injure their feeding qualities, and causes them to pulverize easily.

The accidental breaking of eggs in the nest is a cause for which the poultryman is more to blame than the hens. The nests should be well-bedded with straw and should not be deep. A hen can hardly be blamed for breaking eggs when she must fly down from the top of a barrel to get to the nest. Plenty of nests should be provided. When several hens must occupy the same nest at a time, it is little wonder that eggs are broken.

When the habit is confirmed in a flock, it is sometimes difficult to handle. The best method is to provide darkened nests with covers, having the nests so low that the hen barely has enough room to creep on and off the nest. When the hen is unable to stand upright in a nest she cannot exert sufficient force with her beak to break the eggs.

T. Z. RICHEY.

**BOOK ON DOG DISEASES And How to Feed**  
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**See and Try BEFORE YOU PAY**  
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 This 135-Egg Incubator and Brooder shipped anywhere on 30 days' trial. No money down—no deposit.  
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 Cash with order both \$9.95.  
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# Grange.

## SOME ESSENTIALS OF GRANGE GROWTH.

(Continued from last week).

The need of the hour is not simply to get people into the Grange. Neither is it to organize more Granges. Although both of these lines of effort must be followed to the fullest extent possible. We must increase our membership at once and we must leave nothing undone that will increase the number of Granges in the state. But it will prove an idle task to get people to join the Grange just to get them to join, and it will be equally foolish to organize Granges just to organize them. Few of us stop to think how busy are the people of the country everywhere. This is one of the potent causes of the decline in attendance at Grange meetings. People simply can not get time to go in the day time, and in the evening the chores keep them busy until it is either too late, or they are too tired to think of going away from home.

If people are going to attend Grange meetings in the midst of all this hurry and worry, there must be something that is well worth going for. Never before in its history has the Grange faced such a responsibility. People who work until they are tired out, and then drive from one to five miles to Grange must get their pay. Making the Grange pay, is not the task of the state organization alone, but it is the duty of the State Grange to point the way, and it is the duty and the privilege of each subordinate and Pomona Grange to contribute its part by carrying out the program to the fullest extent possible, and by suggesting new things to do from time to time.

But what shall be our program? What is there that is so well worth doing that we may leave our work at home to attend to it, or drive a long way to Grange meetings after a hard day's work to help do it?

Small need is there to ask a question like this. Never before was there such activity in the country. The science of agriculture has been given a larger place in the world. If the writer remembers rightly it is not quite six years since he heard an eminent professor in a great college of agriculture speak very discouragingly of the county agent movement. He was not a good prophet. The movement, then just beginning in America, has grown until there are few counties in our state that do not expect to secure this sort of help in the near future if they have not already done so.

One of the first questions asked by the new county agent when he enters upon his work is, "How many Granges are there in the county and where are they located?" In order to serve the people of his county he must work through organizations of farmers. If the Grange is already organized, and will co-operate with him, he needs no other organization in that community. But on investigation he finds many neighborhoods untouched by Grange influence, and a number of Granges that have not discovered why they are alive.

These weak Granges are hard to rouse into action. The doing of it is not in his line, and so he organizes a club in the community to help him in his work. And now it comes about that the people of that neighborhood who had not the time to keep up their Grange, have both a Grange and a club. The county agent will help to keep up the club, because he wishes to work through that means. He would have been glad to assist the Grange had the membership wished to co-operate with him.

(To be continued).

# SPECIAL BARGAIN CLUBS

## Michigan Farmer's Club List.

For the benefit and convenience of our subscribers we have arranged the following list of papers. Besides the money saved they save the trouble and expense of sending each order separately.

**EXPLANATION.**—The first column gives the paper's regular subscription price. The second column price is for the Michigan Farmer and the other paper, both for one year. Add 75 cents when the Michigan Farmer is wanted three years, or \$1.50 if the Michigan Farmer is wanted five years. All combination orders may be handed to our agents or sent to us, as is most convenient.

Write for prices on publications not listed.

Subscribers to the Michigan Farmer whose time is not up for one year or more, may have as many other papers as wanted by deducting 25 cents from the second column price. This takes care of those who subscribed for three or five years a year or two ago.

We send sample copies of the Michigan Farmer only.

Mention if you are a new or renewal subscriber. Renewals will be dated ahead from their present date.

NAME OF PUBLICATION.	See explanation above
<b>Daily, (6 a Week) on R. F. D. only.</b>	\$ \$
Free Press, Detroit.....	3 00 3 25
Journal, Detroit.....	3 00 3 25
Times, Detroit.....	2 50 2 80
Herald, Grand Rapids, Mich.....	3 00 3 50
News, Grand Rapids.....	3 00 3 50
Press, Grand Rapids.....	3 00 3 50
Courier-Herald, Saginaw, Mich.....	2 50 2 75
News, Saginaw.....	2 50 2 75
Blade, Toledo, Ohio.....	2 50 2 75
News-Bee, Toledo, Ohio.....	2 75 3 00
<b>Tri Weekly Newspapers</b>	
World, N. Y., City.....	1 00 1 30
<b>Semi Weekly Newspapers</b>	
Journal, Detroit, Mich.....	1 25 1 75
<b>Weekly Newspapers</b>	
Blade, Toledo, Ohio.....	1 00 1 00
Omaha, Lincoln, Neb.....	1 00 1 05
Enquirer, Cincinnati, O.....	75 95
<b>Cattle, Sheep, Swine, Poultry, etc.</b>	
American Bee Journal, Hamilton, Ill. (w).....	1 00 1 25
American Poultry Advocate, Syracuse.....	1 00 1 15
American Sheep Breeder, Chicago (m).....	50 85
American Swineherd, Chicago (m).....	50 85
Big Four Poultry Journal, Chicago, Ill. (w).....	50 85
Green's Fruit Grower, Rochester, Ill. (m).....	50 80
Hoard's Dairyman, Fort Atkinson, Wis.....	1 00 1 20
Jersey Bulletin, Indianapolis, Ind. (w).....	1 00 1 35
Kimball's Dairy Farmer, Waterloo, Ia. (s-m).....	25 70
Poultry Keeper, Quincy, Ill. (m).....	50 80
Poultry Success, Springfield, O. (m).....	50 75
Reliable Poultry Journal, Quincy, Ill. (m).....	50 80
Swine Breeders Journal, Indianapolis, Ind. (s-m).....	50 90
Michigan Poultry Breeder (mo).....	50 80
<b>Popular Magazines.</b>	
Everybody's Magazine, N. Y. City. (m).....	1 50 1 60
Every Week.....	1 00 1 25
Etude, Philadelphia, Pa. (m).....	1 50 1 75
McClures Magazine, N. Y. City. (m).....	1 50 2 00
Musicalian, Boston, Mass. (m).....	1 50 1 60
National Sportsman, Boston, Mass. (m).....	1 50 1 60
People's Home Journal, N. Y. City. (m).....	50 85
People's Popular Monthly, DeMoines, Ia. (m).....	25 65
Red Book Magazine, Chicago, Ill. (m).....	1 50 1 75
Review of Reviews, N. Y. City. (m).....	3 00 3 00
<b>Ladies' or Household.</b>	
Delineator, N. Y. City. (m).....	1 50 1 60
Designer, N. Y. City. (m).....	75 1 15
Ladies World, New York City (m).....	1 00 1 70
McCall's Magazine and Free Pattern, N. Y. City. (m).....	50 75
Mother's Mag., Elgin, Ill. (m).....	1 50 1 55
Pictorial Review, N. Y. City. (m).....	1 50 1 70
Today's Magazine and Free Pattern (m).....	50 70
Woman's Home Companion, N. Y. City. (m).....	1 50 1 75
Womans World, Chicago. (m).....	35 80
<b>Juvenile.</b>	
American Boy, Detroit Mich. (m).....	1 50 2 00
Boys Magazine, Smethport, Pa. (m).....	1 00 1 00
Little Folks, Salem, Mass. (m).....	1 00 1 90
Young People's Weekly, Elgin, Ill. (w).....	75 1 00
Youths Companion, Boston, Mass.....	2 00 2 25

Note.—The above prices are not guaranteed for any length of time. We are receiving notices right along of the advance in prices. Orders sent now will be accepted at these prices for at least two weeks. After that should prices have advanced when order is received, you will be notified. White paper is still going up in price.

No. 1.	Regular price
Michigan Farmer, 3 yrs., wk.....	\$1.75
Boys' Magazine, mo.....	1.00
McCall's Magazine, mo.....	.50
Regular price .....	\$3.25

**OUR PRICE ONLY \$1.75**

We have arranged here a lot of special bargain combinations which will save our subscribers considerable on their reading matter. No substitution of other magazines which are the same price can be made. You must take the entire combination as it is. You can make up your own club from the club list if none of these suit you.

Orders may be sent direct to us or through any of our agents. Order by number. Address all orders to the Michigan Farmer, or hand to our agents.

**EXPLANATION.**—Wk. means the paper comes each week; mo. means each month; S-mo. semi-monthly. Dailies on R. F. D. only.

Publishers of other papers will not allow us to quote their paper single at less than their regular prices, but Subscribers to the Michigan Farmer whose term does not expire for one year or more will be allowed reduced prices on other papers at any time if they will write us the ones wanted. This also applies when other papers are wanted not in the clubs they select.

No. 2.	Regular price
Michigan Farmer, 3 yrs., wk.....	\$1.75
The American Boy, mo.....	1.50
Every Week .....	1.00
American Poultry Advocate, mo.....	.50
Regular price .....	\$4.75

**OUR PRICE ONLY \$2.60**

No. 3.	Regular price
Michigan Farmer, 3 yrs., wk.....	\$1.75
American Poultry Advocate, mo.....	.50
McCall's Mag. and Pattern, mo.....	.50
People's Home Journal.....	.50
Regular price .....	\$3.25

**OUR PRICE ONLY \$1.70**

No. 4.	Regular price
Michigan Farmer, 3 yrs., wk.....	\$1.75
Pictorial Review, mo.....	1.50
Every Week .....	1.00
Green's Fruit Grower, mo.....	.50
Regular price .....	\$4.75

**OUR PRICE ONLY \$2.75**

No. 5.	Regular price
Michigan Farmer, 3 yrs., wk.....	\$1.75
Youths' Companion, wk.....	2.00
McCall's Mag. and Pattern, mo.....	.50
Poultry Success, mo.....	.50
Regular price .....	\$4.75

**OUR PRICE ONLY \$2.95**

No. 6.	Regular price
Michigan Farmer, 3 yrs., wk.....	\$1.75
American Swineherd, mo.....	.50
McCall's Magazine & Pattern, mo.....	.50
Poultry Advocate, mo.....	.50
Every Week .....	1.00
Regular price .....	\$4.25

**OUR PRICE ONLY \$2.00**

No. 7.	Regular price
Michigan Farmer, 3 yrs., wk.....	\$1.75
Choice of any daily in Detroit or Grand Rapids except Detroit News .....	\$2.50 to \$3.00
McCall's Mag. and Pattern, mo.....	.50
People's Home Journal, mo.....	.50
Every Week .....	1.00
Poultry Advocate, mo.....	.50
Regular price .....	\$7.00

**OUR PRICE ONLY \$4.25**

No. 8.	Regular price
Michigan Farmer, 3 yrs., wk.....	\$1.75
Any Detroit or Grand Rapids Daily (except Detroit News) \$2.50 to \$3.00	
Poultry Success, mo.....	.50
Boys' Magazine, mo.....	1.00
Today's Mag. with Pattern, mo.....	.50
Regular price .....	\$6.75

**OUR PRICE ONLY \$4.00**

No. 9.	Regular price
Michigan Farmer, 3 yrs., wk.....	\$1.75
Choice of either:	
American Sheep Breeder or Hoard's Dairyman .....	1.00
Poultry Advocate, mo.....	.50
Boys' Magazine, mo.....	1.00
McCall's Magazine, mo.....	.50
Regular price .....	\$4.75

**OUR PRICE ONLY \$2.60**

No. 10.	Regular price
Michigan Farmer, 3 yrs., wk.....	\$1.75
McCall's Mag. and Pattern, mo.....	.50
Boys' Magazine, 1 yr., mo.....	1.00
Poultry Advocate, mo.....	.50
Every Week .....	1.00
Regular price .....	\$4.75

**OUR PRICE ONLY \$2.15**

No. 11.	Regular price
Michigan Farmer, 3 yrs., wk.....	\$1.75
Review of Reviews, mo., 1 yr.....	3.00
Hoard's Dairyman, wky., 1 yr.....	1.00
Boys' Magazine, 1 yr., mo.....	1.00
Regular price .....	\$6.75

**OUR PRICE ONLY \$3.25**

No. 12.	Regular price
Michigan Farmer, 3 yrs., wk.....	\$1.75
People's Popular, mo.....	.50
Mother's Magazine .....	1.50
Jersey Bulletin .....	1.00
American Boy .....	1.50
Regular price .....	\$6.25

**OUR PRICE ONLY \$3.25**

No. 13.	Regular price
Michigan Farmer, 3 yrs., wk.....	\$1.75
Review of Reviews, 1 yr., mo.....	3.00
Mothers' Magazine, 1 yr., mo.....	1.50
Young People's Weekly.....	.75
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No. 14.	Regular price
Michigan Farmer, 3 yrs., wk.....	\$1.75
Kimball's Dairy Farmer, semi-mo.....	.25
Poultry Success, mo.....	.50
Swine Breeders' Journal, mo.....	.50
Woman's World, mo.....	.35
Regular price .....	\$3.35

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No. 15.	Regular price
Michigan Farmer, 3 yrs., wk.....	\$1.75
Detroit Free Press, 1 yr., daily.....	3.00
Every-Week, 1 yr.....	1.00
Woman's Home Companion, 1 yr., mo.....	1.50
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Boys' Magazine, 1 yr., mo.....	1.00
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Michigan Farmer, 3 yrs., wk.....	\$1.75
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Every Week .....	1.00
Poultry Success, mo.....	.50
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No. 18.	Regular price
Michigan Farmer, 3 yrs., wk.....	\$1.75
Any Detroit or Grand Rapids Daily (except Detroit News) \$2.50 to \$3.00	
Review of Reviews.....	3.00
Woman's Home Companion, mo.....	1.50
Regular price .....	\$7.25

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## FARM VALUES AND RAILROADS

**Transportation Problem Must be Solved Nationally in Order to Assure Agricultural Prosperity.**

THE greatest industry of the United States is farming. Next to that comes transportation.

Efficient transportation is essential to the continued welfare and business progress of the nation. To the farmer it means wider markets and better prices for his crops.

Speaking for 90% of the railroad mileage of the country we invite your co-operation in the solution of the railroad problem to that end.

### Make Regulation Efficient

There is no question that public regulation of transportation has come to stay. The railroads accept it. They ask only that such regulation be made efficient. They ask that the functions properly subject to public supervision—incorporation, the issuance of securities, the making of rates—be placed under the direction of a single responsible national body such as the Interstate Commerce Commission, with regional sub-commissions, in order that regulation may be kept close to the people. They ask that such regulation be so administered as to permit the railroads to earn a living return, to attract new capital and to make the improvements and extensions necessary to enable them to serve the American people fairly and efficiently.

In the Federal Reserve and Rural Credit Banking Systems the operation of regional divisions under Federal supervision is well illustrated. The railroads seek a similar solution of their problem.

### Commerce is Nation Wide

The farmer wants free trade among the states.

Commerce in farm products is not confined to state lines. It is nation wide. Its regulation should also be national. The fundamental state right is the right of each state to be protected against discriminations by other states such as exist today. Every barrier that a state erects to the free movement of commerce across its borders limits the farmer's market, makes it easier for speculators to control products and depress prices and tends to increase the cost of what the farmer has to buy.

The railroads cannot serve 49 masters—48 states and the nation—and serve efficiently. The present system of multiple and conflicting regulation is wasteful and destructive.

In the interest of all, regulation should be in behalf of all the states. We invite discussion of this question and shall be glad to answer questions and to supply information on request.

This is the first of several brief talks on this subject.

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# Farm Commerce.

## A New Plan of Marketing

By W. F. TAYLOR

SOME time ago we told the readers of this paper about a new plan of co-operation in marketing which is being tried out here in Oceana county for the first time this year. To restate the plan briefly, the Oceana Canning Company, a concern having large capital and doing a good business in canning fruits of several kinds, contracted with most of the growers of fruit within a radius of several miles, to sell their fruit for them.

Gooseberries and cherries were canned and marketed in that form. The growers paid the company for canning upon the basis of labor cost, plus a commission, to cover other expenses and return a reasonable profit to the company.

The growers were permitted to draw a portion of the price value of the fruit delivered soon after its delivery. Settlements have already been made for cherries and goosberries, but for reasons that will appear later, apples and peaches have not yet been settled for.

There are other factories operating in this county, besides many growers annually ship large quantities of berries to distant markets, and so there is always a market for this fruit at some price. The company settled for the gooseberries early in the season and the price paid was much better than could have been gotten in the open market at home, or by shipping to a distant city.

Last week settlement was made for the cherries and here results were largely in favor of the growers.

The later cherries brought more than the Early Richmond variety, but in both cases the prices paid were from twenty-five to thirty-five per cent above the prices received at the various markets last summer. And while the growers waited until nearly the close of the year for the last of their money, they were allowed to draw a sum nearly equal to the price in the open market early in the season.

It will be some time yet before settlement will be made for peaches and apples, as not nearly all the canned goods are yet delivered. Settlement has been already made for peaches shipped in cars at time of harvesting, but a large part of the peaches were not fit to ship and so were canned. While it is not possible to say at this writing just what will be gotten out of this fruit, the prospect at present is that growers will receive much more than they could have gotten otherwise.

Large quantities of apples were packed and sold at good prices during the picking season, and by the time all the canned apples are disposed of it is probable that the returns from this source will be highly satisfactory.

Later we will advise the readers of the Michigan Farmer just how it all turns out, but now we wish to say a few words about the plan in a general way, and suggest how it might be applied to other lines of marketing.

In the first place, it is a very convenient way for the grower to dispose of his fruit.

No one who has not been through the trying experience of harvesting fruit can realize what it means.

Picking, packing, and delivering—either of them is enough to tax one's mind to the uttermost, and all three are surely enough under average conditions. But add to that the uncertainty of the market, the sudden changes in the weather which often mean the loss of large quantities of fruit that softens up before we can possibly get to it, with unlooked for

happenings almost every day that add neither to our peace nor to our profits. These are enough to drive one crazy.

I have known plums to be dumped on the local market in our town until no one knew what to do with them and the price fell to fifteen cents a bushel. I almost grow sick at heart now while I recall memories of days when warehouses were crowded with peaches, when the ground outside was covered with baskets of peaches piled as high as it was safe to pile them, with a scorching sun getting in its work all the time, and not a bit of cold storage in the town for a single bushel of fruit. I have seen the price of peaches go down to almost nothing in a day.

I have seen dealers buy load after load when they did not know what to do with them, and I have joined others at such times in shipping to Chicago or Milwaukee and when the returns came back the check would not



Delivering Fruit at Factory where it is Packed and Sold for Grower at a Flat Rate.

pay for the baskets. Just such experiences as these have driven people out of the fruit business, but a goodly number still remain, and are destined to see much better conditions.

### Some Real Advantages.

The new plan takes the worry out of the life of the grower, and leaves him free to harvest his crop in a measure of contentment. Again it does for him what he can not possibly do for himself in the way of grading and packing.

The company makes a charge of three cents a bushel for this work. Just think of the grower with peaches ripening every hour, with labor scarce and expensive, with a thousand things to worry him, being able to pick his peaches as rapidly as possible, drive in haste to the factory, unload them quickly and go back to the orchard, while competent hands put the fruit through a mechanical grader that knows no favorites but will sort every one's peaches alike, then to have them packed and shipped in an iced car, or put into cold storage until they can be canned and all done as a matter of course, with nobody beside himself with worry, and no fruit spoiling in the sun.

Think of these advantages, and then think of having one's fruit handled by the most competent salesmen that can be found. The company charged ten cents a bushel for selling the peaches. On an average this is less than the commission house in the city will charge, and in the matter of results there is no comparison. The commission man is exposed to all the troubles and vexations incident to the business. Congestion of the market, bad weather conditions, damaged fruit, and dishonest packing nearly drives

him wild and open the doors of temptation to him at every turn, and the poor grower has to bear the consequences. But in this case, the company is behind the grower with all sorts of equipment and all the capital necessary for the business. Behind the company is its canning factory, behind the factory is the cold storage, safeguarding company and grower against a congested market and bad weather conditions, beside making possible to store large quantities of fruit which may be canned when it is most convenient to do the work. And lastly, behind all is the market. It may be poor today, but it will be better tomorrow, and whether today or tomorrow it will not matter, for right temperature will preserve the fruit, and so it may be shipped to just the destination where it will be worth the most.

As a matter of fact, much of it is bought on track at the factory. It is honestly graded, the company is entirely responsible and so it is a good place for the organized consumer to go for fruit.

### Capitalize Local Talent.

And now a word about the application of this plan to the marketing of other products of the farm.

In many localities where grain or potatoes, or perhaps both, are grown in large quantities, there is need of some better system of marketing. There are already enough men buying

and shipping these products and to build a co-operative warehouse would be but to increase the competition with little prospect of beneficial results. If the farmers in that kind of a community could but organize and select the most competent business man in the town, and contract with him to handle these products, they might receive the benefits of successful co-operation without taking many chances of failure. True, it might result in one or more of the competing companies moving to some other town, but if intelligently managed such an enterprise would do for the farmer just what is most desirable in this connection—it would result in the handling of his surplus products at cost.

A little while ago we saw a report of the business done by a certain private creamery for thirty days. The creamery paid the producers in that locality five hundred dollars less that month than they might have had, had they but worked under a better system of marketing.

Not that anyone could rightly blame the creamery company. They made some money during the month in question, money which might have gone to the patrons had they worked under a better system of marketing.

But I have known that company for years, and much of the time they could not get cream enough to pay for running the creamery, to say nothing of profits. And still the people of that community were milking nearly as many cows as they milk now. But they were operating as individuals and not as a community. A sent his cream to the creamery, B. shipped his to a distant city, C. churned at home, while D. had tried all three ways, and for



his life could not tell what to do next. The creamery has grown popular of late, and if a fine profit is now resulting, it is no more than is due the company for its perseverance during the times when it was necessary to hold on by faith.

But we are not so much concerned about the creamery company as for its patrons. The fact we wish to emphasize is the need of getting together. Two ways are open to them. They might organize a co-operative creamery, or they might organize and contract with the present company to make and sell the butter at a fixed price per pound. The latter method would cost them nothing, would be easy to try out, and would permit the creamery company to continue in business.

It ought to be evident to every producer that the lack of some well defined system in marketing is costing us too much. Surely it is time for every progressive community to unite in some definite plan of marketing the products of the farm. The writer believes thoroughly in the advantages of the co-operative company, but where, for any reason, it is not practical the new plan offers a splendid opportunity. The solution of the marketing problem is indicated by four great words—Concentration, Regulation, Standardization and Co-operation. The Oceana county plan is in harmony with this view.

**WITH THE MICHIGAN CO-OPERATORS.**

Reports made at the recent annual meeting of the Hillsdale County Co-operative Association show that the 200 members have saved about \$10,000 during the past year in shipments of live stock. E. D. Cheney reported for Hillsdale, Osseo and Pittsford stations that 125 decks had been shipped, with \$147,000 paid to farmers. Large shipments were also made from North Adams. A. Seers, in charge of the association's offices at Hillsdale, reported a business of \$30,000 in coal, grain, feed, fence posts and other supplies.

A. D. Olmstead, manager of the Nashville Co-operative Company in Barry county, reports a rapidly increasing business in live stock shipments during the fall, with prospects of a banner year in 1917.

The Square Deal Live Stock Shipping Association of Charlotte, Eaton county plans to build a steel elevator and to buy grain on the open market. The proposition of a co-operative store at Charlotte is also being considered.

Farmers near Hartford, Van Buren county, have organized a co-operative live stock shippers' association, incorporated with \$1,000 capital.

The Bellevue Incorporated Live Stock Shippers' Association has been formed in Eaton county, with the following officers: President, John Sharkey; vice-president, M. J. Reid; secretary, W. A. Young; manager, Oscar E. Mead. Members are charged seven per cent per cwt. commission for handling shipments, with two per cent extra to non-members.

The Cadillac Live Stock Purchasing Association has been formed in Wexford county, with the following officers: President, George F. Williams; vice-president, Perry F. Powers; secretary-treasurer, Henry Knowlton. The object is to introduce thoroughbred cattle in that section.

Kent Co. ALMOND GRIFFEN.

**He Sells His Hogs.**

Have been making some good sales lately, shipped a spring boar, sired by The Model Pal. All of my spring boars are gone and getting a good start on fall pigs, of which I had about 60, a very choice, well-bred lot. I have just begun to know how to make good sales. Have extra well-bred stock in best possible condition, and advertise what you have in the Michigan Farmer. The right class of buyers look there for bargains. I wish to thank you for past help, as the above sales were brought about in this way.—J. R. Hicks.

# "FARM-WEAR" SHOES



**IF** you want to know how nice looking, well fitting and long lasting a shoe can be, try on a pair of "FARM-WEAR" shoes next time you're in town.

"FARM-WEAR" shoes are black and chocolate and are made especially for farm service. They are well made of solid leather over standard lasts and because of a special tannage this leather

**Resists Uric Acid**

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If your dealer doesn't carry "FARM-WEAR" shoes, just fill out and mail us the coupon and your shoe problems will be settled for all time.

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 Gentlemen:—Please tell me where I can see and try on a pair of "FARM-WEAR" shoes. I prefer a shoe 6".....8".....12".....16".....high (check height preferred).  
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Electric Wheel Co.  
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Thousands of satisfied users throughout the United States and Canada.

Let us send you our large and beautiful illustrated catalog. IT'S FREE FOR THE ASKING.



A short time ago one of our salesmen, Mr. Hammond, was talking to an old customer, a Mr. Brown, of Delaware, who on December 1st, 1908, bought a GUARANTEE SPREADER. Mr. Hammond said to Mr. Brown, "How do you like the GUARANTEE SPREADER?" Mr. Brown replied, "Well sir, young man, that spreader is a wonder. She has been in almost constant use. Has worn out 3 other makes of spreaders. I would judge that this GUARANTEE SPREADER has SPREAD over ten thousand acres of land and seems as good today as when I got her. She has cost me \$10 for repairs." "Remarkable." We have thousands of customers, just like Mr. Brown. Better write us TODAY.

Guarantee Manufacturing Co., Dept. B62, Baltimore, Md.

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Give perfect service for years. Tremendously strong rigid frame of angle steel, or hardwood, bolted, braced and mortised—can't get out of line from any strain. Lathe-turned steel shaft. In non-rigid boxes; dust proof, non-heating, self-adjusting—keep saw true and steady even after years of wear. Ten styles. Send for booklet.

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High quality and Germination. Also SENSATION OATS. Samples and catalog free. Theo. Burt & Sons, Melrose, O.

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**WANTED**

on or before March 1st., married working foreman for hundred acre farm twenty miles from Detroit, developing registered Guernsey herd. Must board extra help \$20 per month each. Wages for the right man \$75 a month. Give particulars in first letter. Owner lives on farm in separate house six months of year. Address "Farm", 127 Franklin St., Detroit, Mich.

**Wanted** A young energetic, progressive, married man, familiar with apple and peach orchard business and general farming. Prefer Michigan Agricultural College graduate with practical experience. Orchard a large one near South Haven, provided with tractor and all modern machinery and equipment. Good wages, a modern house to live in must be strictly temperate. Address with references. Box U-2, Michigan Farmer, Detroit, Mich.

**WANTED: Married man, who can furnish help of a son or another man, to work a 200 a. farm. General farming, small herd of Guernsey cattle. Salary proportionate to age, size of family. References required—all help must be neat, sober & industrious. B. S. Knapp, Monroe, Mich.**

**Wanted** Experienced and practical farmer, by the year. Single, middle age. Address Box 8, In care the Michigan Farmer, Detroit, Michigan



# Markets.

## GRAINS AND SEEDS.

February 6, 1917.

**Wheat.**—Uncertain political conditions are largely responsible for the wide fluctuations in wheat values the past week. On Monday however, prices had recovered all the loss since last Wednesday, and despite the break with Germany, it appears that present values are not far from the position that supply and demand would put them. With supplies short the world over, a strong domestic demand in America and the wants of foreign countries still far from being satisfied, it is impossible to crowd prices down without a healthy and immediate reaction. In the southwestern winter wheat states there is considerable anxiety lest the recent low temperatures with lack of moisture in the soil do extensive damage to the growing plant. Flour is in demand and is being exported. The decrease in the United States visible supply of wheat amounted to 938,000 bushels last week. One year ago No. 2 red wheat was quoted locally at \$1.31 per bushel. Last week's Detroit quotations were:

	No. 2 Red.	No. 1 White.	May
Wednesday	1.79	1.74	1.83
Thursday	1.72½	1.67½	1.76½
Friday	1.71	1.66	1.75
Saturday	1.76	1.71	1.80
Monday	1.81½	1.76½	1.85½
Tuesday	1.82½	1.77½	1.86½

Chicago.—May wheat \$1.73¾; July \$1.47¾; September \$1.37.

**Corn.**—While values rule lower than the average for the previous week, the position of this grain is firm and well supported by statistical conditions. The cereal is in demand at home and abroad, and at the slightest indication of a lowering of values buyers are at hand to take the grain. Receipts from country places are comparatively small, and increased value of live stock has encouraged farmers to extend their feeding operations. One year ago No. 3 corn was quoted at 73½c per bushel. The visible supply for the United States increased 789,000 bushels. Last week's Detroit quotations were:

	No. 3 Mixed.	No. 3 Yellow.
Wednesday	1.02½	1.03½
Thursday	1.01	1.02
Friday	1.01	1.02
Saturday	1.01	1.02
Monday	1.01½	1.02½
Tuesday	1.02½	1.03½

Chicago.—May corn \$1.01 per bushel; July 99¾c.

**Oats.**—Values in the oat department have changed less than for the two preceding cereals. The market is firm and because of the larger supply of this grain, there is a good consumptive demand, which, however, would be larger if transportation facilities were in better shape to move the grain. A year ago standard oats were quoted at 51c per bushel. Detroit's prices last week were:

	Standard.	No. 3 White.
Wednesday	58	57½
Thursday	57	56½
Friday	57	56½
Saturday	57	56½
Monday	57½	57
Tuesday	58	57½

Chicago.—May oats 54½c per bu; July 53½c.

**Rye.**—Values are off 3c from a week ago, with cash No. 2 firm at \$1.43.

**Beans.**—Cash beans show a decline of 5c during the week, although February options have advanced the same amount. Cash beans are quoted at \$6.55; February \$6.45. At Chicago the trade is quiet and prices advanced, pea beans, hand-picked, being quoted at \$6.80, red kidneys at \$6.75@7.

**Peas.**—Offerings are light and prices firm at \$2.75@3 for field peas, sacks included.

**Seeds.**—Prime red clover \$11 per bushel; March \$10.90; alsike \$11.10; timothy \$2.50.

## FLOUR AND FEEDS.

**Flour.**—Jobbing lots in one-eighth paper sacks are selling on the Detroit market per 196 lbs., as follows: Best patent \$9.30; seconds \$9; straight \$8.70; spring patent \$9.80; rye flour \$8.80.

**Feed.**—In 100-lb. sacks, jobbing lots are: Bran \$37; standard middlings \$38; fine middlings \$40; cracked corn \$44; coarse corn meal \$43; corn and oat chop \$38 per ton.

**Hay.**—In carlots at Detroit: No. 1 timothy \$14.50@15; standard timothy \$13.50@14; No. 2 timothy \$10@11; light mixed \$13.50@14; No. 1 mixed \$13.50@14; No. 1 clover \$12@12.50.

Pittsburg.—No. 1 timothy \$15.50@

16; No. 2 timothy \$13.75@14.75; No. 1 light mixed \$14@14.75; No. 1 clover mixed \$15.50@15.75; No. 1 clover \$15.50@16.

**Straw.**—In cars at Detroit, rye straw \$9@10; wheat and oat straw \$8.50@9 per ton.

## DAIRY AND POULTRY PRODUCTS.

**Butter.**—The market continues firm at slightly higher prices. Creamery extras 39c; do firsts 36c; packing stock 24½c.

**Elgin.**—Fancy grades are scarce but supply of other kinds is equal to the demand. Price, based on sales, is the same as last week, 39c.

**Chicago.**—The feeling is firmer and prices are 1c higher. The good grades are scarce on account of delay in receipts. Extra creameries 33½@39c; extra firsts 37½@38c; packing stock 26½@27c.

**Poultry.**—The market continues firm at advanced prices. Demand is good and receipts light. No. 1 spring chickens 21@22c; No. 2 do 19@20c; No. 1 hens 21@22c; No. 2 do 19c; small do 14c; ducks 22@23c; geese 20@21c; turkeys 25@26c.

**Chicago.**—The demand continues active and supply light. Change in prices slight with a tendency upward. Turkeys 12@23c; fowls 14@20½c; spring chickens 22c; ducks 15@20c; geese 14@16c.

**Eggs.**—Recent cold weather checked receipts and caused an advance of nearly 6c in price. Firsts 44¾c; current receipts 43¾c.

**Chicago.**—Light receipts and continued good demands have caused an advance of over 6c. Fresh firsts 44@44½c; ordinary firsts 42@43c; miscellaneous lots, cases included 40@44c; refrigerator firsts 39c.

## FRUITS AND VEGETABLES.

**Apples.**—Market steady with prices unchanged. Baldwins \$5.25@5.50; Spy and King \$5.75@6 for best. At Chicago the demand is tame but prices remain unchanged. No. 1 stock sell at \$3@6 a bbl; No. 2 at \$2@2.50.

**Potatoes.**—In carlots at Detroit, in sacks \$2.05@2.10; western and Maine at \$2.25@2.30 per bushel. At Chicago the market is firm and prices higher. Michigan white potatoes are quoted at \$2@2.10 per bushel.

## WOOL.

Market grows still stronger and higher with no upward limit in sight as supplies are already short and the demand keeps growing apace. Foreign wools are largely eliminated because there are no boats to deliver South American and South African offerings and England has placed an embargo on the Australian product. At Boston Michigan delaines are quoted at 43@44c; do unwashed combing 41@48c; do clothing 36@40c.

## GRAND RAPIDS.

Traverse City reported \$2 potatoes for a day or so during the past week, but prices have dropped 10@20c and the market at most of the shipping stations is reported around \$1.80. Potatoes here are selling retail at 60@65c. The bean market does not show much change. Fresh eggs are quoted at 35@38c; dairy butter 30c. Wheat shows great fluctuations, following the Chicago market. Rye is quoted at \$1.25; barley \$1; buckwheat 95c; oats 55c; corn \$1.

## DETROIT EASTERN MARKET.

Extreme cold weather reduced the number of teams on the market Tuesday morning to a half dozen. Pork was offered at 16c; carrots \$1.50; celery 30c a bunch; apples \$1.25@1.75 per bushel.

## LIVE STOCK MARKETS.

### Buffalo.

February 5, 1917.

**Cattle.**—Receipts 85 cars; the best grades are 15@25c higher; the other grades are steady; choice to prime steers \$10.50@11.50; good to choice \$9.70@10.25; fair to good \$8.75@9.25; plain to coarse \$8@8.50; yearlings, dry-fed, \$10@10.50; best handy steers \$9@9.75; best butchering steers and heifers, mixed \$8.50@9.25; western heifers \$7.75@8.50; best fat cows \$7.50@8.50; butcher cows \$6@6.75; cutters \$5@5.50; canners \$4.25@4.50; fancy bulls \$7.75@9; butcher bulls \$7@7.50; common \$5.50@6; good stockers \$7@7.50; light common stockers \$5.50@6; best feeding steers \$7.50@8; best milkers and springers \$8@110; mediums \$6@75; common \$40@50.

**Hogs.**—Receipts 40 cars; strong; heavy and vorkers \$12.85@12.90; pigs and lights \$11.50@12.25.

**Sheep and Lambs.**—Receipts 30 cars; top lambs \$14.20@15; yearlings

\$12@13.50; wethers \$11@11.50; ewes \$10@10.75.

**Calves.**—Receipts 400; steady; top \$15; fair to good \$13@14; fed calves \$5@7.

### Chicago.

February 5, 1917.

**Cattle.** Hogs. Sheep. Receipts today.. 5,000 18,000 11,000 Same day 1916.. 23,716 59,668 16,822 Last week..... 62,256 213,087 54,017 Same wk 1916.. 37,392 234,110 66,496

Largely owing to the cold weather, the receipts of all kinds of live stock today were unusually small for Monday, and prices were advanced sharply for everything, cattle being largely 25c higher, although part of the sales did not show that much advance. Hogs were 25@35c higher, with an early \$12.30 top, later sales up to \$12.35 and \$12.40 bid by 11 o'clock. Hogs received last week averaged 201 lbs. The lamb market was decidedly higher, with a \$14.75 top, while prime ewes brought \$11.

Cattle were selling last week at extremely high prices, even the ordinary kinds selling far higher than in former winters, although the greater part had to sell 15c lower than at the best time a week earlier, the breaks in prices being on the various grades below choice. The top price, \$12.10 per 100 lbs., was another high record for the present season, and the bulk of the steers changed ownership at a range of \$9.25@11, with the choice to fancy heavy steers selling at \$11.50 and upward and steers selling as good bringing \$10.30@11.45, while a medium grade of steers sold at \$9.50@10.25, these consisting of short-fed lots. The light fleshy steers went at \$7.75 and over, and the commoner class of steers of light weight found buyers to a limited extent at \$6.35 and upward. Yearlings had an outlet at \$10@10.75 for a good class, with choice to extra yearlings taken at \$10.80@11.50. Butchering cattle were in demand on a basis of \$5.90@9.50 for cows and \$5.50@10.50 for heifers, with very few cows or heifers selling anywhere near top figures, although a prime 1260-lb. heifer went on Monday at \$11. Cutters sold at \$5.30@5.85, canners at \$4.75@5.25 and bulls at \$5.75@9. Calves were in good demand, selling at the best time of the week at \$5.50@14.50 for coarse heavy to prime light vealers. The stocker and feeder traffic was usually fairly animated, stockers going at \$6.25@8.50, choice yearlings going the highest, while feeders sold at \$7.40@9.20 and occasionally\* at higher figures for something requiring but a short finish. The threatened complications with Germany acted as a disturbing influence in the live stock trade and caused weakness. Prime fleshy feeders sold up to \$9.40.

Hogs passed an excited week, with sensational fluctuations in prices, an active local and snipping demand sending prime heavy barrows up to the highest quotation yet reached, \$12.15. The market was in a nervous condition on Thursday, the day when the announcement of the new submarine warfare on the part of Germany was made public, and after the \$12.15 figure was paid on that day, there was a break of 40@50c from the early high level. The inevitable inference was that our exports of hog products will be materially reduced in the near future, and pork and other lines of provisions sold off badly, the drop in May pork in a few hours amounting to \$3.25 per bbl. The week's receipts of hogs were much smaller than a week earlier or a year ago, and the week closed firm, with hogs selling at \$11.15@11.65 for light bacon hogs, \$11.55@11.85 for heavy packers, \$11.70@11.85 for light shipping hogs, \$11.85@12.05 for heavy shipping lots and \$8.90@10.85 for light to heavy weight pigs, the best weighing up to 135 lbs. A week earlier hogs brought \$11.05@11.70.

Lambs, yearlings, wethers and ewes underwent their accustomed advances last week, again selling higher than they ever did before, with a demand much exceeding the offerings. Western fed lambs comprised the principal part of the daily offerings, and the limited numbers of feeding and shearing lambs offered sold higher than ever before. The week's receipts were materially smaller than a week earlier, and prices advanced 25@35c, prime lambs landing at \$14.65, top yearlings at \$13.65, top wethers at \$11.75 and best ewes at \$10.75.

Horses were in small supply and demand last week at unchanged prices, even army horses being less wanted than usual. Horses were salable at \$60@100 for inferior to fair grades, at \$110@200 for drivers, \$185@285 for drafters and \$175@210 for the better class of expressers.

The entire population of France, including both sexes between the ages of 16 and 60 is to be mobilized by the government for purposes contributing to the national defense.

## CROP AND MARKET NOTES.

### Michigan.

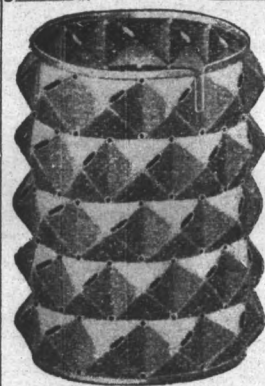
**Mecosta Co., Jan. 31.**—Ice being put up by nearly everyone. Lots of snow and cold weather. Hay being sold at \$11@12 per ton, according to quality. The buying price of potatoes is \$1.75 and likely to go higher; beans \$6 per bu; hogs 10c; beef, dressed 9@10c; eggs 35c; butter 32c; butter-fat 38c.

**Presque Isle Co., Jan. 28.**—Fine winter weather with good sleighing, 12 to 16 inches of snow. Fields well protected. Farmers are putting in the winter hauling logs and wood, doing farm chores, etc. Quite a number are working in the factory at Onaway, and in lumber camps. Green hardwood is selling at \$2; dry hardwood \$2.50@2.75; tamarack \$1.75; pork \$12.50; beef \$10.50; hay, baled \$10; potatoes \$1.60; butter 33c; eggs 38@40c. A few feeding lots are being held although stock feeding is not general in this section. A good supply of roughage on hand.

**Kalkaska Co., Jan. 27.**—Cutting wood and baling hay is the chief occupations of farmers these days outside of doing chores. A normal amount of feeding is being done. Roughage supply is ample, but grain is generally scarce. Surplus farm produce is practically marketed except hay, for which the market is a little slow. About 10 per cent of the potatoes harvested remain in the hands of farmers. Ground is covered with snow. Potatoes \$1.60; beans \$6; butter 29c; no corn or wheat for sale.

**Eaton Co., Jan. 27.**—Cutting wood, marketing, getting machinery ready for the coming season's work, and hauling manure are some of the activities of the farmers these winter days. A considerable amount of stock is being fed. There is plenty of roughage but many corn cribs are empty. Much stock is being marketed just now. The sleighing is good. Wheat \$1.80; rye \$1.40; oats 32c; beans \$6; potatoes \$2; hay \$8@10; eggs 38c; butter 25@30c; corn \$1.

**Berrien Co., Jan. 27.**—Cutting and storing ice is the order here. Not much stock being fed and many of the hogs going to market are not finished. Plenty of roughage here. There is only a small volume of surplus products remaining on the farms. The ground is covered with about six inches of snow and we have had about nine weeks of sleighing. Hay \$10; potatoes \$1.35; wheat \$1.85; oats 50c; rye \$1.35; corn 90c; eggs 40c; butter 35c; butter-fat 42c.



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DETROIT LIVE STOCK MARKET. Thursday's Market. February 8, 1917. Cattle.

Receipts 1712. The run in all departments at the local stock yards this week was very small and plainly shows that stock in Michigan is becoming very scarce as at the present high prices it would surely come if it could be found. The railroad service was better than for several weeks.

In the cattle division the general market was 10@20c higher than at the close last week, and prices held full steady to the close. Several loads of good cattle sold at \$10@10.25 per cwt. A few farmers were on hand after stockers but bought few, prices looking much too high for feeding purposes.

We quote: Best heavy steers \$9.50 @10; best handy weight butcher steers \$8.75@9.25; mixed steers and heifers \$8@8.50; handy light butchers \$7.50 @8; light butchers \$6.50@7; best cows \$7@7.75; butcher cows \$6@6.50; common cows \$5.50@5.75; canners \$5@5.25; best heavy bulls \$7@8; bologna bulls \$6.75@7; stock bulls \$6@6.50; feeders \$7@8; stockers \$6.50@7; milkers and springers \$4@80.

Sandel, S. B. & G. sold Goodgold 2 heifers av 640 at \$6.75; to Bresnahan 2 cows av 905 at \$5, 2 do av 1070 at \$5; to Newton B. Co. 2 do av 1175 at \$6.75; to Stevenson 6 butchers av 670 at \$6.75; to Mason B. Co. 16 do av 625 at \$6.35; to Mich. B. Co. 4 do av 700 at \$6, 15 steers av 837 at \$8; to Hammond, S. & Co. 8 do av 916 at \$8.40, 21 butchers av 736 at \$7.25, 4 cows av 1005 at \$6.50, 5 do av 832 at \$5.25; to Mich. B. Co. 1 bull wgh 1170 at \$7.40, 1 do wgh 1350 at \$7.25, 16 butchers av 720 at \$7.50, 1 bull wgh 920 at \$6.75, 1 do wgh 1000 at \$7; to Parker, W. & Co. 15 butchers av 681 at \$7.25; to Bray 1 cow wgh 1210 at \$7.50, 2 do av 785 at \$5, 4 do av 1075 at \$6.50, 5 do av 860 at \$5.25, 4 do av 1135 at \$6.25; to Kamman B. Co. 16 steers av 1097 at \$9.60.

Erwin, S. & J. sold Applebaum 1 heifer wgh 720 at \$5.75, 2 cows av 945 at \$6, 5 butchers av 424 at \$6.25; to Newton B. Co. 2 do av 865 at \$7.25; to Sullivan P. Co. 25 do av 700 at \$7.25, 5 do av 722 at \$7.25, 14 steers av 1150 at \$9.25, 9 cows av 935 at \$5.75; to Kamman B. Co. 15 butchers av 906 at \$8.10; to Newton B. Co. 2 cows av 910 at \$5, 5 do av 1126 at \$6, 1 do wgh 1000 at \$5.50, 4 do av 1212 at \$6, 4 do av 945 at \$5.10, 1 bull wgh 1160 at \$7.60, 5 cows av 1012 at \$5.25, 5 do av 746 at \$6.75, 3 do av 1070 at \$6.75, 2 do av 890 at \$6.25, 4 do av 862 at \$5.25, 24 butchers av 588 at \$5.85.

Veal Calves.

Receipts 548. The veal calf trade opened and closed full steady with last week, a few choice bringing \$14 @14.25, but the bulk of good sold at \$13@14; culls \$11@12; heavy \$6.50@9. The close was steady.

Haley & M. sold Goodgold 5 av 275 at \$6.50, 6 av 325 at \$6.50.

Johnson sold Nagle P. Co. 5 av 125 at \$13.40.

Sandel, S. B. & G. sold Goodgold 5 av 145 at \$13; to Nagle P. Co. 5 av 155 at \$13.50, 9 av 135 at \$13.75, 1 wgh 150 at \$14.

Sheep and Lambs.

Receipts 4884. The sheep and lamb trade opened active and best lambs were 25@35c higher than last week; sheep strong. On Wednesday lambs dropped off 25c and sheep held steady. On Thursday the market was steady with Wednesday and prices averaged as follows: Best lambs \$14@14.50; fair lambs \$13@13.50; light to common lambs \$11.50@12.50; yearlings \$12.75 @13; fair to good sheep \$9.50@10; culls and common \$7@8.

Erwin, S. & J. sold Nagle P. Co. 236 lambs av 78 at \$14.10, 22 sheep av 95 at \$9, 30 lambs av 58 at \$13, 48 do av 80 at \$14.25, 22 sheep av 95 at \$9, 16 lambs av 65 at \$13, 51 do av 85 at \$14.35, 37 do av 75 at \$14.20, 52 do av 85 at \$14.25, 51 do av 75 at \$14.15, 25 do av 88 at \$14, 5 sheep av 90 at \$8.50, 9 do av 115 at \$8.50.

Sandel, S. B. & G. sold Nagle P. Co. 395 lambs av 75 at \$13.75, 14 sheep av 95 at \$8.75.

Haley & M. sold Nagle P. Co. 118 lambs av 82 at \$14.30.

Hogs.

Receipts 3020. In the hog departments receipts were very small and the quality generally common. Prices on Wednesday were 10c lower than early in the week, and on Thursday they were steady at the opening, pigs selling at \$10.50@11.25; mixed hogs at \$11.90@12.25.

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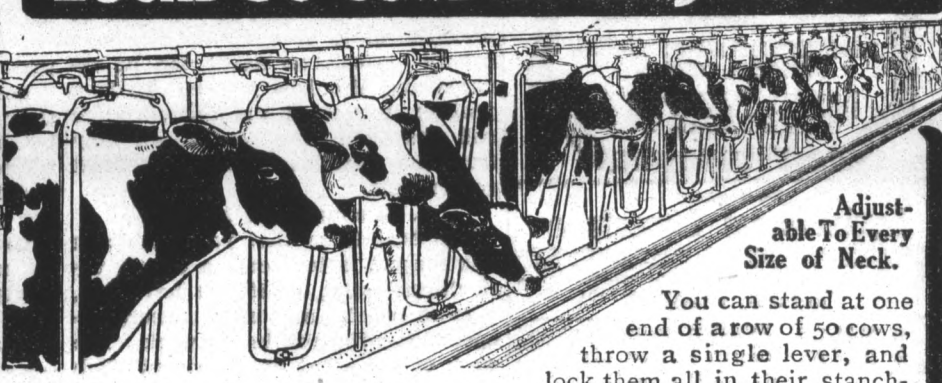
"We have used SAL-VET as preventive of worms in our flock of sheep, and have great faith in it. We keep it before them all the time. The sheep like it and they are free from worms although we have run sheep in our pastures quite thickly for the past fifteen years." HENRY L. WARDWELL, Pres. American Shropshire Ass'n, Springfield Centre, N. Y.

"Last winter I was unable to get my horses to put on a pound of weight. Their hair was rough and coarse and the animals all run down. After using SAL-VET one of the horses passed at least two batfals of worms, and since has been improving steadily, so that now he is sleek and fat. I have spent a good many dollars for different kinds of condition powders, but have not received the results I have from forty pounds of SAL-VET." WILLIAM J. BERNEL, Brimfield, Ohio.

"My hogs certainly did fine while fattening, and I did not lose a single one, while some of my neighbors lost their entire herds. I must, and do give SAL-VET credit for these results." J. WALES MUNKIE, R. 6, Plainfield, Ill.

Table with PRICES column and various weights (10 lb. pkg, 20 lb. pkg, 40 lb. pkg, 100 lb. pkg, 200 lb. pkg, 300 lb. pkg, 500 lbs) and corresponding prices.

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# Markets.

## GRAINS AND SEEDS.

February 6, 1917.

Wheat.—Uncertain political conditions are largely responsible for the wide fluctuations in wheat values the past week. On Monday however, prices had recovered all the loss since last Wednesday, and despite the break with Germany, it appears that present values are not far from the position that supply and demand would put them. With supplies short the world over, a strong domestic demand in America and the wants of foreign countries still far from being satisfied, it is impossible to crowd prices down without a healthy and immediate reaction. In the southwestern winter wheat states there is considerable anxiety lest the recent low temperatures with lack of moisture in the soil do extensive damage to the growing plant. Flour is in demand and is being exported. The decrease in the United States visible supply of wheat amounted to 938,000 bushels last week. One year ago No. 2 red wheat was quoted locally at \$1.31 per bushel. Last week's Detroit quotations were:

	No. 2	No. 1	Red.	White.	May
Wednesday	1.79	1.74	1.83		
Thursday	1.72 1/2	1.67 1/2	1.76 1/2		
Friday	1.71	1.66	1.75		
Saturday	1.76	1.71	1.80		
Monday	1.81 1/2	1.76 1/2	1.85 1/2		
Tuesday	1.82 1/2	1.77 1/2	1.86 1/2		

Chicago, May wheat \$1.73 3/4; July \$1.47 3/4; September \$1.37.

Corn.—While values are lower than the average for the previous week, the position of this grain is firm and well supported by statistical conditions. The cereal is in demand at home and abroad and at the slightest indication of a lowering of values buyers are at hand to take the grain. Receipts from country places are comparatively small, and increased value of live stock has encouraged farmers to extend their feeding operations. One year ago No. 3 corn was quoted at 73 1/2¢ per bushel. The visible supply for the United States increased 789,000 bushels. Last week's Detroit quotations were:

	No. 2	No. 3	Mixed	Yellow
Wednesday	1.02 1/2	1.03 1/2	1.02	1.02
Thursday	1.01	1.02	1.01	1.01
Friday	1.01	1.02	1.01	1.01
Saturday	1.01	1.02	1.01	1.01
Monday	1.01 1/2	1.02 1/2	1.01 1/2	1.01 1/2
Tuesday	1.02 1/2	1.03 1/2	1.01 1/2	1.01 1/2

Chicago, May corn \$1.01 per bushel; July 95¢.

Oats.—Values in the oat department have changed less than for the two preceding cereals. The market is firm and because of the larger supply of this grain, there is a good consumptive demand, which, however, would be larger if transportation facilities were in better shape to move the grain. A year ago standard oats were quoted at 74¢ per bushel. Detroit's price last week were:

	Standard	No. 3	White
Wednesday	58	57 1/2	57 1/2
Thursday	57 1/2	56 1/2	56 1/2
Friday	57	56 1/2	56 1/2
Saturday	57	56 1/2	56 1/2
Monday	57 1/2	57	57
Tuesday	58	57 1/2	57 1/2

Chicago, May oats 54 1/2¢ per bu.; July 52¢.

Rye.—Values are off 3¢ from a week ago, with cash No. 2 firm at \$1.43.

Beans.—Cash beans show a decline of 5¢ during the week, although February options have advanced the same amount. Cash beans are quoted at \$6.55; February \$6.45. At Chicago the trade is quiet and prices advanced, pea beans, hand-picked, being quoted at \$6.80, red kidneys at \$6.75 1/2.

Peas.—Offerings are light and prices firm at \$2.75 1/2 for field peas, sacks included.

Seeds.—Prime red clover \$11 per bushel; March \$10.90; alsike \$11.10; timothy \$2.50.

## FLOUR AND FEEDS.

Flour.—Jobbing lots in one-eighth paper sacks are selling on the Detroit market per 196 lbs., as follows: Best patent \$9.30; seconds \$9; straight \$8.70; spring patent \$8.80; rye flour \$8.80.

Feed.—In 100-lb. sacks, jobbing lots are: Bran \$37; standard middlings \$38; fine middlings \$40; cracked corn \$44; coarse corn meal \$43; corn and oat chop \$38 per ton.

Hay.—In carlots at Detroit: No. 1 timothy \$14.50 1/2; standard timothy \$13.50 1/2; No. 2 timothy \$10 1/2; light mixed \$13.50 1/2; No. 1 mixed \$13.50 1/2; No. 1 clover \$12 1/2 1/2.

Pittsburg.—No. 1 timothy \$15.50 1/2

16; No. 2 timothy \$13.75 1/2; No. 1 light mixed \$11 1/2 1/2; No. 1 clover mixed \$15.50 1/2; No. 1 clover \$15.50 1/2.

Straw.—In cars at Detroit, rye straw \$9 1/2; wheat and oat straw \$8.50 1/2; 9 per ton.

## DAIRY AND POULTRY PRODUCTS.

Butter.—The market continues firm at slightly higher prices. Creamery extras 39c; do firsts 36c; packing stock 24 1/2c.

Eggs.—Fancy grades are scarce but supply of other kinds is equal to the demand. Price, based on sales, is the same as last week, 39c.

Chicago.—The feeding is firmer and prices are 1c higher. The good grades are scarce on account of delay in receipts. Extra creameries 38 1/2 1/2 39c; extra firsts 37 1/2 1/2 38c; packing stock 26 1/2 1/2 27c.

Poultry.—The market continues firm at advanced prices. Demand is good and receipts light. No. 1 spring chickens 21 1/2 22c; No. 2 do 19 1/2 20c; No. 1 hens 21 1/2 22c; No. 2 do 19c; small do 14c; ducks 22 1/2 23c; geese 20 1/2 21c; turkeys 25 1/2 26c.

Chicago.—The demand continues active and supply light. Change in prices slight with a tendency upward. Turkeys 12 1/2 23c; fowls 14 1/2 20 1/2 c; spring chickens 22c; ducks 15 1/2 20c; geese 14 1/2 16c.

Eggs.—Recent cold weather checked receipts and caused an advance of nearly 6¢ in price. Firsts 43 1/2 c; current receipts 43 1/2 c.

Chicago.—Light receipts and continued good demands have caused an advance of over 6¢. Fresh firsts 44 1/2 44 1/2 c; ordinary firsts 42 1/2 43c; miscellaneous lots, cases included 40 1/2 44c; refrigerator firsts 39c.

## FRUITS AND VEGETABLES.

Apples.—Market steady with prices unchanged. Baldwins \$5.25 1/2 5.50; Spy and King \$5.75 1/2 6 for best. At Chicago the demand is tame but prices remain unchanged. No. 1 stock sell at \$3 1/2 6 a bbl; No. 2 at \$2 1/2 2.50.

Potatoes.—In carlots at Detroit, in sacks \$2.05 1/2 2.10; western and Maine at \$2.25 1/2 2.30 per bushel. At Chicago the market is firm and prices higher. Michigan white potatoes are quoted at \$2 1/2 2.10 per bushel.

## WOOL.

Market flows still stronger and higher with no upward limit in sight as supplies are already short and the demand keeps growing apace. Foreign wools are largely eliminated because there are no boats to deliver South American and South African offerings and England has placed an embargo on the Australian product. At Boston Michigan declines are quoted at 43 1/2 44c; do unwashed combing 41 1/2 48c; do clothing 36 1/2 40c.

## GRAND RAPIDS.

Traverse City reported \$2 potatoes for a day or so during the past week, but prices have dropped 10 1/2 20c and the market at most of the shipping stations is reported around \$1.80. Potatoes here are selling retail at 60 1/2 65c. The bean market does not show much change. Fresh eggs are quoted at 35 1/2 38c; dairy butter 30c. Wheat shows great fluctuations, following the Chicago market. Rye is quoted at \$1.25; barley \$1; buckwheat 95c; oats 55c; corn \$1.

## DETROIT EASTERN MARKET.

Extreme cold weather reduced the number of teams on the market Tuesday morning to a half dozen. Pork was offered at 16c; carrots \$1.50; celery 30c a bunch; apples \$1.25 1/2 1.75 per bushel.

## LIVE STOCK MARKETS.

### Buffalo.

February 5, 1917.

Cattle.—Receipts 85 cars; the best grades are 15 1/2 25c higher; the other grades are steady; choice to prime steers \$10.50 1/2 11.50; good to choice \$9.70 1/2 10.25; fair to good \$8.75 1/2 9.25; plain to coarse \$8 1/2 8.50; yearlings, dry-fed, \$10 1/2 10.50; best handy steers \$9 1/2 9.75; best butchering steers and heifers, mixed \$8.50 1/2 9.25; western heifers \$7.75 1/2 8.50; best fat cows \$7.50 1/2 8.50; butcher cows \$6 1/2 6.75; cutters \$5 1/2 5.50; canners \$4.25 1/2 4.50; fancy bulls \$7.75 1/2 9; butcher bulls \$7 1/2 7.50; common \$5.50 1/2 6; good stockers \$7 1/2 7.50; light common stockers \$5.50 1/2 6; best feeding steers \$7.50 1/2 8; best milkers and springers \$8 1/2 110; mediums \$6 1/2 7.50; common \$4 1/2 5.00.

Hogs.—Receipts 40 cars; strong; heavy and vorkers \$12.85 1/2 12.90; pigs and lights \$11.50 1/2 12.25.

Sheep and Lambs.—Receipts 30 cars; top lambs \$14.20 1/2 15; yearlings

\$12 1/2 13.50; wethers \$11 1/2 11.50; ewes \$10 1/2 10.75.

Calves.—Receipts 400; steady; top \$15; fair to good \$13 1/2 11; led calves \$5 1/2 7.

### Chicago.

February 5, 1917.

Cattle, Hogs, Sheep.  
 Receipts today... 5,000 18,000 11,000  
 Same day 1916... 23,716 59,668 16,822  
 Last week... 62,256 213,087 54,017  
 Same wk 1916... 37,392 234,110 66,496

Largely owing to the cold weather, the receipts of all kinds of live stock today were unusually small for Monday, and prices were advanced sharply for everything, cattle being largely 25c higher, although part of the sales did not show that much advance. Hogs were 25 1/2 35c higher, with an early \$12.30 top, later sales up to \$12.35 and \$12.40 bid by 11 o'clock. Hogs received last week averaged 201 lbs. The lamb market was decidedly higher, with a \$14.75 top, while prime ewes brought \$11.

Cattle were selling last week at extremely high prices, even the ordinary kinds selling far higher than in former winters, although the greater part had to sell 15c lower than at the best time a week earlier, the breaks in prices being on the various grades below choice. The top price, \$12.10 per 100 lbs., was another high record for the present season, and the bulk of the steers changed ownership at a range of \$9.25 1/2 11, with the choice to fancy heavy steers selling at \$11.50 and upward and steers selling as good bringing \$10.30 1/2 11.45, while a medium grade of steers sold at \$9.50 1/2 10.25, these consisting of short-fed lots. The light fleshy steers went at \$7.75 and over, and the commoner class of steers of light weight found buyers to a limited extent at \$6.35 and upward. Yearlings had an outlet at \$10 1/2 10.75 for a good class, with choice to extra yearlings taken at \$10.80 1/2 11.50. Butchering cattle were in demand on a basis of \$5.90 1/2 9.50 for cows and \$5.50 1/2 10.50 for heifers, with very few cows or heifers selling anywhere near top figures, although a prime 1260-lb. heifer went on Monday at \$11. Cutters sold at \$5.30 1/2 5.85, canners at \$4.75 1/2 5.25 and bulls at \$5.75 1/2 9. Calves were in good demand, selling at the best time of the week at \$5.50 1/2 14.50 for coarse heavy to prime light vealers. The stocker and feeder traffic was usually fairly animated, stockers going at \$6.25 1/2 8.50, choice yearlings going the highest, while feeders sold at \$7.40 1/2 9.20 and occasionally at higher figures for something requiring but a short finish. The threatened complications with Germany acted as a disturbing influence in the live stock trade and caused weakness. Prime fleshy feeders sold up to \$9.40.

Hogs passed an excited week, with sensational fluctuations in prices, an active local and shipping demand sending prime heavy barrows up to the highest quotation yet reached, \$12.15. The market was in a nervous condition on Thursday, the day when the announcement of the new submarine warfare on the part of Germany was made public, and after the \$12.15 figure was paid on that day, there was a break of 40 1/2 50c from the early high level. The inevitable inference was that our exports of hog products will be materially reduced in the near future, and pork and other lines of provisions sold off badly, the drop in May pork in a few hours amounting to \$3.25 per bbl. The week's receipts of hogs were much smaller than a week earlier or a year ago, and the week closed firm, with hogs selling at \$11.15 1/2 11.65 for light bacon hogs, \$11.55 1/2 11.85 for heavy packers, \$11.70 1/2 11.85 for light shipping hogs, \$11.85 1/2 12.05 for heavy shipping lots and \$8.90 1/2 10.85 for light to heavy weight pigs, the best weighing up to 135 lbs. A week earlier hogs brought \$11.05 1/2 11.70.

Lambs, yearlings, wethers and ewes underwent their accustomed advances last week, again selling higher than they ever did before, with a demand much exceeding the offerings. Western fed lambs comprised the principal part of the daily offerings, and the limited numbers of feeding and shearing lambs offered sold higher than ever before. The week's receipts were materially smaller than a week earlier, and prices advanced 25 1/2 35c, prime lambs landing at \$14.65, top yearlings at \$13.65, top wethers at \$11.75 and best ewes at \$10.75.

Horses were in small supply and demand last week at unchanged prices, even army horses being less wanted than usual. Horses were salable at \$60 1/2 100 for inferior to fair grades, at \$110 1/2 200 for drivers, \$185 1/2 285 for drafters and \$175 1/2 210 for the better class of expressers.

The entire population of France, including both sexes between the ages of 16 and 60 is to be mobilized by the government for purposes contributing to the national defense.

## CROP AND MARKET NOTES.

### Michigan.

Mecosta Co., Jan. 31.—Ice being put up by nearly everyone. Lots of snow and cold weather. Hay being sold at \$11 1/2 12 per ton, according to quality. The buying price of potatoes is \$1.75 and likely to go higher; beans \$6 per bu; hogs 10c; beef, dressed 9 1/2 10c; eggs 35c; butter 32c; butter-fat 38c.

Presque Isle Co., Jan. 28.—Fine winter weather with good sleighing, 12 to 16 inches of snow. Fields well protected. Farmers are putting in the winter hauling logs and wood, doing farm chores, etc. Quite a number are working in the factory at Onaway, and in lumber camps. Green hardwood is selling at \$2; dry hardwood \$2.50 1/2 2.75; tamarack \$1.75; pork \$12.50; beef \$10.50; hay, baled \$10; potatoes \$1.60; butter 33c; eggs 38 1/2 40c. A few feeding lots are being held although stock feeding is not general in this section. A good supply of roughage on hand.

Kalkaska Co., Jan. 27.—Cutting wood and baling hay is the chief occupations of farmers these days outside of doing chores. A normal amount of feeding is being done. Roughage supply is ample, but grain is generally scarce. Surplus farm produce is practically marketed except hay, for which the market is a little slow. About 10 per cent of the potatoes harvested remain in the hands of farmers. Ground is covered with snow. Potatoes \$1.60; beans \$6; butter 29c; no corn or wheat for sale.

Eaton Co., Jan. 27.—Cutting wood, marketing, getting machinery ready for the coming season's work, and hauling manure are some of the activities of the farmers these winter days. A considerable amount of stock is being fed. There is plenty of roughage but many corn cribs are empty. Much stock is being marketed just now. The sleighing is good. Wheat \$1.80; rye \$1.40; oats 32c; beans \$6; potatoes \$2; hay \$8 1/2 10; eggs 38c; butter 25 1/2 30c; corn \$1.

Berrien Co., Jan. 27.—Cutting and storing ice is the order here. Not much stock being fed and many of the hogs going to market are not finished. Plenty of roughage here. There is only a small volume of surplus products remaining on the farms. The ground is covered with about six inches of snow and we have had about nine weeks of sleighing. Hay \$10; potatoes \$1.35; wheat \$1.85; oats 50c; rye \$1.35; corn 90c; eggs 40c; butter 35c; butter-fat 42c.



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**DETROIT LIVE STOCK MARKET.**  
Thursday's Market.  
February 8, 1917.  
Cattle.

Receipts 1712. The run in all departments at the local stock yards this week was very small and plainly shows that stock in Michigan is becoming very scarce as at the present high prices it would surely come if it could be found. The railroad service was better than for several weeks.

In the cattle division the general market was 10@20c higher than at the close last week, and prices held full steady to the close. Several loads of good cattle sold at \$10@10.25 per cwt. A few farmers were on hand after stockers but bought few, prices looking much too high for feeding purposes.

We quote: Best heavy steers \$9.50 @ 10; best handy weight butcher steers \$8.75@9.25; mixed steers and heifers \$8@8.50; bandy light butchers \$7.50 @ 8; light butchers \$6.50@7; best cows \$7@7.75; butcher cows \$6@6.50; common cows \$5.50@6.75; canners \$5@5.25; best heavy bulls \$7@8; bologna bulls \$6.75@7; stock bulls \$6@6.50; feeders \$7@8; stockers \$6.50@7; milkers and springers \$4@8.

Sandel, S. B. & G. sold Goodgold 2 heifers av 610 at \$6.75; to Bresnahan 2 cows av 895 at \$5, 2 do av 1070 at \$5; to Newton B. Co. 2 do av 1175 at \$6.75; to Stevenson 6 butchers av 670 at \$6.75; to Mason B. Co. 16 do av 625 at \$6.35; to Mich. B. Co. 4 do av 700 at \$6, 15 steers av \$37 at \$8; to Hammond, S. & Co. 8 do av 916 at \$8.10, 21 butchers av 736 at \$7.25, 1 cow av 1005 at \$6.50, 5 do av 832 at \$5.25; to Mich. B. Co. 1 bull wgh 1170 at \$7.10, 1 do wgh 1350 at \$7.25, 16 butchers av 720 at \$7.50, 1 bull wgh 920 at \$6.75, 1 do wgh 1900 at \$7; to Parker, W. & Co. 15 butchers av 681 at \$7.25; to Bray 1 cow wgh 1210 at \$7.50, 2 do av \$5, 4 do av 1075 at \$6.50, 5 do av \$69 at \$5.25, 4 do av 1135 at \$6.25; to Kamman B. Co. 16 steers av 1097 at \$9.60.

Erwin, S. & J. sold Applebaum 1 heifer wgh 720 at \$5.75, 2 cows av 945 at \$6, 5 butchers av 121 at \$6.25; to Newton B. Co. 2 do av 865 at \$7.25; to Sullivan P. Co. 25 do av 700 at \$7.25, 5 do av 722 at \$7.25, 11 steers av 1150 at \$9.25, 9 cows av 935 at \$5.75; to Kamman B. Co. 15 butchers av 906 at \$8.10; to Newton B. Co. 2 cows av 910 at \$5, 5 do av 1126 at \$6, 1 do wgh 1090 at \$5.50, 1 do av 1212 at \$6, 4 do av 915 at \$5.10, 1 bull wgh 1160 at \$7.60, 5 cows av 1012 at \$5.25, 5 do av 716 at \$6.75, 3 do av 1070 at \$6.75, 2 do av \$99 at \$6.25, 1 do av \$82 at \$5.25, 24 butchers av 588 at \$5.85.

**Veal Calves.**

Receipts 548. The veal calf trade opened and closed full steady with last week, a few choice bringing \$14 @ 11.25, but the bulk of good sold at \$13@14; culls \$11@12; heavy \$6.50@9. The close was steady.

Haley & M. sold Goodgold 5 av 275 at \$6.50, 6 av 225 at \$6.50.

Johnson sold Nagle P. Co. 5 av 125 at \$13.40.

Sandel, S. B. & G. sold Goodgold 5 av 145 at \$13; to Nagle P. Co. 5 av 155 at \$13.50, 9 av 135 at \$13.75, 1 wgh 150 at \$14.

**Sheep and Lambs.**

Receipts 4881. The sheep and lamb trade opened active and best lambs were 25@25c higher than last week; sheep strong. On Wednesday lambs dropped off 25c and sheep held steady. On Thursday the market was steady with Wednesday and prices averaged as follows: Best lambs \$11@11.50; fair lambs \$12@12.50; light to common lambs \$11.50@12.50; yearlings \$12.75 @ 13; fair to good sheep \$9.50@10; culls and common \$7@8.

Erwin, S. & J. sold Nagle P. Co. 236 lambs av 78 at \$11.10, 22 sheep av 95 at \$9, 20 lambs av 58 at \$13, 18 do av 80 at \$11.25, 22 sheep av 95 at \$9, 16 lambs av 65 at \$13, 51 do av \$5 at \$11.35, 37 do av 75 at \$11.20, 52 do av \$5 at \$11.25, 51 do av 75 at \$11.15, 25 do av 88 at \$14, 5 sheep av 90 at \$8.50, 9 do av 115 at \$8.50.

Sandel, S. B. & G. sold Nagle P. Co. 395 lambs av 75 at \$13.75, 11 sheep av 95 at \$8.75.

Haley & M. sold Nagle P. Co. 118 lambs av 92 at \$14.20.

**Hogs.**

Receipts 3020. In the hog departments receipts were very small and the quality generally common. Prices on Wednesday were 10c lower than early in the week, and on Thursday they were steady at the opening, pigs selling at \$10.50@11.25; mixed hogs at \$11.90@12.25.

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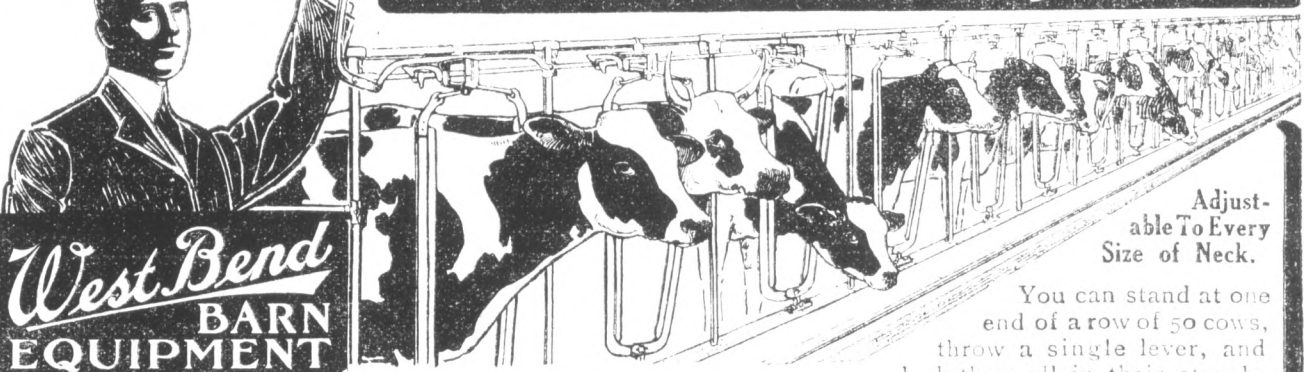
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**COUNTY AGENT WORK.**

Address of D. L. Hagerman, county agent for Ottawa county, at the annual meeting of the Michigan State Association of Farmers' Clubs.

Coming up here this morning it occurred to me that perhaps my words pertaining to the county agricultural agent in the county would be more or less of second nature to you people, and that anything that I might have to say would be second-hand to you. But so far, in all the discussions this morning and in yesterday's sessions, with the exception of once or twice, I have heard no mention of the work of the county agent or agricultural agent, so as a consequence I naturally have to deduce that either the agent does not figure very greatly in your program plan or else you have not a county agricultural agent to help you in this work. Naturally, having the work in charge in Ottawa county, I feel that the relations of the county agricultural agent and the Farmers' Club should be the most intimate. I can scarcely understand how a county agricultural agent can work in a county where there are no federations—where there are no organizations of this sort, either the Grange, or the Farmers' Club, or some other of the various organizations, so I am going to speak this morning believing that you people either have a county agricultural agent or that you are directly in line to secure one.

The machinery under which it is possible for a county to secure the services of a county agricultural agent you are perhaps familiar with. You will only have to send a letter or post-card to any of the officers of the Agricultural College and you will soon be informed as to how the services of a county agricultural agent can be secured and also how you will be in a position to secure the appropriation and the funds that come, not only from the state but from the federal government.

**A Community of Interest.**

The best thing that you can do in this respect is to secure a county agricultural agent, or if you have one, a more careful and more sincere co-operation with him in his work. The work or the effort of a Farmers' Club is naturally directed along practically the same channels as the work of the county agent. They have the same interest at heart—the improvement of agricultural conditions in the county, not only from the standpoint of economic development in which the county agricultural agent and the Farmers' Club is interested, but there is also the social, and the social perhaps seems to develop more vital interest than the economic in the Farmers' Club. I noticed in one of the discussions this morning the statement was made that they discussed politics, religion and everything, and I thought, "True," at some of the Grange meetings in our part everything but agriculture.

It seems that the farmers are more interested in the topics of everyone else than their own. We sometimes get disgusted with the farm business, and, as we always say, the grass is greener just over the fence and we are a little more active in discussing some of these other problems than the ones that pertain directly to our own business. The simple idea of farm practice can be made more interesting. The Farmers' Club attempts to do

their work from an educational standpoint and with the idea of greater social development. On the other hand, the county agricultural agent has to combine not only the educational and social features, but the demonstration feature. This, I believe, has been taken up by the Farmers' Club and we believe that the work that the practice of demonstration is teaching is more potent than any of the other features of work.

**The Value of Demonstration Work.**

The statement has been made that we actually retain in our memory about one-tenth of the things that we hear—that is, you people will remember one-tenth of the points of interest passing through your minds here at this session; we remember eight-tenths of the things which we see accomplished—which we actually see done, and we remember all of the things which we do ourselves so naturally the idea of getting everyone to work is the badge of a good Farmers' Club and a county agricultural agent.

Some of the work which I wish to take up this morning will relate to the demonstration feature. I believe it is a problem which should be discussed. The experiment of putting on your individual farms or a co-operative demonstration either at the Club house of the Club or near it, of a demonstration experiment, trying and finding out for yourselves some of the needs of your soil and your crops. Any of your Clubs here, if you would get one-half of an acre where the county agricultural agent and the Farmers' Club will co-operate in maintaining a series of experiments, partly made out by the county agricultural agent and partly by the Farmers' Club, they are going to see put to actual test some of the principles which have been recommended for many years, and so I simply wish to take up the idea of the social and of education as far as the work of the county agricultural agent and Farmers' Club is concerned, because of the fact that these are two fields which I believe are more or less overlapping.

**Agriculture is More than a Job.**

One of the worst things which we have in promoting this idea of—we will call it sensible agriculture, up-to-date agriculture, which embodies all that is vital to the farm, is the fact that our farmers are losing their confidence in agriculture, they are losing their grip on agriculture as anything but a job. I have a county in mind where the land is valuable, splendid buildings, good equipment, the crops are usually pretty good, the farmers have their automobiles, and yet, just as soon as one of them can make enough money they move to town. They are able to retire at the age of fifty and move away from the country—away from their home town, and we would naturally say, "Why not retire in the country, in the home from which they made their money?" I find this condition very frequently and I think that right in the Farmers' Club we can endeavor by these programs, and by the entertainments to promote the spirit of interest in the farm and farm life and I believe that that is one thing which should be emphasized.

So many of our farm boys are leaving the farms. We need those boys; we need the best blood back on the farm. The reason they want to go to town is because even their parents, their fathers and their mothers, those whom they copy by precept and example, have lost that spirit, have lost that grip. That is one of the features where the county agricultural agent and Farmers' Club can co-operate in inspiring a better spirit for farm life. The farmer who really feels this demand or spirit as you people are feeling now, puts himself in a position where he has an open, alert mind and that is the one condition as demonstrators and educators we most desire—a learning mind, a desire to learn.  
(To be continued).

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### DOGS

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

### LIVE STOCK SHIPPERS, ATTENTION!

(Continued from page 174).  
Commerce Commission in Docket No. 6825, which case was won by the National Society of Record Associations last July, went into force December 1, 1916. Since that time stallions can be shipped at a weight of 3000 pounds instead of 7000; ordinary horses at a weight of 2000 pounds instead of 5000; bulls at 2000 lbs. instead of 5000; mare and colt or cow and calf at a weight of 2500 pounds instead of 5500. Other weights are scaled down in proportion and inasmuch as information has come to the National Society of Record Association that many agents are, in violation of law, still compelling shippers to ship at the old weights, all live stock breeders are urged to go direct to their agents and call their attention to the fact that the extremely high weights required in the shipment of breeding animals l. c. l. in the past no longer exist. They are further requested to ascertain whether the agents have received proper tariffs from their railroad companies. We are advised that most of the railroads sent instructions to their agents in supplement No. 14 to the official classification tariff No. 43, but many agents evidently did not familiarize themselves with the rulings laid down in the supplement. The new schedule of weights, basic values and increase in weight where animals are shipped at higher valuations, appear in Official Classification Tariff No. 44 which becomes effective February 1, 1917, and all shippers are urgently requested to see that their agents at local shipping stations are properly acquainted with the rulings in regard to the shipment of live stock in less than carload lots.

Any shippers who were compelled to pay at the higher weights since December 1, 1916, can recover claims against the railroad companies without difficulty by merely presenting the facts and calling the attention of the agent to instructions laid down in supplement No. 14 to Official Classification Tariff No. 43.

The attention of all live stock breeders in all parts of the United States is further particularly called to the fact that the furnishing of attendants with shipments of live stock l. c. l. is now left with the shipper and no railroad has authority to require an attendant with shipments of live stock in less than carload lots.

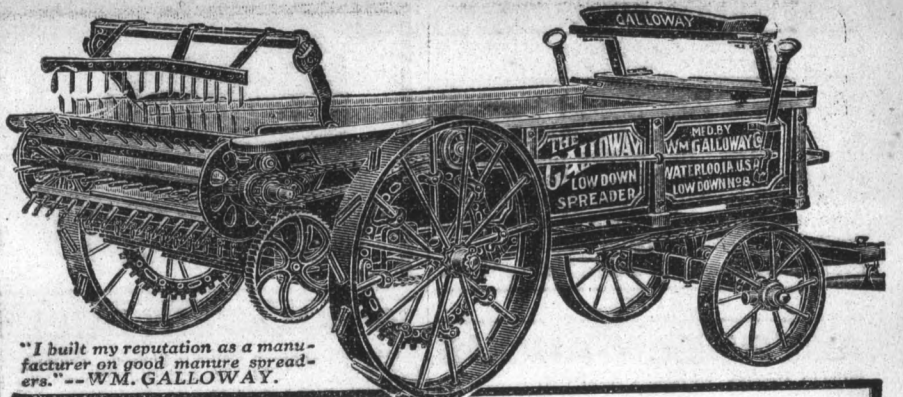
The attention of all shippers in all parts of the United States is further called to the fact that animals may be shipped at their true values in the case of valuable breeding animals by the payment of a very slight increase in rate, to-wit an increase of four per cent in rate for each one hundred per cent increase in value of the animals over the basic values fixed in the tariffs, which are on file in each railroad station.

This is a matter of direct importance to every live stock breeder, shipping breeding animals in less than carload lots and I shall be glad to have specific information from any shippers whose local agents are not complying with the new regulations, rules and practices as laid down by the Interstate Commerce Commission in Docket No. 6825.

Attention is further called to the fact that any railroad company whose agent violates the rulings laid down in Docket No. 6825, is subject to a fine of \$5,000 for each and every offense, and while it is not likely that prosecution will be necessary to require the railroads to comply with the order of the Interstate Commerce Commission it may be wise to call the attention of local agents to this in cases where the agents seem negligent in informing themselves in regard to the new regulations governing l. c. l. shipments of live stock.

WAYNE DINSMORE,

Sec'y Nat'l Society of Record Assn's.



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Compare big, clumsy, ponderous, old-fashioned spreaders, which sell for more money, to this modern, down-to-date, patent-covered Galloway 1917 Model low down No. 8 spreader (or to my popular No. 1A and No. 5 machines) with its double chain drive, roller feed, endless apron, and, above all, its light draft, and it will prove to you that its down-to-the-minute scientific construction, patented, exclusive improvements and features put it in a class by itself. And remember that it is sold to you guaranteed to give you satisfaction by Galloway himself—that it is not a horse-killer, that it does the same amount of spreading with two horses that others do with three and even four, and that the Galloway takes less actual horse power than any other so-called two-horse spreader on the market. My book tells the whole story. I want you to get it.

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**Big Profits in Bee-keeping** Wherever you are, you can start right in with bees—for business, or pleasure, or both. There's a keen enjoyment to be had out in the sunshine, studying their wonderful colony organization. They earn from \$2 to \$10 per colony, according to locality and care; and one experienced apiarist can handle 500 colonies. Write to us for particulars, and get our **Special Offer** Or, if you're a going bee-keeper, we want to tell you about our double-walled Buckeye hive in which the bees winter so well, and our gentler, harder strains of queen bees. For better prices, use the Root clear glass jars, honey-comb cartons, section honey boxes, shipping cases and labels. **Send for complete descriptive catalog THE A. I. ROOT CO. Medina, Ohio**

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FOR SALE: Two yearling dairy Shorthorn bulls. Chas. M. Dunning, Coopersville, Mich.

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2 yr. old Bull, Duke of (Milking Shorthorn) Wildwood \$450 for sale. Recorded. Price \$200 (Two hundred dollars). Joseph Lindsey & Son, Otsego, Mich.

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

HOGS. Duroc 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.

Swigartdale Farm Berkshires Home of the greatest show herd in the State. Stock of all ages and both sex for sale, including some of the winners at the State Fair, write us for particulars and let us tell you about them and our HOLSTEIN BULLS

some of them old enough for service, sired by "Maplecrest Korndyke Hengerveld" (the Bull with the best yearly record backing of any sire in the world) and "G. & B. Segis Ulrica Pledge 108790," all from A. R. O. Dams with good records and the best of breeding, one very fine Grandson of the

FIFTY THOUSAND DOLLAR BULL out of a 27.39-lb. dam, all stock guaranteed to be just as represented and a credit of six months will be given to responsible parties.

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

Duroc Jersey We still have 7 choice boars for sale. Sired by our Michigan Masterpiece No. 2833. Send for pedigree. You will be more than pleased. Prices Reasonable. THE JENNING'S FARMS, R. F. D. 1, Bailey, Mich.

FOR SALE 10 Reg. Shropshire yrl. Ewes that are first class in every respect. Price \$5 per head. Bred for Apr. lambs. M. A. BRAY ESTATE, Okemos, (Ingham Co.) Mich.

J. W. KEENEY, Erie, Mich. Gilts bred for April farrowing. D. M. & T. local from Monroe or Toledo, Keeney Stop.

Duroc Jerseys 30 bred gilts for sale priced to sell. Carey U. Edmonds, Hastings, Mich.

DUROC Sows, Spring gilts, Aug. Boar Pigs. Sept. Pigs either sex. Percheron Stand. Colt six months old. E. J. Aldrich, Tekonsha, Mich.

Duroc Jerseys Gilts and tried yearling sows bred to a son of Orion Cherry King the Premier Champion of the breed also fall pigs. F. J. DRODT, R. 1, Monroe, Michigan

Duroc Sows 26 beauties bred to grand big boars at Auction Feb. 12th. Some splendid fall boars. Orlo L. Dobson, Quincy, Michigan.

Veterinary.

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

Crooked Knees—Enlarged Hock—Scours.—I have a mare which has been troubled with crooked knees for the past two years and she is inclined to stumble. The leg does not fold up fully and when force is used to bend it, she finches. Another mare has had a bunch on outside of hind leg for the past year, caused by kicking, and her leg stocks. Another one of my mares scours badly. We feed her timothy, clover, some millet, and I might say she suffers from abnormal thirst. L. A., Alden, Mich.—Your mare suffers from mechanical stiffness of knee joint and is incurable. Apply one part of iodine and nine parts fresh lard to bunch on hock twice a week. Change your mare's feed and water her often. Give her a teaspoonful of powdered catechu, a teaspoonful of powdered sulphate iron, and a dessertspoonful of prepared chalk at a dose in feed two or three times a day.

Sore Mouth and Throat.—My ten-year-old horse took sick last Thursday, had a chill, slavered from throat and our local Vet. thought it the result of eating poisonous herbs. I am inclined to believe that his tongue and jaws are partially paralyzed, and I might say that the horse has had several chills. J. P., Corunna, Mich.—A careful examination of the mouth and throat should be made. A foreign body may be lodged between back teeth, or a piece of corn cob, wire or wood may be lodged in back of the mouth. Dissolve 1 dr. of chlorate of potash in a pint of tepid water and wash out mouth four times a day. Rub throat with one part tincture iodine and two parts camphorated oil once a day.

Sprained Leg.—My eight-year-old mare occasionally goes lame in one front leg, she shows it most when first moved. A. R. V., Lucas, Mich.—If you can locate her lameness, apply equal parts turpentine, aqua ammonia and olive oil every day or two.

Chronic Navicular Disease.—Our five-year-old horse has been lame in fore foot for the past 12 months and when standing usually points with toe. H. D., Charlotte, Mich.—Clip hair off coronet and apply one part red iodide mercury, one part powdered cantharides and eight parts fresh lard every two weeks. If the foot is feverish apply moisture.

Chronic Cough.—Ever since the latter part of last summer my five-year-old mare has been coughing more or less and when these spells come on she seems to choke and I am inclined to believe the trouble is in the throat. Besides, I have noticed that her bowels are constive. W. E. M., Clare, Mich.—Apply one part tincture iodine and two parts camphorated oil to her throat once a day. Give 1/4 dr. of powdered lobelia, 1 dr. muriate ammonia, 1 oz. powdered licorice at a dose in damp feed two or three times a day.

Sidebone—Diseased Hoof.—Three weeks ago I bought a mare that was troubled with sidebone and the hoof seems to be decayed, especially the frog. E. T. C., Granville, Mich.—Clip hair off coronet and apply one part red iodide mercury and four parts of fresh lard twice a month. Dust one part calomel and nine parts of boric acid on bottom of foot, covering it with oakum and a bandage three times a week.

Shoulder Lameness.—I have a horse that is lame in shoulder, the farther I drive or the more I work her the lamer she gets. W. T., Spratt, Mich.—Clip hair off shoulder and apply one part powdered cantharides and four parts lard every two weeks, but don't expect her to get well if you continue working her. When you know the cause of an ailment of this kind, remove it, if possible.

Sound Sleeper.—We have a colt about ten months old which eats well and appears to be healthy, except at times when we have found her lying down, apparently dead. We can roll her from side to side without having her show any signs of life. It is necessary to use her roughly to waken her, but as soon as she is on foot appears to be all right again. Do you consider this a symptom of a disease? F. E. P., Harbor Beach, Mich.—No, this is not a symptom of disease, she is only a sound sleeper. I have known people to act in much the same manner that were healthy.

F. C., Midland, Mich.—Have carefully read your letter and am inclined to believe that your cow died as the result of inflammation of the bowels following a periodic attack of dysentery. These cases usually prove fatal and are usually caused by either eating infected food or drinking foul water.



**Sideline**—Diseased Hoof.—Three weeks ago I bought a mare that was troubled with sideline, and the hoof seems to be decayed, especially the frog. E. T. C., Granville, Mich.—Clip hair off coronet and apply one part red iodide mercury and four parts of fresh lard twice a month. Dust one part calomel and nine parts boric acid on bottom of foot, covering it with oakum and a bandage, three times a week.

**Wounded Coronet**—My five-year-old horse calked himself three weeks ago, causing lameness. Have poulticed foot ever since, now pastern is badly swollen and he suffers great pain. W. P., Lapeer, Mich.—Discontinue poulticing foot and paint coronet with tincture of iodine three times a week. Dust on sore, equal parts, powdered alum and oxide of zinc twice a day. Cover the wound with oakum and bandage.

**Capped Hock**—Our three-year-old colt slipped and fell last fall, bruising point of hock, leaving a bunch which fails to go away. C. W. R., Dafoc, Mich.—You will find it difficult to reduce a bunch of this kind. Fairly good results will follow applications of equal parts tincture iodine and spirits of camphor, if applied every day or two.

**Wart on Ear**—I have been a reader of Michigan Farmer for many years and found many useful prescriptions in veterinary column, but have no recollection of reading about a case which I am about to relate. Have a mule with two growths on ear. One under the opening and another near the tip. These bunches have the appearance of warts. J. H., Suttons Bay, Mich.—The bunches you write about are doubtless of a warty nature and should be cut off, or apply a saturated solution of salicylic acid in alcohol. This mixture is made by dissolving all the salicylic acid that alcohol will dissolve and it should be applied every day or two until the wart is gone.

**Indigestion—Scours**—I have a pot-bellied three-year-old colt that usually scours after traveling two or three miles, and I have thought he bloated some after meals. A. O., LeRoy, Mich.—Change his feed and give him a dessertspoonful of dilute hydrochloric acid and one ounce of ground gentian at dose in feed three times a day.

**Loss of Vision**—I have a horse that went blind last summer; now the eyes are bloodshot and I would like to know if there is any help for it. E. M. M., Dexter, Mich.—A change of feed to keep the bowels open, also darken stable, will palliate the inflamed condition of eyes, but you will obtain no substantial benefit by either giving or applying drugs.

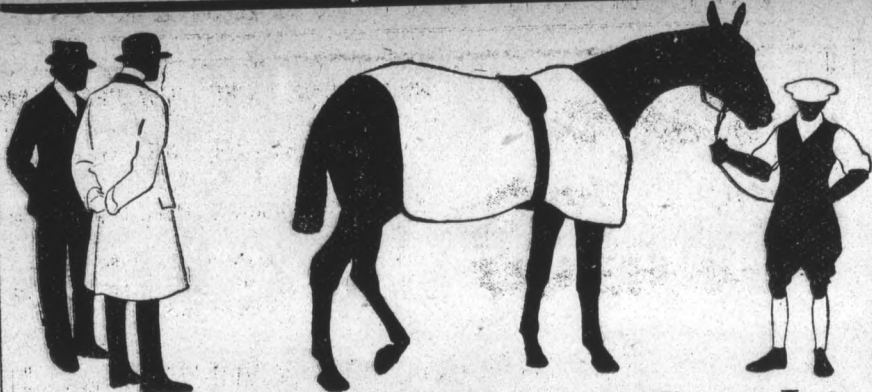
**Unthrifty Old Mare**—I have an aged mare that does not thrive, although I am feeding her ten ears of corn and a few oats three times a day. One of my neighbors tells me that I am feeding her too much. F. E. W., LeRoy, Mich.—Her teeth may require floating, or perhaps you should feed her ground grain, some clover, alfalfa or roots. Also mix together equal parts of bicarbonate soda, ginger, ground red cinchona and ground gentian. Give her a tablespoonful or two at a dose in feed three times a day.

**Bog Spavin—Thoroughpin**—I have a mare 15 years old which went lame 10 months ago and I am told that she has bog spavin and thoroughpin. F. M. B., Walled Lake, Mich.—Clip hair off hock and apply one part powdered cantharides and four parts lard every two weeks, or paint bunches with tincture iodine every day or two.

**Capricious Appetite**—I have a seven-year-old Jersey cow that gnaws wood and is inclined to chew rubbish. I am feeding her bean pods and clover hay. This is about all the food that she gets. A. B. C., Cass City, Mich.—Change her feed and give her a dessertspoonful of dilute hydrochloric acid, a tablespoonful of ground bone and one ounce of ground gentian at a dose in feed three times a day.

**Ringworm**—A few of my cattle are troubled with sore spots on neck and our local Vet. tells me it is contagious. He prescribed tincture iodine and thought this was the best remedy I could apply, but at the same time gave me to understand that the ailment was contagious. E. H. B., Belleville, Mich. Your Vet. gave you very good advice; however, if you care, apply one part iodine and nine parts fresh lard occasionally.

**Mange**—Some of my cattle are troubled with sores on head mostly around eyes, and I am inclined to believe that it is catching. I also have a five-month-old calf that has poor appetite, some discharge from eyes and slavers from mouth. I have thought its jaws were sore. A. L. S., Bloomingdale, Mich.—Apply one part sulphur, half a part carbonate potash and three parts fresh lard to sore and itchy parts of cattle three times a week. Dissolve a tablespoonful of Borax in a quart of water and wash out mouth three times a day and apply camphorated oil to throat daily.



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AT  
**Brookwater Farm, Ann Arbor, Mich.**

**50 Bred Sows and Gilts to farrow in March, April and May**

This offering mostly sired by or bred to the following great prize winning boars:

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All tested sires—All prize winners at State Fairs—All bred in the purple. Brookwater won grand champion boar and sow at the Mich. State Fair 1915 and again 1916. Won first prize under 6 mo's. litter four consecutive years. To breed the best and be assured that the type and blood lines are correct buy at Brookwater. Send for catalog giving full particulars and remember the date Feb. 23rd.

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Herbert W. Mumford, Owner | O. F. Foster, Manager

### DUROC SOWS

40 head good growthy young sows and gilts bred for early Spring farrow to two of the best big type young boars in the state. Free livery for visitors.  
NEWTON BARNHART, ST. JOHNS, MICH.

### FOR SALE BIG TYPE DUROC

Boars and sows of Sept. farrow. Also sows bred for April. Wm. F. Grettenberger & Bros. Okemos, Mich.

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

**FOR SALE:** Duroc Jersey swine, choice breeding good quality (either sex). S. C. W. Leghorn cockerels \$1.50-\$3. Buff Rock cockerels \$2-\$3. John McNeill, Station A, R. 4, Bay City, Mich.

**Duroc Jerseys**—Boars and Gilts all sold. Some good fall pigs ready for sale. Wm. W. Kennedy, Grass Lake, Michigan.

**Duroc Jerseys**—One Apr. gilt bred for Apr. farrow. Price \$55. Also some Sept. pigs, either sex. H. G. Keesler, Cassopolis, Michigan.

**Duroc** Sows and gilts bred for Mar. & Apr. farrow. King The Col. Defender and Oakland Fancy families. E. D. Heydenberk, Bell Phone, Wayland, Mich.

**CHESTER WHITES**—Gilts bred to farrow in Feb. or March. Fall pigs, either sex. F. W. ALEXANDER, Vassar, Mich.

**Parhams'** Pedigree Stock Farm offers: Reg. C.W. Boars, Bred Gilts, Fall Pigs, Reg. A. R. O. Holstein Cows, Male Calves. Show Bull ready for service, price \$125. R. B. Parham, Bronson, Mich.

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JULIAN P. CLAXTON, Swartz Creek, Mich.

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### O. I. C. & Chester White Swine

Strictly Big Type. Five gilts bred for Apr. & May farrow. Bred to good boars as there are in the breed. Have a fine lot of fall pigs, that I can furnish, in pairs not akin. Newman's Stock Farm, Marlette, Mich., R. 1.

**O. I. C. SWINE:** 20 gilts due to farrow for part of April. Will be sold at knock-down price. Have also fall pigs. Write me your wants. Satisfaction guaranteed. A. J. GORDEN, R. No. 3, Dorr, Mich.

**O. I. C.** Serviceable boars. Yearling sows and fall pigs. G. P. Andrews, Dansville, Michigan.

**O. I. C.** Year old boar 2nd prize winner at Grand Rapids fair also spring gilts and boars ready for service. A. J. Barker, Belmont, Mich. R. 1.

**FOR SALE:** Thoroughbred O. I. C. Boars, sows bred, gilts and boars. O. D. Somerville, Grass Lake, Mich., R. 2.

**O. I. C.'s.** 25 choice Gilts bred to Son of Schoolmaster to farrow in Mar. also fall pigs. Clover Leaf Stock Farm, Monroe, Mich., R. 1.

**O. I. C.** Choice bred gilts for Apr. & May farrow. Serviceable boars, fall pigs. Out of prize winning stock. Write for low prices. A. V. Hatt, Grass Lake, Mich.

**O. I. C.'s.** Am offering two extra good boars and a few bred gilts. C. J. THOMPSON, Rockford, Michigan

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**Big Type Poland China** bred for March and April farrow. July boars. Satisfaction guaranteed. G. W. Holton, Kalamazoo, Mich., R. 11.

**LARGE** Type P. C. largest in Mich. Boars all sold. Have 30 of the best big stretchy bred gilts I ever raised. Sired by & bred to the largest boar of the breed, from massive dams & large litters. Come & see & be convinced. Expenses paid if not as represented. Free livery to visitors. W. E. Livingston, Parma, Mich.

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**NOW IS THE TIME TO BUY**  
Twenty-five tried Big-Type Poland-China brood sows to be bred for March and April farrow. Ten splendid Spring boars at \$25.00 each for quick sale. Worth \$50.00.  
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Except some dandy fall pigs, and a big rugged black Percheron Stallion, (registered) coming three, for \$350.00. Come and see him.  
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**LARGE STRAIN P. C.**  
One extra good fall yearling and a few choice spring boars. A nice lot of gilts being bred for April farrow.  
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**HEAD YOUR HERD** With one of my Big Type Poland-China boars. Get a good one while the prices are reduced. Something that will win at the fairs. Write at once for pedigrees and prices. M. E. HESS, 68 S. Johnston Ave., Pontiac, Michigan.

**Poland Chinas** As big, as good, as grow in Iowa. Herd headed by Goltath Farver. I can please you. Robert Martini, R. 7, Hastings, Michigan

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Write for catalog. W. J. Hagelshaw, Augusta, Mich.

**Big Type Poland China** Gilts, bred for April farrow, with size and quality.  
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**Large Stiled** Poland China Gilts bred for April farrow at bargain prices, also fall pigs, both sex. Robert Neve, Pierson, Michigan.

**10 Yorkshire Gilts, 2 Boars one mature;**  
Red Polled cattle. H. S. CARR, Homer, Michigan

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5 tried sows, 2 yearling boars, for immediate sale. Fall pigs.  
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**Hampshire Swine.** Bred Sows and gilts for August and September farrow s. Spring pigs, sex both. FLOYD MYERS, R. No. 9, Decatur, Ind.

**HAMPSHIRE HOGS** all sold out, would sell one herd boar and book orders for spring boar pigs. John W. Sawyer, St. Johns, Michigan, R. 4.

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1 two year old stallion and 2 mares. Also 7 other high grade horses, some big type P. C. hogs, cattle, cows, sheep and all farm tools including 1 Mogul 8-16 tractor complete with plows,  
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Percheron Stallions and Mares of the largest breeders in the state. 75 head to select from—herd established 1899.  
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BIG BONE Kentucky JACKS and JENNETS. 85 head FIVE and CUBAN GAITED STALLIONS, geldings and mares. Fancy MULE TEAMS. WRITE US.  
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Herd established 1891. 200 Head to select from. Write Dept. E for catalog.  
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Mares and Stallions priced to sell. Inspection invited.  
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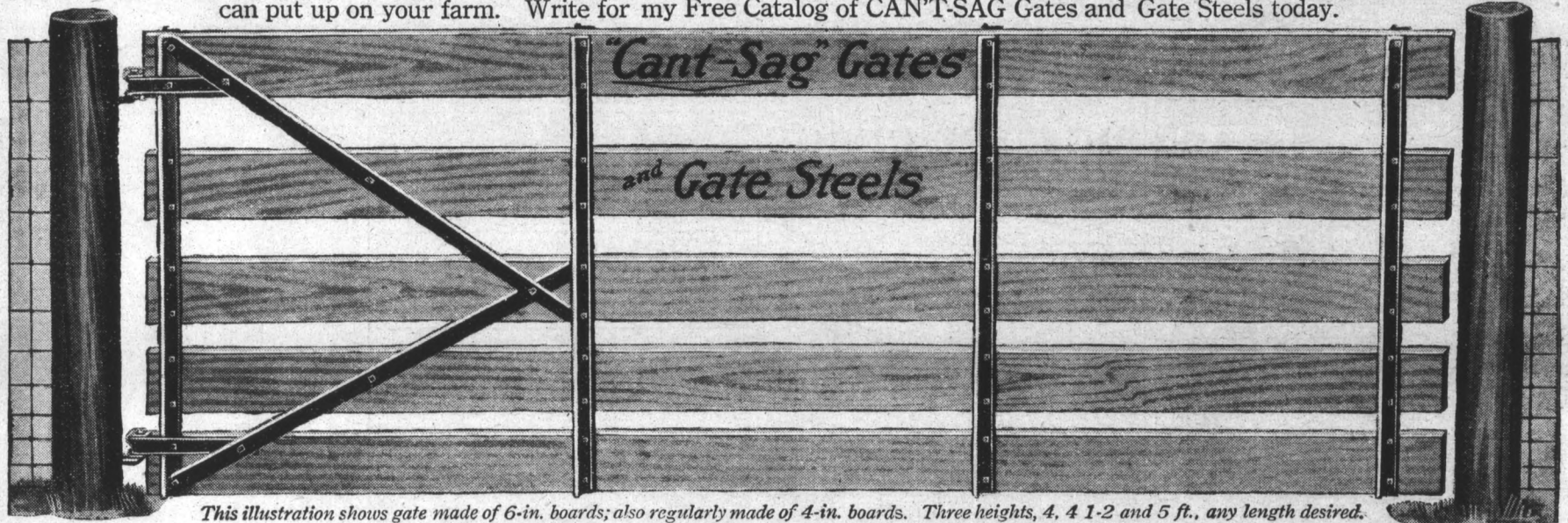
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"CAN'T-SAG" Gates are guaranteed never to sag. Stock can't twist them out of shape. The double set of angle steel uprights keeps them square and plumb.

**All Joints Water Tight**

The angle steel uprights being bolted on are fairly drawn into the board on each side making a smooth joint that is water-proof. Another advantage the angle steel is no wider than the board is thick, thus forming a narrow joint which dries out just as quickly as the exposed surface of the board.

**Self-Locking Re-Enforced Hinge**

The "CAN'T SAG" Hinges are all steel—unbreakable and many times stronger than necessary. They permit the gate to swing easily either way and have a special self-locking feature which makes it impossible to lift the gate from its hinges when closed. A "CAN'T-SAG" Gate really locks at both ends. This feature makes "CAN'T-SAGS" the best hog gate on the market. Rooting hogs can't lift them from their hinges. They can't crowd under, nor crawl through.

**Stock Can't Injure Themselves**

"CAN'T-SAG" Gates are easily seen. Stock won't run into them as they do against steel and wire gates. There are no sharp projections to injure the animal—no chance of the gate getting down nor of the stock getting tangled up in any part of it.

**Boards Easily Replaced**

When a board breaks the "CAN'T-SAG" Gate

**Catalog Sent Free**

Just write your name and address in this coupon or on a post-card and mail it to me at once. See how every part of the CAN'T-SAG Gate is built in my big factory. See how you can build your own CAN'T-SAG Gates with the Gate Steels I furnish and save money. Sending for this free book will not obligate you in any way. Write for a copy today. Address, **ALVIN V. ROWE, President,**

**ROWE MANUFACTURING CO.**  
2914 Adams Street  
GALESBURG, ILL.  
Also Manufacturers of Rowe's "New Idea" Valveless Hog Oilers

Dear Sir—Without obligation on my part, please send me a copy of your new catalog of CAN'T-SAG GATES and GATE STEELS.

I own..... acres.

Name.....

P. O.....

State.....

R. F. D.....

don't sag or fall down. You simply slip out the broken board and replace it with a new one, in five minutes you have another perfect "CAN'T-SAG" Gate—as good as new and repaired at the cost of one board. "CAN'T-SAG" Gates are neatest and trimmest looking gates you can use.

**Valuable Advertising Free**

We will letter your name or name of farm absolutely free of charge on both sides of every gate you buy, if requested.

**Elevating Attachment**

made interchangeable, lifts entire gate, allowing it to swing freely over drifted snow, or permit small stock to pass under.

**Barbed Wire Attachment**

Suspends wire tightly 5 inches above top board of Gate. Easily attached to any size "CAN'T-SAG" Gate.

**Read What Users Say**

Rowe Mfg. Co., Galesburg, Ill.  
Gentlemen—The Can't Sag Gate is the finest thing in the gate line I ever saw and is entirely satisfactory and I will want more of them soon. In fact, I am going to use nothing but CAN'T-SAGS in the future. Respectfully yours,  
J. R. GROUND, Mgr., Oakland Farms, Hagerstown, Md.

Rowe Mfg. Co., Galesburg, Ill.  
Dear Sirs—In regard to the "CAN'T-SAG" Gates, I like them fine. I see no signs of sagging. I have 12 in use around my barn and have put them to some pretty hard tests, and they show no signs of sagging down. A good many have taken notice of them and they all say they are the only gates to have on a farm.  
C. H. COBB, Springfield, Ind.

Rowe Mfg. Co., Galesburg, Ill.  
Gentlemen—Having used four of your "CAN'T-SAG" Gates around the feed lots where they are constantly being rubbed against by hogs, cattle and horses I am well pleased. They are flexible, yet very strong. I have been using the gas-pipe and iron gates for several years and have never yet found one durable enough to make them a profitable investment where stock could get at them. The "CAN'T-SAG" Gates are very satisfactory and I assure you I shall continue using them.  
C. E. CARPENTER, New Berlin, Ill.