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Making Credit a Real Farm Resource

By ASHLEY M. BERRIDGE

THE past few months have brought to the farm reading table paper after paper containing discussions of rural credit, lower rates of interest for farmers, and cooperative borrowing organizations. We have been informed that a great step for the bettering of rural conditions has been taken by the government in establishing a Rural Farm Loan Board, and this is undoubtedly true. Credit is much like a real sharp axe. A fine tool in the hands of a man who understands its use but one which many men have maimed themselves for life, upon. And again, like the axe, to do its best, credit must be kept keen by personal promptness, honor and system in business.

Great changes have come in the management of farms in the past few years. Machine after machine has found its way into the farm yard to make more efficient, speedy and easy the work of the owner. Every piece of farm equipment is capital just as truly as if it were money. In order to have a good cream separator the sum of perhaps \$75 must be given in exchange for it. Both are capital. The money represents the difference between the production of the farm and what it has consumed. It may be the amount that was left from the wheat crop after the threshing bill had been paid and the winter's flour supply provided for. When it is given to the hardware man for this labor-saving device, that machine still stands for a part of the whole production-above-consumption of the farm.

The Farmer Becomes a Capitalist.

Years ago land represented very little outlay of money. By homesteading it was obtained free or for a very small sum. Practically all that was produced on that land was consumed by the family and the live stock. But as traders came into this newly settled land and erected stores and mills, the farmer took part of his products and exchanged them for shoes, clothes and food, or for money with which he bought these necessities. Still he had not become a capitalist for everything that he purchased was to be consumed. Presently useful tools, that the land owner needed, were placed on sale and he bought them. He either got a little more from his land or skimmed at home on the consumption end. Everyone knows how rapidly farm inventions have been placed on the market, how they have enabled the farmer to produce much more than the farm uses up until today the yearly inventory of tools and equipment ranges from \$100 to several thousands. This is capital.

The farmer today is a land owner and a capitalist. If he needs a new spade he must either pay a dollar for it, or, if he does not have the dollar, go without the spade or borrow the necessary funds. The same is true with a farm tractor. So there appears to be two ways of getting capital. The first is safe but slow. That is to accumulate every dollar necessary for a mowing machine before buying it. The

other is to borrow the money, have the use of the mower and make it earn back the purchase price and the interest required for the loan.

Borrow Only for Productive Investments.

As many people know, to their sorrow, all debts must be paid with a certainty. It is easy to spend the borrowed money but when it is gone the date of repayment usually comes pretty fast. There is just one way that it can be done without worrying and that is when the money is spent for some-

thing that will bring it back by the day of reckoning. Borrowing for a productive enterprise can be good business. The man who gives his note for \$100 so that he can buy some fertilizer and, thereby, gets an increased yield of wheat worth \$125, would ordinarily be called a good business man, especially if his loan didn't come due until after the wheat was threshed. If his land however, could not respond with that particular fertilizer and he only got a \$50 increase the dangers of borrowing begin to show themselves.

There are several general rules that the farmer who is going to borrow

General Rules for Borrowers.

Rule 1. Analyze the purpose for which you are going to borrow. Ask the question, "will it return more than enough to pay the debt and the interest?" If it will, little hesitation is necessary. If it won't, one of these three things will happen. The borrower must take the money from some other source to pay the debt when due. This violates the basic principle of business, and a rule that more farm-

borrower thinks more about the rate of interest than he does concerning the principal. If he borrows \$100 for a year at seven per cent he will have to pay back \$107. Were the rate at five per cent, only \$105 will be required. The grand difference is \$2.00. Undoubtedly worth saving but the big factor is the \$100. A man should spend more energy arranging for the way he is going to pay back the \$100 than to the saving of \$1.00 or \$2.00 or \$3.00. If the farmer who borrowed the \$100 for fertilizer could get the loan at five per cent, on the condition it be paid in six months, before the wheat was harvested, he would be the loser, when he might have had it at seven per cent for ten months, thereby making the wheat crop itself pay the debt and interest. Always arrange, if possible, the time of payment so that it can be met.

Rule 3. On the other hand, don't lengthen the loan period so that it goes beyond the productive life of the improvement for which it is borrowed. The extra interest required must be paid after production has ceased and is a dead loss. A man who borrows \$75 to purchase a cow might wisely have the note extend over four years, but if he made it payable in 15 years the source of income for the payment would have reached the butcher's block and been eaten long before. As a general thing the productive life of the improvement and the length of the debt should have a close relationship. A loan for the purchase of a corn-binder should not be for more than 10 years as the binder will be worn out by that time.

Amortization.

Rule 4. Provide, if possible, for the reduction of the principal in some way during the period of the loan. Every man knows how much easier it is to pay for anything on the installment plan than it is to furnish the entire amount of money at one time. This has been used by many great sales houses in their cash down and weekly or monthly payments. In the same way a debt that can be paid off in installments takes care of itself rather easily. One method is by an agreement whereby on every interest date a part of the principal may be repaid. The other is by a definite rate of contraction, like the system of compound interest turned wrong side out, called amortization. The possibilities for making money with compound interest are wonderful. Just as wonderful, for the borrower, is the process of amortization. One of the strong features of the new Rural Credits Law is this very same process of loan repayment.

The following table shows how the loan of \$1000 for a period of 16 years would be paid by annual payments of \$100 so that the entire principal and the interest would be paid up with the last payment. The interest upon \$1000 for 16 years at six per cent interest would amount to \$960, while through the amortization plan only \$573.10 is paid.

(Continued on page 527).



Trimming Shade Trees, a Good Job for Late Autumn. (See Page 528).

ers should pay attention to, that a project should pay its own way.

Or he must renew the note. This is asking a favor of the lender and one that he cannot be compelled to grant. Much embarrassment, hard feelings and even loss is prevented when men conduct their business affairs so that they don't have to ask such favors of each other.

Everyone knows what will happen when neither of these conditions can be met. He will be sold out.

Rule 2. The contract should call for the repayment of the principal at the most convenient time. Very often the

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DETROIT, DEC. 2, 1916

CURRENT COMMENT.

The Threatened Embargo.

Occasional suggestions of the desirability of placing an embargo on the exportation of foodstuffs from this country have emanated from many sources during recent months. Until recently such suggestions have not been taken at all seriously by American farmers. Recent developments, however, seem to indicate that it may be necessary for farmers to give special attention to this proposition in the comparatively near future. A prominent majority member of Congress has announced his intention of introducing a bill providing for such an embargo early during the coming session of Congress, which opens December 4.

The American Federation of Labor is reported to have recently declared in favor of such an embargo until such time as foodstuffs sell in this country at a more normal level. Through its Department of Justice the government has been investigating prices of foodstuffs and other commodities in various commercial centers of the country during recent weeks. The attitude of the administration on this question has not yet been made public, but an announcement recently accredited to the State Department to the effect that it considers this wholly a domestic problem would seem to indicate that the question of neutrality would not be urged by the government as an obstacle to the placing of such an embargo by Congress.

While it does not seem possible that a representative body like Congress could under existing conditions give serious consideration to a proposition of this kind, yet the hurried passage of the Adamson law at the close of the last session of that body shows the power that labor organizations of the country wield in the matter of influencing legislation. The alleged attitude of the Federation of Labor on this question seems poorly considered and ill advised. Conditions of employment are better and wages for all classes higher than ever before in the history of our country. There is no general condition of unemployment and no bread lines in our large cities.

Laboring men of this country for many years enjoyed the benefits of a protective tariff on products of their labor, while American farmers were obliged to sell their products in the markets of the world and at world price levels. Only on few commodities, and then mostly under unusual conditions which limited production along certain lines, did the farmers of the country reap a direct benefit from this policy. It did, however, help create a better domestic market for many of their products. Now that world price levels for foodstuffs have advanced,

owing to most unusual conditions affecting trade, combined with an unusually unfavorable season which has limited production, it appears that organized labor favors the placing of an embargo to force producers to take a low price for their short crop. This is almost parallel to the fabled "killing of the goose that laid the golden egg."

Farmers constitute the largest single class of purchasers of manufactured products in this country. Their money goes more generally and more quickly into circulation through the purchase of manufactured products, including equipment of all kinds for their farms and homes, than does the surplus accumulated by any other class of people. There is a close relationship between the prosperity of the farmers of the country and the prosperity of the country's business as a whole, which is generally recognized by business men and financiers, and any curtailment of their prosperity will be quickly felt by the country when the business incident to the war drops off, as it is bound to do in the not distant future.

An embargo on foodstuffs would be justified only in case of military necessity or to avert serious suffering and famine among our people. Happily, neither of these conditions exist at the present time, and the farmers of the country will demand the same right to sell their products in the markets of the world that has been accorded to manufacturers, on the ground that its curtailment would constitute a violation of our neutrality.

Should this movement develop serious proportions, it will be necessary for the farmers of the country to make a strong presentation of their claims through their representatives in Congress. Already the National Grange has taken the lead in a statement issued last week. Farmers' organizations everywhere should take early action upon this proposition, in order that their influence may be felt in Congress at an early date.

A recent advice states that on account of the high price of other farm products and the scarcity of foreign labor, the growers of 1,200 acres of sugar beets in Eaton county have signed an agreement not to grow beets for less than \$8 a ton for the season of 1917. These growers have asked the co-operation of all beet growers in the state to secure the price which they have fixed for their product.

Inquiry as to the attitude of Michigan's largest users of sugar beets reveals the fact that the matter of price and form of contract is still under consideration by the officials of that company. Some growers have indicated a preference for a sliding scale of prices for sugar beets, depending upon the market price of sugar. This is the form of contract commonly used in Ohio and used for several years by one Michigan factory which is operated in connection with factories in Ohio. This contract for last year provided for a base rate of \$5.40 per net ton with payment to be made on the fifteenth of the month following delivery of beets. Under this contract, if the average price of beet sugar exceeds \$5.00 per cwt., the sugar company, as additional compensation, pays the grower, per ton of beets delivered, the difference between the average price of beet sugar per hundred weight and \$5.00 per hundred weight. This average price is determined by average official New York market quotations for the central states' territory during the months of October, November, December and January.

Final settlement is made on the contract on the fifteenth of February. The price which the grower receives under this contract above the \$5.40 base price, cannot be determined until the first of February, which in the mind of some growers is an objectionable feature, while others favor this plan because of its equitable profit-sharing

feature. It is certain that the contracts offered by Michigan beet sugar companies for the current season will be more liberal than those of last year, in view of the prosperous season which these concerns have enjoyed. While present prices for sugar are probably more or less dependent for their continuance upon the duration of the European war, yet sugar in common with other foodstuffs is bound to continue at a relatively high price for another year at least.

Sugar beet growers are warranted in insisting upon a higher price for their product than they have formerly received. On the other hand, the future prosperity of the sugar beet companies depends upon an adequate supply of raw material for the operation of their factories, for which reason they will be inclined to satisfy the Michigan growers as far as price and contract conditions so far as they may be able. It is to be hoped that the views of the manufacturers and the growers may so far coincide in the matter of price as to avoid any curtailment of acreage devoted to this special cash crop in our state.

Notwithstanding the fact that both mutton and wool are selling at higher values than have prevailed

for many years, the textile manufacturers of the country have recently taken a wholesome interest in the sheep industry of the country, and have sought by various means to stimulate a more general interest in sheep and wool production. As a means to this end, a conference was held at Philadelphia last week composed of manufacturers, dealers, educators and producers from thirty-two states of the Union.

The opinions advanced in these deliberations are interesting and will be given such space as is available in a future issue. Briefly summarized the recommendations include the conservation of breeding flocks, increase in the number of farm flocks, adequate dog laws, encouragement of co-operative sale of wool and lambs, encouraging the formation of boys' and girls' lamb clubs, proper publicity for the benefit of the industry, etc. A committee was appointed by the conference to prepare a plan for the formation of a bureau for the development of the sheep industry to be financed by the wool and textile manufacturing trades and participated in by those interested in the wholesome development of the sheep industry.

MICHIGAN FARMERS' INSTITUTES.

County Institutes.

Ogemaw Co., West Branch, Dec. 5-6; Roscommon Co., Roscommon, Dec. 7-8; Crawford Co., Grayling, Dec. 8-9; Cheboygan Co., Wolverine, Dec. 11-12; Montmorency Co., Atlanta, Dec. 13; Emmet Co., Harbor Springs, Dec. 13-14; Otsego Co., Elmira, Dec. 15-16; Wexford Co., Manton, Dec. 18-19; Missaukee Co., McBain, Dec. 20-21; Tri-County Institute, Cadillac, Dec. 21-22; Lake Co., Chase, Dec. 22-23.

One-Day Institutes.

Osceola County.—Ewart, Dec. 4; Marion, Dec. 5; Dighton, Dec. 6; Tus-tin, Dec. 7; Leroy, Dec. 8; Reed City, Dec. 9.
Gladwin Co.—Wagarville, Dec. 5; Sage Township, Dec. 6; Grout Township, Dec. 7; Dale, Dec. 8; Billings, Dec. 9; Sherman Township, Dec. 11.
Otsego County.—Gaylord, Dec. 9.
Emmet County.—Bear Creek Township, Dec. 6; Epsilon, Dec. 7; Brutus, Dec. 8; Leverings, Dec. 9; East Bliss, Dec. 11; Island View, Dec. 12.
Antrim County.—Mancelona, Dec. 13; Grass Lake Grange Hall, Dec. 14; Forest Home Grange Hall, Dec. 15; Bay View Grange Hall, Dec. 16.
Montmorency County.—Lewiston, Dec. 11; Big Rock, Dec. 12; Hillman, Dec. 12.
Oceana County.—Benona Center, Dec. 11; Cranston, Dec. 12; New Era, Dec. 13; Blooming Valley, Dec. 14; Mears, Dec. 15; Walkerville, Dec. 16.
Isabella County.—Blanchard, Dec. 13-14; Weidman, Dec. 15; Brinton, Dec. 16.
Missaukee County.—Vogel Center, Dec. 18; Falmouth, Dec. 19; Moores-town, Dec. 22; Lake City, Dec. 23.
Lake County.—Baldwin, Dec. 19; Sauble, Dec. 20; Luther, Dec. 21.

HAPPENINGS OF THE WEEK.

Foreign.

The European War.—Troops of the central powers invading western Roumania from the north and west, have effected a junction with forces advancing from the south across the Danube River. Already Von Mackensen's advance has reached Alexandria, which is 47 miles from Bucarest, the capital of Roumania. War experts think the junction seals the fate of the capital city. The Roumanians, however, are holding fast to the line of the Alt river across the western part.—Heavy artillery fire in several sectors of the Russian front is reported. Berlin also states that Russian detachments advancing in the Krashin and Sty districts have been checked.—Little has occurred in Macedonia except that an attack on a height near Monastir was successfully repulsed Sunday by the Serbians.—Early this week everything was quiet in northern France except a surprise attack by the Germans near Moisons-Champagne, but which was beaten off. British forces also repelled an attacking party north of Ancre and one east of Beaumont-Hamel.—According to the war study society of Copenhagen, the vital toll of the present war for the first 23 months shows 5,403,417 dead, 13,119,511 wounded and 3,935,983 invalids.—In behalf of France, England and Russia the Greek government has been warned that these countries cannot remain indifferent to the prosecutions of adherents to the Venizelos cause and that these nations purpose to see that his followers enjoy all the rights conferred upon them by law. Venizelos is at the head of a movement giving support to the Allies, while the former government is believed to be leaning somewhat toward the central powers.

Early this week it was reported that Chihuahua, the capital of the Mexican state by the same name, had fallen into the hands of Gen. Villa and his followers after battling three days and nights to drive out Carranza's army under Gen. Trevino. Villa is reported to have had about 8,000 men and the defenders had probably a few hundred less than this number. Comparatively few of the residents were unable to escape, and following the entrance of Villa's troops many of the inhabitants were massacred by the invaders and property was burned.

Emperor Francis Joseph of Austria-Hungary died last week at the age of 86. His reign over the dual nation for a continuous term of 68 years is probably the longest recorded in history. Archduke Charles Francis Joseph becomes successor to the throne of his father.

The German press is criticizing bitterly the attitude of American manufacturers in giving the tremendous help they have to the entente allies. It is stated that fully one-half the materials used by Germany's enemies is made in America.

That the movements of earth in the channel of the Panama Canal will ultimately be overcome, is the opinion of General Goethels, governor of the Panama Canal zone, as given in his annual report just made public by the war department.

Germany and France have completed negotiations for the exchange of 20,000 civilians, mostly old men, women and children. It is expected that the exchange will be completed before Christmas.

A special session of the German Reichstag is convened this week to place upon the statute books an act marshalling the whole manhood and strength of Germany. This act will probably mean the leveling of all barriers of rank in the empire.

National.

Mrs. Inez Boissevain, of New York, who had become the idol of American suffrage adherents, died in Los Angeles on November 26.

A warning has been sent out to all vessels carrying goods to the entente allies, to be on the lookout for German submarines on the American coast.

Internal taxes of the federal government set a new record during the last fiscal year, the amount being \$512,723,288, or about \$97,000,000 more than for the previous year.

James W. Gerard, American ambassador to Germany, is in Washington this week in conference with President Wilson and the German ambassador regarding war conditions in Europe.

The political complexion of the next House of Representatives at Washington is still in doubt. Leaders of both the big political parties are claiming majorities running from one to three.

President Wilson is urging the American-Mexican joint commission to hasten its work and if possible to decide very soon upon a scheme for handling the difficult problems now confronting the two countries. No predictions are made as to what the government intends doing in the event that the commission fails to reach an agreement.

Farm Buildings

At the recent meeting of the New York State Dairymen's Association, Prof. F. G. Kraege, of Wisconsin, addressed the convention on "Farm Buildings." He said: "Within the month I visited a 600-acre New England farm where \$75,000 was invested in buildings for dairying, and about \$2,000 in a residence. On the other hand, on another farm—a farm of 40 acres, I found a \$5,000 residence and a \$1,000 barn. Neither is a paying proposition.

The type of farming carried on will determine the kind of buildings needed, but the buildings should be in keeping with the size and goodness of the farm. Only about 15 per cent of the capital invested in a farm plant should be put into buildings. The barn should not cost more than \$50 for each animal kept in it and as much as \$1,000 may be invested in the home for each member of the family.

Location and Arrangement.

Again, too little attention has been given to the location and arrangement of farm buildings. Evidently the economic value of both is not appreciated by many farmers. Much time is wasted in going to and from work where the buildings are located far from the center of the farm. Walking 600 feet four times a day amounts to a distance of more than 290 miles in a year. A saving of 30 minutes a day by having buildings centrally located amounts to about 19 days of ten hours each in one year.

Buildings should be arranged for

The stable has a concrete floor, hard finished walls, and is kept as clean as the good housekeeper keeps the house. It would be an education for many dairymen to visit the up-to-date sanitary barns.

Many barns were built years ago, and do not meet modern requirements. It is sometimes more difficult to remodel old buildings than to build new ones, but the farmer should be progressive and be willing to make changes when possible.

First get in mind models of correct barn construction, and rebuild the barn on the same plans as far as practicable. Make use of gravity in handling hay and grain. Plan not to lift them, but in unloading and feeding all drops down.

Chutes should carry hay and grain to feeding mangers, and silos be placed close to end of mangers. If possible use carriers to distribute it.

In ventilation, the King system flues should regulate the intake to be about the same as outlet. The outgoing shaft to roof should be perfectly airtight.

The plank frame method of building barns is best adapted to conditions now, as it can be made as rigid as the old plan of large timbers. Large timbers were weakened by cutting them in framing. Space between silo and barn can be utilized for grain bins, also space under the bridge for roots. The milk house need not be far from the barn, if the stable is kept clean.

There is a question as to the health of animals being affected by all stone or concrete stables. Moisture and frost

MAKING CREDIT A REAL FARM RESOURCE.

(Continued from first page).

Amount of loan.....\$1,000
Length of term, years..... 16
Rate of interest, per cent..... 6
Annual payments..... 100
(These figures apply proportionately to a loan of any amount whatever).

Annual Periods.	Total Annual Payment.	Interest at 6 per cent.	Paid on Principal.	Amount of Principal Still Unpaid.
1	100.00	60.00	40.00	960.00
2	100.00	57.60	42.40	917.60
3	100.00	55.06	44.94	872.66
4	100.00	52.36	47.64	825.02
5	100.00	49.50	50.50	774.52
6	100.00	46.47	53.53	720.99
7	100.00	43.26	56.74	664.25
8	100.00	39.85	60.15	604.10
9	100.00	36.25	63.75	540.53
10	100.00	32.42	67.58	472.77
11	100.00	28.37	71.63	401.13
12	100.00	24.07	75.93	325.20
13	100.00	19.51	80.49	244.71
14	100.00	14.68	85.32	159.40
15	100.00	9.56	90.44	68.96
16	73.10	4.14	68.96
1,573.10		573.10	1,000.00

The Interest Rate.

Rule 5. Last, and perhaps least, important is the rate of interest. This depends usually upon the law of supply and demand. If the neighborhood is one where borrowers are plentiful, where little regard is paid to the aforementioned rules, if notes are given for consumption as well as production enterprises is irregular, where requests for renewals are frequent and people have to be sold out, causing disagreeable scenes for all concerned, their rates will always be high. There the loan shark will prey, not only maiming his victim but awaiting patiently the chance to swallow him whole.

But where the community is made up of men who may borrow heavily, but wisely, who are prompt and systematic in their banking and other business relations, where litigation is the exception rather than the rule, there is, ordinarily, found quantities of loanable cash, the rates of interest are lower and better contracts can usually be obtained.

Credit a Resource which Should be Properly Used.

Many are the tears of joy that have been shed at the "burning of the farm mortgage;" yet would the owners of that farm have gone without the home so dear, for the sake of not having the debt-burden to carry? Often young men are advised by their parents, who have been through such trials, to "never go in debt." To follow this advice would be like cutting a splendid crop of hay with a scythe in the old, laborious way, when a sharpened mowing machine stands in the barn, and two ready horses are impatient to draw it. If you don't understand machinery, if you don't care to investigate, or have not a careful planning disposition, then by all means stick to the scythe.

Farming is becoming more and more a business proposition. Especially is this true for the young man, who must have capital as well as land to make a success. One of the greatest business men of this country not long ago advised every young man to "go in debt." Remember some of these simple rules, conform all your efforts and habits of life to ways of system and honor until your name is "gilt-edged." Then you have developed a resource upon your farm that should be used to bring greater happiness and prosperity to your family, the community you live in and to yourself. That resource is Credit.

DO NOT WAIT TOO LONG.

As it is but a short time before our subscription price will advance to 75 cents a year, \$1.75 for three years, and \$2.25 for five years, would it not be a good idea for you to send in your order now while the price is but 50 cents a year, \$1.00 for three years, and only \$1.50 for five years? There is quite a saving. Please do not forget to tell your neighbor.



Bungalow Built of Field and Beach Stones, by John Kistler, Mason County.

convenience in doing the farm work. The barn should be at least 200 feet from the house and placed where the prevailing winds will not blow the odors toward the house. It should be constructed so as to provide for the comfort and health of the live stock; equipped and arranged so as to save time and labor, and to be sanitary. It should be located on a slight elevation on well drained soil and should extend north and south so as to permit the greatest amount of sunlight to enter the barn.

The home should be located on well-drained soil, at least 200 feet from the road, with a good outlook and attractive approach and setting. To admit sunlight to every room it is best to have the house face southeast. The modern barn is planned so as to save steps in doing the chores. It is just as important to plan the home so as to save the steps of the housekeeper. Many miles are traveled daily, when this is not done. It is just as necessary to provide a carpet sweeper, washing machine, bread mixer, kitchen cabinet, etc., for the work in the home as it is to provide a sulky plow, harvester, manure spreader, etc., for the work on the farm.

Sanitation.

Mr. Kraege described some of the worst type of barns, unsanitary almost beyond belief—dark, cold and filthy, and said that it is a fact that a large proportion of market milk comes from such barns.

The modern sanitary barn is planned to admit a maximum of sunshine.

go through thin walls. Air spaces in the wall, and wood or paper linings may make them comfortable and sanitary. Concrete is to be considered with the present high price of lumber. New York. W. H. JENKINS.

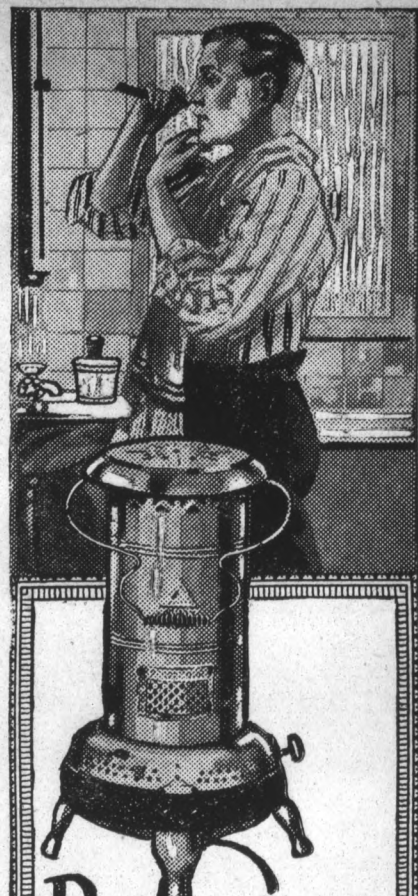
BEAUTY AND UTILITY FROM WASTE PRODUCTS.

John Kistler, a country blacksmith of Mason county, Michigan, is demonstrating that beauty and utility can be gotten out of mean things in the little house which he is building on the pike out of Ludington.

The walls, from foundation to eaves, are of field and beach stones which cost him nothing except the hauling. They are just such field stones as are so plentiful in many sections of Michigan and other states. The beach stones are from the shores of Lake Michigan, three or four miles distant from the Kistler farm. They are not better than the field stones except that some of them are polished by the action of the water.

One hundred and fifty dollars paid for all the cement used in the walls. The stone was hauled in the winter when labor is cheapest, and when good-sized loads could be hauled with sleds.

The inner wall is of hollow tile to allow for air spaces. The kitchen is finished in blue and white tile and the building will be modern in every way when completed. The total cost will not be more than the cost of the cheapest kind of a frame house.—L. G. P.



Perfection Smokeless Oil Heater

is a regular little furnace of heating energy

The Perfection Smokeless Heater is indispensable in the home, no matter what heating facilities you have—the bathroom is too cold for baby's bath, the sewing room is chilly, the living room is not comfortable, the laundry, the basement, the attic, all have cold corners.

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That's the verdict of every fruit grower who used the Niagara Dusting Method this year. Their letters from many fruit sections all read practically as follows:

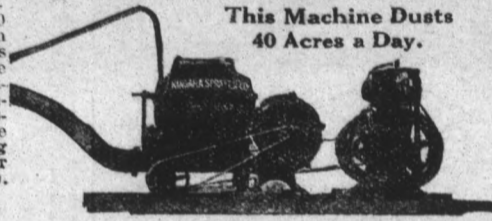
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The Farm Auction Sale

By R. C. SMITH

FOR various reasons large numbers of farmers will wish to dispose of their farm animals, tools, etc., during the coming winter and spring, preparatory to throwing up the farming business. They will in a majority of cases use the public auction in making the disposition.

The farmer contemplating the auction sale should allow himself plenty of time for preparing his property for such an event. Naturally he will wish his property to bring him as many dollars as the particular circumstances in his case will permit.

The owner, by careful study, can always make alterations that will prove beneficial, from a financial standpoint to himself. He cannot possibly be too careful in selecting the date for his sale, overhauling his machinery, his large tools, his small tools, etc., fitting the animals to be offered or arranging the order in which the property will be offered on day of sale.

There are tricks to all trades and the public auction is no exception in this respect. Studying the little insides of the sale business therefore cannot fail to benefit the inexperienced.

Selecting the Date.

This is largely a matter of fall and spring market indications. If the fall market for live stock is on the low levels and the roughage, grain, and vegetable market of a nature corresponding, it will prove more than profitable for the owner to fit his live stock with his available feed for the spring sale, thus securing many additional dollars for his stock on the higher spring markets, when his surplus grains, etc., will also bring more money.

It is of importance that the spring sale be held on a date previous to the annual spring auction sale rush, so to speak. Farmers find it necessary each spring to purchase a certain number of implements and articles, therefore it is advisable to set the date of one's sale somewhat in advance of the expected auction sale weeks and eliminate the possibility of their having already purchased at other sales.

The farmer should allow himself plenty of time for overhauling and repair work. A new part here, a little paint there, combined with a little work with a wrench will convert a broken, almost unsalable tool into one quite the opposite.

Advertising.

This particular part of the advance preparation cannot be overdone. The owner of the property offered at public auction is at the mercy of his crowd. Such crowd must be large, because a number of bidders afford competition, which cannot but benefit the owner financially. It is up to him, therefore, to see that every man in his township and in those surrounding receive information concerning his intentions of holding the sale. "The more the merrier," is the proper spirit when distributing advertising matter. The dollars spent in the advertising campaign cannot but prove large dividend paying investments on sale day.

Having your intended auctioneer announce the date of your sale at all his sales previous to your date will invariably induce extra attendance. Brisk and active bidding will be as much desired by the auctioneer as will it by the owner. Accordingly he will be glad to arrange for such announcements.

Hints for Sale Day.

Inbidding of property by the owner is a step in the wrong direction. Nothing can dampen the enthusiasm of the auction crowd with such effectiveness as will the knowledge that they must bid against the owner. Undoubtedly it is always necessary for the owner to bid in a few offerings and avoid losses on the certain items. This can be skillfully arranged for and suspicion averted and the owner be justified in so doing. However, persistence in the

act will prove detrimental. It is quite possible to save \$5 on one offering by bidding it in, and lose \$100 on the combined offerings as a result.

Much can be gained by manipulating the order of the first offerings as to gradually arouse buying enthusiasm in the crowd. Satisfaction with the first purchase will induce another attempt on the part of the purchaser, bringing with him the bid of a neighbor or two until it becomes a case of "come in boys, the water is fine," and the proper auction sale spirit has been aroused. The real importance of the co-operation of the owner and auctioneer in furnishing the right bargain at the right time can be readily perceived.

The attitude of the owner when questioned about certain points or parts of his offerings is of considerable importance. Straight, honest descriptions where desired will work to his benefit. Honesty about the broken corn-sheller, and honesty about the valuable horse is expected. Confidence in your description will bring forth the high bids from your crowd.

On the other hand, had the owner adroitly avoided the question about the weak part in the corn-sheller and perhaps got the \$2 extra bid by so doing, quite possibly he might be suspected of avoiding explaining something when the horse is offered and suffer a \$20 loss in this case.

Naturally, wishing to realize as nearly as possible the amount of money from his sale that he has invested in the property previous to the same, or in its accumulation, it is to the owner's advantage to carefully study and perform this all-important preliminary work.

TRIMMING SHADE TREES.

The shade trees in the farmer's yard and along the highway are a valuable asset in determining the real estate value of a farm and these trees should be given proper care. Limbs that die should be removed without mutilating the trunk of the tree and limbs which touch within a few feet of the ground should also be removed. The height of the lower limbs can depend upon the kind of traffic which will pass beneath the trees.

In protecting shade trees it is well to guard against the posting of advertising signs on their trunks. This is a common practice in some sections of the state and no farm was ever improved by being decorated with gaudy signs spiked on the finest of its trees. Selling farms is not the business of farmers, but there are few farmers that do not like to have an occasional offer for the place, just to prove to them that it is still good enough to keep. Fine trees, such as elms, oaks and maples, lend an attractive appearance to a farm home and they are greatly appreciated by the mass of city buyers who frequently invest in farms and pay good prices.

Farmers possessing few shade trees around the house can usually transplant vigorous trees to their lawns from neighboring woods, and these will add to the attractive appearance of a farm home, even though of small size. Proper care of the shade trees and an occasional trimming form some of the duties of the business farmer.

Ingham Co. R. G. KIRBY.

LONGEVITY OF CLOVER SEED.

I would like to know how long clover seed will retain its vitality when stored under proper conditions.

Montcalm Co. M. B. C.

The length of time for which the vitality of any seed might be preserved by proper storage would naturally depend upon the quality of the seed when stored. The best estimates give the average period of vitality for clover seed at three years.

Winter Protection for Strawberries

UNLIKE tree and bush fruits, the strawberry plant does not harden and ripen its tissues. On the contrary its cellular growth remains in a succulent state throughout the winter and spring months ready to resume nature's work, when awakened at the call of spring. Neglect to properly protect these plants from the injurious effects of alternate freezing and thawing of leaf and crown tissues must result in greater or less loss, depending upon latitude; local conditions of the weather; protection afforded by windbreaks, and the condition of soil drainage.

Injury Freezing Causes.

There are two types of injury to which freezing subjects strawberry plants. First, there is injury brought about when the soil is subjected to alternate freezing and thawing which occurs when nights are frosty and days sunny. Freezing expands the soil which exerts a lifting force on the crown. As the lower part of the root system is locked in frozen soil many of the fibrous roots break under the strain. This type of injury is most noticeable on soils most subjected to honeycombing. On such soils the crowns of strawberry plants are frequently lifted an inch or more above their original position, thereby greatly reducing their yielding capacity, if not killing them outright.

Another type of injury takes place when leaf and crown are exposed to the injurious action of alternating frost and sunshine while roots are locked in frozen soil. While in this state evaporation from leaf and crown tissue is more or less great. But, while roots are locked in frozen soil this loss can not be replaced. Hence as a normal per cent of moisture content can not be maintained, plant tissue must shrivel, and, in extreme cases die. This type of injury is not nearly so plainly evidenced as is the other, hence the grower is often deluded with the belief that no harm is being done his plants simply because there is no honeycombing and heaving of the soil. Strawberry plants need winter protection, no matter what may be the type of soil, or how well drained.

The Best Mulch.

The best material to use is that best suited to the purpose. It will not do to shut the air from the plants entire-

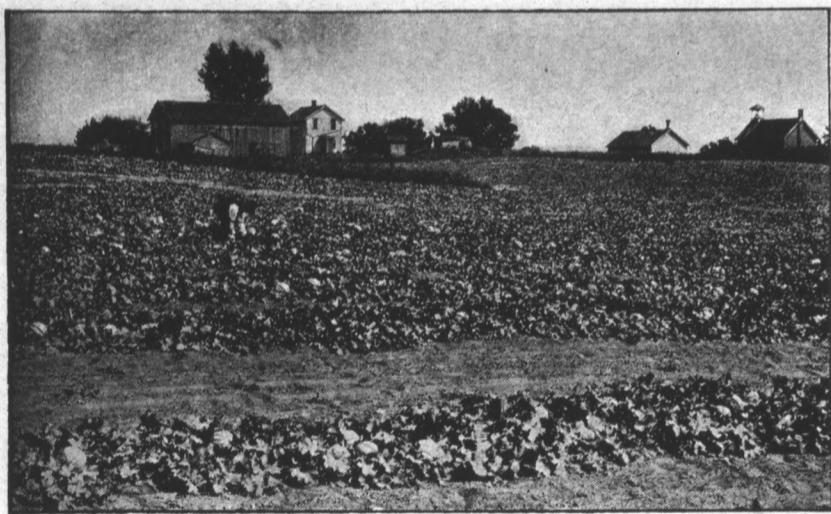
ly. In fact, the more perfectly the material admits air while excluding the direct rays of the sun, the better fitted it is to the purpose. Coarse materials lie loose, admitting air freely, hence such materials should be used when obtainable. The most satisfactory material I have used is marsh hay. It is entirely free of weed seed which is an important consideration; but this material is not often obtainable. Corn fodder, when shredded, answers the purpose admirably; but this seems rather expensive. Of the materials employed for the purpose straw is the one most commonly used. With this material weed seed of many kinds is often introduced, resulting in great annoyance and much work to the grower or an unsightly field as the case may be. Much may be done to obviate this difficulty by selecting straw that does not contain a large per cent of weed seed. Small quantities of straw may be made nearly, if not quite, free from fowl seed by letting the poultry scratch it over.

When to Mulch.

The material may be applied at the approach of freezing weather. Its application should not be delayed long after freezing begins. If applied on unfrozen ground the covering should used should be light. After the ground is frozen a large quantity may be applied without danger of injuring the plants, providing care is exercised in loosening that directly over the plants or removing a portion of it as soon as growth begins in the spring, so that the leaves may have free access to air and light. For the purpose of protecting the plants against excessive freezing there is nothing that quite equals snow. As a supplementary mulch it is invaluable. For this reason windbreaks should be made use of whenever it is possible.

As a moisture conserver during fruition the mulch renders valuable service also. In case of a drouth a generous mulch may mean the difference between a good crop and no crop at all. Then, too, it is indispensable to clean fruit, and to the comfort of the pickers. The fact is, the mulch is as indispensably a part of the system making for quality and quantity in strawberry growing as is clean culture and fertile soil.

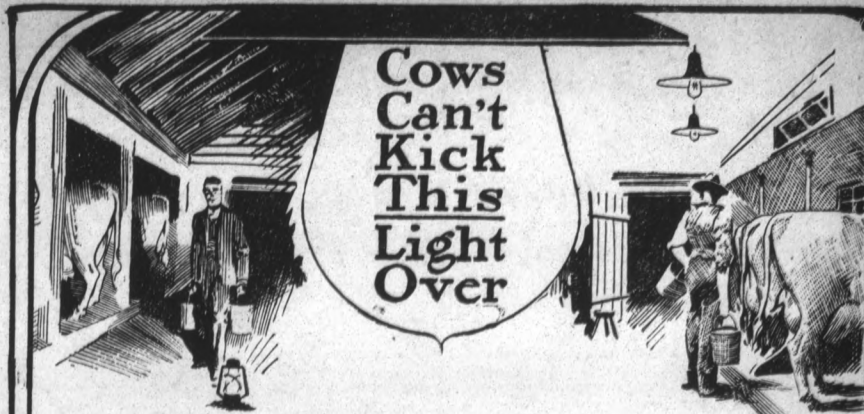
Emmet Co. M. N. EDGERTON.



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Mr. Billinghamurst also sprays frequently with Bordeaux to prevent the blight. For spraying he uses a two-horse four-row potato sprayer, setting the sprayers close together so as to form a continuous sheet of spray over the six-foot-wide row. He also sprays with water to keep off light frosts in the fall. He had about three acres of melons this year.



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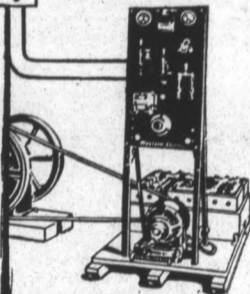
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Winter Care of Farm Horses

By EPHRAIM GREGORY

IT is always a big job to get the horses hardened to work when spring opens up. No matter how well you care for the horses during the winter they are bound to be soft, owing to the long period of idleness. But on some farms the horses will be not only soft but in such poor condition that it will take a long time to get them back to a thrifty condition so that they will be able to do the hard work that is before them. This results in much lost time just when time is very valuable. The amount of time required to break in the horses will depend altogether upon how well they are cared for during the winter. It seems that since we have so much spare time during the winter we ought to care for the horses well, and the idle horses in winter need more attention than the working horses in summer.

The Evil Effects of Idleness.

In winter horses are idle a great deal. This in itself is disastrous. Idleness causes the animal to get out of condition. The bodily organs become inactive through idleness. Then the horse loses vitality. He becomes lifeless, sluggish and has a poor appearance generally. This is the first bad sign. But, if he isn't cared for well it is only the beginning of trouble.

The idle horses should have plenty of exercise daily. They should be turned out in yard, paddock or field every day—all day when the weather is favorable, and for a short time at least every day, even in rough weather. And feed and water should be given regularly each day. Lack of exercise and irregular feeding are two of the main causes of bowel troubles, a common trouble to which idle work horses are subject, and one we should try to avoid since it brings on most other troubles.

Feeds and Feeding.

The kinds of feeding stuffs used constitute another factor. Remember that in winter we feed largely on rough feeds, such as straw, clover, fodder and other cheap feeds which contain a large amount of dry matter which is indigestible. We say these things are easily digested. This is true as to the digestible portions of the feeds, but the large amount of fiber is not digestible, and this is what causes the trouble. Here is where the method of feeding may mean so much. Do not feed too much. Give just enough and no more. Even if you are feeding straw, feed it sparingly. Make the horses clean it all up in a short time. Never feed so much that roughage will be left over from one feeding time to another. And feed some concentrated feed like corn, oats and oil meal. Oil meal is very valuable as a conditioner, because it helps to keep the bowels active, and it supplies protein in a cheap form. Most of these rough feeds are seriously lacking in this element.

The Stable.

On some farms the method of housing animals is very hard on them. If barns admit drafts, are not well ventilated and are allowed to fill up with manure, horses cannot do well. Horses should be comfortable, but they are not so when exposed to icy drafts. They should have plenty of fresh air—it's cheap—but they cannot get it if the barn isn't well ventilated. And manure injures the horse's feet, skin and general health. If there is no good ventilating arrangement in your barn open doors or windows on the leeward side and make the windward side air tight. Reverse the order when the wind changes. If the barn is not comfortable in the coldest weather put warm blankets on the horses.

The question of grooming should not be passed by lightly. It is very essential. We should use the currycomb some and the brush a great deal in the winter time. This does more than to merely keep the skin clean and the

hair looking well. It is stimulating because it helps to keep up a good circulation of the blood which is very important.

If these hints are followed and the horses kept in good thrifty condition it will take only a short time to get them hardened to work in the spring. But if the horses are either allowed to run down in condition, or are pampered up with rich feeds until they are too fat, it will require much time and extreme care to get them shaped up for hard work when spring comes.

FEEDERS' PROBLEMS.

Corn vs. Oats as Horse Feed.

What is the relative value of corn and oats as feed for horses? Which would be the cheapest to feed, ear corn at 40c per basket or oats at 50c per bushel?

Barry Co.

J. A.

Various experiments have been made to determine the relative value of corn and oats for horses. While oats are everywhere the most popular horse feed and are considered to be the standard by which other feeds are measured, yet point for point, particularly when fed in connection with clover or alfalfa hay or with other concentrates to properly balance the ration, corn has generally been shown to have equal or superior feeding value as compared with oats. This being true, corn would be cheaper than oats at the prices mentioned in this inquiry.

If the corn is to be fed in connection with clover or alfalfa hay, a fairly well balanced ration will be afforded, but if it is to be fed with timothy hay as the roughage, a little oil meal will be useful in balancing the ration, and a little bran or oats will give a desired degree of bulk to the grain fed. A mixture of these feeds is perhaps better than any one used alone.

Estimating Roughage for Live Stock.

I would like your estimate on rough feed for 19 head of stock as follows: Three head of horses, average weight 1100 lbs. each; five milch cows, Durham type; two head of two-year-old heifers; two long yearlings (steer and heifer); four spring calves; two summer calves; one fall calf. I have the following rough feed: Twelve tons of June clover and timothy hay; three tons of good bean fodder; seven acres of medium corn fodder; two tons of oat straw in barn; two tons of clover seed straw. Then I have enough corn and oats for grain for horses and cows. Would this be enough feed for the afore named stock if I don't start feeding until December and feed until April 15, and figure to have a couple of tons of hay left for horses for spring work? How does a ton of oat straw compare with a ton of meadow hay?

Osceola Co.

L. E.

The best way to estimate the amount of roughage for a given amount of live stock is to figure the live stock in terms of weight rather than the number of individuals, since it is easier to estimate the feed requirements per one thousand pounds than per head of different ages and weights.

Proceeding in that manner with the live stock enumerated in this inquiry, using an arbitrary assumption of weights rather than actual knowledge, we would estimate the stock enumerated to weigh a total of 15,000 pounds for the purpose of computation. In like manner reducing the total of the roughage enumerated to approximate weight without definite knowledge as to the yield of corn fodder, we may reasonably assume that the total supply of roughage would be 20 tons, or 40,000 pounds.

Next reducing the length of the feeding period for which it is desired to make this forage suffice, we find that from the first of December until the middle of April there would be approximately 135 days. Dividing the total amount of roughage available by the number of days for which it is desired to make it serve, we find that there would be available an average of approximately 300 pounds of roughage

per day, or 20 pounds per day for each 1000 pounds of live weight of the animals to be fed. For animals of the character mentioned this would be an ample roughage supply. This amount of roughage would yield 16 to 17 pounds of dry matter per day per 1000 pounds of live weight of the animals to be fed.

Figuring on a light grain ration for the horses and a liberal ration for the cows and growing stock, this amount of roughage should suffice for a longer feeding period than is mentioned in this inquiry, and under the ordinary spring conditions it would be more advisable to figure on feeding two to four weeks longer, or until the grass got well started, so as to make a good supply of nutritious forage.

Oat straw is very deficient in protein as compared with mixed hay, the relative average content of this important food element being as one to four in the two feeds.

The bean fodder, on the other hand, is almost equal to good mixed hay in feeding value. Clover chaff can be utilized in small quantities to some advantage in connection with other feeds.

LIVE STOCK NEWS.

The unprecedentedly high prices paid for corn in the markets of the country tend to stimulate sales of corn by the farmers, and at the same time they tend to discourage large feeding of corn to live stock on the farms. From all directions word comes that farmers are inclined to take advantage of the high corn prices rather than take any chances in feeding the corn to stock. Cold, clear weather has prevailed over the corn belt, and it accelerates the marketing of corn, although the movement continues to be checked more or less seriously by the scarcity of cars. Owners of hogs are keen about getting their pigs and young hogs of light weight shipped to market as fast as possible, in spite of the big premium offered for well finished barrows carrying plenty of weight, and the hogs arriving in the Chicago stock yards are averaging only 197 lbs., being the lightest average seen at any time since last January. The average weight stood at 213 lbs. one month ago, at 227 lbs. two months ago and at 231 lbs. three months ago. With such a showing, it is inevitable that the local packers and eastern shippers should pay a liberal premium for all prime corn-fed barrows carrying plenty of weight, and these are the highest sellers all the time, with prime light shipping droves selling at a fast increasing discount. Monday is the great day when the Chicago market usually receives its biggest supply of hogs, and on a recent Monday 52,487 hogs arrived, causing a break in prices for the general run, but prime heavy barrows sold as firm as a rock, with a lively demand. While hogs show a large decline from prices paid at the highest time of the present year, all descriptions are far higher than in other years, and the best lots are particularly high. Provisions share in the boom in the raw material, the foreign demand breaking all past records, and pork has sold within a short time for January delivery around \$28 a barrel, comparing with \$16.65 a year ago, and all other provisions show similar advances.

The season for marketing the range flocks of lambs is drawing to its close, and there are liberal receipts of range feeding lambs, which meet with a lively demand at firm prices, lots weighing about 50 lbs. being the favorites with buyers.

Because of the shortage of straw, the shredding of cornstalks is particularly recommended by the Ohio State University College of Agriculture. Shredded stalks are easily handled and make a good feed. In addition, the refuse makes a good absorbent bedding, which is in all respects the equal of straw.

An Oklahoma stockman is feeding 500 head of cattle this winter, and counts on having them fat and ready for marketing by April. He thinks they can be wintered for about \$10 per head, beginning with steers weighing from 800 to 900 lbs. Silage costs him not over \$2 a ton, and he has good pasturage for the mid-winter months. He owns a silo built of concrete, with a capacity for holding 600 tons. Kaffir corn and cane are used for filling it.

There is no rush to buy stocker or feeder cattle in the Chicago stock yards, the best demand centering on good stocker steers weighing from 700 to 900 lbs. and costing from \$7.10 to \$7.50 per 100 lbs.

Dairy Problems

A Heifer's First Calf.

I have seen the question discussed as to the advisability of raising a heifer's first calf. Some claim she will be poor at the pail, others claim the opposite. What is your opinion?

Washtenaw Co. E. G. S.

My observation is that a heifer's first calf is as likely to be excellent as any, and I see no reason why this should not be so. If the heifer is properly developed and properly cared for the calf is always a bright, lively one and develops rapidly. It may be small when dropped, but it will make up for this and is just as likely to make a large animal as any calf she may drop afterwards. An old man told me once that he had taken considerable pains to notice the effect of breeding two-year-old fillies and his opinion was that these colts were as likely as any afterward produced. Also, they grew into large horses, though they might be small when dropped.

Effect of Silage on Health of Cows.

I have been told that by feeding a cow silage for a term of five years it will practically ruin a herd. Is this true? Would like to have this question answered by someone who has had experience in feeding silage for a term of years.

Calhoun Co. B. O.

I have fed cows silage for more than twenty years and know positively that they are not injured by it. As a matter of fact, they are greatly benefited by it. I have now in my barn cows whose ancestors for many generations have been fed silage many years every day in the year, and all of them have been healthy and vigorous.

It is surprising that one has to answer this question at this day and age of the silo. You can get information on this question in almost every neighborhood in Michigan.

Possibly someone sometime has fed rotten, moldy ensilage and gotten poor results. They might get as bad results from feeding rotten, moldy hay or any other rotten food. Good silage improves the health of cattle.

Ensilaging Shredded Cornstalks.

What would be your opinion of husking corn with shredder and putting the cut or shredded stalks in the silo, using plenty of water while silo is being filled?

Tuscola Co. R. P. V.

This, in my opinion, is the very best way to handle cornstalks. There is no other way that you can get so much out of them. There will be less waste this way and if plenty of water is used so they will pack down good in the silo they will be very palatable and readily eaten by the stock. But don't be afraid of getting on too much water. These stalks will need a lot of water to prevent mould, and make them good.

Cows Losing Instead of Gaining.

Kindly fix up a balanced grain ration out of the following grains at the given prices, for our herd of grade Holsteins. Fine white middlings at \$32 per ton; good wheat bran \$30 per ton; gluten, 30 per cent, \$32 per ton; distillers' grains, \$32 per ton; brewers' grains, \$27 per ton; malt sprouts, \$27 per ton; old process oil meal, \$42 per ton; 41 per cent cottonseed meal, \$36 per ton; hominy, \$37 per ton; malt sugar grains \$27 per ton. At present we are feeding bran and gluten, 80 lbs. of bran to 100 lbs. of gluten. The cows are losing instead of gaining. For roughage we are feeding silage (with lots of corn in it), about 50 lbs. a day; alfalfa hay twice a day and mixed clover and timothy once a day.

Livingston Co. M. B.

You can't get maximum production and keep cows looking well unless you feed a liberal grain ration. At the present high price of grain it may be possible to make as great a profit by feeding less grain and more roughage, but this profit must come from a reduced yield and a less costly ration.

I suggest that you feed either gluten feed or distillers' grains and hominy for a grain ration. Mix them equal parts by weight, and feed one pound of grain for every four pounds of milk produced; that is, if a cow produces 28

pounds of milk per day feed her seven pounds of grain; if she produces 40 pounds, feed her 10 pounds of grain.

Vealing Calves Without Milk.

What feeds can I use to substitute whole milk for veal calves. Whole milk seems too high-priced to feed.

Lake Co. G. A. S.

It is quite a difficult matter to fatten a veal calf in any reasonable time without new milk. Indeed, many think the only way is to let the calf suckle the cow, that you can not get first-class veal by pail feeding. But suckling the cow is so detrimental to the cow that good dairymen feed the calves and with very good success. However, when you come to do away with milk entirely, or even try to make veal with skim-milk and grain, you are up against a difficult proposition.

There is a prepared calf meal on the market that is probably the best substitute for milk. It is good to grow calves on but to fatten veal is quite different. A good food can be obtained by mixing many of our different grains together, as oats, corn, barley, wheat or bran and middlings, and then cooking to a thin gruel. Calves will grow on this but will not fatten when quite young.

Cottonseed Meal Alone for Grain.

I have corn silage and mixed hay to feed my dairy cows and calves. Can I get a balanced ration by adding cottonseed meal to the ensilage? If so, what proportions? Also, what other grain would be advantageous if proportion of cottonseed meal is not sufficient? If I concluded to buy gluten, which I believe has an analysis of 31 per cent protein and 10 per cent fat, how much of this with corn silage per cow would be required per day, with hay. Kindly make me up a formula for a balanced ration, using ensilage and mixed hay as a base. Will ensilage and hay alone fatten old cows for the market? It seems they will not eat enough for fattening purposes. A neighbor tells me he fattened a cow last winter on ensilage alone. If ensilage and hay are sufficient, please outline the best plan of feeding for fattening purposes.

Livingston Co. E. W. L.

I would not advise feeding cottonseed meal alone as a grain ration. I would prefer to use it in connection with corn meal or hominy feed. But cottonseed meal does not mix well with other feeds. It is a very concentrated ration and one must be careful not to feed too much. Therefore feed the cottonseed meal by itself and know just how much you are feeding. Don't feed over two pounds per day per cow.

I suggest that you feed oil meal or distillers' grain and hominy or ground oats for grain.

It would be next to impossible to fatten old cows on ensilage and hay. They should have some grain. Young animals would do better and might get in saleable condition. It is always best to feed all the ensilage and hay the cows will eat up without waste.

Value of Dried Beet Pulp.

Is there any feeding value in dried beet pulp, for milch cows, and also how should it be fed?

Berrien Co. C. C. U.

While the chemical analysis does not show dried beet pulp to be as valuable a food as corn, oats, barley, etc., nevertheless it is a valuable food to feed in connection with those grains, especially if one does not have a succulent food like corn silage or roots of some kind. Dried beet pulp keeps the animals in good condition and enables them to get more good from the other grains in addition to its own food value.

Where one does not have silage or roots it is a valuable food for dairy cows.

COLON C. LILLIE.

The producer estimates the cost of the raw material for one pound of the cheese at 11 cents, made up as follows: Four quarts of skim-milk at two cents a quart, eight cents; butter, cream, and other seasoning, two cents; carton and wrapping paper, one cent.

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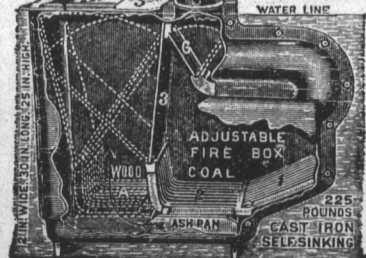
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CARE OF THE HERD BULL.

It is a well-known and very true saying that "the sire is half the herd," yet this important "half" seldom receives the attention he deserves.

From birth, the bull should be given the best of care and feed in order that he may make the maximum growth and development. He should receive plenty of skim-milk and grain and be treated as well if not even better than the heifer calves.

At the age of five to six months he must be separated from the other calves. From this time on he must receive regular exercise and must be gently handled. When he is 10 to 12 months of age he may be given light service—possibly one cow for every three or four weeks. From the age of 12 to 16 months this service may be increased to one cow per week.

A satisfactory feed for a mature bull is alfalfa or clover hay and a grain mixture of corn, with oats or bran. A bull must have plenty of exercise. He does not need to be housed in a warm barn but is kept in the best condition when given a dry but open shed with a paddock attached so that he can go in or out at will.

Every mature bull should have a ring in his nose. There is some difference in opinion in regard to dehorning but it is always safer to handle a bull without horns.

Following are a few don'ts which can be followed to advantage in handling a bull:

Don't underfeed him when young or keep him overfat when mature.

Don't use him too heavily before he is mature.

Don't abuse him. You can get better results by gentle but firm handling.

Don't tease him or allow children to play with him.

Don't let him get the upper hand at any time.

Don't let him realize his enormous strength.

Don't keep him confined. Give him plenty of exercise.

Don't trust any bull at any time. It is the "gentle" bull that does the damage.

Mo. Col. of Ag. W. W. SWETT.

GRAIN MIXTURES COMPARED.

In an experiment carried on by the Pennsylvania Station to determine whether there was any appreciable difference in milk yield due to the character of the feeds, when so mixed as to have the same protein to energy ratio but derived from different sources, six lots of three cows each were fed during these periods of four weeks each by the reversal method, three different grain mixtures having the same ratio of protein to energy. The greatest difference in milk yield for the periods covered was 0.25 pounds of milk per cow per day, in the next 0.11 pounds, and in the third 0.05 pounds per cow per day. In other words, for all practical purposes one mixture was as efficient as another in this experiment, so far as milk yield was concerned, but there was a marked difference in cost of energy per 10 pounds in the several mixtures.

The least expensive mixture was corn-and-cob meal, cottonseed meal, distillers' dried grains, and gluten feed, 4.25:1:3:1, having a ratio of protein to energy of 1:5 and costing per 100 pounds of energy \$1.79.

TO HELP RELIEVE SCOURS IN CALVES.

The first thing is to remove the cause and then give them lime-water in the milk. Two tablespoonfuls twice a day for a calf two months old and for larger calves half a cupful. Make the lime-water by putting a handful of lime into a pail of water when it has slacked and settled pour off the clear portion and bottle it for future use.

No. Dak. Ex. Sta. W. H. P.

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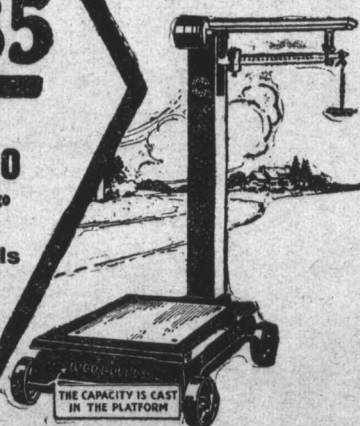
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ESTABLISHED 1843.

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

Have you heard it, lads and lassies,
ever heard on Christmas morn,
The strange and lovely legend of the
Gastonbury Thorn?
Tho yes or no should be your answer,
the story I'll rehearse;
List! and I will reproduce it in this
home-made verse:
At the firesides of the cotters in old
England's verdant land,
Down the years it has been handed by
tradition's faithful hand,
It tells us that 'twas Joseph of Arima-
thea he
Who planted it in Glastonbury—the
fair, enchanted tree;
After tragic death of Jesus and its
painful scenes were o'er,
He laid him in his own new tomb and
sailed for Britain's shore.
Sauntering forth one day, 'tis said,

The Glastonbury Thorn

By AUNT QUILLA

with walking staff in hand,
He idly thrust it in the ground, when
lo! the magic wand
At once took root, and, leaving out,
upon the fol'wing night
(Which chanced to be on Christmas
eve) it bloomed divinely white;
Tho fitting spot or otherwise, we're
told the mystic tree
Sprang up and grew on very ground
where churchyard was to be;
And as the years went rolling on, it
ever marked the time,
By bursting into radiant bloom at bel-
fry's midnight chime;

Punctual as the star that rose and
smiled upon the sight,
Its buds would swell, and burst, and
bloom, in flowers divinely white.
And so, thru out the country side, the
custom yearly grew
For old and young to gather there, the
vision fair to view;
By starlight or by lantern light, as
chanced the case to be,
They met within the burial ground the
miracle to see;
But ah! the long long wars that came
and left the land forlorn,
Laid blighting hand on field and wood

and e'en the churchyard Thorn.
Its day was past; but still, 'tis said, its
cuttings far and wide,
Thru England's distant shires would
bloom at holy Christmas tide;
You are smiling lads and lassies, dear,
at the tradition old;
But pause! may not the legend still
some meaning for us hold?
For long years it has enshrined a good
man's name, we see,
Who faced the proud Sanhedrin's
scorn the Saviour's friend to be;
Our deeds survive; they cannot die;
they thru the years descend;
Tho we may pass, they still live on to
good or evil end;
One kindly thot, one tender act, a
mem'ry may adorn;
This the message that we read in
Glastonbury's Thorn.

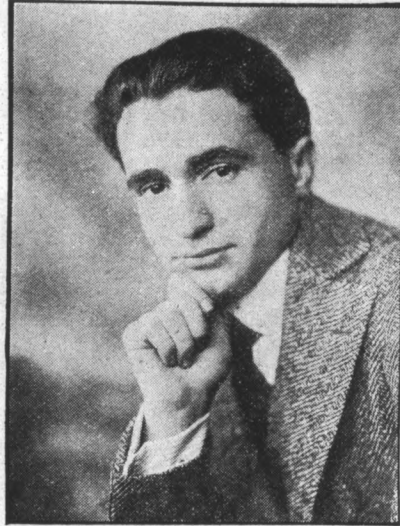
WORLD EVENTS IN PICTURES



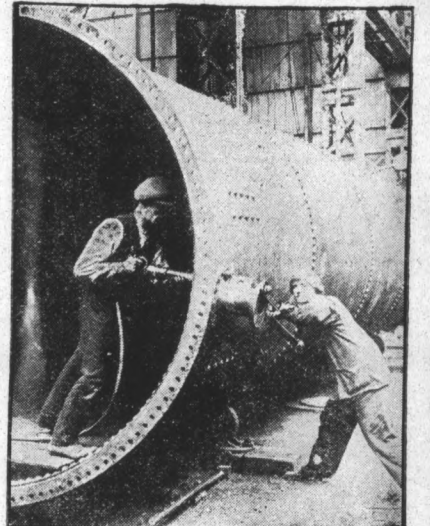
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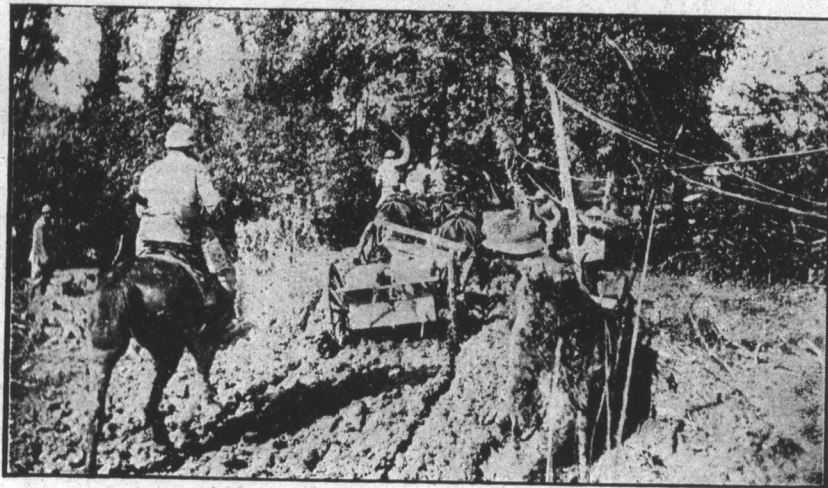
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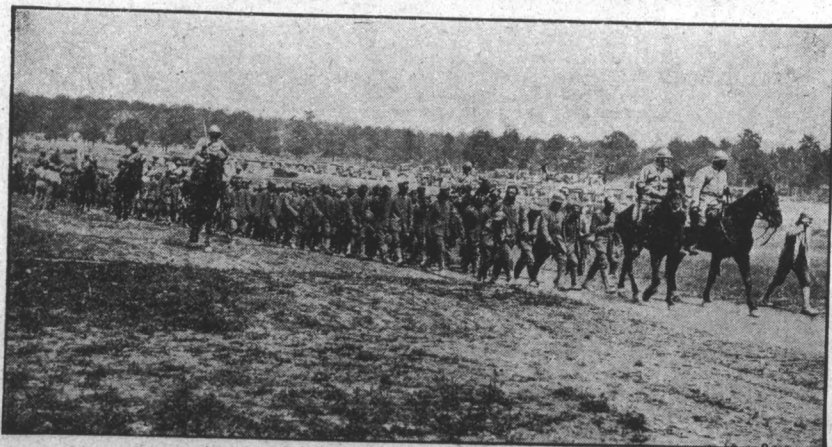
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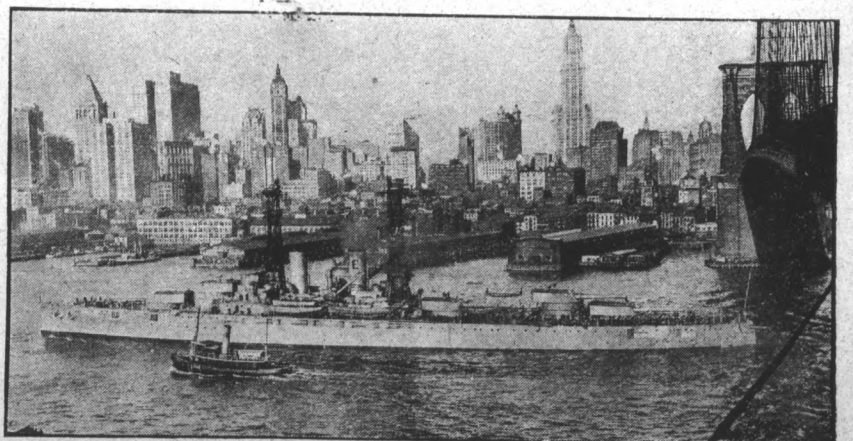
Muddy Roads on Somme Front Retard Military Movements.



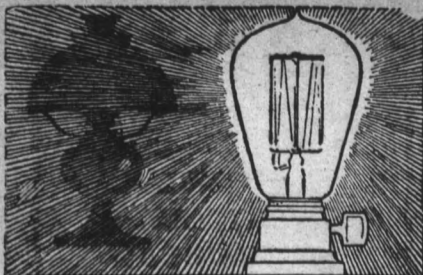
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All Men-Women desiring \$85. Government job immediately. Ozment, 17R St. Louis, Mo.

Little Johnny and St. Peter

(Adapted from the German)

By ANNA GIRMUS

LITTLE JOHNNY lived at number two Broad street. And it was the day before Christmas. It was an awful long day. It seemed as if it would never come to an end. You know, the day before Christmas is always a long day.

Johnny tried to play, but there was no fun in that. He looked out of the window and soon got tired of that. He didn't know what to do with himself. But all things come to an end, even the day before Christmas. At last the light came out on the corner and Johnny knew that it was really Christmas Eve.

Then his father came home and they had supper. After that the front room door was opened and there stood the nicest Christmas tree, all full of candy apples and oranges, and peaches, and elephants, and bears, and horses, and cows and birds, and real apples and oranges, and popcorn and all sorts of good things; and candles, red candles, and blue ones, and yellow ones and white ones, and they were all burning as bright as could be.

And under the tree were books and stockings and mittens. But Johnny hardly looked at any of those things for there stood a sled, a nice hand-sled all painted red and green, with a nice strong cord tied to it.

Johnny grabbed hold of the cord and pulled the sled all over the house. "See mamma, what Santa Claus brought me, See papa, what I got," he called to his papa and mamma. And he was so happy, because he had wanted a sled so much.

At last it got late and Johnny had to go to bed, but he held the cord in his hand even after he got in bed.

Then he woke up and he was sick, oh, so sick. And the doctor was there. And his papa and mamma stood by the bed, and his big sister Minnie, and they all felt bad and cried. Even Watch, the dog, looked sorry. Only his little baby brother crowed and laughed the same as ever.

And then little Johnny died. And he went up, up, up through the clouds. And he grew so tired, but he kept on going up, up, up. At last he thought that he couldn't go another step. And there through the clouds, right in front of him, he saw something bright and shiny and yellow. He knew at once that it was the gates of Heaven, for there stood St. Peter. He knew it was St. Peter because he had seen pictures of him. He knew him at once for there was his bunch of keys.

"Am I at the right place?" he asked. "Are those the gates of Heaven and is this St. Peter?"

"These are the gates of Heaven and I am St. Peter, but we'll have to see about its being the right place." The old man said and he reached up on a cloud and took down a big book and began turning the pages.

"We must see about your prayers. What is your name," he asked.

"Little Johnny, number two Broad street," Johnny answered.

St. Peter turned over a few pages. "Here we are," he said. "Hum, usually the angel has recorded the prayer all right, but here is the fourth of September and no prayer for that night. What was the matter?"

"Why, that was my birthday, and I had such a nice party and so many presents, and such a good time, I forgot," said Johnny.

"Hum," said St. Peter. "I should think when one is happy they'd remember their prayers all the better. But here's the fifteenth of October, and no prayer. What was the matter then?"

Now it was strange how well Johnny remembered. "I was naughty that day and when father came he whipped me, and I made up my mind that I

wouldn't say my prayers until the others were asleep, and then—"

"And then you went to sleep without saying your prayers," said St. Peter.

"Yes," said Johnny.

"Hum," said St. Peter. "And here is the twenty-fourth of December, the eve before the Christ Child was born, and no prayer, but maybe you didn't even have a Christmas tree?"

"Oh, yes, we did," said Johnny. "And such a big one, St. Peter. You should have seen it. It reached way up to the ceiling, and full of candles and good things. And see, St. Peter, what I got," and little Johnny pulled up his hand-sled, for he had kept right hold of the cord all the way up.

"Hum," said St. Peter. "That's very nice, but no prayer when you had such nice things, and on the Eve when the Blessed Christ Child was born," and St. Peter shook his head.

"Well, if you forgot your prayers, maybe you were a good boy the day before Christmas?" St. Peter said.

Now Johnny would like to have said yes to that, but at the gates of Heaven one can't say things that are not so. "I—I was bad," he said. "I kicked Watch, our dog, when he was doing nothing. And I called sister Minnie a nasty old thing and told her she could not ride on my sled if I got one. And I stole a fried cake when mamma was baking them. And it burned my mouth, and mamma said I was punished enough."

"Well, if mamma said that you were punished enough, maybe you were," said St. Peter. "If you were naughty, maybe you gave someone something on the day before that on which the blessed Christ Child was born?"

"But, St. Peter," said Johnny, "there is no one around us to give anything to."

"Hum," said St. Peter. "How about little Franko on the street just back of you. He has everything he needs, has he?"

"Oh, no, St. Peter, you should see. He hasn't even stockings. He winds old rags around his feet and sticks them in his shoes. He's awfully poor," said Johnny.

"Hum," said St. Peter. "And you got some new ones? And how about the beggar man on the corner?"

"Oh, I was going to give him a penny when mamma sent me for the raisins, but it was in my inside pocket and I didn't want to unbutton my coat. It was so cold," said Johnny.

"Hum," said St. Peter. "Forgot to say your prayers on your birthday and on the Eve of the day that the Christ Child was born. And was naughty the day before Christmas, and didn't give anyone anything. Hum, I guess this isn't the place for you. But I'll tell you what I will do. I'll send you back to earth and give you another chance so that when you come back here I can let you in. But you're awfully tired. Sit down on your sled," and St. Peter gave the sled a big shove, and down, down it went, lickity skoot over the clouds and bang it came down kerplump.

Johnny sat up in bed. It was Christmas morning and the ground outside was covered with snow. The sled cord was still in his hand and Watch, the dog, had both front paws on Johnny. He had jumped on the bed to wake Johnny up.

And Johnny hadn't been sick at all. He dreamed it. But after breakfast, he asked his mamma if he might give little Franko his old stockings and some nuts, and candy, and oranges; and if he might give the beggar on the corner a part of the dollar that grandpa had given him for his birthday. And always after that he was mighty careful not to forget his prayers.

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The Substance of Previous Chapters.

Sadie, a wholesome country girl with limited social and intellectual opportunities, leaves the farm home in Ohio and seeks her fortune in Buffalo, where she finds employment in the shipping department of a shirt factory. The strength of many of the girls working with Sadie was being overtaxed by the excessively long hours and the steady application to their tasks. Against the strict enforcement of unjust shop rules, and stern demands of the corporation, our heroine courageously protests, for which she is fined by the foreman. Becoming convinced that behind factory walls is no place for a spirit like hers, she hopefully resigns herself to fate by pinning a letter applying for an outdoor job, in the pocket of a No. 44 shirt going to fill an order from Arizona, but before she could remove the letter, the foreman hastily gathers the shirt with others, to satisfy a rush order, from where she was unable to learn.

Along the Northeast arm of Deepwater Lake, in Northern Canada, Stoddard, a young but capable engineer, whose home was among the select of New York City, and who had been entrusted by his company with the erection of great bridges on almost every continent, paddles a loaded canoe carrying his city friend, Larry Livingston, who was suffering from poor health, to an island far from communication with the outside world. Stoddard unloads, erects a tent, builds a fire, and after they eat puts Larry to bed. In hunting for matches he pulls his finger against a pin in the pocket of his shirt and discovers Sadie's letter. This he reads and after much reflection answers it. He leaves Larry sleeping, and tortured with the thorns and bruises received in a wild and dangerous trip, he finally delivers his letter to an Indian friend who posts it on the train.

Reluctant at the thought of more than two hours' travel before he reached his blankets, Stoddard went slowly down to the landing and launched the canoe. The longest way around would be his homeward route. Having conquered the portage once he did not propose to give it a return battle.

As he crossed the Island Bay and headed toward the point of the peninsula, Stoddard's mind was trying to create a picture. The scene was a room in a shirt-factory. He imagined it cluttered, crowded and unattractive. Persons were running about nervously and irritably. There were haggard girls working at machines, limp as the garments that passed through their fingers. The air was hot and vitiated.

One of the girls in his picture was No. 18, yet he could not clearly pick her out. Sometimes she was dark, sometimes fair; now she was plain of face, and again she was pretty. But she was always tired and wan, and there was ever a look of yearning in her eyes.

No. 18! She was not really a person at all. She was merely a part of a factory—a numbered part. Stoddard had never thought of girls simply as numbers. The Kittys and the Estelles possessed personalities, however inconsequential they might be; they had the right to be known as individuals. They ranked as human beings! But No. 18—she was merely a mathematical item.

It was nearly three o'clock when he landed at the island, and he knew instantly by the brightly blazing fire that Larry was awake. As his steelshod boots scraped on the rocks a voice from the tent called sharply:

"Who's that?"

Stoddard laughed silently at the apprehension in the tone.

"Stoddard!" he answered as he hauled out the canoe.

"Where in blazes have you been?" demanded Livingston, emerging into the firelight. "I woke up and—and—" "Just went out for a little paddle," said Stoddard.

"That's a nice trick! Leaving a man all alone in a hole like this!" he ex-

ploded. "Suppose anything happened to you! Who'd find me? What would I do?"

"Why, you could just wait for things to freeze up and walk ashore, Larry. There's lots of grub."

"But I say, Stod, it's not fair! It's—"

"Tut, Larry; you're interrupting me," chided Stoddard as he pushed his way into the tent.

"Interrupting! What have you got to do?"

"Sleep, son."

But in Buffalo at that same hour there was no slumber for Sadie Hicks. In her nightgown, with her golden-bronze hair hanging in two thick plaits across her deep bosom, she sat on the edge of her cot, staring half hypnotized into the spitting point of gas-flame, repining over her letter that went astray—wondering, puzzling, scheming. And through all the bemused tangle there ran—felt rather than expressed—the call of the great outdoors.

CHAPTER V.

Sadie Gets a Letter.

The fifty-cent fine did not annoy Sadie. She paid it on Saturday night—or rather observed that it had been accurately deducted from her envelope—and the incident was dismissed from her mind. But a new trouble had come to dwell with her. The cutting-room boss was responsible for it.

Sadie had never taken any particular notice of him; he was merely a colorless "medium." It surprised her therefore, when he devised an opportunity to talk to her at the noon hour.

Sadie was not unaware of her own charms, for she was intelligent and human. When the cutting-room boss sat beside her on the bench where she was eating her sandwich she sighed therefore, for she interpreted the attention merely as the beginning of another affair that would have to be slain in its early youth.

She was indignant, too; for No. 26 was the girl who had always received his attentions, and No. 26 was Sadie's friend. She had an astonished contempt for his fickleness, as well as a stout loyalty to the feather-brained little brunette at the next table.

The cutting-room boss was indirect and mysterious of speech, circumstances which explained Sadie's puzzled expression and the fact that she did not clearly understand him for several minutes. When she finally discerned the point at which he was aiming in wabbly fashion she was at first amused, then doubly resentful.

The cutting-room boss was not disloyal to No. 26; he was not "making a play" for himself. He was an emissary, an ambassador, truly extraordinary—and his credentials were from the Shrimp!

When Sadie came to a realization of this she made a slow and careful survey of the cutting-room boss, which is a woman's preface to remarks that are about to be made. He bore the scrutiny with what composure a man can assume under such circumstances—very little.

Even a man who is immaculately correct in person and raiment, and knows it, is not immune to the effects of feminine eyes that coldly inspect, review, and estimate; doubt of himself is at once born in his mind. And the cutting-room boss was not immaculate.

He shuffled his feet, coughed and glanced about the room, only to encounter the cold glare of No. 26.

"You see, Ferguson's all right," he went on hastily. "Only he's quick sometimes. He's got lots of worries in this here department, and 'y can't blame him so much. He feels awful bad, Sadie, about that fine."

"Fine?" repeated Sadie, wrinkling

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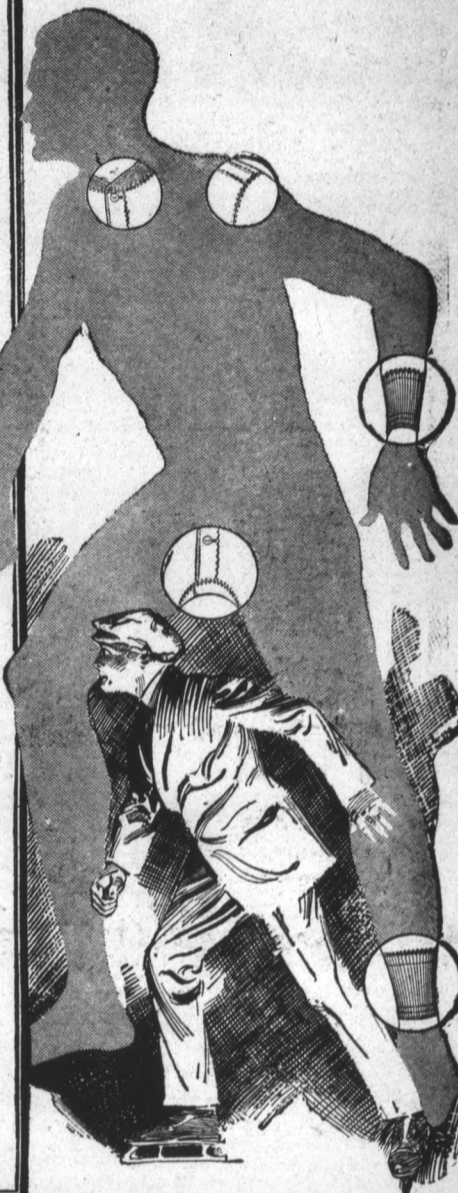
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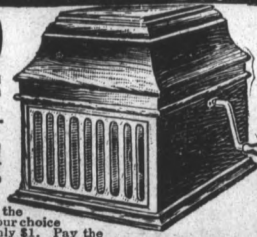
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her forehead. "Oh, you mean last week, I guess. This is Monday. I forgot all about it. I balance the books every Saturday night and carry nothing over."

"Well, he does fell bad," continued the ambassador. "He'd like to make it up some way if he could—throw some extra time in your way maybe. There's going to be some rush work soon, and some of the girls'll be pullin' down a little loose change gettin' the stuff out. He'd like to be friends, too."

"Dear me!" said Sadie. "Sure! He feels you and him ain't got no good cause to scrap. Little spats are all in the day's work; they don't count after the gong rings."

"So?" "Even Mame and I have 'em," he confessed.

Sadie did him the honor of another inspection, looked across the room, bestowed a fleeting wink upon No. 26, and said:

"Let's you and me get down to plain talk, Mr. Schwartz."

"Sure! Sure!" he assented. "I'll shoot question and you answer."

"Sure—all right, Sadie." "Did the Shrimp send you to me?"

"The who?" "Ferguson."

"Well, he kinda suggested that I might—"

"Might what?" "Oh, just have a little talk! Y' see, he don't quite feel—"

"You've got him right," interrupted Sadie. "He's one of those 'don't-quite' with me?"

"Well, if you wanta put it that way, I suppose he did."

"Like the job?" inquired Sadie with a smile.

"I consider I'm doin' a friend a favor," said the cutting-room boss defensively. "I'd do as much for any friend."

"Don't seem to me," mused Sadie, "that I'd care a whole lot about bein' a phonograph record for a shrimp. Seems to me I'd feel I was playin' a pretty punk tune, Mr. Schwartz. Ever give it the once-over from that angle?"

"I ain't done nothin' wrong, I hope," said Swartz stiffly.

"All right—maybe not. But listen: I don't think it's a man's job to run errands for a shrimp. I expect you call yourself a man; I'll take a chance on it, anyhow. No, I'm not mad at you; that ain't worth while, Mr. Schwartz. I'm just sorry—for the cuttin' department. I got friends who work there."

"Now, you can tell the Shrimp—not as a message from me, because I ain't sendin' messages to him through third parties or any other way—you can just advise him like a friend to keep away from No. 18. Just sort of give him your opinion that things look kinda bad; high winds prevailin' from the northeast, or something like that."

"You get the idea. Because, you see, he's little and he ain't as careful as he might be, and he oughta have somebody advise him. I don't mind if you tell him I'm heavy-footed and clumsy sometimes, and I don't always look where I'm goin'. Honest, I'd feel awful mean if I happened to step on him, Mr. Schwartz."

The cutting-room boss, red in the cheeks, went back to his department. Sadie finished her sandwich.

"What was he sayin', Sade?" whispered No. 12 as the gong rang and the packing of shirts began again.

"Just singin' one of those light opera gems, deary."

No. 12 did not pursue her inquiry. When Sadie wanted to talk she talked; when she did not it was useless to urge her.

But the day was not over for Sadie. It was destined to be marked on her calendar in flaming red. And give the Shrimp credit for this.

He stopped at her table and said in a low voice: "You insulted a friend of mine, No. 18."

"Any friend of yours is welcome to

the same, Mr. Ferguson," answered Sadie cordially.

"I won't stand fer it."

"Sure you won't."

"Friends of mine are entitled to be treated respectful in my department. Y' understand?"

"No."

"Well, you'll understand it after this!" he snarled. "I'll make you!"

"You're botherin' me," said Sadie. "Interruptin' my work. I'm here to work and not to talk to friends of yours. So long as I do what I'm paid for you've got no kick. Run, now!"

The Shrimp went away, but with an idea in his mind that Sadie had unconsciously planted. She was there to work, was she? He intended to see whether she did.

So the Shrimp spent the next hour watching. There was something almost like a glitter in his eyes when he next approached Sadie's table.

"You only packed two boxes in the last half-hour," he announced for the room to hear.

"Correct," said Sadie. "Been waitin' for order-slips."

"Whadda you call those?" The Shrimp pointed to half a dozen sheets of paper that lay on the table. Sadie looked down at them in surprise, then back at her accuser.

"They weren't there ten seconds ago," she observed.

"They been there twenty minutes; I seen them."

"I think you just slipped them there yourself, Ferguson," said Sadie.

"You mean to say—"

"That you put 'em there? Yes, I'll say it. Now I get a good look at you, I'll bet on it."

The Shrimp's eyes narrowed. He contemplated Sadie for several seconds. Then he inhaled as large a breath as a thirty-four-inch chest will accommodate.

"I'm tired of finin' you," he said shrilly.

"Oh, don't quit now, Ferguson. You're just goin' good."

"Get your hat!" "Say it plain," advised Sadie.

"You're fired." A beatific smile adorned Sadie's face.

"Honest?" she said eagerly.

"Go ahead; you're fired!" repeated the Shrimp importantly.

Sadie clasped her hands and laughed. "Really and truly fired?" she cried.

"Bounced? Discharged? Turned loose on a cruel world?"

The Shrimp looked disappointed, but he nodded. He never did understand Sadie.

"Girls," she exclaimed, turning to the roomful, "my dream's out! I'm fired! It's a shame to make you jealous, but I can't help it. Say, No. 21, you're the prize dancer. Do some steps for me; I don't know how. Just think! Fired!"

Sadie started toward the locker-room almost on a run. Her apron was already off, and she was patting a great coil of bronze hair into place. Suddenly she stopped long enough to call back:

"Shrimp, you're almost a friend of mine!"

The departure of Sadie from the packing department of the Challenge Shirt Company partook of the dignity of an event. If the room had been under military discipline its occupants could not have stood more rigidly at attention. Not a hand moved, not a whisper sounded as she walked like a queen toward the door that opened into the hall. Even the Shrimp, himself spellbound, forgot to fret because the wheels of progress were momentarily halted.

Pausing at the threshold, Sadie turned and waived a last good-by.

"So-long, girls! Cheer up! Some day you're luck'll come."

Down the stairway that led past the office went, not No. 18, but plain Sadie Hicks.

"I hope I did it dignified," she murmured with a little laugh. "Maybe I made that laugh business a little too

strong; but I meant some of it, any how. It feels sort of good to be fired—and excitin'."

She halted at the office window and rapped on the glass with her time clock key.

"I'm turning this in, Mr. Halsey," she said to the clerk who answered her call.

"Leaving?"

"Uh-huh."

"I'm sorry, Sadie. What's the trouble?"

"Oh, nothin'. Only I couldn't wait for the board of directors to act on my resignation."

"You've been with us quite a while, Sadie."

"That's right; I've packed some shirts in my time."

"If there's been any trouble I'd be glad—"

"Sure. You're all right, Mr. Halsey. I know you'd do what you could. But you couldn't get me back there for the general manager's salary."

The clerk turned to a row of pigeon-holes alongside the window and tossed Sadie's key into the box numbered eighteen. Then something caught his eye. He reached up and took out an envelope.

"This for you?" he asked pushing it across the counter.

Sadie picked it up for examination. Then she blushed a deep red and glanced at the clerk. He was smiling.

"Yes, it's for me," said Sadie, with confusion in her voice. "But don't you say anything to the girls, Mr. Halsey! Please!"

"All right; I won't. Only Sadie—"

The middle-aged clerk looked at her with a kindly eye. "You're not going to do anything foolish?"

Sadie thrust out her hand and gave him a steady grip.

"I know you mean that right, Mr. Halsey. Thanks! No, I'm not goin' to do anything foolish. Nothin' like that ever bothered me. Good-bye."

"Good-bye, Sadie. But wait a second! I guess you've got a day's pay coming to you."

"Give it to the Shrimp; buy him a bouquet with it," called back Sadie, who was at the street door.

Outside, she paused to read the address on the envelope—

No. 18,

Packing Department,
Challenge Shirt Company,
Buffalo, N. Y.

She studied the postmark—Canadian!

"So that's where it went!" she whispered. "Canada!"

Her finger was under the flap of the envelope, about to tear it open, when she hesitated.

"No; I'm excited now," she said. "I'll wait till I get home. This ain't a joke; it's business."

Whereupon she thrust the envelope into the bosom of her waist and started off at a brisk walk. Sadie was different from many girls; she had her own methods of self-discipline.

Seated on her bed in the seven-by-ten room, she deliberately opened the envelope and unfolded its contents. In the upper corner of the first sheet she read:

Deepwater Station,
Ontario, Canada.

She paused and glanced up, her eyes half closed.

"Deepwater Station!" she repeated. "Deepwater. That sounds good." She returned to her letter:

Dear Miss 18:

Why did you stick a pin in me? So that I would not forget? If so, your plan succeeded. I am still nursing my finger.

"O-oh!" whispered Sadie. "I didn't mean to do that!"

"It's rather awkward, just to know a number; perhaps if you write again you'll send me your name. But use no pins! I'll begin by sending you mine—it's Stoddard, with a John in front, and the address is above.

I am not sure you meant this letter for me; I have an idea that I intercepted the mail of some cow-punching gentleman. I'm not Mr. 44. I never carried a .44 in my life. A .38 shoots enough lead, and I rarely carry one of those.

"He don't understand," sighed Sadie.

I like my job better than any I can think of and I'm mighty sorry you're not equally contented with yours. Where did you ever get that big, healthy idea of yours, about outdoors? Surely not in the city where you live, nor in the factory where you work!

"Did work!" corrected Sadie.

However, you managed to lay hold of it, don't lose it! It's right. Some day you may have a good chance. Take it. Outdoors is the place that needs people. There are too few of us. The city cheats.

"That's it!" exclaimed Sadie. "He knows. It does cheat!"

I haven't looked around up here yet to see if there are any jobs for girls who want to live outdoors. If there are none, there ought to be! A girl with the big idea should have her chance. I'd be glad to hear more about that ambition of yours. Will you let me?

Up here there is nothing but outdoors—big and genuine, and without the trimmings. You'd like to see a forest that never had a lumberman's axe laid on it, mountains that haven't been blasted, a lake you can drink from, and all about you air that you can fairly bite. At least, I get the idea from your letter that you'd like it.

"Would I!" she said softly.

Now, about that job. I promise not to forget. Something may turn up; in fact, I'll try to turn it up. Meantime please regard me as at your service. Any time I can do anything for you, don't fail to call on me.

Sadie paused again and stared at the white wall opposite.

"I wonder if this is the time," she mused.

I don't like that number of yours—18. I shall think of you as Miss Outdoors until you send me a better name. Keep hoping; you'll get there yet.

Sincerely,

JOHN STODDARD.

Sadie was awed. It was hard to believe that such a letter could be written—to her! Of course, he was not a cowboy.

"He's educated," she whispered.

How well he seemed to understand! She did not realize how plain she had made her dream in the little note that was pinned to a pocket. Perhaps he was a "swell." She could easily believe it. But he was a man, too; she knew that. He had a good, plain name; she liked it. And he was a forty-four, even if he did not know it! Sadie smiled faintly.

She went back to the paragraph about the outdoors where he lived and read it again—hungrily. Would she ever see it, save within the walls of her imagination? He hinted that she might. He promised to try to get her a job.

"There ought to be jobs," he said—jobs up there in Canada. Surely he must be a competent judge, for he lived there. What Sadie knew about Canada was contained in John Stoddard's letter, and she thirsted for little more knowledge at this time. It had a real outdoors; that was enough.

She glanced at her letter again, and noticed another paragraph, written on the back of one of the sheets:

P. S.—I have forgotten the pin scratch, just as the man who fractured his skull falling down-stairs forgot that he stubbed his toe as a starter. You ought to see me now!

"I don't know just what happened to you, Forty-Four, but I guess your skull ain't fractured," she commented.

Sadie spent half an hour thinking. Then she went back to the letter again to make sure of something. Yes, he had said it:

Any time I can do anything for you don't fail to call on me.

"He means that," said Sadie, with a nod. "Forty-fours don't lie. And he can do something for me. He can get me that outdoors job. I will call!"

There was an hour before supper, and Sadie went out. When she returned she sat down to study a handful of time-tables.

"I'll call just as soon as I can get there, Forty-Four," she said resolutely. "I'll draw my money in the morning; the bank's closed now. It won't take me long to shop. I can't afford furs, but I'll do the best I can. Then I'll get my ticket. There won't be time to write. I'll have to wire."

(Continued next week.)



Flour Facts

It is not generally known by the public that many different grades of flour are made in the same mill, at the same time, and from the same wheat.

The quality of each manufacturer's best-finished flour depends very largely upon how skillfully and carefully he separates it from the undesirable lower grades. The greater the proportion of the lower grades he puts in, the less it costs him to manufacture.

The making of the best quality flour can be likened to the skimming of milk; some skimmers are careful to take off only pure cream; others carelessly or purposely include a percentage of milk.

Therefore, grinding the best wheat does not alone insure the highest quality flour because the quality and richness of the flour are determined largely by the care, pride and equipment of the man who makes the separation.

The purity of both flour and cream depends upon how closely they are skimmed, and this is entirely up to the skimmer (the miller).

Pillsbury's Best is absolutely pure. It contains none of the cheaper grades; so we say,

The Flour Question Settled "Because Pillsbury's Best"

This will interest the Women Folks

Let them Read it First

Farmers need a change. This includes the "women folks." They need to get away more than anybody else. That's why California appeals to them. It's so different from back home.

In California you never are "frozen up." There every day is a summer day—for work or play. There crops grow the year 'round. There you can always have something ready to market. There live-stock needs little shelter. Nature is more friendly. Not so much of your effort is necessary "just to live." Schools and churches? None better.

California adds fifteen years to the average life.

Hasn't California always appealed to you? Wouldn't you like to live there?

Would you like to know how reasonably you can make the trip, the cost of the round-trip ticket, good nine months—the things to see on the journey—the opportunities for the farmer who desires to live in California? Then drop me a postal to-day, saying "Send California books."

Our book, "San Joaquin Valley," tells about this great valley, 40 to 90 miles wide and 250 miles long, in the heart of California—its productive soil—its ever-growing climate—its ample water—its abundant crops and hungry markets.

"Dairying in San Joaquin Valley" is another book that tells of the extra profits in dairying under California conditions.

"Poultry Raising in San Joaquin Valley" dwells on the successes made in this line, especially by women.

All these books are free, as well as the special information which we will gladly give you if you will tell us what you have and what you want to do.

Personally-conducted excursions three times a week in tourist sleepers enable the family to travel cheaply and comfortably with pleasant neighbors and learn about California at first hand. Thousands of Eastern farmers save money by living in California during the winter season.

C. L. Seagraves, Industrial Commissioner, A. T. & S. F. Ry. 2247 Railway Exchange, Chicago



Wanted—Workers

WANTED:—People who are looking for work. Good wages for those who are qualified, but no shirkers need apply.

If this advertisement were to run daily in every paper in the country for a week, how many applicants do you think would respond? Possibly out of the 40,000,000 people in the United States who should be working, you might get six answers, but that number seems large. For, as a matter of fact, no one much is looking for work. Plenty are looking for positions with salaries attached for time put in loafing. But no one seems anxious to get work for wages for value received.

How many people who actually need money are willing to do any honest work for it? Hands up. I see none. They are willing to do something light and pleasant, but no necessary work if it soils their hands or gives them a backache. Hundreds of women are walking the street trying to sell books or face washes because they can keep their hands clean at this sort of thing, even if they do not make enough money to live on and have to depend upon charity for the rest. Offer them work in your kitchen at a steady wage with a good room and board, and they refuse indignantly. Why? Because they would really have to work.

During the recent hot weather one woman who had been tramping the streets selling cosmetics to support herself and husband did overcome her pride enough to ask for housework. But her husband, who was not too proud to let her pay his bills, burst into tears at her suggestion that she take housework, and threatened to commit suicide if she so disgraced him. Better to let her suffer sunstroke tramping through the streets under last July's sun than to wash someone else's dishes.

The great trouble with the American branch of the human race is that we all have too exalted an opinion of ourselves. No real work ever hurt anyone, nor is it so much a disgrace to do kitchen work or go out by the day as it is to sit down and let someone else pay our bills because we will not do the thing we can do. If the women who are looking for places as companions or housekeepers with a big salary and nothing to do would do the thing they can find to do, if it is not just to their liking, they would solve the servant problem and raise themselves in the opinion of their relations and friends who have to support them.

What is true of the housework situation is true of every line of labor. Employers everywhere have the same story to tell of inefficient men and women who work with one eye on the clock and their minds nowhere. As a matter of fact, they haven't enough mind to keep it in any one place. Their main idea is to do just enough to keep their job and spend their spare time knocking the firm because they do not pay better. The idea of working never occurs to them.

We have degenerated. From the old pioneer stock has sprung a race of pleasure-loving idlers whose main idea is to take and not give. Everyone wants the highest wages, but no one wants to work in return for them. The housewife hires a girl to lighten her work and then has to hire a woman to do the washing and rough cleaning to lighten the girl's work, and a man to wash the windows outside to lighten the woman's work. The girl could do the washing herself and wash

the windows, too. Her mother and her grandmother did such work, and much that was heavier. But work and the modern girl are sworn enemies. Besides, washing makes her hands look bad and she wants to get time to manicure her nails daily.

We may swing back to pioneer methods. If we don't disaster awaits the nation. Love of ease, and slothfulness has wrecked many a people of better stock than ours.

DEBORAH.

THE WEEKLY MENDING.

BY DOROTHY CLARK.

Half the dread and real work of mending is overcome if all of the material to do the work with is at hand, ready to use any minute instead of having to ransack the house for it as is the case in some households.

I find that a work box with a cover is better to use than a work basket. Not being open it is not so apt to be used for a catch-all as a basket is. Then, too, it is not so apt to be tipped over and the contents snarled up.

My box is a small wooden one cov-

ered with cretonne and having hinged cover. Inside are three compartments, one contains thread, woolen yarn, black and white darning cotton and thimbles. Another contains a paper of needles, pins, hooks and eyes, some snap dress fasteners, a button bag and scissors and shears. The third compartment contains pieces of white mosquito netting to be used in darning large rents in knit underwear, pieces of tape and elastic, a stocking darning, small pieces of whalebone and other odds and ends.

In another larger box which I keep in the store room are pieces of new cloth to be used for mending purposes, so when a garment needs mending I know where to find pieces like it.

I have learned that it is better to mend most garments before washing. The rent is apt to become larger by washing, then, too, in mending fine garments where you wish to conceal the mending it makes a difference in the looks. After being washed the mending "blends in" with the other threads of the garments and after being ironed is not so noticeable. It is also hard to mend an ironed garment without giving it a mussy, soiled appearance.

The Matrimonial Advertisement

By EMMA GARY WALLACE

MANY a lonely girl with a long heart, has asked herself the question, "What possible harm could it be for me to answer an advertisement for correspondence with a view to matrimony; or to insert in some medium a similar notice myself? No one would know the difference, it would be good fun, and it might lead to a delightful romance."

That many young men and young women do yield to this impulse is proven by the advertisements appearing from time to time in various newspapers and by the fact that there are publications devoted to this purpose.

Girls who do this seldom realize the terrible risk they are running. Their thought is a pleasing one of love, and companionship, and adventure. Many of them are motherless girls, or girls whose mothers have not kept their confidence. The young people most likely to be attracted by this sort of thing are the very young girls and those who are bordering on spinsterhood. The former do not realize the danger, and some of the latter are ready to grasp at straws.

It is possible that some happy unions have been brought about in this manner, for it is the exception which proves the rule. However, worth-while men, who are of clean character and industrious habits, or men of "abundant means," as these advertisers so often describe themselves, will have ample opportunity to meet desirable women of whose characters and abilities they can make sure at first hand. The thinking man would not care to take the risk of reaching out into the unknown blindly, and thus selecting a wife for himself and a mother for his children. Such a man wants a reasonable degree of assurance concerning the kind of a woman he is getting, and even the most unlikely specimen of manhood is sure to cherish in his heart a desire for more affection than a "mail order" wife is likely to bring.

The girl or woman who would dare to give her life and her future into the keeping of an unknown man of whose morals or ancestry she is ignorant,

would indeed be over-anxious for matrimony, and regardless of the consequences which might await her.


By correspondence and the exchange of photographs, what guarantee would she have that the man to whom she had promised herself, might not already be the husband of another woman and the father of children? Such things have happened again and again. Or, how can she be sure that the man can bring her a clean bill of health which will not be a menace to her as his wife, and the children born of the union? Has she any way of knowing that he is temperate, of kindly disposition, able to support her comfortably, and not given to violent outbursts of temper? Is she willing to marry this unknown man, not knowing whether she is giving her children a heritage of insanity, criminal tendencies, or possible degeneracy?

It would seem as though the girl ready to rush forward toward such a battery of possibilities must be in the frenzied condition of mind of a horse in the midst of a fire—ready to jump into the flames rather than to flee to safety.

But, what about the man, someone asks! Does he, too, not run all these risks and even others not enumerated? He certainly does, and his judgment likewise, must either be sadly lacking or he must be a man who has been persistently repulsed by the women who know him, for good and sufficient reasons.

The following cases are not mythical and they show that illy-assorted marriages between unknown people do not lead to happiness.

A marriage was arranged between an old gentleman of property and an elderly woman who had been left a competence by her first husband. Each one was shrewd enough to take means of ascertaining the reality of the other's worldly possessions. A marriage ensued, after which the elderly bride discovered her husband had deeded his property all to his daughter just before marrying her, thinking to end his days in comfort at her expense. The crafty groom was promptly disillusion-



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THE BEST LIGHT CO.
280 E. 5th St., Canton, O.

ed and disgusted when he discovered that his new wife's property had been hers only as long as she remained a widow. The happy couple was happy no longer, for the family of neither side would receive the pair. A week ended their ready cash and married bliss. Both lived with a life-long regret that they had lost the property which would have kept them in comfort for the rest of their lives.

The marriage of a likely looking young couple brought together through correspondence led to a life of grave unhappiness for the couple and their two puny children. In point of peculiarity the wife was a winner, while their dispositions were as incompatible as those of two human beings could well be. The man was a professional one of fair standing and the woman really had considerable money, but happiness was not to be purchased in this manner. To satisfy her he finally gave up the promising business he had established and returned with her, to the part of the country from which she had come. She told him he need not work any more, and yet she never failed to remind him that he was a pensioner on her bounty.

In still another case where a marriage was consummated between young white people, a colored baby was born to them as the result of negro ancestry on the side of one of the parents. This reversion to type is not an unknown thing by any manner of means.

Still another marriage with a correspondence suitor seemed to be promising until the bride discovered her husband was the victim of an offensive physical disability from which he had suffered since birth.

Again the wife of an alcoholic husband in due time became the mother of a family of five children and only one was strictly normal.

Someone may arise at this juncture to point out that conditions of ill-mating, of faulty inheritance, of disappointment, and disaster, are to be found also among those who marry after a personal acquaintance. This, too, is true.

In the present war times the government has pointed out that American merchant ships seeking commercial profit, by going through mined waters which have been declared danger zones, do so at their own risk. Accidents may happen to marine shipping anywhere, but it is the part of wisdom to keep to well-known and presumably safe lanes and waterways.

The same applies to matrimony. No one can be sure of what the future may hold for the contracting couple, yet, if they have taken all due precaution each in regard to the fitness and suitability of the other, the chances for a safe and prosperous voyage through life is much greater than if unknown waters are entered beneath which all sorts of dangers may lurk.

Even if the correspondence is entered into purely for fun, a young woman may find herself brought into embarrassing and unpleasant prominence by having her letters found upon the person of an individual of ill repute. Or, a young man may find at some future date, that this very correspondence will crop up a damaging bit of testimony against him at some critical moment.

A husband or a wife cannot be satisfactorily sought as one would procure a pair of gloves or a summer hat, either by proxy or by printers ink. Matrimony is not a condition which can be lightly cast off and forgotten. It is too serious and too sacred a relation to enter into thoughtlessly or carelessly. It is "until death do us part," and so the human equation cannot be thrown together in a hit or miss way, and work out right in the building of that most longed-for of institutions—a permanent and happy home.

HOME QUERIES.

Household Editor:—I have been a reader of your paper for many years.

Would you please give me some recipes for making popcorn balls and crackerjack?—Mrs. D. K.

Boil one cup of sugar with one-fourth cup of water until it hairs. Pour quickly over popped corn from which hard kernels have been removed and form into balls with the hands. Crackerjack may be made the same way except that the kernels are kept separate instead of massed into a ball.

ADVICE ON KITCHEN ARRANGEMENT.

For the woman who is afflicted with an inconvenient kitchen the Missouri College of Agriculture has prepared plans for building over kitchens which will be sent upon request. The diagrams and circulars contain suggestions for re-arranging kitchen equipment already on hand without cost; remodeling the present kitchen to make it more convenient; selecting kitchen equipment, and planning a new kitchen. The college is located at Columbia, Mo.

COCOANUT WAYS FOR CHRISTMAS.

BY LULU G. PARKER.

Cocoanut Drops.—Beat the white of one egg, add confectioners' sugar to twice its bulk of shredded cocoanut and stir it into the egg until the mass is just thick enough to drop from a spoon. Drop on tin sheets and bake in a moderate oven until nicely brown. Usually about ten minutes.

Cocoanut Fudge.—Two cups of sugar, one-half cup of milk, butter the size of a walnut. Boil, stirring constantly until a little turned into a cup of water will form a sugary ball. Remove from the fire, turn it into a cup of grated cocoanut, heat until smooth and creamy, then turn it into two buttered pie tins, and mark into squares.

MICHIGAN FARMER PATTERNS.

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



No. 8097—Ladies' Waist. Cut in sizes 36 to 44 inches, bust measure. The waist closes at the left side of the front.

No. 8078—Girls' Dress. Cut in sizes 6, 8, 10 and 12 years. The dress is plaited, has side belts and closes at the front.

No. 8055—Ladies' Apron. Cut in sizes 36, 40 and 44 inches, bust measure. The apron has a three-gored skirt.



A happy Christmas thought—

KODAK

The gift that adds to the good times at the moment; that indoors and out gives zest to the merry making and then—preserves the happy picture story of all that goes to make the day a merry one.

The Kodak catalog, free at your dealer's, or by mail, tells in detail about the various Kodak and Brownie cameras—from \$1.25 upward. Photography is really very simple and inexpensive. Kodak has made it so.

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Farm Commerce.

Co-operative Association of Creameries

By W. B. LAWRENCE

CO-OPERATION is a word but recently added to the vocabulary of the farmer. Neighborhood strife was a prevailing condition in rural communities in former years which the broad-minded farmer of today strives to avoid. How different from our boyhood recollections when we looked on and possibly enjoyed the neighborhood quarrel brought about by the election of a school director or the purchase of a township road machine. Those were the good old days when the village sage wisely shook his head and said, "Farmers never can agree. They are too suspicious and jealous of each other." A generation back such an opinion was correct. Today, however, farmers can and do agree even to such an extent as to cause them to call on the bank deposit to put up some hard earned cash for a neighborhood investment.

The co-operative creamery a score of years ago was a notable example of the failure of farmers' co-operative efforts. It is true that many such creameries organized in those days weathered the storm but the majority of them failed and that miserably. Again the cynic said, "Farmers can not work together." Present day students of co-operation among farmers understand that the failure of such creameries was not due to the entire absence of the co-operative spirit among farmers of that day, but to wrong organization, poor management and a general lack of knowledge of the creamery business. In more recent years greater care has been given the organization of farmers' creameries, our dairy schools have brought up the standard of our creamery operators and better management is provided because of the increase in knowledge of the creamery business. Today our most successful local creameries are strictly co-operative, being farmer-owned and farmer-managed.

The strongest competitor of the local creamery today is the "centralizer." The centralized creamery is a plant usually located in a city or a town which has good railroad facilities. The cream is shipped to these plants for distances varying from ten to more than a hundred miles. These creameries range in annual output from a half million to several million pounds of butter. A very high state of efficiency exists in the "centralizer" and constant effort is being made to improve methods so that still greater efficiency may be developed. In addition to the individual efficiency of these large creameries men of great vision have seen the benefit of a national organization among such plants, hence the American Butter Manufacturers' Association has been in existence for several years. This association employs a force of very highly trained men whose duties are to work original methods of creamery operation, to improve the quality of butter made by the centralizers and to increase efficiency in operation in every particular. This organization surely represents co-operation of big business ventures and indicates the faith that big broad-minded business men have in co-operation. But in our own state we have men in charge of small creameries who also have vision. The organizers of the Co-operative Association of Creameries, No. 1, which has headquarters in Grand Rapids, certainly foresaw the possibilities of a union of small local creameries.

The Co-operative Association of Creameries, No. 1, theoretically, has been in existence for about one and one-half years but did not begin to op-

erate until April 1 of this year. It was not until then that a manager and field agent was employed. Since that time the work of the association has been progressing but, because the venture is entirely new, somewhat slowly. Nineteen co-operative creameries make up the association during this, its first year of active existence. The expenses of the organization are met by a tax of one mill per pound of butter sold by each creamery. This amount is very ample to meet the salary and traveling expenses of the field agent and the other incidental expenses which naturally arise. It shows the spirit of true co-operation when the larger creameries pay their proportionate amount into the treasury of the association and receive only the same amount of assistance from the field agent as do the smaller creameries.

The possibilities of co-operative associations of creameries are unlimited in case the organization is supported by the right individual spirit. The very fact that several creameries have united for mutual benefit brings their operators close together and progressive ideas are transmitted from one to the other which are very beneficial. By such co-operation sufficient funds can be obtained to pay the salary of a competent field man at very small expense to the individual creamery. The field man can visit the creameries at more or less regular intervals and can be had at time of emergency. He can increase the efficiency of the various plants by suggesting remedies for defects which are evident to his trained eye. He can show the buttermakers in the various plants how to incorporate the proper percentages of salt and moisture; he can bring the over-run of each creamery up to what is desired; he can suggest means for bettering the sanitary conditions of the creameries; he can assist the buttermakers with various problems in creamery operation, such as pasteurization, starter making, etc. As the manager of the association he can gradually work up a greater co-operative spirit among those associated with the various creameries; he can organize units where there is competition between creameries in his association and thereby promote a better feeling as well as reduce expense; he can assist the creameries with the buying of supplies and thereby save large sums of money. In fact, his duties are without number.

This article will not attempt to enumerate what has been accomplished through the agency of the Co-operative Association of Creameries, No. 1. This much can be said, however. Far greater results have been obtained than were even anticipated at the beginning of the year. This would indicate that the first year of the association has been a success, at least.

THE MOISTURE CONTENT OF CORN.

During the past few years much has been said about the percentage of moisture contained in new corn, and about the shrinkage of the new corn in the crib due to its large moisture content when stored. Yet, this is comparatively a new subject and the buying of corn on the basis of its moisture content is rapidly becoming a practice in all of our large markets and even in many of the smaller ones, especially those of the corn belt. The farmer is beginning to realize that he should receive more for his corn if it contains only a small amount of mois-



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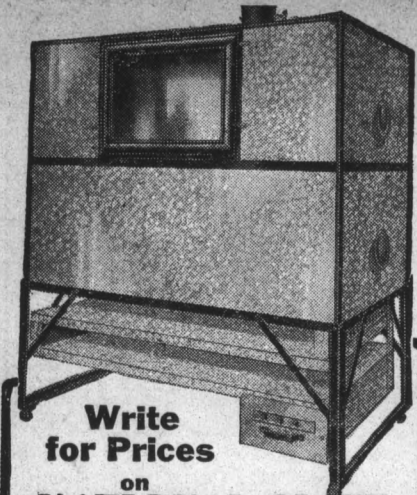
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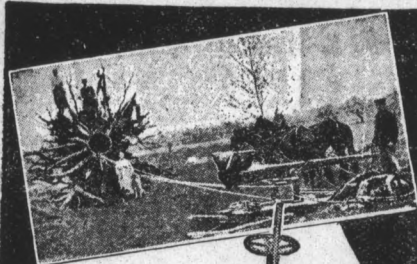
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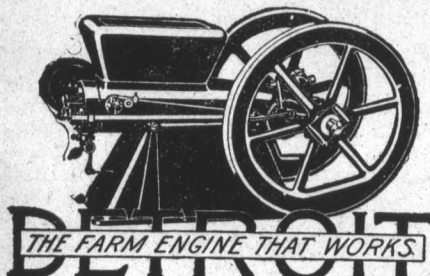
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ture, than for corn that contains a large amount of moisture.

The buying of corn on a moisture basis was not possible until Brown and Duvel, two men in the United States Department of Agriculture, invented a piece of apparatus for making moisture percentage determinations. The process is a very simple one, taking only about 20 minutes, and besides being very accurate and taking very little experience to operate. A known weight of corn is taken and heated in oil until all of the moisture has been driven off in the form of vapor or steam, then this steam is condensed and collected in the form of water. The fact that the moisture content of any grain is so easily determined has led to the installing of this apparatus in many of the elevators about the country, and the buying of corn on a moisture percentage basis began. In buying corn under this system, corn having a 12 per cent moisture content is taken as the standard and all of the other corn bought, is paid for in proportion, the price paid depending upon whether its moisture content is above or below that of the standard.

There is no doubt that this is the only fair basis upon which corn can be bought or sold, for if one farmer takes good care of his corn, harvests and stores it properly, he should receive some reward for his work. Previous to this time he has received no remuneration for this extra work whatever, for he has received the same price per bushel upon the market that his neighbor who has taken no care of his corn whatsoever, and corn not properly cared for in the fall cannot help but contain excessive amounts of moisture.

In view of the fact that the buying of corn at a uniform price is not fair to all farmers, the farmers should get together and demand that their local dealer buy on the moisture percentage basis. Such a system will not only mean more money to the man who cares for his corn properly, but it will tend to stimulate better methods among all of the farmers and better grades of corn and more profit will be the result.

Iowa. H. W. HULBERT.

FIRST STANDARD MARKETING ASSOCIATION.

The articles of incorporation in Michigan have been filed with the secretary of state. The organization is the Berrien County Fruit Association, with its main office at Coloma. The association is without capital stock, and is a non-profit corporation. The membership fee is one hundred dollars and the money derived from the memberships will be used in the establishment of a central packing house and providing equipment for the same. The object of the association will be to more efficiently market the fruit products of its members. Instead of dividends on shares of stocks, the members will receive a larger share of the consumer's dollar. This is the third fruit association formed in Berrien country within six months.

As soon as standard associations are scattered throughout the fruit belt of Michigan an effort will be made to combine the associations into a strong federation which will outline a single definite policy for all the locals belonging to the federation. In this way, it is believed, that the fruits will be much more efficiently marketed than is now the case. At the present time there is a great waste because of the competition between rival associations. The new policy will call for co-operation among farmers so that they will not compete one with another, and co-operation between associations for the same reason.

A Good Percentage.

Mr. Frank DuBois, of the Cavanagh Poultry Farms, Lansing, Mich., who has been advertising poultry, writes us: "From an advertisement appearing in two issues of your paper, for which we paid you \$5.60, we sold \$570 worth of stock."

"You Could Have Saved All Those Hogs with Hog-Tone"

It was worms that killed those hogs. 90 per cent of hog deaths are caused directly or indirectly by worms. And, the U. S. Department of Agriculture declares: "Nearly every hog is infested with worms!" "More hogs may be lost from worms this year than from hog cholera, and many cases of apparent cholera are only worms," says Dr. J. T. Dinwoodie, veterinary specialist of the State college extension division. Even when the worms don't kill the hogs, they weaken them so that they fall easy victims to the first epidemic that comes along.

Worms are killing off hundreds of thousands of hogs every year. If you ignore this fact, worms may carry off scores of your own hogs! The malignant Thorn Head Worms—Stomach Worms—Liver Worms—Lung and Bronchial Worms, are stealing away the lives of an untold number of hogs every year. They weaken the hogs—make them subject to Cholera, Scours, Thumps, Rheumatism, Enteritis and Gastritis. They affect every sow's litter. Even if they don't kill your hogs, they rob you of your just profits. They make your hogs unthrifty—prevent them from putting on fat—kill their market value. You can prevent all this loss of hogs and money. You can banish the deadly worms. You can do it without risking a penny of your money. You can do it on a proposition whereby—

You Are Guaranteed 400 Per Cent Profits

If Avalon Farms Hog-Tone doesn't make your hogs make you more money—produce more pounds of pork for you from the same amount of feed—we don't want your money! In fact we go farther than that—we guarantee 400 per cent Profits for you! We are going to give you the same opportunity to prove this that we gave Jno. W. Orane, hog raiser near South Whitley, Ind. He writes: "I selected four pigs out of my bunch—three were runts. I weighed them and they averaged 85 pounds. I fed them Hog-Tone for four weeks. Then sold them eight weeks from time I weighed them and they averaged 221 pounds per hog." Avalon Farms Hog-Tone is the only Veterinary Remedy ever sold with a guarantee to produce a definite percentage of profit. We guarantee it to produce 400% profits on any hogs and prove it to your own satisfaction. If it doesn't do it, we don't ask you to pay a cent. Now, here is our remarkable offer:—Simply fill out the coupon below, send it to us (WITH NO MONEY) and we will immediately ship you

60 Days' FREE Treatment of

AVALON FARMS HOG-TONE

The Liquid Worm Killer and Hog Conditioner For ALL Your Hogs—SEND NO MONEY!

We will ship you one \$1.00 bottle of Hog-Tone for each eight hogs in your herd—the day the coupon below, filled in, reaches this office. That will be sufficient to treat your hogs 60 days or more, according to size. This will mean just 12 1/2¢ per hog for all the treatment and that treatment is guaranteed by us to give you a 400 per cent profit over and above the cost of the Hog-Tone treatment at marketing time. This is the same opportunity that these men grasped—and made money as a result.

M. S. McFadden, Poland China Editor of Swine World (who feeds about 1000 hogs annually near Flossmoor, Illinois) advises: "I received Hog-Tone and gave it a test on five hogs. Our farm manager says that it is the best worm expeller he ever used. The pigs fed on Hog-Tone have made 25 per cent larger gains than those not fed on Hog-Tone."

John Heinman, R. F. D., No. 5, Decatur, Ind. states: "I fed the Hog-Tone to a lot of hogs that had the scours. Some of my pigs had their backs turned up like a rainbow. In less than two weeks I could not get to the trough to feed them. I do not know exactly what the gain on this lot of hogs was, but I could see a great change in them. Avalon Farms Hog-Tone is a highly concentrated

Don't Send a Penny—Just Mail the FREE Coupon

Simply tell us how many head of hogs you have—write down your name and address and mail to me. We will immediately ship you enough Avalon Farms Hog-Tone to treat your hogs for 60 days! You simply pay the transportation charges. Treat your hogs according to directions. If at the end of the treatment you are not completely satisfied—simply return the labels to us and you don't owe us a cent.

Avalon Farms Company,

W. O. GANDY, President, 558 Rand McNally Bldg., Chicago.



Send This COUPON TODAY

liquid medicine for hogs only. It contains highly important medical ingredients which are liquids and which cannot be combined in medicated salts, stock foods or condition powders of any kind.

Avalon Farms Hog-Tone is safe. It is very easy to treat your hogs with AVALON FARMS HOG-TONE. It is easily mixed with any kind of slops, with the drinking water or dampened feed. It is only given every third day for the first six weeks and after that only once a week. 100 per cent strong.

Thoroughly proved on Avalon Farms near Fort Wayne, Ind. Cleans out every kind of worms that infest hogs. By doing so, it gives protection to your hogs from easily contracting Cholera, Rheumatism, Scours, Thumps, caused by worms and indigestion, Enteritis, Indigestion and other disease that destroy literally millions of hogs. A simply wonderful tonic and conditioner—gives hogs voracious appetites, aids digestion, helps them thrive, grow and put on fast increases of flesh.

Avalon Farms Co., 558 Rand McNally Bldg., Chicago, Ill.

Iowa—hogs. Ship me immediately enough Avalon Farms Hog-Tone to treat them for 60 days. I am to pay nothing now except transportation charges. I agree to report results to you at the end of 60 days and pay for the Hog-Tone at that time if it has done all that you claim. If it does not, I will return the labels, you agree to cancel the charge.

Name _____ P. O. _____ R. R. No. _____ State _____ Ship to _____ Name and Address of my Druggist _____

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O. I. C. Serviceable boars of the big type at reduced prices for the next thirty days. 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. R. 1.

FOR SALE. Thoroughbred O. I. O. Swine, sows bred, gilts and boars. O. D. Somerville, Grass Lake, Mich. R. 2.

O. I. C's Service boars and gilts. Price reasonable. Satisfaction guaranteed. Ship any day. A. R. GRAHAM, Flint, Michigan.

O. I. C. or Chester White Swine, both sex, not of kin. Write for catalog and prices. E. B. MILETT, Fowlerville, Michigan.

O. I. C's. Have only a few boars of May, June and Sen. farrow. C. J. THOMPSON, ROCKFORD, MICH.

Big Type Poland Chinas Spring boars, at reasonable prices. Order soon to save express. A. A. WOOD & SON, Salline, Michigan.

Large Type P. C. Largest in Mich. Young boars ready for service. Of Mar. and April farrow, from large litters, weighing up to 275 lbs. Come and see, expense paid if not as represented. W. E. Livingston, Parma, Mich.

Francisco Farm Poland Chinas Big Types With Quality

Ten 200 lb. Spring Boars from prize winning stock. They're long, strong, big-boned, rugged fellows. Pictures, circular and price list on request. P. P. POPE, MOUNT PLEASANT, MICH.

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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AT HALF PRICE Genuine big type Poland China Hogs, Bred Sows, Spring Pigs, Boars ready for Service. Special, the best big type fall yearling boar in Michigan. Also registered Percheron Stallions and Mares. J. C. BUTLER, Portland, Mich., Bell Phone.

Poland Chinas

We have some nice LARGE TYPE spring boars for sale at FARMERS PRICES. Allen Bros., Paw Paw, Mich.

FOR SALE: Poland China boars ready for service. A few high scoring Black Minorca cockerels will make large birds. Satisfaction Guaranteed. R. W. Mills, Salline, Mich.

Large Strain P. C. One extra good cracker jacks by Oakland Equal Jr. and a fine bunch sired by Big Defender the hog that everybody goes wild over, sold at farmers prices. H. O. Swartz, Schoolcraft, Mich.

BIG TYPE POLAND CHINA Spring boars that will please you, priced right. G. W. HOLTON, Route 11, Kalamazoo Michigan.

For Big Type P. C. Spring Boars and Gilts bred for April Farrow. Write or call on Armstrong Bros., R. 3, Fowlerville, Mich.

WALNUT Alley Herd, Big type Poland Chinas headed by Hadley Desmoins No. 211925 and Smothe Jumbo Jr. No. 249887. Sows represent blood of two A wonders. Pigs of either sex ready. A. D. Gregory, Ionia, Mich.

Big Boned Poland China boars shipped C. O. D. call or write for photo, weights, pedigree and price. E. R. Leonard, St. Louis, Michigan.

Large Stiled Poland China spring and fall pigs; also B. P. Rock cockerels at special low prices to quick buyers. Robert Neve, Pierson, Mich.

Poland Chinas. Big and medium type from good stock and large litters. They have good bone and length well quartered. L. W. Barnes and Son, Byron, Mich.

Big True Poland Chinas. The smooth, easy feeding kind that will grow big and get fat. Apr. pigs weighing up to 225 lbs. E. R. Moore, Ransom, Michigan.

Poland Chinas. As big and good as grow, either sex. Write if you buy from Robert Martin, R. 7, Hastings, Mich.

Big Type P. C. Three extra good yearling boars, good B1000 lb. prospect. Sired by Big Type King our 1000 lb. boar. Spring pigs either sex. Special three Mow breed boar pigs. W. Brewbaker & Son, Flite, Mich.

Large type P. C. Sows and gilts all retained for my Feb. Sale. A few choice Spring boars ready to ship. W. J. HAGELSHAW, Augusta, Michigan.

(Additional Stock Ads. on Page 543).

THIS IS THE LAST EDITION.

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

DETROIT LIVE STOCK MARKET.

Wednesday's Market.

November 29, 1916.

Cattle.

Receipts 859. Market slow at last week's prices. Best heavy steers \$7.50 @ 8.25; best handy weight butcher steers \$6.50 @ 7; mixed steers and heifers \$5.50 @ 6.50; handy light butchers \$5.25 @ 6; light butchers \$4.50 @ 5; best cows \$5.25 @ 6; butcher cows \$4.50 @ 5.25; common cows \$4.25 @ 4.50; canners \$3 @ 4.25; best heavy bulls \$5.50 @ 6.50; bologna bulls \$5 @ 5.50; stock bulls \$4 @ 5; feeders \$6 @ 6.75; stockers \$5 @ 6; milkers and springers \$4 @ 90.

Bishop, B. & H. sold Goodgold 15 butchers av 638 at \$5; to Bray 8 cows av 846 at \$4.25, 4 do av 1025 at \$4.25, 6 do av 741 at \$4; to Breitenbeck 2 steers av 1010 at \$5.50, 25 do av 1012 at \$6.50; to Prentiss 3 cow and bulls av 1140 at \$5.50, 2 feeders av 805 at \$5.50.

Haley & M. sold Main P. Co. 1 cow wgh 1510 at \$6, 4 do av 1047 at \$4.70; to Hammond, S. & Co. 5 do av 888 at \$4.25; to Sutton 26 stockers av 555 at \$5.65, 2 do av 665 at \$5.10; to Prentiss 4 do av 695 at \$5.50, 3 heifers av 933 at \$5.75, 1 cow wgh 1080 at \$5; to Golden 2 steers av 950 at \$5.75; to Bray 2 canners av 735 at \$3.25, 2 do av 930 at \$4.25; to Mason B. Co. 2 bulls av 1160 at \$6, 1 do wgh 1220 at \$5.75.

Erwin, S. & J. sold Ray 8 feeders av 790 at \$6; to Bresnahan 5 cows av 1034 at \$4.35, 2 do av 890 at \$4, 2 do av 1035 at \$4.50; to Applebaum 2 butchers av 490 at \$4.50, 4 do av 745 at \$5.50; to Walk 3 do av 710 at \$4.75, 14 feeders av 656 at \$5.75; to Breitenbeck 5 cows av 1022 at \$5.25, 2 do av 1010 at \$4.75, 18 butchers av 677 at \$5.50; to Benfeldt 14 do av 734 at \$5; to Tarmosky 10 do av 758 at \$5.

Sandel, S. B. & G. sold Bray 3 feeders av 759 at \$6.25; to Bresnahan 3 cows av 1140 at \$4.60, 4 do av 1052 at \$4; to Mason B. Co. 2 do av 1050 at \$5.25, 5 butchers av 934 at \$6.50, 2 bulls av 955 at \$5.50, 1 do wgh 1520 at \$6, 4 butchers av 680 at \$4.50, 6 do av 740 at \$6; to Applebaum 14 do av 528 at \$4.50; to Sutton 10 stockers av 620 at \$4.50; to Costello 18 butchers av 574 at \$4.50; to Bray 2 cows av 880 at \$4.25; to Knappen 5 stockers av 760 at \$5.40; to Hammond, S. & Co. 12 butchers av 706 at \$4.40.

Veal Calves.

Receipts 282. Market steady. Best \$11.50 @ 12.50; heavy \$5 @ 6.50.

Haley & M. sold Parker, W. & Co. 15 av 150 at \$12.50, 7 av 145 at \$12.50, 1 wgh 150 at \$12.50, 1 wgh 140 at \$12.50, 4 av 140 at \$12.25, 3 av 155 at \$12.50.

Erwin, S. & J. sold Thompson 2 av 150 at \$12; to Mich. B. Co. 5 av 145 at \$11.25; to Gilbert 3 av 160 at \$11.75, 21 av 115 at \$11.75.

Sheep and Lambs.

Receipts 2330. Market strong to 15c higher. Best lambs \$11.50 @ 11.60; fair lambs \$10.50 @ 11; light to common lambs \$6 @ 8.50; yearlings \$8.50 @ 10; fair to good sheep \$6.50 @ 7.50; culls and common \$4 @ 4.50.

Bishop, B. & H. sold Nagle P. Co. 2 sheep av 130 at \$7.25, 17 do av 95 at \$6, 44 lambs av 80 at \$11.50, 26 do av 80 at \$11.50, 16 do av 65 at \$10.75, 92 do av 75 at \$11.50, 2 yearlings av 80 at \$8.50, 6 sheep av 95 at \$6.25, 66 lambs av 80 at \$11.60; to Sullivan P. Co. 6 sheep av 90 at \$5.50, 29 do av 125 at \$7.35, 52 do av 85 at \$5.25; to Thompson 6 lambs av 60 at \$11.25, 12 do av 70 at \$11.25, 68 do av 65 at \$11.25; to Hammond, S. & Co. 7 do av 95 at \$10, 30 do av 65 at \$11.25, 6 do av 85 at \$11.50.

Haley & M. sold Nagle P. Co. 13 sheep av 130 at \$7, 20 lambs av 80 at \$11.25.

Sandel, S. B. & G. sold Nagle P. Co. 34 lambs av 83 at \$11.60, 12 do av 85 at \$11.35, 6 sheep av 85 at \$4, 2 do av 140 at \$7, 28 do av 105 at \$6.50; to Sullivan P. Co. 20 sheep av 114 at \$7; to Nagle P. Co. 17 lambs av 85 at \$11.50, 38 do av 80 at \$11.25, 15 sheep av 125 at \$7.25, 18 do av 95 at \$6.25; to Thompson 22 lambs av 55 at \$10.90; to Nagle P. Co. 48 do av 65 at \$10.50.

Erwin, S. & J. sold Nagle P. Co. 131 lambs av 75 at \$11.50, 11 do av 50 at \$9.50, 12 sheep av 100 at \$6, 2 do av 130 at \$7, 4 do av 85 at \$5.50 to Young 83 lambs av 75 at \$11.25; to Costello 20 do av 50 at \$9; to Nagle P. Co. 21 do av 65 at \$11.25, 178 do av 78 at \$11.50; to Sullivan P. Co. 26 do av 85 at \$11.50.

Hogs.

Receipts 4886. Pigs steady at \$8.25 @ 8.50; yorkers and heavy 15 @ 25c lower, \$9 @ 9.30.

Veterinary.

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

Stomach Stagers.—My eight-year-old mare took sick three weeks ago and at times staggered as she walked. One peculiar thing about her sickness is that she seems to be pretty well for a few days and then is inclined to stagger as bad as ever. J. N., South Rockwood, Mich.—Her bowels should be kept open; this is best done by feeding her well-salted bran mash, roots or grass. Mix together one part fluid extract nux vomica, two parts of fluid extract cinchona, two parts fluid extract gentian and five parts Fowler's solution, give her a tablespoonful at a dose in feed or water three times a day.

Swollen Sheath.—Have a gelding whose sheath is inclined to swell; washing him does not seem to reduce this swelling. I have thought that he needed a tonic as he is somewhat low in condition. W. H., Rushton, Mich.—Mix together one part fluid extract of nux vomica and four parts Donovan's solution and give him a tablespoonful at a dose in feed two or three times a day. Also give him a tablespoonful of acetate of potash daily for a few days until his kidneys act free.

Garget—Indigestion.—I have a cow troubled with caked udder, but not a bad case; furthermore, her appetite is not good and she is losing flesh. Her milk yield is irregular. W. B., Pinckney, Mich.—Apply one part iodine and 19 parts lard to blocked portion of udder three times a week, and give her 1 oz. of ground gentian and a teaspoonful of salt at a dose in feed twice a day.

Cow Eats too Much.—I have a two-year-old heifer which will freshen in January; all summer she pastured in woods and underbrush. Now she runs in clover and June grass. Since turning her in this pasture she seems to scour, is comfortable when standing up, but when down in barn groans as if in pain. She is in apparently good health. C. E. C., Traverse City, Mich.—I am inclined to believe that this pregnant young cow overeats and when stuffed full, is uncomfortable, especially when lying down. Stint her supply of damp clover.

Weak Cat.—We have a cat eight years old that has sick spells which last about 48 hours. When sick he refuses to eat. Great weakness seems to follow each of these attacks, he breathes fast and is very drowsy. He is a great rat hunter, therefore I would like to have him cured. E. W. L., Tawas City, Mich.—Give your cat a tablespoonful of castor oil once a week. Change feed, also give 2 drops of tincture nux vomica and 1/4 gr. of quinine three times a day.

Thin Cow.—We have a cow that had cow-pox last summer; since then she has not thrived and is thin. Perhaps she eats plenty of feed, but does not give as much milk as she should and I would like to know what to do for her. H. H. G., Ganges, Mich.—A complete change of feed is perhaps all that is required. Mix together equal parts of bicarbonate soda, ginger, gentian, powdered charcoal and give her two tablespoonfuls at a dose in feed three times a day. Also give her a teaspoonful of salt night and morning.

Surfeit—Clinging Afterbirth.—Have an old horse that has an eruption on body, causing considerable itchiness. I also have a cow that calved November 7, which has not yet cleaned. S. J., Bronson, Mich.—Give your horse a desertspoonful of Donovan's solution of arsenic at a dose three times a day. Groom him well once or twice a day and wet itchy parts with one part coal tar disinfectant and 30 parts of water. Dissolve 1 dr. of permanganate of potash in five quarts of tepid water and wash out vagina daily. Perhaps before this communication reaches you, the afterbirth will have come away. Give her 20 grs. of quinine at a dose three times a day.

Worms.—I have a sow and ten pigs that are about seven weeks old, eight of them are doing well, the other two choke and do not thrive. When they commence to eat they appear to choke and strangle, then appear to become discouraged and refuse to eat any more food. They seem to eat corn better than middlings and I might add that they have a nice warm place to sleep. C. B., Grand Ledge, Mich.—Mix together equal parts of fluid extract of spigelia and fluid extract of senna and give each of the two pigs 30 drops in two or three tablespoonfuls of milk twice a day until they purge. Rub throat with camphorated oil once a day.

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Stock Ads. Continued on Page 542).

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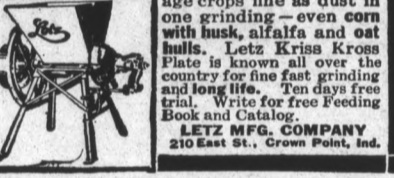
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Practical Science.

SOME POPULAR FOOD DRINKS. (Continued).

BY FLOYD W. ROBISON.
Chocolate and Cocoa.

Chocolate and cocoa are obtained originally from the same source. They are manufactured from the bean of the cacao tree, known scientifically as theobroma cacao. The tree is rather small with a trunk perhaps six or seven inches in diameter and grows to a height of 12 to 15 feet, and is said to grow under the best conditions in Brazil, West Indies, and Mexico, and the tropical American countries. The seeds or beans grow in pods very much the same as other forms of beans.

The brown color which they exhibit when transported in commerce is due to the drying which they undergo in preparation for export. For the preparation of chocolate or cocoa the seeds themselves, or beans, are roasted, when a paper-like shell something like that which adheres to peanuts is loosened, and removed. The portion which is used for the production of chocolate and cocoa is what is known as cocoa nibs, and for the preparation of chocolate these nibs are very carefully and finely crushed and moulded. The cocoa nibs themselves are very soft and almost butterlike in their consistency although of course much firmer, but they are so pliable that they can be easily moulded into satisfactory form.

Of a consequence the crushed cocoa nibs lend themselves easily to mechanical manipulation and we therefore find chocolate in a variety of forms on the market. Some are moulded without extra sweetening, while some of the so-called sweet chocolates are sweetened and flavored with various saccharine products.

Chocolate is Much Richer than Cocoa.

Chocolate is a much richer food product than is cocoa because in chocolate the fatty portion is retained, whereas in cocoa a considerable quantity of the fat, or cocoa butter, as it is known, is removed, very much the same as linseed oil is removed from flaxseed and very much the same as peanut oil is removed from peanuts. That is, the crushed chocolate, or cocoa nibs, is placed between plates where it is heated and hydraulic pressure is applied, which presses out the liquified fat, or liquid cocoa butter, which is then allowed to congeal and is sold on the market as cocoa butter. The residue, as it may be seen, containing but a small amount of the original fat content, is used as the basis of cocoa and its products.

The roasted cocoa nibs vary very much in their taste and aroma from the unroasted bean. The change which takes place is somewhat analogous to the change which takes place when coffee beans are roasted. There is developed an aromatic substance which is considered by some to be very similar to that of caffeine in coffee, but of course the essential difference in the composition of the cocoa bean and that of the coffee bean indicates clearly that the aroma must be of an essentially different character than is the aroma of coffee. There are, however, several points in common. Tannin may be obtained from cocoa although probably not to the extent that it may be obtained from coffee. The essential principle of cocoa is the bromine, which bears a very close relationship to the caffeine of coffee, which, in turn, is related to Xanthine, one of the meat bases; theobromine being more closely related to Xanthine perhaps than is caffeine of coffee.

Cocoa and Chocolate Not as Popular as Coffee.

Cocoa and chocolate are both popu-

lar products and many persons serve cocoa for breakfast and at luncheon instead of coffee. It is not a product, however, which so generally appeals to the appetite of the American people as does coffee, and while nearly everyone enjoys a cup of cocoa now and then, it does not seem to fit into the everyday requirements of anywhere near as many people as does coffee.

The food standards committee a few years ago established a standard for cocoa and chocolate. The standard for chocolate provides that it shall not contain less than 45 per cent of cocoa fat; the standard for cocoa being more elastic and similar in the various chemical constituents, except that it may contain from 45 per cent fat down to practically nothing, depending upon the thoroughness of the removal of the fat.

Good Cocoa Must be Very Finely Ground.

The characteristic feature of cocoa which has tended to popularize it with consumers is the feature of its solubility in water and you find certain manufacturers advertising their product as pure, soluble cocoa. As a matter of fact, not over one-fifth to one-fourth of the product of pure cocoa is soluble in water. The great feature to be accomplished therefore is not complete solubility in water but complete emulsification with water, and probably the best way of accomplishing this is to have the cocoa ground to a powder in which condition because of its exceeding fineness of division it will remain in suspension, or a form of emulsion, which does not subside for a considerable period of time.

To accomplish the true solubility of cocoa some manufacturers have treated it with alkali, the effect of the alkali being to form a sort of soap with the fat and in this manner exert the influence of soap upon the emulsion of the other materials in the cocoa. The product treated with alkali is darkened and in our judgment must be an inferior article of food.

The principal forms of treatment of cocoa which are abnormal are the addition of sugars and the treatment with alkali to render it soluble. Cane sugar is very frequently added to produce a different type of sweetening than is common to cocoa. In the preparation of chocolates for confections, such as milk chocolate, a certain percentage of milk is mixed with the chocolate and it is reduced to a solid form, and usually, in addition, sweetened as well.

Cocoa is Quite Nourishing and with Milk Makes a Refreshing, Palatable Drink.

Cocoa is a valuable food drink. It has many properties more or less in common with coffee but contains a higher percentage of fat, and not being made as clear as is coffee has undoubtedly greater food properties than does coffee. Also it is common in the preparation of cocoa to use milk in the formula and this likewise tends to the introduction of a very nourishing drink. It is by no means uncommon for children, and very small children, at that, to be given free access to cocoa and chocolate. This is in spite of the fact that it contains some constituents not essentially different either in kind or quantity from those which exist in coffee, and many who have argued extensively against the use of coffee have been loud in their praises of cocoa, showing that there is a great lack of real correlation in reasonable arguments for and against coffee and for and against cocoa as a beverage, but unquestionably the use of considerable quantities of milk with the drink is the feature of it which satisfies many consumers.

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NOTICE

Hastings, October 28 th., 1916
Notice is hereby given that there will be a special meeting of the members of the Michigan Mutual Tornado, Cyclone and Windstorm Insurance Company to be held in the city of Hastings, Michigan at the city hall on December 5 th., 1916 at one o'clock P. M. for the purpose of voting on the revised charter of this company as adopted by the board of directors October 3 rd., 1916.
By order of the Board of Directors.
D. W. Rogers, Sec.

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Grange.

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

THE STORY OF A HOME-COMING.

(Continued from last week).

At the meeting was one man who can raise apples. I presume there were more, but this man proved it. He had on exhibition one of the finest collections of winter fruit I have seen this year. Yes, he sprays, and he sprays thoroughly enough to get results.

As lecturer of Keene Grange, Sister Daniels is demonstrating what may be done in this line with the right person in the right place. Sister Daniels knows what a good program is, and she knows how to conduct the lecturer's hour in a way to accomplish results which are worth while. I am saying this, not to flatter the lecturer of Keene Grange, but because we need just this sort of work in every rural community in Michigan.

May I say just a word more about this home-coming? Perhaps after all, the thing that will linger longest in memory is the story of those brave pioneers who, while they were building barns and houses, while they were clearing up their farms, and adding little by little to their resources, did not forget their community.

As we listened to the touching words of appreciation spoken in their behalf, and thought of the discouragements incident to all our lives, we wished they might come back again and know that they were not forgotten, but that their labors were really appreciated.

Another thing that impressed us was the advantage to the individual Grange which the home-coming gives. A committee of workers were busy getting reinstatements and looking for new members. If every Grange could realize the opportunity which such a meeting affords there would be many home-comings each year, and many Granges whose membership is declining would show a marked increase. Try out the plan and see what it will do for your Grange.

W. F. TAYLOR.

THE FINANCES OF THE MICHIGAN STATE GRANGE.

There was a time when the State Grange had no money. There was a time when Bros. Horton and Strong had to draw on their individual credit to pay the expenses of State Grange meetings and wait until dues came in. My brother, R. H. Taylor, was a member of the executive committee in those days and I recall that on one occasion he waited until a meeting of the State Grange to collect his expenses to meetings of the committee, because of the condition of the treasury.

It was not long, however, before Bro. Horton, as Master of the State Grange, began to apply those principles of business which have made him one of the most successful farmers in Michigan. Under the rapid increase in membership due to his efforts, and largely through the operation of our trade contract system, which he had built up, State Grange finances rapidly improved until our surplus exceeded forty thousand dollars. Each year saw our surplus climbing, and many thought we were soon to have too much money.

At that time all the fees paid by new members went to the State Grange. I think it was in December, 1903, that Bro. Keyes introduced his resolution to send but half the initiatory fee to the State Grange. The resolution became a by-law and subordinate Granges retained half the fees for one year. The next year Bro. Horton, in his annual address, recommended that subordinate Granges be allowed to retain all the fees. This recommendation was

put into law, and such has been the practice until now.

Since that day there has been but a slight increase in the amount of our invested fund. As I have said, there were some people who thought we were going to have too much money in the near future. They argued that we should use this money for various purposes designed, in their judgment, to strengthen the Order. They said that large sums of money hoarded up had a tendency to extravagance, and lastly they asked us, "What are you piling up this fund for anyway?"

Had they gotten control at that time, I do not think it would have been piled up for long. It is one of the pieces of good fortune in our history that we have had men in the master's chair following Bro. Horton who understood the importance of keeping our surplus and adding to it if possible.

But little indeed, have either of them been able to add, and now the question comes, "Why can we not now increase our invested fund? Where does our money go?" I personally know that it has been the dream of Worthy Master Ketcham to increase our invested fund to fifty thousand dollars, but it won't go up. I want to tell the readers of The Farmer in this article some of the reasons why our invested fund does not grow.

I remember just where I sat in the Masonic Temple at Lansing, when the resolution came in, to allow Subordinate Granges to retail all the fees paid by new members.

I recall that Bro. Horton said during the discussion that followed, that the expenses of the State Grange meeting that year would amount to three thousand dollars. Today it requires nearly eight thousand dollars to pay for one meeting of the State Grange. With fees from new members no longer paid to State Grange, the remaining sources of revenue are twenty-four cents a member annually, of which five cents must be paid to the National Grange, and the small percentage upon sales through Grange contracts. True, a little money results from the sale of Grange supplies, but only a little. But while our resources of revenue have grown less the need of more money has become very evident. As the Order grows in influence new opportunities for service are constantly appearing. Thus, in the campaign for equal suffrage the Grange gave a thousand dollars. In the present dry campaign we gave five hundred dollars, and have spent a good deal more in work done to this end by the executive committee. Two years ago under the instructions from the State Grange we made an attempt to initiate the measures providing for the Torrens System and the Tonnage Tax. This work cost the State Grange a thousand dollars or nearly that, and the present effort in the same direction will cost more than half that sum.

At its last meeting in Saginaw the State Grange voted to pay Pomona delegates mileage and per diem. Previous to that date, it had been the practice for Pomonas to pay the expenses of their delegates, or go without representation except in cases where delegates paid their own expenses.

W. F. TAYLOR.

(To be continued).

STATE GRANGE MEETING.

Michigan State Grange will convene in The Auditorium, Lansing, Tuesday, December 12, at 10:00 a. m., to continue in session through Friday, December 15.

Hotel Wentworth will be headquarters, with accommodations for 350 people. Rooms are \$2.50 per day with bath and two in room; or \$2.00 per day, without bath, two in room. Single beds, more than one in room, \$1.00 per person. Several other hotels offer rooms at \$1.00 per person, two in a room. Accommodations in private homes at reasonable rates are being provided through a local committee. Circular information will be sent to delegates and all others who apply to the Secretary of State Grange, or the Chairman of Local Arrangements for State Grange, Lansing, Mich.

Farmers' Clubs

THE ANNUAL MEETING.

The following is the complete program of the Twenty-fourth Annual Meeting of the Michigan State Association of Farmers' Clubs, to be held in the Senate Chamber of the Capitol Building at Lansing, Mich., during the first week of December:

Tuesday, December 5, 10:00 A. M.
 Payment of dues.
 Presenting credentials.
 Appointment of committees.
 Presentation of resolutions.
 1:00 P. M.

Invocation.
 Music—Grass Lake Quartette.
 Report of Associational Secretary Mrs. Joseph S. Brown, Howell.
 Reading—Mrs. Clay Gordon, Conway and Handy Clubs.

"The Farmers' Club and the Rural Church," C. W. Ballou, St. Johns.
 Music—Grass Lake Quartette.
 "The Milk Situation," R. C. Reed, Howell.

Discussion—led by H. F. Probert, Jackson county.

Tuesday Evening.
 Banquet at First Baptist Church.
 President's address.
 Round table.
 M. A. C. Orchestra.

Wednesday, December 6, 9:00 A. M.
 "Club Methods," Mrs. T. A. Johnson, Salem Club.

Thirty minutes' discussion by delegates.
 "Benefits of State Association," I. R. Waterbury, Detroit.

Music—M. A. C. Orchestra.
 Reading—Mrs. R. E. Moore, Bellevue.
 Address, "County Agent's Work," D. L. Hagerman, Grand Haven.

10:00 A. M.
 Reports of Committees: Temperance, Honorary Members, Club Extension, Good of Order, Credentials, National Affairs, State Affairs, Miscellaneous Affairs.

11:00 A. M.

Election of officers.

1:00 P. M.

Music—M. A. C. Orchestra.

Invocation.
 Address, "Where Are we Heading For?" A. C. Rowland, Shepherd.

"Income Tax for State Purposes," J. N. McBride, Burton.
 "Fruit Raising in United States," Prof. Eustace, M. A. C.

Vocal selection—Mrs. Fred, J. Beaman, Summit Farmers' Club.
 "Farm Loan Law," Prof. W. O. Hedrick, M. A. C.

Report of committees.
 7:30 P. M.

Music—M. A. C. Orchestra.
 Reading—Miss Pauline Kennedy.
 Address, "Agriculture in Our Public Schools," Prof. W. H. French, M. A. C.

Vocal selection—Mrs. Fred J. Beaman, Summit Farmers' Club.
 Address, Dean Eugene Davenport, U. of Ill.

Treasurer's report.
 Thursday, December 7.
 State market conference.

Resolutions written and delivered to the proper committees. All topics are open for discussion.

CLUB DISCUSSIONS.

Favor Co-operation.—At the recent meeting of the Marion Farmers' Club, of Livingston county, held at the home of Mr. and Mrs. Roy Hoagland, A. R. Eastman read a carefully prepared paper on "Problems we Have to Solve." Mr. Eastman strongly presented the necessity of co-operation, that hardly any farmer receives five per cent interest on his investment, also that he sells his products for much less than he pays for his necessities. "Farm Marketing" was responded to by W. McDowell. He pointed out the farmer's lack of system in selling, and referred to an actual transaction he witnessed in Detroit of a commission man taking advantage of parties who had shipped onions into the city unsold and were standing in the railroad yards. Mr. I. Hart in discussing this subject, claimed that farmers must adopt a more direct selling plan as the middleman was getting too big a portion of the retail price. "The Milk Situation in Michigan," by Field Secretary R. C. Reed, was a subject that all were very much interested in. Mr. Reed took up, step by step, what the milk producers, through their officers have done, what opposition they have had, and the success so far attained. Without the co-operation of the milk producers it is very plain we would not have received any important increase in the price of milk.

Big Ben

A
 Westclox
 Alarm



FOUR a. m., in growing time, starts the farmer's day—brings a bumper crop of hours, for chores and in the field.

Big Ben's the only time-clock the modern farmer knows.

That's why Big Ben goes to the farm, at Christmas every year—to lend a hand in preparing for planting days.

Where Big Ben's wound up every night, the farm cannot run down.

He's seven inches tall, spunky, neighborly—down-right good.

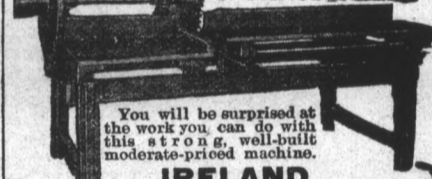
At your jeweler's, \$2.50 in the States, \$3.50 in Canada. Sent prepaid on receipt of price if your jeweler doesn't stock him.

Western Clock Co.

La Salle, Ill., U. S. A. Makers of Westclox

SAW WOOD

6 Times Faster



You will be surprised at the work you can do with this strong, well-built, moderate-priced machine.
IRELAND
 Wood Sawing Machine
 Table mounted on grooved rolls. Almost self-feeding with even heaviest logs. Cut is down—not against operator. Many other exclusive advantages. Write for circulars—also our drag saw machines, saw and shingle mills, hoists, etc.
 Ireland Machine & Foundry Co., 33 State St., Norwich, N. Y.

Maple Syrup Makers

You get best Results with our **Champion Evaporator**

Quick work, fuel saving, durability and

BEST QUALITY OF SYRUP

Write us for CATALOGUE.

Champion Evaporator Company, Makers, Hudson, Ohio

WANTED—MEN

Prepare as Firemen, Brakemen, Electric Motormen, Train Porters (colored). Hundreds put to work—\$5 to \$25 a month. No experience necessary. **Men wanted in every state.** Send stamp for Application Blank. State position wanted.
 L. Railway C. I., Dept. 74 Indianapolis, Ind.

WANTED—AN IDEA. Who can think of simple things to patent? Protect your ideas they may bring you wealth. Write for "Needed Inventions" and "How to get Your Patent and Your Money." RANDOLPH & CO., PATENT ATTORNEYS, DEPT. 67, WASHINGTON, D. C.

PATENTS That Protect and Pay Send sketch or Model for Search BOOKS AND ADVICE FREE
 Watson E. Coleman, Patent Lawyer, Washington, D. C.



What are you doing to help your hens lay winter

EGGS?

Midwinter is not the natural egg laying time. It's a forcing process now. Hens need to have the egg organs livened up. They need egg-making material, lots of albuminous feed, but they need more. They need to be conditioned and kept in egg-laying trim.

Dr. Hess Poultry PAN-A-CE-A Helps Egg Production

It's a conditioner which builds up the hen's health, gives vigor and good feeling and has a most beneficial effect on the egg organs. Get the Dr. Hess Poultry Pan-a-ce-a habit and get eggs like the many thousand other users do. Good for the health and vigor and growth and feathering of all poultry, chicks as well as grown fowls.

So sure am I that Dr. Hess Poultry Pan-a-ce-a will help to keep your poultry healthy and help to make your hens lay, that I have authorized my dealer in your town to supply you with enough for your flock, and if it doesn't do as I claim, return the empty package and get your money back.

Book on Poultry Keeping free on request.

DR. HESS & CLARK, Ashland, Ohio

Dr. Hess Stock Tonic

Positively expels worms. A valuable tonic and conditioner for cattle, horses, hogs and sheep. Improves appetite, tones system, helps digestion. 25-lb. pail, \$2.00; 100-lb. drum, \$6.50. Smaller packages as low as 50c (except in Canada, the far West and the South).

Dr. Hess Instant Louse Killer

Kills lice on poultry and farm stock. Provide your hens with a dust bath, to which add Instant Louse Killer occasionally. Your hens will do the rest. 1-lb. can, 25c; 3-lb. can, 60c. (Except in Canada.)

1 1/2 lbs. 25c
5 lbs. 60c
12 lbs. \$1.25
25-lb. pail \$2.50

(except in Canada and the far West)



Never Peddled Sold only by dealers

POULTRY.

Barred Rocks Parks 200 egg strain. Cockerels for sale. Fred Astling, Constantine, Mich.

Barred Rock Cockerels, Cocks and Hens. Four pullets laid 950 eggs in one year. W. C. Coffman, R. 3, Benton Harbor, Michigan.

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

Barred Rock Cockerels from E. B. Thompson's Imperial Ringlets for sale, price \$2 and \$3. Write H. J. Skinner, McMillan, Mich.

Barred Rock Cockerels For sale, Parks 200 egg strain. \$1.50, \$2 each. FRANK HUG, Sr., Conklin, Mich.

Breeding Cockerels

White, Buff, Leghorns R. I. Reds. Prices reasonable. Sunnyside Poultry Farms, Hillsdale, Michigan.

Buff Leghorns Cockerels. Great Decem-ber Sale. Half price. Dr. William A. Smith, Petersburg, Mich.

FERRIS WHITE LEGHORNS

Best winter layers. 5000 pullets, hens and breeding males at low prices. Trap-nested to lay 200 eggs or more. Shipped C. O. D. and on approval. Chicks and Eggs. Catalog explains all. Send postal.
Geo. B. Ferris, 934 Union, Grand Rapids, Mich.

FOR SALE Pure bred S. C. Buff Leghorns and white Plymouth Rock cockerels. Kletzien & Webster, Bath, Mich.

Fowler's Buff Rocks; Cockerels from \$2 to \$5; hens \$1.50 to \$5. White Holland Turkeys, young toms \$5; hens \$3. R. B. FOWLER, Hartford, Mich. R. 3.

FOR SALE: Pure bred Bourbon Red Turkeys. For prices address Chas. A. Beatty, Milford, Mich., R. No. 2.

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

HARRISON WHITE LEGHORNS

Fine Ferris and Morse birds. Feb. hatched cockerels \$1.50; Apr. \$1.25; June 75c. Pullets \$1.50, yearling hens \$1.25. G. L. HARRISON, Shelby, Michigan.

JOHN'S Big Beautiful Barred Rocks are all hen-hatched, developed quick, good layers, each \$3; pair \$5; sold on approval. Circulars, photos. John Northon, Clare, Mich.

LEGHORNS

200 Leghorn hens at \$1.25 each. Above will make good breeders. Cavanaugh Poultry Farm, Lansing, Mich. R. 3.

\$390.00
In One Season
—chicken money with
Old Trusty
for Mrs. Maud Rice, Oklahoma City, Okla. Many more making big incomes. Read about them in our Poultry "Know-How" **BOOK FREE WRITE TODAY**—tell us your poultry troubles. Let us help you. Old Trusty makes big hatches even in the coldest weather. 700,000 pleased owners. Learn about 1917 improvements. Quick shipment from Clay Center, Neb., St. Joseph, Mo. or Seattle, Wash.
M. M. JOHNSON CO., Clay Center, Neb. We Pay the Freight

Pine Crest, S. C. White Orpingtons. Winners again at the State Fair. Young and old stock for sale. Buy the best. MRS. WILLIS HOUGH, Pine Crest Farm, Royal Oak, Michigan.

Purebred Rose Comb Silver Laced Wyandotte Cockerels. Good stock. Order early. Price each \$1.00. Mrs. Jacob Sneary, Carson City, Michigan

RHODE ISLAND REDS and PLYMOUTH ROCKS. Males 5 to 12 lbs. according to age \$2 to \$5; P. R. hens weight 5 to 10 lbs., eggs 15 for \$1.00; 100, \$5; 120, \$6. Mammoth Bronze Tom Turkeys, 8 to 8 1/2 lbs. according to age \$6 to \$25, 10 eggs \$5. A. E. Cranston, Vassar, Mich.

RED COCKERELS, Both Combs. Dark red will improve the color of your flock. Write for price list. Interlakes Farm, Box 39, Lawrence, Michigan.

Rose and Single Comb R. I. Red cockerels for sale. Fine stock. Prices reasonable. O. E. Hawley, Ludington, Mich.

Rose Comb Brown Leghorn Cockerels, large and vigorous, \$1 and \$1.50. D. Elon Spotts, Hillsdale, Mich.

S. C. WHITE LEGHORN PULLETS FOR SALE. We are offering 200 S. C. White Leghorn pullets, May hatch, in lots of 50 or more at 75c each. These birds are a bargain at the price offered but we need space and will sacrifice. References given if desired. Write Krentel Bros., P. O. Box 624, East Lansing, Mich.

Single Comb Rhode Island Red Cockerels. Rich, Dark Red and Strong. JENNIE BUELL, Ann Arbor, R. S. Michigan.

(Add. Poultry Ads on Next Page.)

Economical Egg Production

(Continued from last week.)

The mash is of course less expensive than the grain feed and it is necessary that the hens consume a large amount of the egg making elements in the mash in order to produce enough eggs to make the cost per egg low enough to show a profit. Every poultryman soon develops the ration that he likes best after considering the rations used by other breeders. The cost of different feeds on the local market may have an influence on the making of the mash but in no case will it be economical to leave out necessary ingredients in order to reduce the cost of filling the mash hoppers. It might be mentioned that a well constructed hopper containing a balanced ration is one of the first factors in keeping hens in a laying condition. There is a tendency to simplify the mash and not include so many ingredients as in the past. Some rations I have studied would almost take a professor of chemistry to mix and no local market in the state would ever be able to supply all of the miscellaneous products necessary to make the mixture. Several popular egg mashes are given below:

Parts by Wt.

Wheat middlings	2
Wheat bran	1
Corn meal	2
Beef scrap	2
Alfalfa meal	1
Bran	5 1/2
Corn meal	3 1/2
Middlings	3
Beef scrap	2 1/2
Oil meal	1
Shorts	6
Corn meal	6
Beef scrap	5
Bran	3
Alfalfa meal	1

The poultry keeper can obtain a great deal of valuable information on poultry rations by studying the farmers' bulletins on the subject, which may be obtained free from either the state experiment stations or the United States Department of Agriculture. This information in combination with a knowledge of the prices of local products will enable the farmer to work out an economical egg ration. On the market there are many prepared rations which are composed of first-class grain and other materials necessary to the economical production of eggs. In talking with one practical breeder he said that these mixtures were first-class and the hens liked them but they were slightly more expensive than buying the materials and making the egg mash at home. The farmer with a small flock as a side line who has little time for working with the poultry can produce eggs more economically by purchasing mixed rations than he can by carelessly feeding the flock and trusting to luck to obtain a few eggs.

Other Factors in Egg Production.

Feeding is not all there is to the production of eggs. Quality hens are necessary. The hen that produces from 150 to 200 eggs per year will produce them at less cost per egg than the hen under the same care which produces around fifty or sixty eggs per year. A vigorous culling of the flock is necessary over a period of many years to bring the average egg production of a farm flock to the point where it ought to be. Trap-nesting is the only sure method of selecting the high producers for the breeding pens. If time does not permit trap-nesting on the farm the breeder can greatly improve his flock averages in egg production by purchasing males from the farms where this method of selection is practiced. The general health of the flock must be maintained by thorough methods of sanitation in the poultry houses and houses properly located and free from dampness and draughts are necessary. The control of pests which devitalize the hens is also important and there is no money in feeding balanced rations to hens pestered

with lice and mites. The bugs will do all the egg laying and they will hatch up a lot of trouble for the poultryman.

With the present price of grain it is difficult to find any "cheap method" of producing eggs. However, eggs are worth money in this year of high prices and it is possible to make a profit from the farm flock. It is poor economy to starve the hens, but it is good economy to feed right and insure enough eggs to pay for the high-priced feed and leave a fair profit for the work of caring for the flock.

Ingham Co.

R. G. KIRBY.

THE CHRISTMAS GOOSE.

There is a growing demand in all large cities for well fattened young geese during the Christmas holidays, and these should now be penned and well fed for a few weeks to prepare them for market.

Fattening geese should be penned out of sight and hearing of other geese. Feeding pens must be kept clean. An abundance of fresh water should always be provided. A frame of slate over the trough helps to keep the water clean. A trough of sharp grit is one of the essentials for fattening geese. A liberal bedding of cut straw, or chaff from the barn floor makes the birds more comfortable and keeps their feathers clean and dry. They lose interest in life if their pen is too dark.

They seem to fatten better when their corn or oats is cooked or scalded. And we are careful not to feed enough grain to spoil their appetite for green food. From 15 to 20 per cent of the bulk of the ration should be composed of green stuff. Cabbage or any of the ordinary vegetables will furnish the green food. A good fattening food is corn meal and middlings equal parts, with a little beef scraps added.

Geese that have been fed some grain during the autumn months will require less feed and time for fattening.

These fowls may be taken off good pasture and put on the market, yet the weight is increased by the addition of grain. Besides, the flavor of their meat is improved by the fattening process. The Jewish housewife wants fat birds to get the goose grease to use in the household. The religion of the Jews forbids the use of lard. They are specially fond of geese which they dress in their peculiar manner. Why should goose meat be chiefly in use among the Hebrew population? It makes good eating when properly cooked. We like Toulouse because of their size but the Embden dresses an attractive carcass free from dark pin feathers.

Indiana.

FRANCES WOOD.

WATERGLASS FOR EGG PRESERVING.

Can you give me the formula for preserving eggs in silicate, or waterglass? Ionia Co. G. J. D.

The following formula in which waterglass or sodium silicate is used is the best for preserving eggs: One part of waterglass to nine parts of boiled spring water.

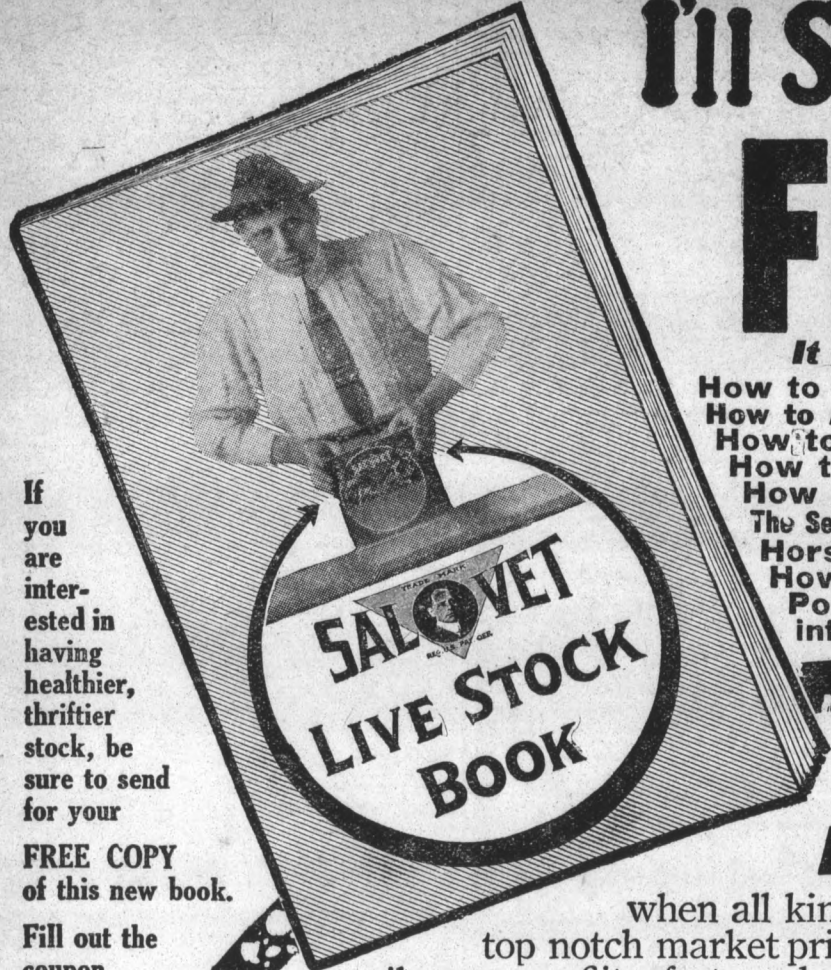
The eggs should be placed in a stone crock until the crock is nearly full and the waterglass solution poured in until there is at least two inches of the liquid over the top layer of eggs. Only fresh, clean eggs should be used. If thoroughly done this method is very reliable for preserving eggs.

BESIDES SAVING MONEY.

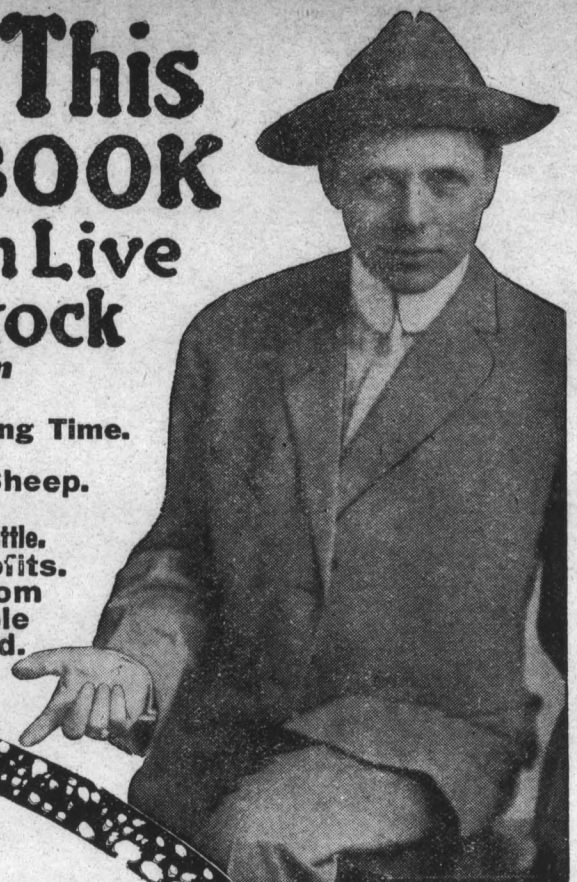
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How to Avoid Losses at Farrowing Time.
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Right Now

when all kinds of live stock are bringing top notch market prices — when every pound of gain piles up profits fast and every pound of lost flesh and wasted feed costs you heavily, don't stand by and let the deadly, blood-sucking stomach and intestinal worms infest your flocks and herds. Get rid of these profit-eating pests. Put every animal on your place in condition to get full benefit of what they eat—make them gain faster—weigh heavier—make you more money. My free book tells how—

THOUSANDS WRITE LIKE THIS:

Soon Paid for Itself
 "SAL-VET more than paid for itself in the improvement of my pigs to which I fed it. After a short time they passed worms in great abundance."
 G. A. ONSTOTT, Oxford Jct., Iowa.

Helps Fight Off Disease
 "I had a sow and seven September pigs which got through the fence with my neighbor's hogs. All of the hogs belonging to this neighbor died from cholera. Mine did not miss a single feed. SAL-VET does more than you claim."
 A. L. SMITH, Kellerville, Ill.

Cows Gave One-Third More Milk
 "There is no 'guess-so' with SAL-VET. Results are so apparent that there is no room for doubt. My cows increased one-third in milk at the end of the first week's use."
 H. E. FARRAR, Spruce, Mich.

Works Wonders on Sheep
 "I am well pleased with the results I obtained from feeding SAL-VET. It did wonders for my sheep. They did not look good at the beginning of the winter, but now they are looking fine."
 R. J. MOFFETT, Holland, Minn.

Great for All Stock
 "I have seen good results from feeding SAL-VET, as my horses are now getting fat and sleek, in spite of the fact that I'm working them hard. I was greatly surprised to see a lot of worms 4 inches long coming away from my little pigs, only two months old."
 P. L. KIRK, Axtell, Kansas.

The Great
Worm
Destroyer



The Great
Live Stock
Conditioner

REG. U.S. PAT. OFF.

has saved farmers millions of dollars. It successfully rids stock of worms, aids digestion, makes stock thrive better, prevents dangerous diseases—saves feed—saves you money. It has rightly been called the "salvation of the stock business in America."

The Cheapest and Best Stock Remedy

SAL-VET costs only 2½¢ a month for each hog or sheep and only 10¢ a month for each horse or head of cattle. One pound is 60 days' treatment for each hog or sheep, four pounds is 60 days' treatment for each horse, mule or head of cattle. Fill out the coupon, telling me how many head of stock you have, and the name and address of your dealer, and I will send you my valuable live stock book free and tell you how and where to get enough SAL-VET to feed your stock 60 days, and have your money refunded if SAL-VET fails to rid your animals of stomach and free intestinal worms, and put the animals in good condition. You take no risk whatever. Fill out and mail the coupon to me NOW!

SIDNEY R. FEIL, President

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PRICES

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