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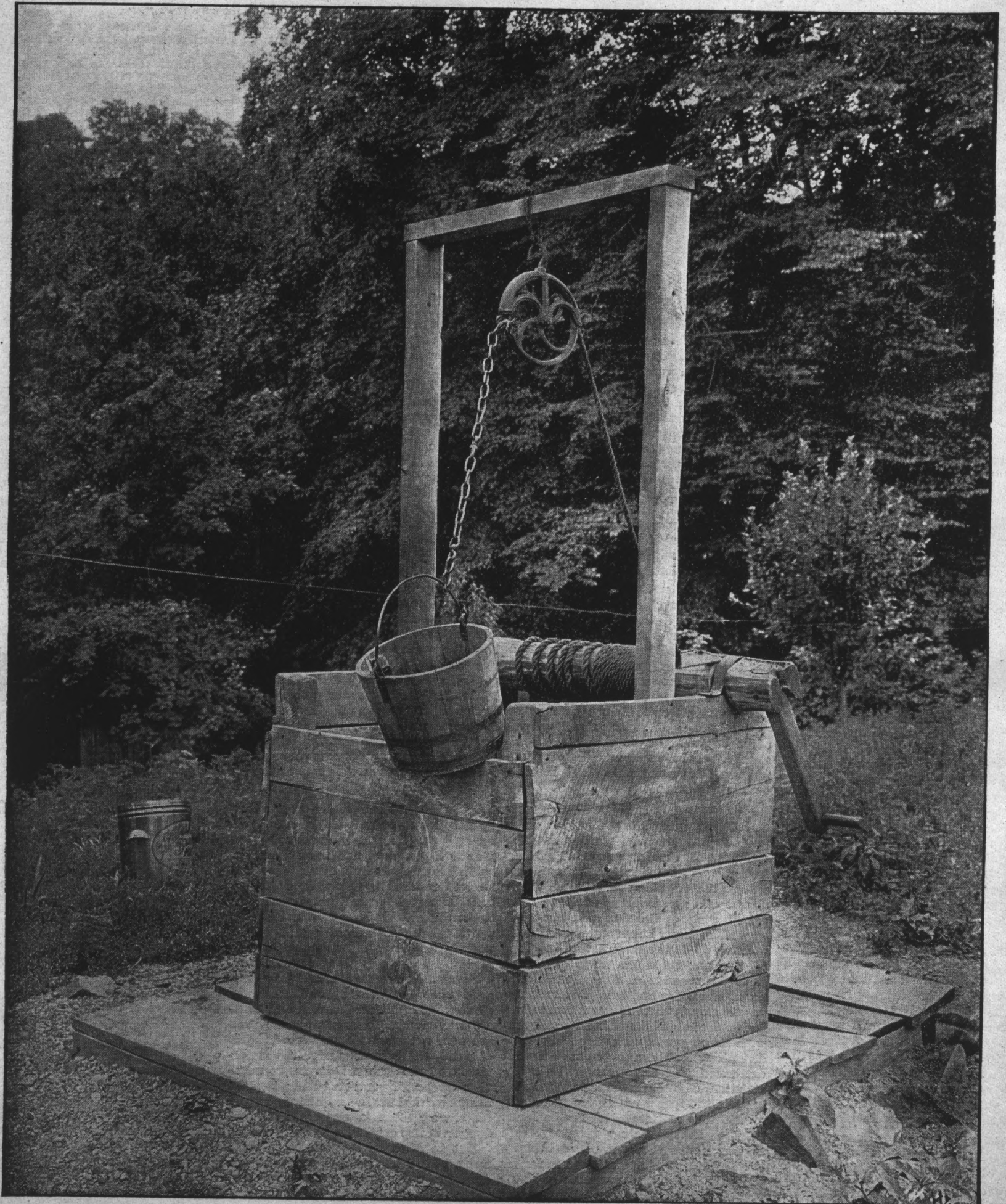
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"How Dear to my Heart are the Scenes of my Childhood"

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DETROIT, JULY 29, 1916

CURRENT COMMENT.

The Federal Farm Loan Act.

The federal farm loan act, popularly called the rural credit law, has finally been passed by congress and received the approval of the President. This law creates new machinery for the purpose of extending rural credit on farm mortgage security at a reasonable rate of interest and for relatively long periods of time. Under the law two systems are provided, one operating through regional land banks, so-called, and the other through joint stock land banks.

A federal loan board is created, composed of the Secretary of the Treasury and four members appointed by the President. This board has authority to appoint examiners and other officers who will be public officials. Under the federal land bank system the country is divided into twelve farm loan districts in each of which a federal land bank, with subscribed capital of not less than \$750,000, is to be established. The stock is to be sold at par in \$5.00 denominations to any who may desire to purchase same. Such stock as is not sold in thirty days after being offered is to be purchased by the Secretary of the Treasury for the United States to be later transferred at par to associations of borrowers.

The law further provides for the creation of local national farm loan associations, through which it is contemplated the federal land banks shall make their loans. If no such organization is formed in any community within a year, however, the federal farm loan board may authorize a federal land bank to make loans on farm lands through approved agents. Ten or more persons owning land qualified as security for mortgage loan under the act may form a loan association, provided the aggregate of loans desired by the membership is not less than \$20,000. Each member must take stock in his local association to an amount equivalent to five per cent of the amount he wishes to borrow. This stock is held by the association in trust as security for the member's individual loans. These associations in turn must subscribe for stock in the federal land bank to an amount equivalent to five per cent of the sum desired for their members, which stock is held in trust by the bank as security for the loans made through the association.

Loans are limited to those who own or cultivate farm lands or are about to own and cultivate such lands, and only for specific purposes, as for the purchase of equipment, fertilizer, live stock, etc., to provide buildings and improvements and to liquidate indebtedness for existing mortgages or for one of the purposes above mentioned. No

individual can borrow less than \$100 or more than \$10,000, and no loan may be made for more than 50 per cent of the value of the land offered as security and 20 per cent of the value of the permanent insured improvements upon the same.

The loans must run not less than five nor more than forty years. Provision is made for the repayment of loans under an amortization plan or a fixed number of annual or semi-annual payments sufficient to cover the interest and pay off the debt at the end of the term for which the loan is made.

The bank making the loan is given power to protect itself by recalling the loans in whole or in part. Provision is made for the issuing of bonds by the federal land banks which will be sold to general investors. The interest on loans made farmers shall not exceed six per cent and shall not be more than one per cent higher than the interest paid on the last preceding bond issue. Provisions are made for the financing of the loan associations through a commission allowed for collections. A legal reserve is provided for both the land banks and the farm loan associations. Agents of the land banks provided for under the law are to be banks, trust companies, mortgage banks, savings institutions, chartered by the state, and rules are prescribed for the conduct of business through such agents until farm loan associations become sufficiently numerous to care for localities needing funds.

In addition to the system of twelve federal land banks and national farm loan associations as noted above, the act permits the establishment of joint stock land banks and authorizes them to carry on the business of lending directly to borrowers on farm mortgage security and issuing farm loan bonds. These banks must each have a capital of not less than \$250,000 and are placed under the supervision of the federal loan board, but they do not receive any financial assistance from the government. These banks are restricted from lending more than \$10,000 to a single individual but are not restricted as to the purpose for which specified loans are made. Loans made by these banks must, however, be made on the amortization plan.

This, briefly outlined, is the machinery provided for improved rural credit in this country, after much investigation and deliberation by congress. The adequacy of the machinery provided and the popularity of the plan itself is yet to be determined. While it may not conform to the ideas of many who have had a vital interest in the passage of enabling legislation for the improvement of rural credit conditions, it should receive a fair trial before final judgment is passed as to its sufficiency or shortcomings.

The attractive prices now prevailing for both mutton and wool claim the careful attention of the farmers of the country. Time was when the "golden hoof" was the source of a considerable portion of the cash income of the farms of Michigan as well as many other states. With the opening up of the government land for free ranges on which large operators grazed thousands of sheep, the flocks became smaller and less numerous upon our farms, since farmers located on high-priced lands could not compete with sheep produced under range conditions. Later the antagonism between cattlemen and sheepmen and the restriction of the free ranges, particularly in the forest reservations, together with the settlement of arable lands in the sheep-grazing territory still further limited the output, and finally the opening of western lands in larger units for homestead purposes has still further cut into the sheep business of the great west. This condition should naturally stimulate sheep production upon the farms, and would do so to a greater extent in many localities, particularly upon the cheaper lands of our own state, were it not for the depredations of dogs and predatory animals which are a great discouragement and handicap to sheep owners in many sections of the state.

That high-priced mutton and wool has come to stay would seem to be adequately proven by recently available statistics. The country's wool clip for the current year is estimated in round numbers at 4,000,000 pounds as compared with a wool clip of 6,000,000 pounds in 1909, a decline in wool production of 33 1/3 per cent, indicating a similar decline in the production of mutton. During this same period the population of the country has increased from something like 85,000,000 to around 100,000,000 persons, according to the best available estimates of the present population of the country. A similar normal increase in our population is assured during future years, and with the further encroachments on the sheep ranges of the west—which at present appear just as certain—the sheep industry of the country is certain to continue in a rapid decline unless sheep raising again becomes a greater factor in the live stock production of the farms of the country. The country needs more sheep, and the sheep industry promises to be increasingly profitable upon the average farm and especially profitable upon the newer farms which are being developed from the cut-over lands in the northern section of Michigan.

The Visiting Nurse. In one community of Michigan a survey was recently made with a view of determining the need for a visiting nurse, particularly with a view to conserving the health of the school children.

The result of the investigation as embodied in the report showed that 70 per cent of 468 pupils examined had abnormal conditions of the tonsils, seven per cent had markedly inflamed throats due to an infectious throat epidemic recently prevalent in the schools while five per cent have had tonsils and adenoids removed and show a marked improvement in health and progress, according to reports of both parents and teachers.

Such nasal obstructions were found to be closely associated with diseased throats. Five per cent of the pupils had defective hearing, while approximately 21 per cent were suffering from defective vision, of which a number were, however, wearing glasses. Nineteen pupils among those examined had suspicious symptoms of tuberculosis, and 15 had rapid or irregular pulse.

The report disclosed other interesting facts which are given as reasons for the employment of a visiting nurse in every county. This movement has gained popular favor in some of the localities where it has been inaugurated.

Forest Fires. The hot drying weather of recent weeks has again brought the people of the newer and more sparsely settled sections of northern Michigan face to face with the peril of forest fires. Few settlers will need warnings to exercise all ordinary precautions to prevent fires from starting at points where there is opportunity for them to spread in a dangerous manner, notwithstanding the fact that it may be a good time for burning on the newly cleared land. The fishermen and hunters may not be so careful, while fires are ever a menace along railroad rights of way. State lands under the supervision of the Public Domain Commission are better protected and patrolled than ever before in the history of the state, and there is consequently less danger of fire originating on such lands.

But in addition to ordinary precautions, it will be found the part of wisdom for the settlers in areas where there is danger of forest fires, to protect their buildings and valuable crops by fire lanes, rather than take an unnecessary chance on loss or even serious menace from forest fires.

HAPPENINGS OF THE WEEK.

Foreign.

The European War.—The British and French in the three weeks of their great offensive in Flanders have taken 26,223 German prisoners, 140 heavy guns besides a score of machine guns and other equipment. The British under Gen. Haig are pushing their attacks along the Somme river and early this week were successful in forcing a wedge beyond the German third line and entered the village of Pozieres, despite a strong German counter-attack. The battle is now raging on an eight mile front. The outskirts of Guillemont have changed hands twice, and the Germans have regained a foothold in Longueval after being driven from that position.—The big guns are still pounding away on the Verdun front day and night. Sharp infantry fighting occurred there on Sunday, but no important exchange of territory is reported. The French, however, appear to be on the offensive.—The Russians in the Riga district have penetrated the German lines at several points, and in one place at least, to a distance of five miles. Near the Carpathians the Austrians have been driven back close to the main ridge of the mountains and the Czar's forces are now reported to be within four miles of the Hungarian frontier. The Russians are about to enter Galicia in the northeast where they have outflanked the enemy. The Russians are also holding the territory occupied in Turkey last spring.

Complaint was made to the British government by the state department at Washington that delay of boats due to censorship and seizures had caused damage to perishable property to which action this government made strong protest. In reply the British government has denied the allegation, defends its censorship and offers to explain in full its official actions in the matters referred to.

Food riots are reported in Belgium and that portion of northern France now held by the Germans. In all instances the riots have been suppressed by German military authorities. In quelling the riots the authorities have forced industrial workers to remove from the cities to rural areas. The importation of supplies from Holland has been prevented.

The British government in asking for a new war fund has estimated its needs at \$2,250,000,000.

National.

James Whitcomb Riley, the Hoosier poet, died unexpectedly Saturday night at his home in Indianapolis. He was born at Greenfield, Ind., October 7, 1840. Because of the poet's sympathy and love for the working people and children, the governor of Indiana especially requested that his body be allowed to lie in state at the Indiana capitol building from 3:00 p. m. until 9:00 p. m. Monday, that the working people may have an opportunity to pay their last respects to the great poet. He will be buried at Crown Hill cemetery, Indianapolis.

The naval appropriation bill which provides for the immediate construction of four dreadnaughts, four great battle cruisers and 58 other craft passed the senate last Friday. The bill carries an appropriation of \$315,826,843, or \$45,857,588 more than the total as the measure recently passed the house.

All restrictions upon the movement of exports, except upon munitions of war and machinery for their manufacture into Mexico from the United States have been removed by order of the Treasury Department.

General Villa, with 1,800 men, is reported to be preparing for an attack upon Torreon which if captured, would enable him to control the railroads in southern Chihuahua.

While the plague of infantile paralysis in New York City continues, the number of cases reported July 23 was considerably less than that of previous days. While the health officers in the stricken districts are meeting with considerable opposition, particularly among the more ignorant people, the general public is in full sympathy with their efforts to aid in the prevention of the spread of the plague.

The extreme hot weather has resulted in much suffering throughout the country, but particularly in the cities is the number of victims large.

Preliminary arrangements are being made by the religious workers of Detroit and surrounding territory for the Billy Sunday evangelistic campaign which opens in the city September 10.

Nine persons were reported drowned at different points in Michigan over Sunday.

A movement has been started in Detroit for the establishment of a metropolitan school district to unify the school work in Wayne county. The idea is to place the schools in the villages and the rural districts on the same footing as those in the city of Detroit.

The War with Weeds

WEEEDS are the natural enemy of man. They rise up along his paths and lanes and highways; they lift their heads in his fields of growing grain and, if unmolested, would soon possess the earth. Eternal vigilance is the price of clean gardens and fields and door-yards. When the hand grows weary or negligent and ceases to slaughter the innumerable host, up spring the weeds and take possession, choking every beneficent plant. Let a farm be abandoned for a season; let no human hand be lifted to wage war against the weeds, and the farm, however well kept before, will become a diminutive wilderness, lorded over by a mighty army of weeds of countless numbers and kinds.

In the face of this never-dying, ever-present characteristic of the weeds, it is evident that a systematic warfare waged against them, is absolutely necessary to good crops and fine farms. If you doubt this, take a look at mid-summer, in the gardens and fields of the slovenly, negligent farmer. His corn fields are producing a double crop—a small and feeble growth of corn and a huge and thriving crop of weeds. His potato vines are so hidden in a mass of grass and weeds that it is necessary to dig by guess, when attempting to harvest the tubers.

Since man is the greatest factor in keeping the weeds in check, it naturally follows that in any normal season the presence or absence of weeds furnishes a pretty sure index of a man's farming operations. Clean corn fields mean, as a rule, successful farming. Clean and tidy door-yards and gardens and orchards tell, as a rule, their own story of the care and thrift of the owner. Weeds in any of his fields or on any portion of his farm, are an eyesore to the number one farmer, and he does not rest easy till he has laid them low. To the slovenly, unsuccessful farmer, they are witnesses of his failure and undoing.

Method of Extermination.

In his war against the weeds, man may use principally, two methods. First, he may slaughter with plow and harrow and hoe and spade, the unnumbered hosts that rise up to dispossess him. In the second place, he may use care in the selection of all the seeds he plants or sows on his farm. This second factor is too often disregarded even by good farmers who wage, by the first method, unceasing warfare against the usurpers. It is utter folly to sow clover or timothy seed that is not pure, simply because the price is a little lower. The cheaper seed will prove in the end, more expensive by a hundred fold. The purest seed is none too good, and in every case and at all times should be procured. To use only pure seed will materially lessen the weed nuisance.

Next after man, the birds are the greatest foes of the weeds. Indeed, without the birds to help him, man would have a sorry time of it, in this never-ending struggle. To take a single example of destruction of weed seeds by birds: Who has not seen the goldfinch in the autumn, clinging to a mullein stalk and cleaning it of its thousand seeds? Or who has not seen these same birds, in winter, when they have doffed their bright coats, living for days, on the seeds from some patch of weeds that lift their heads above the ice and snow? The red-wing, black-bird or starling, when shot in the autumn, at flocking time, has been found to have a crop full of weed seeds. It is a common thing to find the crop of a quail in the same condition. Just as the insect eaters among the birds, help keep down the myriads of insects, so the seed eaters play an important part in keeping the weeds in check. Protect the birds about your place. Try to attract them, and they will repay you a thousand fold for all your kindness.

Unlike a corn or hay or wheat crop,

the weed crop is always a sure one. Hot or cold, wet or dry, the weeds are there. If conditions are unfavorable for one kind, another kind takes its place. Persistent, refusing to be vanquished, a drought only shortens the stem but does not keep the weed from maturing its seeds. If cut down by man, many weeds will yet seed, almost without a second stem. Their one object seems to be to reproduce their kind. In some instances, weeds may be cut down as many as three times in a summer, and yet will mature their seeds, close to the earth, on almost no stem at all.

But while a weed crop is sure in any season, a wet year is the great rallying time for all kinds and classes of these pests. The summer of 1915 and the fore part of the present summer produced conditions most favorable for weed development. Many a farmer not ordinarily caught with weedy corn-fields, was obliged to see his enemies win out, during the period just mentioned. But as a rule, there may be found drier weather and a favorable opportunity for weed destruction, during any season.

It often happens that birds are set down as one of the principal distributing agents of weed seeds. Birds, however, are the destroyers rather than the preservers of these seeds, as has been already shown. Many seeds have their own way of distribution. Winged seeds, tumble weeds—these names are suggestive, and tell the story of distribution. Water is a great agency in

If this manure is fairly well rotted and you use a manure spreader it will give you the best immediate results by top-dressing after plowing and working into the soil. Also, if you seed to clover this will be more apt to have a better effect on the clover.

In the end I don't know if there will be much difference in returns as you will get the full benefit of the manure whichever way you use it.

COLON C. LILLIE.

LILLIE FARMSTEAD NOTES.

This is a year where the practice of drilling corn has not worked out well in many localities. I have had occasion to visit many sections of the state and in almost every instance where the corn is drilled it is weedy. No farmer can get the help nor could he afford to hoe the corn by hand if he had sufficient help at present price of labor, the result is that there will be many weedy corn fields this year. Fortunately our corn is checked this year though not a very good job done. It will be almost impossible to cultivate crosswise with a two-horse cultivator, but it can be done fairly well with a single-horse and one man with a single cultivator going crosswise after the corn has been cultivated good the way the plants run can destroy more weeds in a day than a dozen men with hoes, and at a price the farmer can afford.

From experience for several years now, I feel that it is not a good practice to drill corn. If weather conditions are favorable, so the corn can be harrowed at just the proper time it is possible to have a fairly clean corn

opinion is that we can grow an equal amount of corn in hills as we can in drills, and the only argument I can give for drilled corn is that it is a little less work to plant. You can hurry the job of planting along a little faster. Then, too, the fertilizer can be distributed a little better and at the same time of planting, if the corn is put in with a grain drill but this is poor compensation for a weedy corn field.

Therefore, I feel that it is wise to say, don't drill the corn. Check-row it so it can be cultivated both ways. On the average you will have better corn and you will have cleaner corn fields at much less expense.

Haying Methods.

In traveling about the county in an automobile it is interesting to note the different methods employed by different farmers in accomplishing the same purpose. Haying has been going on now for two or three weeks, and there seems to be no uniform system of doing this work. One man mows a small portion of the field and stops until this is ready for the barn. Another mows down the whole field, lets it lay in the swath until quite dry, rakes it into windrows and hauls it from the windrows. If one could control the weather this way would not be so bad, but with our Michigan weather it is altogether too risky for me. In the first place, hay should not lay too long in the swath. If it gets quite dry the leaves drop off and many of the stalks break in raking and handling. For the best quality of hay the raking should be done before the grass gets dry. In fact, it should be raked about as soon as a rake will work well and gather it clean. Hay made or dried in the windrow is of much better quality than that made in the swath. And the best quality is obtained when the hay is raked as soon as possible and cocked and allowed to cure or make in the cock. The cocking must be done before the hay gets dry or the hay will not settle down compact enough to keep from blowing over, or to shed rain well, and we know it is liable to rain almost any time in Michigan.

Late Planted Crops.

This last plan is the best business plan for haying, in my judgment. It makes the best quality of hay, and it is the safest method to follow to protect the hay from rain. Besides, one can handle hired help to much better advantage by this method. Cut down the field as fast as possible, get it into cocks before too dry, and when cured make a business of hauling. You can handle your help to so much better advantage that it costs no more than it does to try to do away with the labor of cocking.

Certainly it is not good business to plant ensilage corn and sow buckwheat during the week of July 16. I would advise no one to do it, but it is just what we are going to do this year. It is that or leaving the field bare all summer, (summer fallowing), and I am going to take the risk. If we have no frost in September it is fairly safe. If frost comes we will plow down and store humus in the soil.

Of course, we did not expect to do this kind of business last spring; far from it. We had a large area fall-plowed so we could get crops in on time but rainy cold weather prevented. Fall plowing on the corn ground this year was a hindrance rather than a help. But this is not all. We depended on the tractor to help us out. It has failed us completely this year. Too wet at first and now a break down, and wait for repairs. This field is not a field where we grew peas. Those fields are beyond redemption this year. The tractor would not work when they could be disked, and now they are so overgrown with weeds that nothing can be done. The field in question is one intended for Dwarf Lima beans. A risky crop anyway, and too risky to plant the middle of July. These crops I intend to plant will be a month late, but the spring was a month late and perhaps the fall will be. Who knows?



"Max," Watching a Bunch of Fattening Hogs Eating their Corn.

Max keeps the cattle at a distance until the hogs have finished their meal. He drives ten cows one and one-fourth miles to and from pasture morning and night, going back alone in an 80-acre field to get them. Max is now eight years old and his work will soon be done. His successor, a puppy, is now learning to drive cattle with him, on the farm of G. W. Rodman & Sons, of Ingham county, where a good dog is considered indispensable.

this broad-cast sowing of these seeds of harmful weeds. Domestic and wild animals also play a part in the work, carrying the seeds of the burdock, the sand-bur, the pitch-fork, and other adhesive products matured by the weed army. Vigilance and persistence will route any force of weeds, on any farm. Surely, the struggle is worth while, from every conceivable standpoint.

Hillsdale Co.

J. A. KAISER.

TOP-DRESSING FOR WHEAT.

I have oats growing on 10 acres of ground, which I wish to plow and sow to wheat as soon as the oats are off. We have about 40 loads of manure, from horses and cows, which we wish to apply to this land. Would it be best to spread and plow it under, or plow first and then spread it, to be mixed with the soil by disk and harrow? Manure is fairly well rotted, and would have been all drawn last spring but for so much rainy weather that we could not get it all out in time.

Montcalm Co.

E. H.

Without doubt you will get the best results on the crop of wheat if you top-dress. If you plow down the benefit will be distributed over a longer period of time probably.

field when it is drilled, but if weather conditions are unfavorable it is impossible unless it is hand-hoed and this nowadays with the present condition of the labor market, is impractical. Especially is this practice to be avoided on most farms where a goodly amount of stable manure is used. Stable manure is almost a synonym for weeds. The two go together. A man must be prepared on a live stock farm to fight weeds with any intertillage crop. As I have stated, if weather conditions are very favorable so the land can be harrowed at just the proper time, or on land light enough so the weeder will do the business it can be used just at the right time, then the practice can be made a success, but where we have one year where conditions are favorable we are liable to have two or three that are not, so the practice is not very desirable, to say the least. If more and better corn could be grown in drills than in hills, there would be some good reason for the practice, even though it required more labor during unfavorable years. But it is a question if it is any more desirable in this respect under any conditions. My

Oliver Method for fighting the Hessian Fly



Agricultural experts tell us the best way of checking the Hessian fly evil is by deep plowing. Mr. McColloch of the Kansas Experimental Station believes the Oliver rolling coultter and jointer plays an important part in fighting the fly.

July 8, 1916.

OLIVER CHILLED PLOW WORKS,
Kansas City, Mo.

Dear Sir:

I have just seen the Oliver combined rolling coultter and jointer in operation on wheat stubble, and wish to say that I am certainly well pleased with it. The way it turns the stubble and trash under is a big advance in the thorough preparation of wheat land.

I was especially interested in this implement as a means of turning stubble and volunteer wheat under to destroy the Hessian fly. One of our recommendations for the control of this insect is that the ground should be plowed to a depth of at least six inches and all stubble and volunteer wheat buried under at least three inches of soil. The ground should then be worked into a good seed bed.

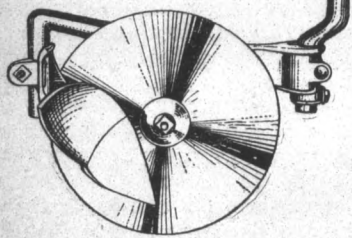
It is a difficult matter to thoroughly bury all the stubble and volunteer wheat with the ordinary plow and the subsequent working of the ground with a harrow pulls much of it out again. For this reason the farmer often becomes discouraged and gives up trying to control the fly.

The thoroughness with which the coultter and jointer buries the stubble on the bottom of the furrow overcomes this trouble and in my opinion solves one of the most serious difficulties in the control of the Hessian fly. The thorough preparation of the seed bed, together with the other methods advocated in the inclosed circular, will serve to control the fly in any community. If the coultter and jointer did nothing more than aid in the control of the fly it would be a valuable implement on any farm. Very truly yours,

J. W. McColloch.

Ask us to send you a copy of the circular Mr. McColloch refers to. We also have a special circular on the Hessian fly.

The Oliver combined rolling coultter and jointer covers weeds, turns under green manure, checks the Hessian fly and provides the compact seed bed necessary for good crops. This device can be used on Oliver wheel plows. It is regular equipment on tractor plows.



The Oliver combined rolling coultter and jointer—the device for checking the Hessian fly.

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ALFALFA \$9.60 PER BU.

Best Hardy Non-Irrigated Seed 99.6% Pure
96% germination, \$12.60. Government tested. Absolutely
guaranteed Northern grown, extremely hardy. No seed
better. Have Turkistan Alfalfa; Sweet Clover; New
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A. A. LAMBERTSON, CEDAR SPRINGS, MICH.

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About Beans

WHILE heat prostrations and the extremely high temperatures of mid-July are not generally comfortable, it is just the kind of weather to put the crimp in the parasite, anthracnose, that dwells on the bean plant. In order to understand how this parasite spreads, an incident connected with a grocer's consignment of string beans from Louisiana is of interest. There were a few of the familiar iron rust appearing spots, but not enough to be objectionable, on the pods. For preservation these beans were placed under the water spray so common in high-class grocers' equipment. The spotted pods grew in number and the remaining mass were completely covered to the wonder of the grocer, who was unconsciously duplicating in experiment the tragedy of last year's Michigan bean fields, when low temperature and continued rainfall spread the anthracnose spores. Moisture is an essential to the softening and spread of this parasite, and also cool weather. Conjecturing on the warm dry weather of July, if other conditions do not prevail later, the bean grower can safely say, "My 'pick' has been greatly reduced, probably one-half, by this heated spell." The sunlight and dry weather at this stage of growth has been a cleanser and thrown a quarantine line around what Shakespeare described in Macbeth, under other conditions, as the "Damned Spot," which bean growers know so well and unfavorably.

The experiment of sending Michigan beans to the arid states and returning them cleansed, is being enacted at home at the present time. There are some other conditions about the bean crop of 1916 not altogether favorable. The excessive wet weather did not permit as good soil preparation as was desired and many weedy fields are seen. Some reports of root worm exist. A continued campaign of education has been carried on to educate the trade to higher values. This, with co-operation of grower and dealer in marketing, has removed many of the obstacles in the bean business. High-priced seed beans add each year to the cost of production. If some of the small area growers on well drained, warm soil were to specialize on pure-bred, disease-free seed under the inspection of the Agricultural College and sell in, say bushel lots for the seed patch of the large area grower, it would be mutually profitable and vastly increase the prestige of the state crop. Ten dollars a bushel for the seed patch to grow for the succeeding year would be cheaper than the present method of buying seed for the entire acreage each year.

The grading of cotton presented so many difficulties, the grades of one state having no meaning in another state, that the present market director of the United States prepared standard sample boxes showing the different grades as recognized by the United States. It might prove desirable for Michigan standards of beans to be placed in glass grain bottles so that the buyer in a distant state and the Michigan shipper would have the same grade in mind, by looking at a common sample.

There are charges of unfair "pick" between grower and buyer which, whether true or not, cause friction. Would authenticated sample bottles marked, "1, 2, 3, 4, etc., pound-picks," enable the seller's eye to determine approximately by comparison the relative grade of his stock? This would not be expected to do away with the actual sort made on sample, but to educate the eye to approximate the comparison with a standard.

The date of the bean growers' and jobbers' respective separate meetings at Grand Rapids will be determined by the development of the crop, so that the actual estimate of the crop can be made. Bulletins and announcements will be made to the growers so that

each county may plan to have a delegation who will be the final representatives from the fields to check up estimates.

Idaho and New York have made inquiries as to how Michigan markets the bean crop and will anxiously await Michigan's ideas of prices for the 1916 crop. At the recent salesmanship congress in Detroit the phase of square dealing, of mutual rights to profits and of expert salesmanship by men who make this their life study were emphasized. It is the paralleling of these lines that has put Michigan beans to the front.

JAS. N. McBRIDE,
State Market Director.

FARM NOTES.

Bordeaux Mixture for Late Blight.

Please advise method of making Bordeaux mixture for spraying potatoes to prevent late blight.

Oakland Co.

S. J. W.

In making Bordeaux mixture for late blight the usual formula is six pounds of copper sulphate to 50 gallons of water with sufficient lime added to neutralize the caustic effect of the chemical.

The manner of making Bordeaux mixture is important. The best way is to make stock solutions of the copper sulphate and lime previous to the spraying. The copper sulphate can be dissolved in the water readily by hanging same in a coarse sack in the top of a barrel of water. Water will dissolve about three pounds of copper sulphate per gallon to make what is known as a saturated solution. As a matter of convenience, it is well to dissolve it in water in this proportion.

Then slake the lime to a pasty consistency and store this in another barrel. In making the Bordeaux it is important to dilute the ingredients separately before mixing. A good way is to fill the spray barrel or tank about one-half full of water, then add enough of the stock solution of copper sulphate to give it the proper strength. If the tank holds 50 gallons use two gallons of this solution.

Then dilute sufficient lime to neutralize this amount of chemical; this will take from four to six pounds. It is a good plan to use a simple test to determine when sufficient lime has been added. Get ten cents worth of yellow prussiate of potash, chemically known as potassium ferrocyanide, and dissolve same in water; label this "Poison." After the stock solutions have been thoroughly mixed up with about 25 gallons of water and the two have been thoroughly mixed together, add a drop of the testing solution. If no change in color is noted where it is dropped, the mixture contains sufficient lime. If the drop changes the color of the surrounding solution to a reddish brown there is not sufficient lime.

The better way to make the mixture is to use an elevated platform, mixing the ingredients separately in two barrels, then running them into the spray barrel or tank by the use of a small-sized hose attached to each barrel, which will insure thorough mixing.

Oil Mixed Concrete.

I saw an article in your paper some time ago about oil-mixed cement. I have a cellar that is cemented, but the surface water comes in. Will it keep it out, or do you know of some better way?

Lapeer Co.

A. M. C.

In water-proofing a cement floor through which there is seepage of surface water, the old floor should be scrubbed perfectly clean and made thoroughly wet, and a better job can be done if the old surface is roughened with a stone hammer or sharp pick. A wash of one part of hydrochloric acid and five parts of water will satisfactorily clean the surface and dissolve some of the old cement, leaving the gravel and sand exposed. This solution should not be left on over half an hour before being removed by washing with plenty of water. The surface should then be brushed with a stiff

brush to remove any loose particles of sand.

In making the new surface coat mix one part of cement with two parts of sand and add five per cent of mineral oil to the mixture with enough water to make a rather stiff mortar. In mixtures where a thicker coat is to be laid and gravel is used with the sand, use ten per cent of mineral oil based on the weight of the cement in mixture.

A VALUABLE HAY.

Farmers quite generally throughout Michigan have come to recognize the superior feeding value of clover hay over timothy, and many also understand its value as a soil food. The uncertainty, however, of obtaining a good "catch" of clover, owing to frequent unfavorable soil and weather conditions, causes many farmers to still place great dependence on timothy. This is especially apt to be the case when it is desired to maintain a meadow for two or three years in succession.

As a result of the above conditions, it is a quite common practice to seed the land to timothy in the fall when wheat or rye is sown, and seed to clover in the early spring. Frequently this clover seed is a mixture of June clover and alsike or alfalfa.

In this section of Calhoun county a very desirable seeding mixture has been found to consist of two to four pints of timothy seed and eight pints of clover seed mixed in the proportion of four parts June clover to one of alsike. This mixture is usually seeded in the manner above outlined. It seems especially adapted to secure the best results on the varied types of soils which occur in this region. The alsike and timothy make good growth on the spots where the soil is heavy or sour and where the drainage may be poor. In the same field where there are spots of a lighter, sandy structure and less acid in character, the June clover will make abundant growth. A most desirable feature about this sort of meadow is that, should the red clover die out before the second season, one still has a hay with a good percentage of clover.

The time to cut this hay is when the clover is in full bloom. The timothy will not yet be in bloom, but it will make good hay as it is. Cut at this stage of maturity, the hay will be somewhat harder to cure than if allowed to get riper, but its quality and food value is highest at this stage. Hay of this type brings from two to three dollars a ton more on the local market than pure timothy or pure clover of equal quality. It is an ideal hay for both horses and cattle.

While I do not advocate the selling of much hay, still there are occasions when failure of cash crops or other circumstances demand such action, and the highest market price is an important consideration.

When we consider its adaptability to varied soils, its quality and high food value, its abundant yield, and its dependability for more than one crop, I am sure that no hay is so well adapted to Michigan conditions as that which I have described.

Calhoun Co.

C. C. MILLER.

GOVERNMENT WHITEWASH.

Slake half a bushel of lime with boiling water, keeping it covered; strain and add a peck of salt that has been dissolved in warm water, three pounds of ground rice, boiled to a thin paste, half pound of powdered Spanish whitening, and one pound of clear glue dissolved in warm water. Mix and let the compound stand for several days. Apply as hot as possible, using a brush kept especially for the purpose. This whitewash will cost more than the other but it makes a very white smooth surface and is quite enduring. Where whitewash is applied to rough boards, fence posts, etc., for disinfectant purposes a more suitable mixture is made by adding water and some disinfectant to slaked lime.

The Codling Moth

THE season 1915 was generally considered a "worm year." Because of a concurrence of several factors more apples than usual were wormy at harvest and correspondingly more worms than usual went into winter quarters. Ordinarily the winter mortality of the codling moth is excessive, as is obviously apparent when we consider how few apples become wormy early in the season year after year. The past winter, however, although severe, did not manifest the alternate freezing and thawing which is most fatal to the codling moth. In many localities a snow blanket held over into spring to protect the worms in the ground. Accordingly the codling moth has come through in very good shape.

Winter Favorable to Moth.

A codling moth produces forty some eggs and in some districts a partial third generation exists which is at least as numerous as the second generation. Owing to the habit of the majority of codling worms to enter the fruit through the calyx cavity the importance of proper calyx spraying immediately after blossoming can not be overstated. This spraying is effective for the last worm of the season as well as for the first, but does not help much in destroying the minority of worms which seek to enter apples through the sides. The relatively few worms which have this habit must be reached by a series of cover sprayings, but because of a peculiar instinct of the newly hatched worms cover spraying are never 100 per cent effective. When a worm bites into the apple skin it rejects, without swallowing, the tough epidermis. Only accidentally then, does it swallow any poison for its mouth becomes pretty well cleaned by the rejected bitings. Owing to this habit many worms can work through even the most complete of cover coatings. It seems furthermore, practically impossible to coat every portion of every apple, so that many worms gain free entrance into the fruit. It is such escaping worms which cause destruction by multiplying into a second and a third brood.

Cover Spray Not Entirely Efficient.

A cover spraying is considered effective for three or four weeks. If the first cover spraying was timed too early so that after weeks many worms are still entering the fruit another application should be given, but if it was properly timed it is unnecessary to repeat this spraying. The exact strength of the spray is not so important as the time and the method of application. Five pounds of paste arsenate of lead to 200 gallons will answer as well as double that quantity. The cover sprayings may be supplemented by banding, in which case the bands should be cleaned every two weeks. But by all means thin for wormy fruit, and destroy the picked-off fruit. If the potentialities of neglected first brood worms were realized the fruit grower could well afford to give a premium for wormy fruit when thinning.

While the later season sprayings are not fully efficient they can be made much more effective by spraying at the proper time. On account of the variations in the seasons it is difficult to tell when the proper time for spraying is. To determine this with considerable certainty the banding method of trapping the codling moth and watching its habits gives very satisfactory results.

Contrary to the common belief, this method is very simple. It consists of putting a burlap band about six inches wide around the tree about eighteen inches from the ground. The band should be long enough to allow the ends to lap about an inch and should be fastened with a headless nail so as to make easy the taking off of the band for examination.

For the first brood the bands should

be put on about August 15, and for the second brood early in June. For the second brood frequent examinations should be made from July 10 until some of the cocoons are found, and for the first brood the cocoons should be taken off the bands early in spring.

After the cocoons have been gathered they should be placed in a dish which has a little moist earth in it and covered with wire netting or a lantern chimney which is covered with netting at the top. This cage should be kept where the temperature is equal to that out doors.

Ten days after the moths emerge from the cocoons is the proper time for spraying, as they lay their eggs when about two days old, and it takes eight or ten days for the eggs to hatch.

While there are greater seasonal variations in the appearance of the second brood, it is interesting to study the habits of the aphid's greatest enemy and it will pay any fruit grower to keep tab on both broods.

RENOVATE OLD STRAWBERRY BEDS.

As soon as the picking season is over, the strawberry bed should be mowed and raked off. The dead leaves around the old crowns should also be removed and burned. The rows are generally crowded with plants in the center, and these should be thinned out and the rest thoroughly cultivated with the hoe. Then the beds should be given a coating of well-rotted barnyard manure and worked into the ground, and a liberal supply of water applied.

In many cases where the rows are heavily matted and the young plants have taken root between the rows, it is advisable to plow up the center of the rows, leaving the younger plants to form the new row.

Strawberry plants produce the heaviest at the first season's fruiting and decline very rapidly after that time. For this reason, it is advisable to remove the old plants and give younger ones a chance to develop. The old plants can easily be told from the young plants by the roots. Old plants have dark-colored roots, while young plants have light-colored. Also, the crowns of the old plants become black and elongated, while on the young plants the crowns are short and light-colored.

Good fruit growers will ordinarily not fruit the beds more than two seasons, it being cheaper and more profitable to set out a new bed. But where only limited ground is to be had, the renovating system above described can be utilized to advantage.

—E. P. S., Col. Ag. Col.

SUMMER MEETING STATE HORTICULTURAL SOCIETY.

The mid-summer meeting of the Michigan State Horticultural Society will be held at Traverse City, Wednesday and Thursday, August 9-10.

The Chamber of Commerce of Traverse City will have charge of the arrangements and have promised all the members and friends an enjoyable time. An auto tour will be taken to the beautiful fruit farms surrounding Traverse City. Informal experience meetings will be held at the orchards. Entertainment will be furnished to out of town guests as far as possible.

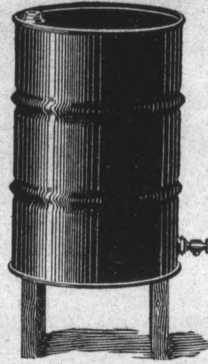
This is a fine opportunity for everyone to visit the fruit section around Traverse City and have a nice outing and meet the progressive fruit growers from all over the state. Come and bring the families.

For full particulars address: O. A. Charles, Secretary of the Chamber of Commerce, Traverse City, or R. A. Smythe, Secretary State Horticultural Society, Benton Harbor.

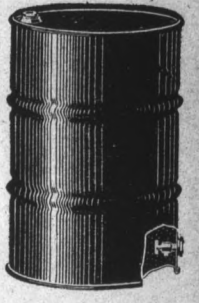
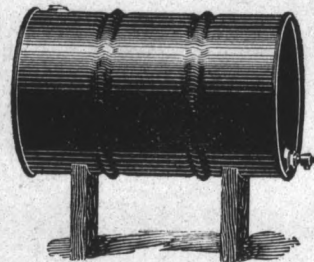
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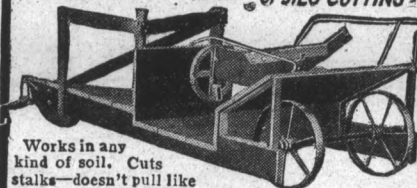
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Evolution In Beef Production III

THE period of twenty years in the history of our live stock industries, reaching from 1882 to 1902, was an eventful one that should be engraved on the minds of future generations as one evolving truths and bringing results which will be far-reaching in leaving a heritage of discoveries that will be, if the truths are applied, a great benefit to both producers and consumers of live stock products. Earnest toilers in live stock raising have worked out many problems which have not only brought benefits to the present generation, but will be a benefit to all who will apply the truths discovered in the days which are to come.

The Crime of the Government.

It has been contended by thoughtful individuals that the government did a great injustice to the land owners and farmers in the older settled portions of the country by allowing men of large means to stock the government lands and put the stock raised on those free lands on the market in competition with that raised on farms, where the expenses were high, and the residents on those farms shared in bearing the burdens of taxation which supported the machinery of the government in the states in which they lived and indirectly supported the national government. By stocking the ranches on government lands the products of those ranches which cost the owners but little, if anything, were sold in the markets beside of that raised on valuable lands, and in time, deprived the land owners of all the profits in his legitimate business. While the ranches were being stocked, which caused a demand for females of all kinds, and pure-bred sires, from which to raise a good grade of stock, things went very well, but when the increase from the ranches returned, and were sold in the markets, the results were disastrous to the farmers. Prices declined and consumers were supplied with meat at ruinously low prices. When bullocks, well raised and well fattened, sold for from three to four cents per pound, and inferior grades at lower prices, stock raising on the farms came pretty nearly to a standstill.

The Period of Depression.

It has often been said that necessity is the mother of invention. The rule seems to have been true in raising live stock on the farms. When prices are low, economy of construction is studied. The test between the breeds of beef cattle was begun. The Herefords, a distinctively beef breed, were tried and found capable of competing with the Shorthorns, both in severe cases, and under many conditions. Friends and admirers of the Herefords contend that the best specimens of the breed are not only good rustlers, but having very large vital organs, they are economical meat producers. We are ready to admit that they have good grounds for their claims.

When the Galloway cattle were tried both on the ranches and under severe conditions which prevail on many farms in the west, it was found that the little black cattle can endure more hardships, live on coarse feeds, and make better gains than either the pure-bred Shorthorns or their grades. With hardness to their credit, the Galloway cattle have not seemed to win the approval of farmers where favorable conditions for cattle raising and beef production prevail. Farmers seem inclined to provide good conditions and furnish a good quality of feed and raise the grades of the other breeds. The fact that Galloway hides have a greater value for tanning with the hair on, has not induced many to engage in their breeding. The meat of the Galloway is tender, juicy and sweet, and yet the consumers have not seen fit to bid a higher price for it than for first-class meat of other breeds, and it has not looked as though the breed has been given the attention among beef producers which it merits. It is diffi-

cult to crowd on to cattle raising people something that does not meet their fancy. The outstanding colors of other breeds, and the majestic carriage of the noble Shorthorns, seem to have won the popular approval of the majority of cattle raisers under usual conditions.

About the time that Shorthorn cattle had passed the high tide of popularity and high prices, and sensible people were disgusted at the unreasonable allurements of fashion in pedigree and color, there appeared in our country the Scotch breed of cattle, black in color and hornless, known as the "Scotch Daddies," or Polled Angus. They arrived at a time when the economical production of beef was among the first considerations, as the general prices were low, and cattle raising for beef was not considered a profitable business. At the live stock expositions quality of meat was being emphasized. The large-boned animal carrying a load of "patchy meat," made up of some lean, overlaid with patches of fat laid on at different places, usually on the rump and sides, had become unpopular. A smooth-surfaced animal, evenly developed, was what butchers and consumers demanded. The Polled Angus seemed to be the embodiment of a nearly perfect animal in that respect. Tested in farm fields or on the ranches they were hardy, vigorous, rapid-growing cattle. They made their increase in weight as cheaply as any other cattle, and when the meat was laid on the block, it was found that the fat was distributed through the meat, instead of being accumulated on the surface or on the inner parts. In other words, the meat was "well marbled," making it profitable for the producers, the dealers and the consumers.

The Turn of the Tide.

The results obtained at the live stock shows brought before the minds of the cattle raisers new ideas and new ideals. New discoveries were made. It was found that the large bony cattle, that attained heavy weight before they were ripe for the market, cost more to produce than they would bring in the markets when sold. Some other plans must be devised which would make it possible to grow young cattle and ripen them for the markets, before they had cost a larger sum than they would bring when sold.

The Polled Angus cattle had attracted attention and set people to thinking in the right direction. A breeder in Scotland had produced Shorthorns that were built after the pattern of the Polled Angus; they were compact and had large vital organs, which makes it possible to grow them rapidly, and mature them early. The specimens of Scotch Shorthorns which had been brought to this country, seemed to fit the ideals which had been formed in the minds of the "new school" of beef producers. The demand for these Scotch bred Shorthorns was great, and good prices were paid for some of the best specimens. A new era was ushered in, and new ideas in regard to beef production had crept into the minds of some of the thoughtful cattle raisers. The task of ripening some of the rapidly growing young cattle of all of the modern types of the Herefords, Galloways, Polled Angus and Scotch Shorthorns, mostly grades of each and every breed, was undertaken, and met with success. It was not the beginning of a craze, but it was the beginning of an era of improved methods in producing an excellent quality of beef. That staid old veterans of the feeders, both on the ranches and in the farm fields, viewed the matter with disgust and dubbed these thrifty young cattle that appeared for consideration, as to quality and profit making in the process of making

"Baby Beef."

The youngsters that have come forward since have been called the same but results have proved that it is a

credit and an honor to the farmers to raise a class of cattle that can be listed in the markets as "baby beef." It means that the producers have adopted improved methods in breeding and selection of the stock handled; that the quality of the stock is superior to the average stock marketed; that the possibilities for profit in producing and selling, are far better than can be by raising a class of cattle which requires a longer time to bring to market condition, and that the individual developing and bringing cattle, ripened at an early age, is well versed in the art of feeding and caring for young stock.

Some important lessons have been learned during the last quarter of a century. One of the first lessons in making palatable and nutritious meat, is the fact that if the animal is developed young the lean and fat is intermingled. If the animal is developed slowly the lean meat is produced in a somewhat restricted quantity, and if the animal is fattened later, the fat is laid on the surface, and is not intermingled and can not add greatly to the flavor of the meat.

Another important fact that seems to be impressed on the minds of the feeders, is that during the period of growth early in life, the gains in weight can be made cheaper than is possible to make them later in life. It is during the period of growth that the muscles are developed, and nature's aid in that respect can be courted with profit.

The art of combining feeds in order to secure definite results has been of great service in helping to develop animals while young at a moderate expense. The ration which I saw a noted exhibitor feeding his cattle of a ton and a half's weight, forty years ago, made up of timothy hay and corn meal, looks primitive beside the well balanced ration today, of clovers, alfalfa and mingled grains, which will meet, very nearly, all the requirements of the young growing animal in order to make rapid growth at small cost.

The methods and movements of the past have paved the way and made present favorable conditions possible. Scientific investigation and demonstration, together with experiments and experiences have made the way clear, showing how by the use of the modern improved beef breeds, and following the best known modern methods of breeding and feeding, large profits in beef production at the present time, and under present conditions can be secured.

Wayne Co.

N. A. CLAPP.

USE OF SUPPLEMENTARY CROPS IN HOGGING-DOWN CORN.

To say that there are no disadvantages to the practice of hogging-down corn would be false; for there is probably no method of feeding hogs which has not its advantages and disadvantages. But, however, it can be truthfully said, that in the case of hogging-down corn that the disadvantages are to a large extent offset by the advantages, and for this reason, this means of harvesting the corn crop is sure to gain in popularity among farmers from year to year.

Among the few disadvantages of this practice, one stands out above the rest; this is the lack of protein, the food that builds up the muscles and bones of the young animal. This is particularly noticeable in the case of hogs weighing up to 150 pounds or less. Of course the animal gets some protein from the corn; some from the scattering weeds about the field; but still, some must come from another source.

So, to overcome this lack of protein, and because the hogs finish more quickly and evenly, many farmers are beginning to use supplementary feeds. These may be of two classes: 1, concentrated protein feeds; 2, supplementary grown crops. Some farmers are using one and some the other, but a greater number are using the two class-

es combined. The latter seems to be the better method for the gains are larger and more economical.

Chief among the concentrated feeds that are commonly used are tankage, skim-milk, oil meal, shorts and oats. From a survey conducted in Iowa, the tankage was being used to a greater extent than any of the others and the oats the least. Skim-milk was quite popular where it was a home product and good results were obtained by its use. The tankage was the most popular because it produced greater daily gains than corn alone or corn with any of the other combinations. The greatest daily gain was made when the corn was combined with tankage and a supplementary crop.

The supplementary crops that are most used by Iowa farmers are rape, soy beans, Canadian field peas and hairy vetch. The rape is the most used and is planted after the last cultivation of the corn. It is an especially valuable crop when planted together with pumpkins, both of these crops being very palatable and succulent and neither hindering the growth of the corn to any extent. The soy beans rank next to the rape in value, being superior to the field peas and vetch.

Besides the above crops there are several others that may be used to advantage.

Iowa.

H. W. HULBERT.

STEER FEEDING EXPERIMENTS.

At the Canada Experiment Farms, according to a report received recently by the Department of Agriculture, steers of various breeds and types were fed from 80 to 100 days, it being found that steers fed quickly gave a good margin of profit, that the dairy type of feeder may be profitably finished in from three to five months according to age, and that many steers slaughtered in November and December would pay profitable returns if fed a few months longer. In steer-feeding experiments to determine the effect of heavy and light feeding it was found that while the daily rate of gain was greater in the heavy-fed lots, yet their average cost per pound of gain was considerably higher and the greater profit was realized from the light-fed lots. Grain was profitably replaced by molasses when used in only a limited amount. Molasses appeared to have a more beneficial effect when fed to good stocker than to good butcher cattle getting the same amount of grain. Molasses showed a profit over a full-grain ration.

Eight steers fed 140 days and given freedom in box stalls made a gain of \$56.17 as compared with \$3.23 from eight steers tied. In a comparison of corn silage and dry corn for fodder as roughage for fattening steers fed five months, the former made an average daily gain per steer of 1.86 pounds, the latter of 1.5 pounds. Four lots of oat straw, mixed hay, oats, and bar-steers fed 140 days, lot one receiving ley, fed outside; lot two the same as lot one, but fed inside; lot three the same as lot one with the addition of silage, and fed inside and tied; and lot four fed mixed hay, silage, roots, and grain (bran, peas, oats and barley), fed inside, made average daily gains per head of 1.95, 1.93, 2.47, and 2.82 pounds, respectively.

LIVE STOCK NEWS.

By the middle of August the ranches of Montana, Wyoming and other north-western states are expected to begin marketing grass cattle liberally, although not any more so than last year, and moderate supplies are expected to reach the Chicago stock yards in the near future. Ranch cattlemen, realizing the greatly increased value of all fat beeves these times, have been anxious to market their holdings as fat and choice as possible, and in all probability the percentage of feeders marketed will be very limited. The Chicago cattle market continues to rule extremely high for all desirable cattle, although hot weather has checked the demand for heavy steers, which have experienced some bad breaks in prices.

Dairy Problems

Clover and Millet for Silage.

Will green clover and mullet make good ensilage? What is its food value compared with corn ensilage?

Macomb Co. G. A. B.

Clover and millet will make very good silage if put into the silo when they are nicely headed out or even in blossom. Don't leave this crop until it gets about ripe for it will not contain enough moisture to properly preserve it. If cut at the right time it must not be allowed to dry out very much before being put into the silo. If it gets dry extra water must be added.

If this silage keeps well it is more valuable, ton for ton, than corn as the clover is richer in protein than corn. It should be cut fine and well tramped to exclude the air or it will not keep good. It would be a fine thing to fill in on top with a foot or two of green corn to weight it down and prevent spoiling on top.

What to Plant for Late Silage.

We have a field of corn that drowned out and we replanted and now it is so dry that it has not come up. We are going to work it up and put something else in. What do you think would be the best to put in? We want something for fodder for cattle. Some kind of ensilage to put in the silo.

Lapeer Co. W. M.

I know of nothing better than to plant it again to some early variety of corn. Yellow flint corn will make fod-

der if planted now. If we have no frost in September it would be liable to make a good crop. There is no other fodder plant that I know of that will be any more sure of maturing. Millet might make a good crop but it is not so good for ensilage. The first frost will kill millet as quickly as corn.

One year I planted corn July 12 and had a splendid crop of silage. It was cut by the frost but we immediately put it into the silo and it made splendid feed.

We will plant some ensilage corn this week. It is pretty late to be sure, but I know of nothing any better.

COLON C. LILLIE.

GARGET CAUSED BY GERM.

At one time it was thought that garget was due to mechanical injury to the udder, and while this cause can not be entirely eliminated, it seems evident from all recent work that practically all cases are due to infection, the germs gaining entrance through the teat duct.

It is well known that sterile milk is not to be had even when removed under the most rigid precautions. This indicates that germs are to be found in the udder most of the time. Under ordinary circumstances these bacteria do little harm, but occasionally a harmful one gets in and sets up severe inflammation. This is especially likely to be the case at about the time of freshening, or during the time the cow is drying up. At both periods there is an accumulation of milk that is not drawn out regularly, and consequently it forms a good medium in which bacterial can live. When there is much accumulation of milk, milking should

PORTABLE CALF HOUSE.

A little building, about on the order of an overgrown dog kennel, provides a sensible shelter for young calves after they have been weaned. It should be blocked up a few inches off the ground and its roof, of course, should be water tight. A structure with floor dimensions of 6x6 feet will house two or three calves without crowding. It should be placed in the shade in the orchard or in some other quiet spot where the young animals can have pasturage by themselves. Being small it is easily moved from place to place.

Illinois.

O. CROOKER.

PASTEURIZING MILK FOR CALVES.

So much has been said on pasteurizing milk for babies that many cities require all milk to be pasteurized except such as has been produced under exceptional sanitary conditions, and at least one state is requiring the pasteu-



A Practical Portable Calf House.

rization of all milk from all cattle not tuberculin tested. Many of those who are engaged in raising calves have found that if babies' lives can be saved by heating the milk, so also can the lives of calves be spared by the same method. Unquestionably skim-milk returned from the creameries has been a very faithful source of the transmission of tuberculosis to both calves and pigs, and it is found by actual experience in many states that this disease can be very much curbed by proper pasteurization of the skim-milk before it is returned to the farm.

The organism causing contagious abortion is very frequently found in the milk and is probably transmitted to the calves in this manner. Proper heating will unquestionably prevent this kind of transmission.

A recent report from the California Experiment Station shows that a very serious outbreak of dysentery in calves was stopped by boiling the milk. All of these experiences go to show that calf raising would be much more easily accomplished and much more profitable if all the milk given to the calves could be properly pasteurized, since by so doing many of the calf diseases could be eliminated.

MEETING OF JERSEY BREEDERS.

The summer meeting of the Michigan Jersey Cattle Club will be held at Ann Arbor, August 10. The morning session and dinner at the Whitney Hotel; the afternoon session at Brookwater Farm, the home of Prof. H. W. Mumford, of University of Illinois.

Mr. Wallace MacMonies, the new field man recently appointed by the A. J. C. C. is expected to be present. Important business is to come before the club and every Jersey enthusiast is invited to be present.



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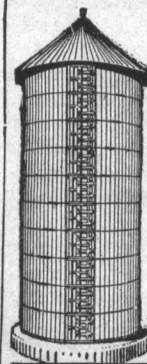
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Influence of Feed on Milk

By FLOYD W. ROBISON

SINCE experimental investigation has been turned to the study of a ration for dairy cows, quite naturally the question has suggested itself repeatedly as to what effect the composition of a ration has upon the composition of the milk elaborated. Likewise since the instigation of dairy and food inspection laws the same question has been raised repeatedly as a defensive measure against prosecution in legal cases.

The question, it may be seen, is therefore, one of rather long standing, and quite a spirited controversy has arisen among scientists from time to time over the correct answer to this question.

To a layman it might seem that it is possible by simple experiment to settle the question but when dealing with the mechanism of an animal subject to psychological as well as physiological disturbances there are so many factors which may enter in to modify the conditions of any particular experiment that it is by no means an easy matter to answer "Yes" or "No" to any one of these questions.

Does the Feed Affect the Fat in the Milk?

Probably the most common question along these lines is the effect of the type of dairy ration upon the fat content of milk. Dairy men quite generally seem to have the opinion that they can vary to a marked degree the fat content of the milk of their herd by feeding a rich ration, and conversely, that a milk very poor in butter-fat is to be expected from a ration deficient in nutrient material. This is an opinion that is quite tenaciously held by people who are not familiar at all with the physiology of milk secretion, and we have had the idea employed to advantage by a manufacturer of dairy products who has been accused of the addition of oleomargarine or of cottonseed oil to the cream in the production of butter. It has also been employed to advantage in the sophistication of lard with cottonseed oil, the argument being made that the addition of cottonseed meal in the ration of hogs is paramount to the artificial mixing of cottonseed oil with lard, in the one instance the only difference being the admixing through the medium of the animal.

Small Mixtures Have Been Hard to Analyze.

These claims are made possible because of the very great similarity chemically of the composition of the fats of the different animals, certain of the oils and butter-fat. While they are different in physical characteristics, the differences chemically have not been such that it has been easy to recognize them when present in small quantities. It has not always been an easy matter to tell whether lard is adulterated with a very small quantity of cottonseed oil or whether steamed lard might not have been used in cream, for instance, if it were not used in excessive quantities. Most of the methods of identifying these products are methods which are not concerned with the identification of the product itself but with the identification of some congeneric substance which always accompanies the product. To make this a little more plain we will state a specific case: We will take maple syrup, for instance. The method of identifying maple syrup or distinguishing the presence of maple syrup in a mixture of maple and cane is not the identification of the syrup itself but a study of the ash constituents of the syrup. These congeneric substances which are always present and which will in a sense be considered impurities are utilized by the chemist to identify the pure article.

Similarly with cottonseed oil. The factors which have made it possible to identify cottonseed oil are sub-

stances other than the oil which are always found in cottonseed oil. It may happen that in feeding animals cottonseed meal some of these same congeneric substances may be taken up by the system of the animal and elaborated in the tissue and thus the lard when rendered will give a reaction similar to the reaction obtained with cottonseed oil. Hence some scientists have maintained that cottonseed oil was actually a constituent of the lard.

It is this type of reasoning which is responsible for much of the common opinion that it is possible to feed fat into a milk by increasing the fat content of the ration. When one stops to consider that milk is elaborated on an entirely different plan, that it is probably a breaking down of the cells of the mammary gland, one may easily see that it is necessarily entirely independent of the ration.

Different Animals Have their Different Characteristics.

Different types of animals have their individual characteristics of milk composition. The composition of the milk of no two animals is alike; not only is not alike insofar as fat content is concerned, but it is not alike insofar as water is concerned, or mineral matter, or proteid matter; neither is it alike in composition of these materials.

It's the Breed that Counts.

Two different types of animals may feed entirely upon the same feed and they will produce milk of an entirely different composition, just exactly in the same way as two trees growing in the same ground will elaborate an entirely different fruit. Nor is it possible to change in any regular way the composition of a plant by a change in the character of its feed. Increasing the nutritive material available for plant growth does not exhibit any especial change in its composition. It does affect the character of its growth and in the same way the feed of a dairy cow influences in a remarkable degree the amount of milk secreted.

The claim has been frequently made that during certain periods of the year when cows have access to fresh grass, the milk, while much greater in quantity is also poorer in quality. In other words, that excessive rainfall and unusual succulency in feed produces a change in the composition of milk, always making it thinner.

Do Wet and Succulent Feeds Make Thinner Milk?

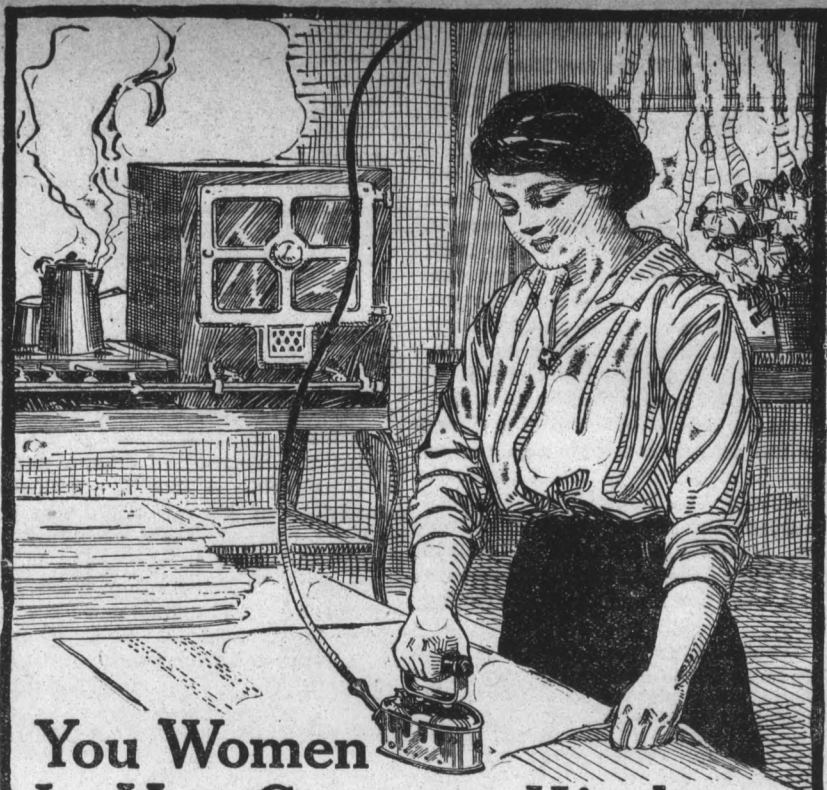
Some experiments along this line have lately been conducted by the Dairy Division of the Bureau of Animal Husbandry who studied in this respect the following types of rations:

1. A full allowance of drinking water as compared with a limited supply of drinking water; this being the only variable factor in the ration.
2. A heavy ration of turnips as against a dry roughage ration.
3. Wet beet pulp as compared with dried beet pulp.
4. Green, crimson clover as compared with cured hay.

In the experiment with the comparison of the full ration of water with a limited supply, eight cows were used. In this experiment variations as usual, were noted, but they were found to be entirely independent of the character of the ration. As a result of this whole set of experiments it was concluded that the variation in the water content of the ration had absolutely no influence on the composition of the milk produced.

In the second experiment, with turnips, four cows were used and a considerable variation in the behavior of the different cows was observed, some being influenced in one direction and some in another. It is very evident that the difference in the character of the two feeds was not responsible for

(Continued on page 101).



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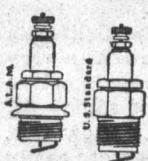
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Magazine Section

LITERATURE
POETRY
HISTORY and
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MICHIGAN FARMER
AND *LIVE STOCK* JOURNAL
PUBLISHED WEEKLY. 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

PROBABLY one of the greatest blessings granted to the Indians of Michigan by a compassionate Providence was their inability to read English, and thus acquaint themselves with the malicious scandalization of their beloved land indulged in by a gossiping world. It is merciful that they could not place a copper-colored thumb on certain paragraphs in those early geographies and read the brazen statement that "The section of territory known as the Michigan Peninsula is one vast swamp or marsh, filled with lakes, covered with sand hills, is posi-

Neemah—a Bad Indian

By MARY L. DANN

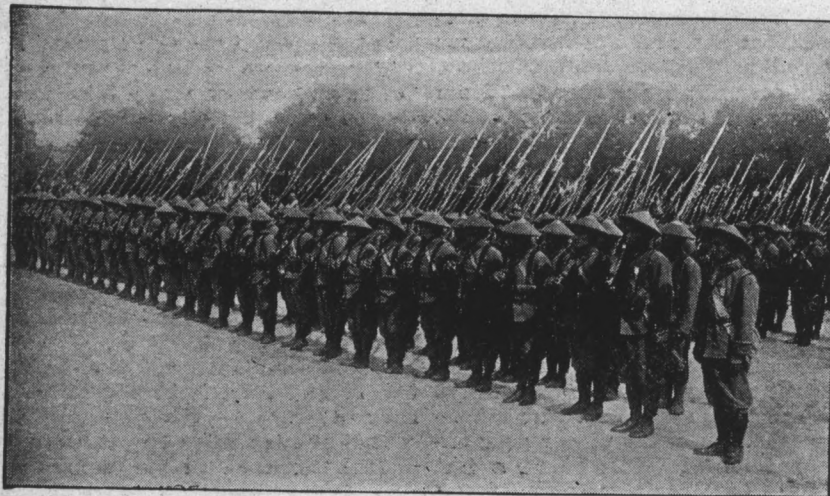
tively incapable of cultivation, and, in all human probability, will never be cultivated or settled. On a warm summer or spring day, if one looks in the vast marshes, he will see myriads upon myriads of venomous reptiles basking in the sun." If the Indian could have read this, I fear that his bow-string would have twanged and an arrow sped in the direction of the geographer.

Our ancestors read this outrageous villification of this land of the Pottawattomies and Chippewas and accepted it as authentic information, acquiring thereby a very strong prejudice against the entire territory of Michigan. That geographer would see a great light if he could be re-embodied and pay a visit to the thousands of prosperous farms and scores of teem-

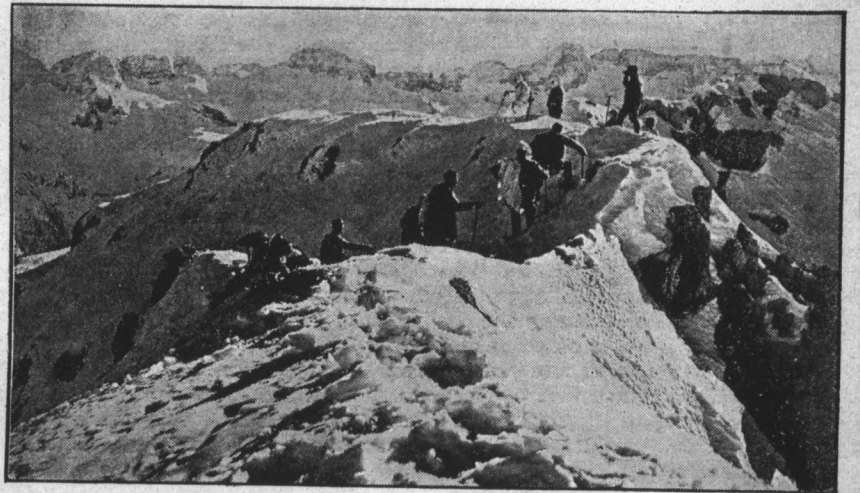
ing cities now occupying the same territory. A venomous reptile basking in the Michigan sun today would be spring-tooth harrowed or hay-tedded to death, or would have the time of its young life in trying to cross the highway without being flattened to a ribbon by a road roller or ground to chowder by an automobile or tractor. The basking days for reptiles are over in Michigan.

The Pottawattomie Indians loved this splendid state of ours, and in its early history, there stands out in bold relief the stolid, pathetic figure of Ne-

WORLD EVENTS IN PICTURES



A Contingent of Annamese Troops Fighting for France.



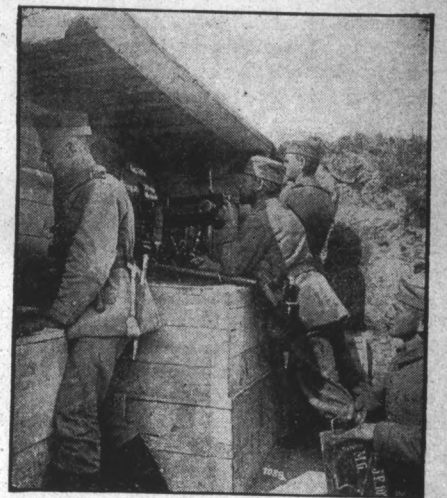
Melting Snow in the Tyrol Alps Hinders Austrian and Italian Troops.



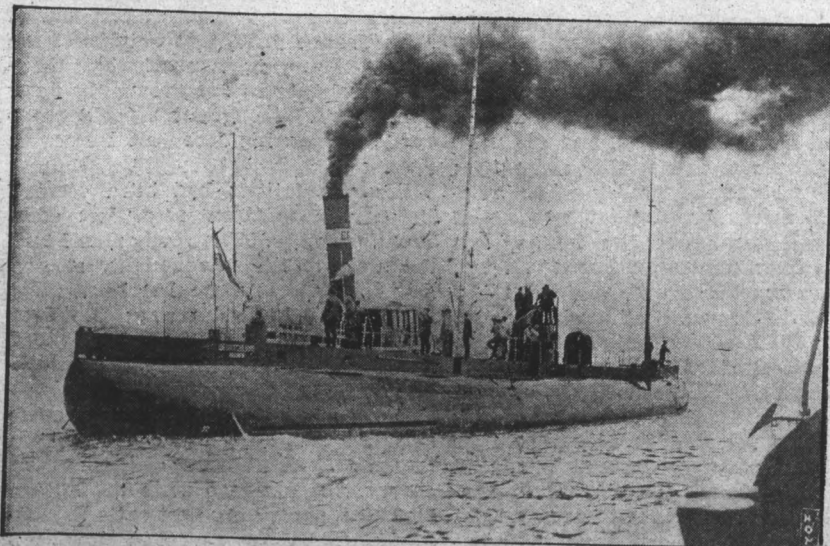
Thos. M. Osborne, Reinstated Warden of Sing Sing, Addressing Convicts.



Scouting Party of Expeditionary Force in Mexico Returning to Camp.



Teuton Machine Gun in Action Under Bomb-proof Shelter.



The German Submarine Merchantman Deutschland, with Tug Alongside.



Shark 10 ft. Long and Weighing 400 lbs., Caught off New Jersey Coast.

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mah, known far and wide as "The Bad Indian," who figured as the star performer in one of the earliest legal proceedings of which we have record. This trial was held in Eaton county in 1836.

The crime charged against Neemah was that of killing his squaw with a hatchet, and this offense, so often condoned by the civilized, was wrathfully resented by the savages. The great chief and all the lesser chiefs met in grand council, gaudy in war-paint and feathers, but with grave, dark faces. The breeze-shaken leaves roofed their court room; the shadow-flecked moss was its luxuriant carpet; their only court crier was the drumming partridge and the citations were all from the law of nature as expounded by the Great and All-wise Commentator. Whether those Indians hatchelled and brow-beat their witnesses until it was impossible to tell which was being tried, the witness or the criminal, the historian does not state. However, it is quite certain that there was no such vocal pyrotechnics indulged in by the chiefs as in our modern courts, where the corridors re-echo to the stamps and yells of hysterical attorneys, whose tones are loudest when their cause is weakest. Such buffoonery was reserved by the savages for pow-wows and snake dances. However, there abounded guttural exclamations, condemnatory grunts, stately gestures toward the setting sun, grave consultations in monotone and long periods of silence, which must have been extremely nerve-racking to the unfortunate Neemah.

At last the grand council reached its decision and its verdict was "guilty." The cunningly devised sentence was that Neemah should never again during his life own a pony or a rifle. Can the white man conceive of the bitterness of this punishment to his red brother? The Indian judge had cleverly invented for Neemah a punishment almost equal to solitary imprisonment for life. He was despised and shunned by every Indian and no one would have given him a morsel if he starved. Even his own family turned against him and he could call no man friend. He made for himself a large and powerful bow and would pursue his game patiently, day after day, until he could get within bow shot.

Neemah planted his solitary wigwam on the banks of Battle Creek, which was then known to the Indians as "Me-jash-Ke-wapikisco," meaning "Stone Pipe," an article which they made from the limestone near Bellevue, where a cement factory is now located. It happened that when Neemah was absent on one of his long hunting trips, two men entered his wigwam and carried away four venison hams. This cured meat meant to him long days of weary waiting on the trail to get within bow shot of the deer; and the loss greatly lessened his store of winter food. It is small wonder that Neemah, swearing brokenly, followed the large tracks of the thief until they led him to a house nearly eight miles away. He strode in, storming and gesticulating and pointed to the frying pan where some of the venison was cooking. The white vandal would offer no restitution; but Neemah met him alone one Sunday morning and gave him such a sound thrashing that our historian tells us he came near having a second murder on his hands.

Then came the dark days, when General Brady was sent by the United States government to scour the forests and collect the Pottawatomie Indians and send them to their place of banishment beyond the Mississippi river. When the Indians were informed of this action, they held one long council, then scattered in every direction. They were surrounded by cavalry, brought out from their hiding places and started on the long trail toward the sunset. Edward Foote, an early pioneer of Eaton county, says of them: "During the last night of their stay, the moans and lamentations of the squaws were heart-rending. Those squaws were

leaving their corn fields, their burial grounds, their hunting and camping grounds, their homes. They were women and all women love home. They were going to a strange land where they were told corn would grow only knee high and pumpkins no larger than potatoes. The braves wrapped themselves in their blankets and bore their grief in silence."

Tuckamin, a splendid type of Indian, who had fought on the side of the British under Tecumser, resented this treatment of his race by our government, and successfully guided a band

of fugitive Pottawatomies to Canada, and among them was the wife-murderer Neemah. It was later learned through one of the Canadian refugees that "Neemah had eaten too much corn and killed himself soon after his arrival in Canada." Let us hope that he did not find the entrance to the Happy Hunting Grounds barred by the crossed stocks, over which no Pottawatomie dares to enter, and that his Indian wife has forgiven him for so violently releasing her from what seems to the pampered "squaw" of the white man a gray, cheerless, thankless life.

In Sheep's Clothing

By ANNA E. BLEY.

(Continued from last week.)

After the first hymn and prayer, the minister introduced Brother Howardson as "our dear brother from the west, who has come among us with a gospel message." The minister sat down, and Brother Howardson rose and delivered a powerful address. He told how the Lord had called him from a life of sinful pleasure and had taken away from him the desire to do wrong. A wonderful change had been wrought in his life, and no longer the dance-hall, the card-table, and the wine-glass lured him. Hearty "Amens" echoed throughout the church.

He touched upon the death of his old mother, and the tears rolled down Miss Trent's cheeks which she sought for her handkerchief; all about her she could hear men vigorously blowing their noses. Then he sang "Throw Out the Life Line," in a deep bass voice and asked the congregation to join in the refrain.

When the collection had been taken up, the minister asked them to rise and sing the doxology as it was growing late; after the benediction, the meeting broke up.

Brother Howardson came down from the platform and shook hands with members who crowded around him. Miss Trent's heart sank—how could she ever mention private affairs in such a mob as that? Her beautiful dreams faded. Brother Howardson would go away and she would return to her quiet uneventful life and little economies.

Sadly she left the church and turned up the street toward home. She was getting old—in a few more years, she would be leaving the little church for the last time. As she dragged her feet wearily along, she heard someone walking briskly behind.

In a moment a deep voice said, "Sister Trent, I did not have an opportunity to say 'good-bye.'"

"Oh, Brother Howardson," Miss Trent's heart fluttered, "I enjoyed your talk so much."

"That gives me great pleasure, sister—to scatter a little sunshine as we go through life becomes the Christian's joy."

"Brother Howardson," began Miss Trent timorously, "you spoke this morning of doing me a favor."

"Yes, my dear sister," he admitted encouragingly, "anything that I can do, pray show no hesitancy in advising me of it."

They had reached the cottage. It was half past nine, a late hour for Sandersville—would it be proper to invite Brother Howardson in? She glanced up at John's shutters—all was dark—he evidently had not come home yet. Well, this was a matter of grave importance, and if the town would be shocked now, later on, they would understand her injudiciousness.

"If you will come in, Brother Howardson, I can speak of the matter."

"Certainly, certainly," he acquiesced readily.

She stooped to get the key from under the mat, opened the door and led the way into the front room. She walked over to the mantel in the dark, felt for the china shepardess, and taking a match from it, lighted the lamp

on the centre-table. It was a large lamp with a pink flowered globe and base; it had come with trading-stamps and Miss Trent felt a thrill of pride whenever she had occasion to light it.

The soft glow diffused through the large roses did not hide Miss Trent's nervousness nor disguise the interested gleam behind Brother Howardson's polished glasses. She removed her bonnet and coat, laid them on the hair-cloth sofa, and sat down in the rocker opposite him.

"Brother Howardson, I have been thinking of that favor you're going to do for Deacon Hewitt. I hate to mention it, but you spoke of favoring me at any time."

"My dear sister, anything that I can do, pray tell me freely." He leaned forward expectantly, his hands upon his knees.

"I have a little money, about four hundred dollars, that I would like to place in your hands for investment."

"Let me see, that would be how many shares?"

"According to what you let Deacon Hewitt have, I counted it about sixteen hundred shares."

"Right you are, sister, right you are. I do like to see a woman with a business head. So many of our dear sisters understand little beyond just what the Lord has given them to do."

Miss Trent's heart warmed toward this good man. "And then, Brother Howardson, I have twenty-five dollars of the Sunday school's organ money. That would make seventeen hundred shares altogether."

"Hm-hm!" he stroked his smoothly-shaven face thoughtfully. She waited anxiously, minutes passed.

At last he said, "Well, I think I can arrange that for you, Sister Trent; that will be four hundred and twenty-five dollars."

"Yes, yes," she cried eagerly.

"I am going away tomorrow morning," and will be glad if you can let me have a check for that amount now."

Her face fell. "I'm sorry, but it's in the saving fund. I can't get it for two weeks."

"Dear me," he exclaimed impatiently, "couldn't you get it before then?"

"No, Brother Howardson, I couldn't possibly get it under two weeks' notice."

Brother Howardson thought rapidly. "When can you notify them, sister?"

"I'll write tonight and mail it the first thing tomorrow morning."

"Very well, Sister Trent, I should indeed like to help you, and I admire the generous spirit which prompts you to include the Sunday school money."

Tomorrow will be Thursday—if you will draw out the money two weeks from tomorrow, I will call two weeks from tomorrow evening."

"Oh, thank you, sir," assented Miss Trent. "I'm afraid I'm putting you to a great deal of trouble."

"That's all right, sister. On account of my regard for your work and my friendship for Deacon Hewitt, I'll be very glad, very glad indeed, to attend to it for you, but not a word to anybody. Although I do not wish to slight any person, you can readily understand my position and, of course, the

deacon's matter is a little surprise."

The tears came to Miss Trent's eyes. "Oh, Brother Howardson, it does seem too wonderful to be true—how can I ever thank you?"

"There, there, sister," and he took the worn hand in his soft pudgy one and patted it soothingly. Then hearing someone coming up the porch steps, he dropped the hand and said "Good-bye, sister, till Thursday two weeks," and placing a finger upon his lips to emphasize the need of discretion, he picked up his hat and left.

John came in as Brother Howardson went out, and looked surprised to see Miss Trent entertaining a visitor at such an hour. She turned in an embarrassed manner to take her hat and coat from the sofa. John called out cheerily as he went up the stairs, "Good-night, Aunt Phoebe Ann," but there was a troubled look in his eyes.

The following morning, she gave him a letter to mail addressed to the saving fund.

During the next two weeks Miss Trent was like a young girl, light-hearted and gay, full of little jokes and as solicitous as ever of John's welfare. It worried John for she had been like a mother to him since he came to live with her five years before, and he was devoted to her. All the home comforts that boarding-houses usually omit, Miss Trent provided for John, and all the love of her lonely old age was lavished upon the big broad-shouldered young fellow.

When the two weeks had passed and the Thursday upon which Miss Trent was to go to the city for the money had come, John Paxson found his lunch waiting for him and Miss Trent arrayed in her best dress. As he passed the door of the front room, he caught a glimpse of her bonnet, gloves, clean handkerchief, purse and saving fund book lying on the centre-table.

"Going to town, Aunt Phoebe Ann?" he asked.

"Yes, John," she replied with quiet dignity and John forbore questioning her further.

That evening when he got home, he noticed that she still had on her good dress instead of having removed it as was her custom. The suspicions that lurked in John's mind began to take definite shape.

After supper, he went to his room, put on a cap and slipped a monkey-wrench that had belonged to the toolkit of an old bicycle, into his pocket.

"Good-bye, Aunt Phoebe Ann," he called as he looked in at the kitchen door, "I'll be back early."

"All right, John," and he fancied that a look of relief passed over her face.

When the 7:45 train pulled in at Sandersville, a young man standing in a dark doorway had the satisfaction of seeing Brother Joseph Howardson alight and walk rapidly up the street in the direction of Miss Trent's cottage. He let the godly gentleman get a good block ahead, and then quietly followed. He saw Brother Howardson turn in at Miss Trent's gate, saw a light shine out as the door opened, and then waited no longer. Quickly he gained the shadow of a gnarled old cherry tree that grew at the end of Miss Trent's yard, just outside of the fence. Assuring himself that there was absolutely no one around, he drew his handkerchief from his pocket, fastened it about his face just below the eyes.

His calculations had been correct, Brother Howardson soon left Miss Trent's cottage. The young man heard the deep-voiced "Good-night, sister," saw Miss Trent wave her hand gaily from the lighted doorway; the door closed, the gate clicked. He stood stock-still, hands clenched, on the other side of the cherry tree.

Brother Howardson's footsteps came briskly along, there was a buoyancy in the tread. As he came abreast of the cherry tree a figure stole out of the darkness, something shot out and landed between the reverend brother's eyes; down he went like a log, the

back of his head striking the oozy sod. Something that felt like a ton of bricks leaped lightly on his expansive front, a hand held his wrists together in a grasp of iron, while another went quickly through his pockets; a fat wallet was transferred to somewhere else. A moment later he experienced the sensation of cold steel against his left temple, and a voice muttered, "Get up, move on; if you turn, you're a dead man."

Brother Howardson rose staggering to his feet, his hat was thrust into his hand, another pressure of the steel upon his temple, a firm push forward, and he weakly moved toward the station.

The days following Brother Howardson's visit flew by like a breeze to Miss Trent. House-cleaning, work in the garden, were filled with pleasure for the pink-cheeked blue-eyed old lady. In everything she found food for thought, blissful joyous thought, and for all the delightful generous little plans for the fall. Never had she had such a glorious spring. Even the weather, the blossoms on the fruit trees, the songs of the returning birds, seemed to share her happiness.

Then there was an evening when John came home to find the little cottage in darkness, no appetizing odors to greet him as he opened the front door. A dread clutched his heart as he made his way back to the kitchen. There, by the gleam of the fire and by the dim light of the dying day, he saw a little figure huddled in the rocking-chair.

"Aunt Phoebe Ann!" and in a moment he was at her side.

"I'm all right, John," she assured

him in a voice that seemed old and feeble. "I've had a terrible shock," she picked up a paper that lay on the floor.

John lighted the lamp and read where her finger pointed:

EVANGELIST CHARGED WITH SWINDLING.

Then followed Brother Howardson's true name, a new of his aliases and a full account of his evil doings.

"Mis' Hewitt brought the paper up this afternoon," Miss Trent went on in a muffled voice, "she said the deacon got stuck for ten dollars, but outside o' that, she said she guessed folks in Sandersville were too smart for him," and the old lady gave a sob.

"Wait a minute, Aunt Phoebe Ann," and John rushed to his room. In a moment he returned and dropped a fat wallet in her lap.

"Count it, Aunt Phoebe Ann," he cried jubilantly.

With trembling fingers the old lady started to count the contents. "I can't do it, John," she faltered.

Slowly and distinctly John counted our four hundred and thirty-two dollars.

"Was that it, Aunt Phoebe?" he asked affectionately.

"Mine was four hundred and twenty-five," she answered in an awed voice, too startled even to ask how he had gotten it.

"Then we'll put the seven extra into the missionary fund," suggested John. "And mark it the Hand of Providence," she added tremulously.

"Good," and John smiled as he glanced down at his right hand where dark spots on the knuckles still betrayed missing bits of skin.

parsnip or turnip, of one of each, in the back of the trench, and set a good strong steel trap about five inches in front of this bait. By using a strong trap you may catch a coon, mink, otter or skunk. Where the bank is too steep to dig this ditch a small pen can be made at the edge of the water with sodden chunks or rock. Leave open on the water side. Cover with bark or sticks. Put the bait in the back part and set trap five or six inches in front of it, just under the surface of the water. If the water be clear cover trap with something, for by so doing you have a chance to catch some other kind of animal as well. Let the pen be narrow, so an animal cannot get to the bait without putting its foot into the trap. Stake your traps as far out in the water as possible, so that whatever you catch will drown before it has time to gnaw or twist its foot off.

During long spells of freezing weather, when the ice is thick, muskrats and other water animals get very hungry, for they cannot get into and out of the water after fish, etc. Therefore the colder the weather grows the more careful should you be to keep several holes open in the water near the bank.

A good place for these is near the sprangled roots of a tree growing at the water's edge and partly in the water. The bank should be long and sloping above and below the tree, gradually getting steeper nearer the tree, in order that water animals traveling up or down stream along the bank will see the hole in the ice. If the water is too deep here to set traps on the bottom under the opening in the ice, as before described, set several around the hole on the ice, also along the bank nearest the hole and just at the edge of the water, covering them with moss, pine needles, damp leaves, feathers or cat fur, baiting the place with corn, apples, parsnips or turnips, or almost any kind of green vegetables.

The best months in which to take muskrats are February and March, when the fur is thick and heavy, for the animals are hungry then, as the ice is breaking up in the rivers and lakes, enabling them to stir out better than during the dead of winter.

Skin muskrats as soon after being

caught as possible. If frozen they will, of course, have to be thawed out first. Stretch the pelts evenly, and moderately tight, and tack to boards immediately, with the flesh side out. The stretching is required in order that the pelts will not dry too thick. Dry in the shade, without smoke or fire.

Some furriers prefer the skins not cut down the front, but pulled over the heads as the Indians skin them.

TREES.

BY T. G. MORRIS.

Trees, trees, beautiful trees
That stretch your branches afar,
I sometimes wonder if you know
How beautiful you are!

Trees, trees, majestic trees,
That tower and bend and wave,
You hold the traveler's vision
Like cathedral's lofty wave

Trees, trees, sheltering trees,
With leafy banners unfurled,
You stand as messengers of Hope
And beckon to the world.

Trees, trees, wonderful trees,
From sturdy oak to elm,
You are the pilots of the sky,
His captains at the helm!

EFFORT.

BY J. A. KAISER.

Who strives to do with willing hands
The work that falls to him,
May tug in vain to loose the strands
Of stern Fate, dark and grim.

The world may count his life mis-spent,
And he himself may feel
That Failure strode the way he went
And crushed him 'neath his heel.

But when before the judge supreme
The willing worker stands,
Methinks the just judge will not deem
He comes with empty hands.

For he who knows each high intent
And what the failures cost,
Will deem no earnest life mis-spent
And count no effort lost.

That spirit which suffices quiet hearts, which seems to come forth to such from every dry knoll of seer grass, from every pine stump, and half imbedded stone, on which the full March sun shines, comes forth to the poor and hungry, and such as are of simple taste.

How to Catch Muskrats

By ISAAC MOTES.

WHILE muskrat pelts do not bring a very high price, it pays well to trap them, because they are so numerous and easily caught. Muskrats are not at all cunning like the fox. The main trouble is in getting them afterwards—in catching them where they will drown before they twist a foot off and get away, or where a mink or skunk will not find them and mangle them before you arrive. Or, if the weather is very cold their feet soon freeze where they are caught in the trap and break off, and the animals escape unless they are caught where they will drown easily.

Muskrat dens and signs are sometimes hard to find, for so often the opening is under water, and the den slopes back and upward into the bank, so the young trapper need not believe that there are no muskrats in his locality because he never sees much sign of them.

To catch muskrats put an apple on the sharpened end of a stick and stick this into the mud at the edge of a stream where the water is three or four inches deep. Let the apple be from two to six inches above the water. Try this a night or two at several places along the stream where it looks "ratty," and if the animals are thereabouts you will soon begin to catch them. Stake the traps as far out in the stream as possible, so as to drown the animals quickly. When first caught the muskrat makes a plunge for deep water if it is within reach, and drowns before he gets over his fright.

A rocky place in the middle of a running stream where several rocks jut out of the water is another good place to catch muskrats. Set your traps around on flat rocks two or three inches below the surface, chain to rocks, and place bits of apple or parsnip on the rocks above the surface. Bits of turnip or cabbage will also attract them. Tie an apple, parsnip or turnip to a rock by a string, place a trap or two within the string's length of the place to which it is fastened, and the animals will in pulling at it circle around and get into the trap.

When streams are all frozen over, and there are no open places for muskrats to pass in and out excepting what they themselves keep open, go along one of these streams until you come to a place where the water runs swift. Here the ice will be thin. Break a hole and set the trap just under the hole. If the water is over four inches deep scrape up sufficient earth and rock to make it that depth. Run chain up or down stream under the ice to its full length, and at that place break a small hole and drive your stake down until top is even with the ice. Naturally all the rats, mink and other water animals that travel the stream will more than likely go in and out at the hole where your trap is. Let the trap be a stout one, as you are apt to catch a mink or otter also. It is, of course, not necessary to bait this trap.

Another way to catch muskrats is to set your trap at the den where there are fresh signs, in about four inches of water, and have a sliding pole so as to drown them as soon as caught. Or set the trap in the sand near the mouth of their dens, and scatter some shelled corn or bits of apple in the sand around the trap and inside the jaws.

Go along the bank of a stream with a spade and make some little mounds right at the water's edge, and set your traps on these. Muskrats are much given to sitting on elevated objects alongside the water, or just in the edge of shallow water or on a mound of earth, a flat rock, a rotten log sticking up out of the water, or the like. If there is danger of someone stealing your trap get into the water with a boat or wade in with your rubber boots and make the mounds out in the water, if not too deep, by raking up mud and broken rock from the bottom. In either case bait with shelled corn, apples, parsnips or turnips.

Another good set for muskrat is to spade and dig a trench from the water's edge back into the bank a foot or two. Let the bottom of the little ditch be level, and deep enough so that the water will stand two or three inches deep over the bottom. Put an apple,



A Horseshoe in the Heart of an Oak Tree

A short time ago a block from a tree on Cralton Horton's farm in Jackson county, when split in halves, disclosed in its center the horseshoe shown in the above picture. The block was fifteen inches in diameter, and the shoe under six inches of wood, hung on the stub of a little limb. How did it get there? Thirty-five years ago the writer hung it on the limb of an oak tree, then about three inches in diameter where the limb put out. The limb kept the horseshoe constantly at the same distance from the center of the tree, stopping the growth of wood under the shoe, while it continued to grow around the shoe, and closed over it naturally. If the foot of the limb had moved farther from the center of the tree by its growth, the shoe would have been carried out, and would not have been absorbed.—Van. R. W. Horton.



Woman and Her Needs

At Home and Elsewhere



Housekeeper's Conference at M. A. C.

MONDAY, July 10, Miss Paulina E. Raven, Extension Representative in Home Economics, gave two demonstrations one on the making of jelly, and one on the cold pack method of canning. Many of you have heard Miss Raven lecture, and know how practical her lessons are. She is a woman of broad training and practical experience, and one feels that she knows her subject thoroughly.

Three things are necessary for the making of jelly—pectin, acid and sugar. Pectin is found in the juice of ripe fruits; in green fruits it is not fully developed and in over-ripe fruit it has undergone still another change, so that neither green fruit nor over-ripe fruit will produce perfect jelly. Sunshine is necessary for the development of pectin, and because of the lack of sunshine, last summer was a very poor season for the making of jelly.

Some fruits are lacking in pectin and will not produce jelly when treated in the ordinary way, but it is possible to prepare a pectin extract and add it to the juice extracted from these fruits. To prepare this pectin extract, take the white inner rind of oranges, cover with soft or distilled water (never use hard water for this) boil about ten minutes, and drain as for jelly—from two to 24 hours. To determine how much of this pectin extract is needed, put into a glass about two teaspoons of the fruit juice and one teaspoon of the pectin extract. In another glass have a small quantity of grain alcohol and add to it the mixed juices; if they are combined in the right proportion, jelly will be quickly formed. If the jelly is not formed more of the pectin extract is needed; if it is too stiff, of course less is required. A little experimenting will soon determine the exact amount necessary.

Miss Barrows, of Teacher's College and Chautauqua, recommends drying the white rind of oranges used in the winter and saving it for the making of pectin extract in the summer.

Miss Raven demonstrated the making of strawberry jelly. The strawberry juice was extracted by boiling the clean, fresh strawberries until soft, then draining through a jelly bag. The juice was then measured and one-third as much pectin extract was added, and heated to boiling point. Then she added three-fourths of a cup of heated sugar for each cup of juice, adding it so slowly that the boiling was not stopped. This mixture was allowed to boil until it gave the sheet or spoon test: i. e., it dropped from the spoon in two places at the same time. Then it was poured into glasses and allowed to cool and harden, after which it was covered with paraffine.

Grapes and currants are so rich in acid and pectin that from one quantity of grapes you can make two lots of jelly, and from currants you can make three lots of jelly. To do this, wash your fruit, boil and drain, and use this juice for the first lot of jelly. Then measure the pulp left in the jelly bag, add half as much water, and boil again.

The United States Department of Agriculture is soon to publish a bulletin on the making of jelly, similar to the one on canning.

In the afternoon Miss Raven gave a demonstration of the canning of small fruits and vegetables by the new cold pack process. She canned string beans,

peas, carrots, gooseberries and cherries. This method has already been described in these columns so I will not repeat it. The extension workers are giving special attention to the canning this year because many of the canning factories are under war contract with the Allies and there will be an increase of one-fourth to one-third in the price of their product. During the conference the statement was made that last year one-half the fruit and vegetables raised in Michigan was absolutely wasted. In some sections of the state fruit rotted on the ground; in other sections it could only be obtained by paying exorbitant prices, and in others could not be obtained at all. One of the ministers present, living close to the edge of the fruit belt said only one carload of peaches reached his town during the summer.

Health Day.

Tuesday was Health Day and the meeting was equally as full of practical help as the one on Monday. Miss Lena F. Cooper, Dietitian at the Battle Creek Sanitarium, presided.

Miss Elizabeth Parker, Visiting Nurse in Lansing, talked about the care of the sick-room. She said that in this age of preparedness we are never prepared for sickness; but we are improving in this regard. There has recently been inaugurated a Red Cross Town and Country Service, of which I hope to tell you later.

Sick Room.—The less there is in the sick-room the easier it is for both the nurse and patient, and this of course helps in the recovery. Bare floors are best because they can be most easily kept clean. Remove all unnecessary articles, especially elaborate covers, draperies and clothing. For the dresser covers substitute plain towels or clean paper.

Dress.—The dress of the patient should be as comfortable as possible. A night-gown cut off just below the hips, slit down the front, and put on with the back to the front, leaving nothing but the sheet under the patient is most comfortable. An old one of either cotton or flannel can easily be cut down.

The nurse should wear a wash dress, sufficiently loose and comfortable to work easily and simple enough to require little thought on her part. A bungalow apron makes an excellent dress for the home nurse.

Medicine.—Understand the doctor's orders thoroughly; write them down, do not trust to memory. Time is worth everything that will be saved by this precaution. If several powders are to be given put each in a separate envelope, and write on it exact directions for its use, and the hours at which it is to be given, 7-9-11, etc., not simply "Every two hours." If a solution in glass is to be given, cover with stiff paper snapped in place with a rubber band, leaving spoon on top of glass next to be given. Remember that a prescription is made out for one person and never give it to another without a doctor's prescription.

Home Remedies.—An emergency shelf is good, but not too many things should be kept on it. Boracic acid powder, camphor, alcohol, iodine, a good laxative, unguentine and salt solution for burns, rubber adhesive plaster, clean old linen or cotton bandages, wrapped in wax paper and kept in

a clean covered box; one or two clean bottles with corks, and a few small jars with covers, are all good things to keep on hand.

A Neighborhood Loan Closet is a very good thing in rural communities. This can be fitted up at small cost with sick-room appliances that are not found in the ordinary household. In fitting these up do not attempt to keep rubber supplies on hand. Rubber deteriorates quickly and it is better to buy it when needed. An exception to this is the best quality of rubber sheeting.

Bandages can be made from the outer edge of old sheets when the center has become too worn for use. Tear the sheet into strips the desired width, and flat-stitch the ends together to make bandages about five yards long—then roll into tight rolls and wrap in waxed paper. Bandages one, two or three inches wide are most used.

Care of Rubber Hot Water Bottle.—Invert, hang by loop in the bottom, and tie the stopper to the handle. A metal bottle is very good for most purposes and retains the heat longer.

Care of Waste.—Any waste taken from the patient should be burned at once; put dressings into newspapers and burn. Boil all soiled clothing at once from fifteen to thirty minutes, in order that it may be sterilized. After this it may be safely washed.

Economy of Bed and Body Linen.—As said before, the nurse's dress should be of cotton—the kimona, or bungalow apron, is good but the loose kimona is bad. Loosely fitting aprons of washable crepe, protect the dress, are easily washed and do not require ironing.

A change of night-dress rests a patient. It is well to use two gowns a day; after the second one is put on the first can be hung on the line to air, and put on again at night. In this way two gowns will last for several days without washing. Sheets can be used in the same way.

If towels and wash cloths are kept for special purposes they can be used for several days; for example—two wash cloths, one for the face and one for the body.

A Hip Pad made from five or six newspapers, covered with cheap cotton batting, and thin cheesecloth pinned over it protects the bedding. These are easily and quickly made and should be burned when soiled.

The Making of the Bed.—The single bed is preferred for the sick-room. Metal beds are most easily cleaned and disinfected so these are chosen for hospitals and are just as desirable for the home. The mattress should be the most comfortable that can be obtained. Old comfortables will help to soften a mattress that has become old and hard. Protect the mattress with blanket, quilt or special pad.

The bed should be of such a height that the nurse can lift the patient without much bending of her back. If the bed is too low for this, raise it by means of one or more bricks placed under each leg. Of course, you will be sure that these are placed so firmly that there is no danger of slipping and you will also be sure that the bed is far enough from the walls so that the nurse can work on all sides of it.

Sheets should be long enough to allow for turning under the ends of the mattress. In placing the lower sheet, bring it up high enough to turn under

the top of mattress, tuck one side under and pin securely in place with safety pins. Pull the other side tight and pin underneath, then fasten the lower end. If the sheet is not long enough to turn under at both ends, be sure it is turned under at the top.

A rubber protector can be placed crosswise of the bed and over this put a draw sheet. For this draw sheet fold a sheet lengthwise through the center and then crosswise; place it on the bed with the fold through the top, and pin each to side firmly.

In placing the upper sheet, be sure it is pulled down low enough to cover the lower end of the mattress.

Blankets should be well tucked under at the bottom with the opening toward the top, so that one part can be turned under if desired.

The ideal bed spread is of dimity. These spreads are very attractive for any bed, can be easily laundered, are very light weight and easily handled. Rather than use the heavy Marseilles spread, use another sheet. Turn the top of the spread in under the blanket, then fold the upper sheet back over both.

Pillows should be large enough to raise the head comfortably.

SOME SEASONABLE DISHES FROM SMALL FRUITS.

Raspberry Pudding.—Scald one quart of milk, add six teaspoons of corn starch moistened with a little cold milk, and four tablespoons of sugar. Cook in a double boiler until thick, add a few grains of salt, fold in the stiffly beaten whites of two eggs and pour into a border mold. When firm, turn out and fill the center with raspberries or any other berries in season. Serve with whipped cream.

Berry and Rice Pudding.—Butter a shallow pulling dish; put in a layer of berries sprinkled with sugar and grated lemon rind, cover with boiled rice. Repeat until dish is full, having the last layer of rice. Over the top put a layer of buttered crumbs, and bake until fruit is tender.

Blackberry Pudding.—Sift together two cups of flour, four level teaspoons of baking powder and one-fourth teaspoon of salt. Beat two eggs light, add one cup of sugar and two cups of milk and combine with first mixture; add one quart of blackberries and bake in a hot oven for one-half hour. Serve with hard sauce.

Huckleberry Pudding.—Mix and sift two cups of flour, one-half teaspoon of soda, one-half teaspoon of ground cloves, and one-eighth teaspoon of salt, add one cup of molasses and mix smooth, then stir in carefully three cups of huckleberries. Pour into buttered mold and steam about forty minutes. Serve hot with sauce.

RECIPES.

Harvest hands sometimes like a good home-made ginger beer. It is cooling and refreshing. To one gallon of warm water, add two ounces of ground ginger, one pint of molasses, or two pounds of brown sugar, and a half pint of good yeast, or one-half cake of yeast dissolved in lukewarm water. Put in stone jugs, shake up well and let stand over night. Then cork and cool for use in the field. A large piece of ice in it will improve it.—M. A. P.

Grange.

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

STATE GRANGE OFFICERS.

Master—John C. Ketcham, Hastings.
Overseer—C. H. Bramble, Tecumseh.
Lecturer—Dora H. Stockman, Lansing.
Secretary—Jennie Buell, Ann Arbor.
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Executive Committee—C. S. Bartlett, Pontiac; Geo. B. Horton, Fruit Ridge; J. W. Hutchins, Hanover; W. F. Taylor, Shelby; Wm. H. Welsh, Sault Ste. Marie; N. P. Hull, Dimondale; Burr Lincoln, Harbor Beach.

MICHIGAN'S TUBERCULOSIS SURVEY.

Partly because State Grange has an active tuberculosis committee, I was exceedingly interested when the doctors and nurses, who are making a tuberculosis census, came to our county of Washtenaw; interested, also, because we so frequently hear that the rural districts are falling behind the cities in some health respects and I hoped this work would reach them. Moreover, the nurse who came on ahead of the clinics solicited co-operation of the Grange in reaching the people who needed such help.

Perhaps some who read this may be as hazy in regard to this tuberculosis survey as I was and will be interested to learn that the last state legislature appropriated \$100,000 for the purpose of getting in touch with as many as possible of the persons in the state who have any signs of the dread great white plague, besides setting in motion a vast amount of educational work. A force of doctors and nurses, every one of whom has specialized in the study and care of this frightful disease, is taking this census of tuberculosis-affected persons at the present time. This brief statement shows you at once why the Grange is deeply concerned in the "clinics" which these doctors and nurses will hold in every county in the state. At state expense, the skill and resources of the best hospitals are being carried right out into the veriest nooks and crannies of the country where nobody can be too sick or too poor to avail himself of the chance to consult competent authorities on the disease. Of course, it is a work the Grange can and will assist in. Besides making these facts known through our meetings and among our members, so that any who wish an examination may have it when the clinic comes near, there is an opportunity to engage one of the doctors for an address on the subject of health, for the lecture hour. Those who desire such a speaker should write the State Board of Health, Lansing, under whose direction the census is being made.

Washtenaw was the sixteenth county to be visited by the corps of doctors and nurses. A few of this group of workers came on ahead and looked up families in which death had occurred

from tuberculosis; called upon physicians, officers of societies and individuals who might be expected to help; and in general advertised and prepared the way for the week when examinations were made, findings recorded, literature distributed, and advice given to all those who came to the points designated for clinics. The third week a portion of the force remained in the county to follow up the examinations by calling upon the patients who were found to be affected and by spreading instructions on how to care for persons having the disease and prevent its contagion.

In this county nearly half the persons examined showed that they did not have tuberculosis, which must have been a decided relief in each instance. One hundred and ten positive cases were found, however, and 88 "suspicious cases." As this county contains the state university hospitals

the clinic and in whom were found no suspicious signs by the lung test; they were about to let him go when something inclined the doctor to give a more exact test which required that the lad return next day. On his return, a decided reaction was apparent which led the doctor to state to the boy that he ought to sleep out of doors, should not take violent exercise and urged him to see his family's physician. A nurse will visit his home and talk with his parents, and literature will be sent direct to the boy from time to time from the office of the State Board of Health, Lansing.

A curly haired, rosy-cheeked girl danced up to the nurse I was talking with and asked assistance in dressing. "No tuberculosis there!" I exclaimed to the nurse. "Yes; her mother brought her because a brother had died of tuberculosis and she proves to be slightly affected but in a degree that can be



Making a Physical Examination.

which conduct free clinics the year round, an idea may be gained of the prevalence of the disease over the state. From here the examining force moved on to Tuscola and Sanilac counties and from there plan to go to Houghton to begin a summer's campaign in the upper peninsula.

The exhibit of photos and appliances for detecting and fighting the disease,

overcome now that her mother understands the case."

These two young cases are cited to show the hopeful side of the survey. Detected in its early stages, tuberculosis can be cured. If health instructions can be sent into every home, in a few years its progress will be stayed. Pure air, proper food, and rest—these three are the handmaids of science in



Nurse Taking Temperature and Getting History of Case.

in connection with the clinics, instructs through the eye, while every nurse is ready to give verbal information to all who come. The presence of many applicants for examination suggests stories of dread and anxiety and, in a few advanced cases, of positive suffering. I was told of a boy of 14 who came to

fighting tuberculosis, but the greatest of these, said a nurse to me, is rest.

When I left the tuberculosis clinic, it was with a sense of gratitude that the Grange can have a part in this state-wide war against the arch bodily enemy of many a country home.

JENNIE BUELL.

Farmers' Clubs

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

RALLY.

Clubs of Central Michigan and all others interested. Date, Wednesday, August 16, 1916. Place, Michigan Agricultural College.—W. L. Cheney, Secretary, Mason, Mich.

CLUB DISCUSSIONS.

A Picnic Meeting.—The Salem Farmers' Club held its Fourth of July picnic at the pleasant and commodious home and lawn of Mr. and Mrs. Claude Bailey. A large number gathered and enjoyed the social hour, the games on the lawn, the bountiful dinner, and especially the ice cream. The program was patriotic and inspiring. Music in the open air was furnished by singing by the Club, and an orchestra, consisting of a piano and two violins played by Mr. Willard Starks, of Northville, and his two sons. A paper was read by Mrs. Irving Johnson on "The Importance of the Farmers' Club in the community." Bringing out the educational, social and moral value of the Club, saying it is especially adapted to the development of our young people, and helps to solve the problem, "How to keep the boy on the farm." It is taking advanced grounds in all lines, and stands for statewide prohibition and women suffrage. The Club, well organized and efficient, is a great power for good in any community. Very enjoyable recitations were given by Reva Dean, Dorothy Bailey and others, and a sweet little song was sung by Doris Starks, accompanied on the piano by her father. A vote of thanks was given to Mr. and Mrs. Bailey for their cordial entertainment. Also to the musicians for their delightful music. Adjourned with music.—Reporter.

The Auto vs. the Telephone.—Clover Leaf Club met in June with Mr. and Mrs. Bert Dugan. The meeting was called to order and opened in the usual manner. Several songs were sung by the Club and Mrs. Frank Barker gave a recitation. The feature of the evening was a debate. Subject, "Resolved, that the automobile is of more use on the farm than the telephone." The men handled the affirmative while the ladies had the negative. After the rebuttal and the judges gave their decision each side was found to have five points, so there was small chance for hard feelings and the discussion was one to cause merriment as well as being interesting. Refreshments of strawberries, cream and cake were served, after which the young folks played games. There were present 78 and all enjoyed a good time. The July meeting will be with Mr. and Mrs. Ford Myers and an invitation is extended to all members.

A Good Summer Attendance.—C. A. Fish took charge of the Ellington-Almer Farmers' Club on July 13, which was held at the beautiful farm home of Mr. and Mrs. A. T. White. There were 80 members and guests present, who enjoyed a program which included a reading by Mrs. Frank Allard, a song by Dora and Ruth Richardson, and a recitation by Mrs. Etta Turner, "The Same Old Things." Rev. S. C. Hathaway read an original poem, "The Four Ages," and remarks were made by Mr. L. G. Seeley, Rev. M. Sweet and H. P. Bush.



General View of a County Clinic. Over 200 were in Waiting Room.



Testing the Lungs of a Patient.

Markets.

GRAINS AND SEEDS.

July 25, 1916.

Wheat.—Wheat values experienced a sharp advance during the past week. Crop conditions in the spring wheat states and an active foreign demand for both cash and future sales appear to be the prominent price-making factors. Considerable permanent damage has been done by the black rust that cannot be remedied by the most perfect weather. The great stimulus to the trading on Saturday and Monday was due to foreign buying and reports that the United Kingdom has considerable anxiety over future supplies. Throughout Europe crops are suffering on account of the scarcity of labor. Primary receipts last week were 2,533,000 bushels, compared with 1,837,000 bushels a year ago. Exports of wheat and flour were 722,000 bushels. One year ago No. 2 red wheat was quoted on the Detroit market at \$1.14 per bushel. Last week's Detroit quotations were:

	No. 2.	No. 1.	
	Red.	White.	Sept.
Wednesday	1.17 1/4	1.14 1/4	1.19 3/4
Thursday	1.20 1/2	1.17 1/4	1.22 3/4
Friday	1.20 1/2	1.17 1/4	1.22 3/4
Saturday	1.23 3/4	1.20 3/4	1.26 1/2
Monday	1.27	1.24	1.29
Tuesday	1.25 1/2	1.22 1/2	1.27 1/2

Chicago.—July wheat \$1.18; Sept., \$1.19 1/2; Dec. \$1.23.

Corn.—This cereal has developed strength with the advance in wheat. In some districts rain will soon be required to enable the plant to continue its recent rapid growth. The demand is fair, with dealers in a somewhat unsettled mood as to the probable future course of the trade. One year ago No. 3 corn was quoted locally at 82c per bushel. Last week's Detroit quotations were:

	No. 3.	No. 3.	
	Mixed.	Yellow.	
Wednesday	82	83 1/2	
Thursday	82	83 1/2	
Friday	82 1/2	84	
Saturday	83 1/2	85	
Monday	84	85 1/2	
Tuesday	83 1/2	85	

Chicago.—July corn 83 1/4c; Sept. 78 5/8c; Dec. 67 1/2c.

Oats.—Prices rule about steady with a week ago. A general improvement in the outlook for this crop has overcome the bullish influence of wheat and corn. The demand is normal while the visible supply for the United States shows a decrease for the week of 2,163,000 bushels. One year ago standard oats were quoted at 59c per bushel. Last week's Detroit quotations were:

	Standard.	No. 3.	
		White.	
Wednesday	45	44	
Thursday	45 1/2	44 1/2	
Friday	45 1/2	44 1/2	
Saturday	46	45	
Monday	45 1/2	44 1/2	
Tuesday	45 1/2	44 1/2	

Chicago.—July oats 41 1/2c per bu; Sept. 41 3/4c; Dec. 43 1/4c.

Rye.—Cash No. 2 rye is 1c below last week's quotation, it now being 95c per bushel. Market is active and easy.

Beans.—There is practically nothing doing in the bean trade, owing to lack of supply and high prices. Immediate and prompt shipment are quoted at \$5.50 on the Detroit market. The Chicago market is inactive and prices rule very high. Michigan hand-picked pea beans are quoted at \$6.50@7; common to good quality \$5@7; red kidneys \$6@6.10.

Seeds.—Prime red clover \$8.95; do. alsike \$9.50; prime timothy \$3.20; do. alfalfa \$10@11.

FLOUR AND FEEDS.

Flour.—Jobbing lots in one-eighth paper sacks are selling on the Detroit market per 196 lbs., as follows: Best patent \$5.90; seconds \$5.70; straight \$5.50; spring patent \$5.20; rye flour \$6.

Feed.—In 100-lb. sacks, jobbing lots are: Bran \$24; standard middlings \$25; fine middlings \$30; cracked corn \$32; corn and oat chop \$29 per ton.

Hay.—No. 1 timothy, \$18.50@19; standard timothy \$17.50@18; light mixed \$17.50@18; No. 2 timothy \$14@15; No. 1 mixed \$12@13; No. 1 clover \$10@11.

Straw.—Rye straw \$7.50@8; wheat and oat straw \$6.50@7 per ton in car lots, Detroit.

DAIRY AND POULTRY PRODUCTS.

Butter.—Market is steady and without change. Extra creamery 27 1/2c; firsts 26 1/2c; dairy 23c; packing stock 21c per lb.

Elgin.—Top grades are firm at unchanged prices. Quality of receipts is decreasing. Price for the week, based on sales, is 27 1/2c.

Chicago.—The trade is good and the market active. Some receipts are affected by the weather. Offerings are decreasing in quantity. Extra creamery 27 1/2c; extra firsts 26 1/4@27c; firsts 25 1/4@26 1/2c; packing stock 22@22 1/2c.

Eggs.—The best candled eggs are firm; other grades steady. Prices are unchanged. Current receipts are quoted at 21 1/2c; firsts 24c.

Chicago.—Strictly fresh stock holding firm but the poorer grades are dull. Eggs should be candled to get the top prices. Firsts 22@22 1/2c; ordinary firsts 21@21 1/2c; miscellaneous lots, cases included 16@22 1/2c per dozen.

Poultry.—Offerings were light and market firm but quiet. Fowls are slightly higher. Fowls 17@18 1/2c per lb; broilers 24@27c; ducks 17@19c; geese 12@13c.

Chicago.—The market is active. The prices for young geese and broilers are lower. Many dead chickens are found in crowded shipments. Hens 17c; roosters 13c; spring chickens, 2 lbs. and over, 23@23 1/2c; 1@1 1/2 lbs., 20c; spring ducks, over 2 lbs., 15c; spg geese 14@15c.

FRUITS AND VEGETABLES.

Cherries.—Sour cherries are quoted at \$3 per bushel on the local market. At Chicago the receipts are light and market is firm for good stock. Richmonds are quoted at \$1.15@1.25; Montmorencies \$1.40@1.50; Windsors \$1.25@1.75 per 16-qt. case.

Small Fruits.—Gooseberries \$1@1.15 per 16-qt. case; black raspberries \$2@2.15 per 16-qt. case; red raspberries \$5@5.50 per bu; red currants \$2.75@3 per bu; blackberries \$4.25@4.50 per bushel.

Chicago.—Gooseberries 50c@1.25 a 16-qt. case; dewberries \$1.25@1.40 per 16-qt. case; black raspberries \$1.25@1.50; reds \$1@1.25 per 24-pt. case; red currants 50c@1.25.

WOOL AND HIDES.

Fleece wools are in active demand at the present time, and prices are firm to higher. Manufacturers are buying only for immediate needs, notwithstanding the universal belief that they shall be obliged to pay more for wools later on. Michigan quarter and three-eighths blood unwashed combing sold in Boston recently at 42c, while unwashed delaines brought 35c. It is interesting to note that the average weight of fleeces in the United States this year is the heaviest ever recorded, being 6.92 lbs. per fleece.

Hides.—No. 1 cured 18 1/2c; No. 1 green 15c; No. 1 cured bulls 13c; No. 1 green bulls 10c; No. 1 cured veal kip 20c; No. 1 green veal kip 18c; No. 1 cured murrain 18c; No. 1 green murrain 16c; No. 1 cured calf 28c; No. 1 green calf 25c; No. 1 horsehides \$6; No. 2 horsehides \$5; No. 2 hides 1c and No. 2 kip and calf 1 1/2c lower than the above; sheepskins, as to amount of wool 50c@2.50.

GRAND RAPIDS.

Eggs have advanced 1c, to 23c per dozen, because of light receipts. Dairy butter is bringing 25c. The hot, dry weather is bringing forward the raspberries with a rush and with prospects of a short season. Reds are worth around \$2 and blacks \$1.60 a crate. Gooseberries are being quoted at 75c; currants 80@90c; huckleberries \$2.50. Potatoes are selling at \$1 a bushel. Wheat is quoted at \$1.09 here, while Middleville is quoting at \$1.13; hay brings \$10@12 on the city market.

DETROIT EASTERN MARKET.

A considerable volume of farm produce was offered on the Eastern Market Tuesday morning, and most of the farmers were able to sell out their loads at an early hour. Greenhouse tomatoes were selling at \$1.75@2 per 14-lb. basket, and field tomatoes at \$3@3.50 per half-bushel basket; cabbage \$1@1.25; corn \$2 per ten dozen bag; currants \$3 per bushel; lettuce 55@70c per bu; eggs 32@35c. There is very little loose hay offered at present.

LIVE STOCK MARKETS.

Buffalo.

July 24, 1916.

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

Receipts here today as follows: Cattle 155 cars; hogs 60 d. d.; sheep 15 d. d.; calves 1200 head.

With 155 cars of cattle today, trade was in a demoralized condition and the bulk of the cattle sold 25@40c lower, with several loads left over unsold. It looks like there are plenty of good grass cattle to come and if this hot weather keeps up we have got to

have a very light run next Monday or cattle will work still lower.

We had a very light run of hogs today, demand good, with prices generally 10c higher than Saturday's close, best grades selling at \$10.45; ordinary kinds from \$10.25@10.40; pigs and lights \$10@10.10; best roughs \$9; stags \$6.50@7.50. About everything sold at the close, and while our prices look high compared with other points, with light receipts market ought to continue quite good.

Sheep receipts were rather light again today and prices were about the same as the close of last week. Prospects about steady.

We quote: Best spring lambs \$10.50@10.75; cull to common lambs \$9@10; yearlings \$7.75@9; bucks \$5.50@6; ewes \$6.75@7.50; cull sheep \$3.50@6; wethers \$7.75@8; top veals \$12.50@12.75; heavy \$9.50@11; common and light \$10.50@12; grassers \$5.50@7.50.

Chicago.

July 24, 1916.

Cattle. Hogs. Sheep.
Receipts today.....12,000 27,000 9,000
Same day 1915.....15,371 32,996 15,247
Last week.....46,008 117,924 59,433
Same wk 1915.....35,710 130,602 48,538

Shipments of hogs from here last week amounted to 12,096 head, comparing with 7,941 a week earlier and 23,692 a year ago. Hogs received averaged 231 lbs.

Hogs were 5@10c higher today, with sales at \$9.10@10.10, the demand being active. Choice cattle were firmer, but otherwise steers sold slowly, early buying being mainly confined to fat butcher stock. Prime lambs sold at \$10.40, a gain of 15c.

Cattle were marketed last week with extraordinary liberality, whereas it was a time when, because of the terrific heat and the unusually poor demand for beef throughout the country, supplies should have been cut down to meager proportions. The inevitable result of such a condition was the worst kind of a market imaginable, with a break on Monday of 15@25c on receipts of 21,912 head, while a Wednesday run of 15,049 head was responsible for another bad break. Other days were characterized by dullness and weakness in prices, with the bulk of the week's sales of steers at a range of \$8@10 and the best class of steers taken at \$10@10.90. Good steers were purchased as low as \$9.50, with a medium class taken at \$9.10@9.45, fair light killers at \$7.50@9 and inferior light weight grass steers at \$6.25@7.45. Good to prime yearling steers were taken at \$9.50@10.50, with an early week top sale at \$10.75. Butcher cattle were purchased more freely than steers, with cows taken at \$5.60@8.25 and heifers at \$5.25@9.50, although only a limited number of prime yearling heifers sold above \$8.50. Cutters brought \$5.50 down to \$4.75, while canners sold at \$3.50@4.70 and bulls at \$5@8. There was scarcely any demand for stockers or feeders, although further sharp declines in prices made many of them look like rare bargains. They were salable all the way from \$5.25@7.75, a few prime lots going on the basis of \$8@8.50. There was a good demand for light weight veal calves at

\$11@12 per 100 lbs., while sales were made of the heavy weight calves at \$5.50@10.50. At this time it may not be out of place to warn stock feeders against hurrying their cattle to market prematurely, and it is also in order to advise buying these bargains in stockers of good breeding. Most steers show a decline of 75c for the week, the market closing 50c@1 lower. Declines included pretty much everything in the cattle line, including females and stock cattle. At the close top steers were quoted at \$10.50 and best yearlings at \$10, with best stockers worth about \$8.

Hogs were marketed very moderately last week, and prices developed a good deal of firmness, with supplies much smaller than either a week earlier or a year ago. Sales were made very close to the best prices paid this year, with a widening range of prices, because of the increased percentage of inferior grassy sows. The weather throughout the country has been unusually hot, and owners of hogs were not generally disposed to make shipments at a time when dead hogs in transit were likely to be numerous. Selected droves of the best butcher hogs sold higher at times when droves of "packers" sold 15@25c lower than a week earlier. Because the big, heavy hogs were largely held back for fear of their dying in transit, the recent receipts of hogs averaged only 228 lbs., comparing with 233 lbs. a week earlier, 236 lbs. a year ago, 246 lbs. two years ago and 243 lbs. three years ago. Pigs carrying much weight formed but a small part of the offerings and sold especially high. With greatly reduced receipts last week, the best lots of hogs sold up to \$10.20, but a reaction left prices at the close at \$8.90@10, comparing with \$9.20@10.05 a week earlier, while pigs closed at \$7.25@9.15.

Lambs made up most of the offerings shown in the sheep division of the stock yards last week, natives and range flocks being fairly numerous for these times, while some fair shipments of Montana range wethers were received. Idaho furnished the larger share of the lambs, with some shipments from Oregon and Washington. Idaho feeding lambs sold up to \$9.65 per 100 lbs., another high record, offerings being scarce. Despite greatly reduced lamb receipts, most fat lots closed 50c lower, while sheep were scarce and steady, but yearlings declined 15@25c. Lambs closed at \$7.75@10.25; feeding lambs at \$9.35@9.65; yearlings at \$7@9.75; wethers at \$5.25@8.25; ewes at \$3.50@7.75; breeding ewes at \$7@9.75, and bucks at \$4.50@6.

Horses were in fairly large supply last week and in the usual good demand for supplying the European armies, prices for such offerings being firm. Otherwise, trade showed hot weather dullness, prices being maintained only because the receipts were not heavy. British inspectors bought riders at \$165 and artillery horses at \$185@200, while the French inspectors paid \$160 for artillery horses. Drivers went at \$75@200, drafters at \$175@285, light delivery wagon horses at \$150@170, expressers at \$160@200 and farm chunks at \$160@175. Branded bronchos sold at \$25@100.

Bates All Steel Oil Tractor

The **Bates All Steel Oil Tractor** is the oldest tractor on the market. Years of hard service has developed every detail and it is entirely out of the experimental stage. It is a **Real Tractor** and will stand years of hard work.

If you buy a **Bates All Steel Oil Tractor**, it will last you a long time. You won't have to buy a new machine every spring.

No Chains

The **Bates All Steel Oil Tractor** has positive Steel Gears that are guaranteed not to break for five years, you won't have to bother with troublesome chains that have proven a failure in all self-propelled machines.

A Four Wheel Tractor

The **Bates All Steel Oil Tractor** has four wheels, two wide rear wheels for drivers which provides an abundance of traction and won't mire in sandy places or on soft ground in the spring of the year but will go where horses can be driven practically. This construction has become a standard with manufacturers who have had long experience in building self-propelled machines, therefore, we could not ask our customers to accept a machine that is experimental.

All Steel

The **Bates All Steel Oil Tractor** is light in weight which is accomplished by the use of steel in its construction, however, we have not gone to the

extreme and sacrificed strength and rigidity that we might produce a machine that is extremely light. Our engine is **slow speed** and will last a long time.

Oil For Fuel

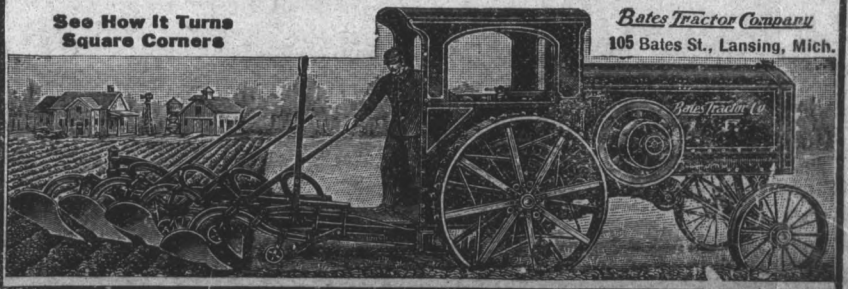
The **Oil Carburetor** used in the **Bates All Steel Oil Tractor** is manufactured in our own factory and is of special design. It can be found only on our engines and is the product of 20 years actual experience in the manufacture of gas engines. It is fully developed and will operate equally as well on kerosene as gasoline under all speeds and all loads. It won't bother with carbon or tar. You won't have to change from kerosene to gasoline when the engine is running empty or under part load. Think of the immense saving with this cheap fuel.

Solid Facts

The **Bates All Steel Oil Tractor** is directly connected to the plow carriage and you can back the plows into the corners of the fence and plow all of the field. The plows operate independently and will do good work in stony and rough ground. One man can operate the entire outfit.

The **Bates All Steel Oil Tractor** has two speeds forward and will draw heavy loads up steep hills. Our cab is appreciated by hundreds of our customers. We are not assemblers, we build our entire outfit in our own factory.
2 sizes: 16 and 30 H. P. Send for catalog.

See How It Turns
Square Corners



Bates Tractor Company
105 Bates St., Lansing, Mich.

THIS IS THE FIRST EDITION.

LIVE STOCK NEWS.

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

DETROIT LIVE STOCK MARKET.

Thursday's Market.

July 20, 1916.

Cattle. Receipts 2210. Good service by all local roads brought practically all the live stock in early this week and was the means of saving the shippers serious losses, especially so in hogs, which die very quick in this excessively warm weather.

The run of cattle was large and practically all the receipts were grassers, many of them being of the common order. A few good dry-fed steers would bring steady prices but grassers were decidedly dull and 50¢-75¢ lower than last week on everything but canners. At the close of the Wednesday market a large number had to be held over as they could not be sold, even at the decline; Thursday trade dull and draggy at the decline. A few went back to the farm for feeding purposes and were bought cheap. The close was very dull at the decline as follows, with a large number unsold: Best heavy steers \$8 @ \$8.50; best handy weight butcher steers \$7.50 @ 7.75; mixed steers and heifers \$6.75 @ 7.50; handy light butchers \$6.25 @ 7; light butchers \$5.50 @ 6.50; best cows \$6.25 @ 6.50; butcher cows \$5 @ 6; common cows \$4.50 @ 5; canners \$3.25 @ 4.25; best heavy bulls \$6 @ 6.50; bologna bulls \$5 @ 6.25; stock bulls \$4.75 @ 5; feeders \$6.50 @ 7.50; stockers \$5.50 @ 7; milkers and springers \$4 @ 6.5.

Bishop, B. & H. sold Nagle P. Co. 2 heifers av 805 at \$6.50, 1 do wgh 700 at \$6.50, 1 bull wgh 730 at \$5.25, 1 do wgh 520 at \$5.25, 6 butchers av 713 at \$5.25, 18 do av 804 at \$7.25, 1 heifer wgh 640 at \$6; to Breitenbeck 17 stockers av 866 at \$7.45; to Bray & B. 2 cows av 770 at \$4, 6 do av 1030 at \$6, 2 do av 750 at \$5; to Davenport 2 steers av 700 at \$6, 1 bull wgh 550 at \$5; to Hammond, S. & Co. 4 cows av 900 at \$4.35, 2 bulls av 820 at \$5.50, 1 do wgh 640 at \$5, 3 cows av 1000 at \$4.40, 2 do av 870 at \$6, 4 do av 905 at \$4.35, 3 do av 1000 at \$4.40; to Parker, W. & Co. 18 steers av 880 at \$8, 3 bulls av 1320 at \$6; to Sullivan P. Co. 2 cows av 1090 at \$5, 3 do av 833 at \$6, 6 do av 963 at \$5.50, 1 bull wgh 1330 at \$6.25; to Mich. B. Co. 9 steers av 1111 at \$8.50, 1 cow wgh 1270 at \$6.50; to Davenport 24 stockers av 523 at \$5.50, 4 do av 560 at \$5.50, 11 do av 460 at \$5.50; to Bray & B. 3 cows av 1133 at \$5.25; to Sullivan P. Co. 6 do av 980 at \$6; to Thompson 11 butchers av 890 at \$6.60, 8 steers av 1047 at \$8.50, 6 do av 681 at \$6.60; to Rhinehart 15 do av 828 at \$8.35.

Haley & M. sold Bray & B. 1 bull wgh 970 at \$5.25, 6 cows av 1008 at \$5, 9 do av 1128 at \$6, 21 do av 948 at \$6, 5 do av 920 at \$4.50, 3 do av 1113 at \$5.50; to Kull 3 butchers av 996 at \$5.65; to Walker 2 do av 710 at \$5.50, 2 do av 600 at \$5.50; to Breitenbeck 15 do av 655 at \$6.25, 16 do av 806 at \$6.15; to Stephenson 3 stockers av 693 at \$6.50; to Resnick 6 butchers av 666 at \$5.60, 6 do av 776 at \$6.25; to Nagle P. Co. 10 do av 972 at \$7.35; to Sullivan P. Co. 8 cows av 1020 at \$5.85.

Keerer sold Greene 14 stockers av 707 at \$6.50, 13 cows av 863 at \$5.

Veal Calves.

Receipts 790. The veal calf trade was steady with Wednesday, with all grades 50¢ lower than at the opening early in the week, tops bringing \$12 @ 12.50 and medium and common grades \$8 @ 11.

Erwin & S. sold Newton B. Co. 1 wgh 200 at \$10, 6 av 140 at \$12.50, 15 av 175 at \$12.50.

Haley & M. sold Parker, W. & Co. 6 av 145 at \$12.50, 9 av 170 at \$12.50, 6 av 200 at \$12.50.

Sheep and Lambs.

Receipts 1301. The sheep and lamb trade was dull and draggy and fully 50¢ lower than last week or early this week. Sheep and common heavy and thin stuff very dull and not wanted. Best lambs \$10.25 @ 10.50; fair lambs \$9.50 @ 10; light to common lambs \$8 @ 9; fair to good sheep \$5.50 @ 6; culls and common \$3 @ 4.

Sandel, S., B. & G. sold Sullivan P. Co. 5 sheep av 118 at \$6; to Nagle P. Co. 31 do av 110 at \$6, 15 lambs av 70 at \$10.75; to Parker, W. & Co. 45 do av 62 at \$11, 8 sheep av 110 at \$6.50; to Young 11 lambs av 75 at \$10.75, 30 do av 72 at \$10.50, 18 yearlings av 85 at \$8.25.

Hogs.

Receipts 4025. The run of hogs was light and the market on everything but pigs active and about 5¢ higher than on Wednesday. Pigs were a trifle off, selling at \$9.25; yorkers and heavy \$9.80 @ 10.

Hogs have been selling on the Chicago market of late at close to the highest prices of the present year, with moderate receipts in some weeks, while all the hogs were needed for converting into fresh and cured meats and lard. The domestic consumption of hog products is extremely large, and the export movement has far exceeded anything ever known in past years. Hogs sell so high that there is not much inducement for marketing pigs, and not many are seen in the markets of the country. Hogs have been gaining in weight pretty steadily for a long time, and recent receipts in the Chicago market were the heaviest in average weight seen at any time since September. The late average was 233 lbs., comparing with 221 lbs. on month earlier, 238 lbs. a year ago, 240 lbs. two years ago and 242 lbs. three years ago. The provision market has moved up with the rise in hog values, and within a short time pork has sold around \$10 per barrel higher than a year ago, with similar advances shown in lard and short ribs. Eastern shippers continue limited buyers of hogs in the Chicago market, as they are kept pretty well supplied from their home territory, but fair numbers of the choicest swine are taken, prime weighty barrows going at the highest prices and prime light hogs at a discount of about 15¢.

A prominent live stock commission firm located in the Chicago stock yards with branch houses at other important markets, is sending out a letter of advice to its country patrons, advising them to market their cattle just as fast as they are ready to go. This firm has been giving the same advice for the past two months, and the customers who have followed the advice have profited materially. Although prices have had severe declines of late for all kinds, they are still attractive, being much higher than in most past summers. Late reports do not indicate any over-supply of choice corn-fed steers, but there are lots of grass-fed cattle, particularly in southwestern pastures, and they are now moving to market liberally, especially at Kansas City and other Missouri river markets. Late advices are that Kansas grass cattle are from 30 to 40 days earlier than usual, but northwestern range cattle are from 10 days to two weeks later than usual. While the market will undoubtedly rule still lower for grass cattle and short-fed lots, where a man has a good class of yearling or two-year-old steers that need 30 to 90 days for finishing them for the market, they should be kept back for that period. Of late the severely hot weather has materially lessened the consumption of beef everywhere, and it was unfortunate that at such a time the receipts of cattle should be larger than usual. On a recent hot Monday 21,912 cattle arrived on the Chicago market, causing a bad break in prices, and by Tuesday afternoon prices were from 25¢-35¢ lower than at the close of the previous week. Inferior little grass-fed steers have sold as low as \$6.75 per 100 lbs., with everything under the head of cattle away off in value, and many lots of steers have been selling to \$1.25 per 100 lbs. below the highest time in June. Grassers and short-feds have sold off the most, as they comprised the bulk of the offerings, but even the choicest beefs have sold below the \$11 mark, the top price paid this year being \$11.50. Stock cattle have joined in the downward movement, country buyers having held off, and they are offered at the lowest figures of the year, with declines of \$1.25 from the highest time during June. Fair light stock steers have been selling around \$7.25, with choice lots selling up to \$8. It was a bargain counter, with buyers scarce. The year has been one of great fluctuations in cattle values, with the best beefs selling in January for \$9 @ 9.50. The best demand is for fat medium-priced steers and good cows and heifers of the butcher class. Beef is an extremely dear article, and butchers are desirous of obtaining cuts of beef which can be retailed at a moderate price.

Lambs make up most of the receipts in the Chicago market, and so few yearlings, wethers and ewes are marketed that they sell usually at firm prices when lambs are undergoing big declines. From now on the Chicago market will depend mostly on range lambs from Idaho and other states, as native lambs and southern lambs are largely out of the way. The Chicago big packing plants have been pursuing large numbers of southern lambs from their usual practice of bringing direct Louisville, and this worked strongly in holding down prices on the open market. The shipments of range lambs are usually sent in long trains of cars, and a short time ago a sale was made on the Chicago market of 2485 head of prime Idaho lambs.

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Mention The Michigan Farmer When Writing Advertisers

NOT many years ago the marketing of Michigan's peach crop consisted largely in stamping a number on the basket and sending it to a Chicago commission merchant on South Water Street. Sometimes the returns were good and other times they were not, occasionally a high price on a small shipment would lead to future consignments and then the price received for the larger quantity of fruit would scarcely pay for the basket and the cost of harvesting. The growers complained and it was the popular thing to blame the commission man for dishonesty but continue to send him the total output of the orchard and live on hope. It is an unfortunate feature of peach marketing but when we have a crop our neighbors are likewise blessed and when the neighbor's crop fails our trees will fail to bear. It is hardly right to expect commission men to do as well in handling a large crop as they might with a small one and the growers who have turned all of their fruit to the Chicago market in seasons of plenty have been unreasonable in many instances. Paying the other fellow to take the responsibility of marketing will not always insure profitable prices.

The Peach Marketing Problem.

The past few years have not been profitable years for marketing peaches and this has resulted in a more intense study of marketing problems. Local co-operative associations are springing up over the state and while they have not solved the problem as yet they have approached a solution and their work has only started. The ultimate consumer likes the peach and appreciates the fact that it is one of nature's finest fruits. He sometimes forgets that it is a very perishable product and does not consider peaches as a necessity. However, some fruit is a necessity on the home table during the entire year and a broader education in the value of the canned peach might reduce the present loss in marketing this valuable fruit. Last year we purchased fine Michigan peaches for \$1.00 per bushel and could have found no better investment for the table during the past winter. The grower made little money at \$1.00 per bushel, in fact, he hardly came out even. However, those same peaches at \$2.00 per bushel would have been a good investment for our table and then the grower would have made a respectable profit.

We hear a great deal concerning the orange grower's association of California and often wonder what they are doing. We read their advertising regarding the merits of oranges and wonder why it is necessary to give as good fruit as the orange any publicity. Then we go into the smallest grocery in the village near our farm and we find oranges for sale and they are good oranges. Recently lemons have been given publicity in the same manner. It is a rare local dealer who is not stocked up with lemons. People are being educated to use lemons and oranges to a greater extent than ever before and this fact coupled with an efficient system of distribution is placing the orange and the lemon in every store in easy reach of the pocketbook of the average man. Peaches have never received any publicity worth mentioning except in the spring when the newspapers kill off the crop half a dozen times after which the city buyer begins to think that peaches will be very scarce, and so high it will be just as well to figure on canning something else.

Finding a Market.

In a recent letter from a grower he stated that his crop would be one-third larger this year than one year ago. Last year he worked night and day during the peach season and managed to ship in carlots by combining with two other growers possessing fair sized orchards. This year with a larger crop he will be facing a hard proposition to make peaches profitable and his business will receive no publicity of any kind until the crop reaches the market. At that time the buyers will

Will the Peach Crop Pay?

By R. G. KIRBY

look over the bushel baskets, kick on the price a little bit and may be order a bag of fruit to eat on the way home. The same buyer equipped with a knowledge of peach values in maintaining health during the winter would order three bushels and never consider a summer's work ended until the shelves contained many quarts of this fine fruit to last until the next peach harvest. When will the growers devise some method of telling the people that peaches are not in the same class as potatoes but nearly as valuable in their place?

After the peach business has received the right kind of publicity a proper method of distribution must follow. In Michigan where the peach ranks as an important crop there will be an abundance of high quality fruit for sale in our cities but in many small towns the market will be neglected by the growers. In Detroit the market may be glutted with peaches due to the fact that all growers may look toward Detroit at the same time. In Chicago the condition will be much worse because it is the main outlet of many states. Reshipping peaches is not desirable if the best interests of the ultimate consumer are considered. It

seems strange that in some years if we wish the best of peaches we must go to a dealer in a city like Lansing and purchase peaches which have been shipped from South Haven to Chicago and then back to Lansing. Why would it not have been better to have the South Haven Association ship peaches to Lansing and then carry on the right kind of a publicity campaign in the Lansing papers instead of leaving the entire proposition to the mercy of the Lansing dealers. In the state of Michigan there are hundreds of small towns where the peach market is neglected. Last year I know of one grower who visited towns and cities such as Marshall, Lansing, Kalamazoo, Port Huron, Albion, St. Johns, etc., and he sold cars of peaches in these towns through co-operation with the local dealers. You might assume that the responsibility ceased there but lack of general co-operation among all the growers of the state is lacking and the local dealers on many occasions found much difficulty in disposing of their consignments. The cars arrived and the weather was hot but the worst feature of all was the fact that the housekeepers were not ready to buy peaches. Some of them still remembered that the

peach crop had been declared dead in March by their local paper and many people believe all they read.

This year the grower I have mentioned will probably visit the same dealers that handled his crop last year. He will face more competition than before as other growers and well organized associations are adopting the same method of disposing of their crop. However, it seems that he has no other way of insuring even a fair price for the peaches. If the peach business as a whole should be given the right kind of publicity people might learn to respect the wholesome qualities of the peach and the product that the people need and know that they need will probably bring a living income to the producer.

The Grower's Responsibility.

At present the independent peach grower may be responsible in a measure for the consumer's attitude toward peaches. Inferior fruit poorly packed has destroyed many a fondness for peaches. The question of spraying has been much discussed among peach growers and many do not spray at present for the brown rot as they claim that it is not necessary. At least it does not seem necessary when the fruit leaves the orchard in the case of early varieties. Several years ago I shipped several bushel of peaches to Lansing from Benton Harbor. They had been sprayed for both the brown rot and the plum curculio and they held up in fine condition for many days after being received in Lansing. About two weeks later I had peaches shipped from another farm in the peach section where the trees were not sprayed for brown rot or curculio. When the second consignment arrived they were in good condition except for a few gummy exudations from curculio stings but within two days the brown rot began to spread rapidly and they were soon unfit for use except through the most wasteful cutting up and paring away of bad spots. It is my opinion that the spores of the fungus were on the fruit when it left the orchard but they had not developed and for this reason the grower could see no reason for spraying. After a journey of 100 miles and one day in storage the fruit became dead ripe and the spores developed and this resulted in immediate deterioration. Possibly spraying might do something to increase the consumer's respect for a bushel of peaches. It is not the condition in which the fruit leaves the orchard that determines how it may reach the home of the buyer. Possibly some growers who have neglected spraying because the fruit looked well at harvest time might increase the reputation of their crop by killing off a few brown rot spores and eliminating a few curculio stings before the fruit leaves their orchard. The orange growers' association considers how the orange will keep in the consumer's home and while the thin-skinned peach can in no way compete with the well protected orange it may be very valuable to extend the keeping qualities of peaches at least a few days and I believe from some experience that spraying has a wonderful effect on the quality of peaches even though its benefits may not appear on the day the peach leaves the orchard.

Pack Honestly.

Honest packages are important. The sixth bushel basket never looks like a fifth bushel and the grower can not fool the buyer. The bushel basket with the beautiful surface can never build a business if that appetizing top row contains a mixture of culls beneath. Bright red tarlatan may make the package look red and luscious on the market stand but if the buyer finds the bright red covers poor fruit he does not come back for another basket. It is repeat orders that will make peach growing profitable for the same reason that housekeepers never like to be without oranges in the season when oranges are best.

The peach package that cannot carry the name of the farm producing it should not appear on the market. That

Co-operation In Its Infancy



THUS far co-operative efforts among producers have had their greatest success in connection with special lines of agriculture like grain marketing, butter making, fruit packing and shipping. However, the largest field of service open to these co-operative institutions will ultimately be, without doubt, among the general farmers. Here is to be found the greatest volume of business and generally speaking, here exists in the handling of the products of this class of farmers the widest margin of waste in marketing.

To suit a co-operative organization to the demands of a general farming community so that the commercial undertakings can be handled with economy and dispatch, will be a much more complicated task than to adapt such an institution to the needs of farmers growing some special product. In the case of the general farmer there is a variety of products to sell and these products are offered to the asso-

ciation usually in small quantities. To grade, classify and assemble a large variety of products will demand an executive of more than ordinary ability, and will also require an elaborate plant and a good book-keeping system.

Notwithstanding these disadvantages there is no reason for believing that the co-operative organization cannot perform practically every service of the general farmer that is now being performed by the large number of local dealers in the home town. Naturally it will be some time before any comprehensive scheme can be worked out to satisfy the great majority of the general farming communities, but by reason of the success attending co-operative associations dealing with special lines only, there is every reason for the general farmer to look forward to the day when he will be able to do his buying and selling after a plan that will give to the middlemen reasonable pay only for their service for both labor and invested capital.

does not mean that only fancy grades should be sold but it does mean that fancies should be sold as fancies and firsts, seconds and thirds should not masquerade to rob the housekeepers who in the end are going to determine whether peach growing is worth the trouble. No buyer will kick on buying graded seconds and thirds if he pays a price in proportion to their quality and receives a good measure of what he buys. This does not eliminate the fact that the grower should do all in his power to eliminate culls and put as high quality fruit as possible on the market.

The Matter of Varieties.

The question of peach varieties is important and the general public should have more education concerning the value of different varieties. In some towns it is the custom to sell everything as Crawfords or Elbertas depending on which of these varieties the local dealer thinks his customers will like best. It is a rare case in these days when a man does not get at least one nursery catalogue each year and begin to suspect that there are many kinds of peaches which might be produced. He is apt to become suspicious when everything is sold him as one variety and while he may like the peaches the deceit rather "queers him" on the peach business. This is another point that well planned publicity might emphasize.

After considering the peach business from every angle it is easy to understand that the grower is going to rise or fall on his system of marketing. The marketing of peaches this year will probably be more successful than last year as the growers picked up some good points during last year's unfortunate experiences. However, the system of marketing will have to be much the same and some growers will not make much money and until the mail man leaves the last check for the last bushel they cannot correctly answer the question, "Will the peach crop pay?"

INFLUENCE OF FEED ON MILK.

(Continued from page 92).

any change in the composition of the milk.

In the third experiment, when dried vs. wet beet pulp was used, in one of the cows a higher fat content of the milk was found while in one of the other cows a lower fat content was observed, showing here the effect of the individuality of the animal. One was undoubtedly more adapted to a very succulent ration, while the other one seemed to take better to the dried ration. Happily for the experiment the two cows did produce opposite effects for if this had not happened, had both of them shown an increased fat content, on one ration, it might have been concluded that in this instance the moisture did have some influence.

In the fourth experiment, with green vs. cured clover, the data obtained proved that the water in the ration supplied by green roughage as compared with the cured hay did not lower the fat content of the milk. In this experiment it seems that the fact is more firmly established that assuming rations to be adequate for the animals, by which we mean that they are neither crowded nor starved, the type of the ration will not influence the composition of the milk. When the ration is inadequate, the animal being in a half-starved condition, serious physiological disturbances may be created and in this condition one cannot tell what type of milk will be secreted. It is an abnormal condition and may vary materially from day to day, may be high in fat content or low in fat content. What would produce a low fat content in one animal would be very likely to produce a high fat content in another.

The results of the experiment anchor more firmly the idea that the composition of the ration will in no wise influence the composition of the milk.

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ORPINGTONS —White, Single-Comb Kellerstrass 8 wks. old chick Cockerels \$60., pullets \$1. up. M. E. THOMPSON, Redford, Mich.

Pine Crest, S. C. White Orpingtons, Bargain, 4 yearling hen and cock, \$8.12 and \$15, just one half what they will cost next spring. MRS. WILLIS BOUGH, Pine Crest Farm, Royal Oak, Michigan.

300 R. I. RED HENS, Rose and Single Comb. Write for Price List. Sell your mongrels and buy pure bred R. I. Reds. INTERLAKES FARM, BOX 39, LAWRENCE, MICH.

Rose and Single comb Reds, young and old, for sale. Correspondence as to your Red needs invited. JENNIE BUELL, Ann Arbor, R. 8, Michigan.

Rose and S. C. R. I. Reds, eggs and breeding stock for sale at reduced prices for balance of season, Belgian hares very reasonable. O. E. Hawley, Ladington, Mich.

Rose Comb Brown Leghorns Kulp and Gale strains \$2.50 per 100 eggs. Cockerels 50c each. CLAUDIA BETTS, Hillsdale, Mich.

Ferris Leghorns —200 Egg Strain—Eggs, chicks, 8 week-old pullets from hens with records up to 264 eggs. Prize winners at largest shows. Prompt shipment, prices low, quality guaranteed. White Leghorns are best for eggs. We raise thousands. Free catalog and price list gives particulars. Write for it now. FERRIS LEGHORN FARM, 934 Union, Grand Rapids, Mich.

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 Turkeys, 8 to 39 lbs. according to age \$6 to \$25, 10 eggs \$3. A. E. Cranton, Vassar, Mich.

S. S. Hamburg Eggs reduced prices, balance of season. Free delivery. R. C. white Leghorn hens \$1.00, Belgian Hare Bucks \$5.00 with Pedigree. RIVERVIEW FARM, Vassar, Mich.

SILVER GOLDEN and WHITE WYANDOTTES, Eggs from all matings, 15 for \$1.50, \$2.50 per 30 until July 1st. C. W. Browning, R. 2, Portland, Mich.

White Wyandotte Cock & Cockerels. Eggs \$1, \$2, \$3, per 15, \$4 per 50, \$7 per 100. DAVID RAY, 202 Forest Ave., Ypsilanti, Michigan.

WHITE WYANDOTTES, Eggs \$1.50 per 15, \$2.50 per 30, \$7.00 per 100. From choice stock. A. FRANKLIN SMITH, Ann Arbor, Michigan.

DOGS

POUNDS FOR HUNTING—Fox, Coon and Rabbits, all ages. \$2.00 per 12 cent stamp. W. E. LECKY, Holmesville, Ohio.

FOX, COON, SKUNK, HOUNDS Broke to gun and field, and guaranteed. Fox, coon & rabbit hound pups, from the best of stock—\$5.00 each. Stamp for photos. H. C. Lytle, Fredericksburg, Ohio.

BREEDERS' DIRECTORY.

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

CATTLE.

ABERDEEN-ANGUS

HERD ESTABLISHED IN 1900. TROJAN-ERICAS and BLACKBIRDS only. Also breeders of Percheron, Hackney and Saddle Horses. WOODCOTE STOCK FARM, Ionia, Mich.

ABERDEEN ANGUS: We are offering 15 head of Choice young bulls, one two year old Trojan Erica at \$200.00 if taken in 6 weeks, 14 head from 8 to twenty months old including the first and second prize. Senior bull calves at the 1915 State Fair. Write for Particulars, and come to the farm to look over stock over, they are of the Blackbird Trojan-ERICAS, and K. Pride Families only. U. L. CLARK, Hunters Creek, Mich. SIDNEY SMITH, Mgr.

Pure Bred Aberdeen Angus, a few bulls and heifers one year and older at \$100 each. GEO. HATHAWAY & SON, OVID, MICHIGAN.

AVSHIRES—One of the foremost dairy breeds. The most economical milk producers. Calves for sale. White Leghorn cockerels; Duroc Jersey swine. Michigan School for the Deaf, Flint, Michigan.

Fresh Air for Poultry

ONE of the secrets of successfully keeping hens is having the air of the house fresh and dry. Good ventilation and dryness are so essential that the most skillful breeding, feeding and care can not make up for the lack of it. These are the fundamentals of good poultry husbandry. And it is very difficult to secure a dry house and atmosphere without fresh air circulating through the pens. It has been estimated by poultry scientists that hens breathe more air per pound of live weight than any other class of farm animals, and this seems quite reasonable.

Take a pen containing 250 five-pound hens. This flock will breathe almost three times as much as a cow weighing 1,000 pounds, yet the hens are kept closely crowded in their sleeping quarters. Every hen of the flock breathes out impurities that are poisonous to the others, and she also breathes in the impurities given off by the others unless there is sufficient ventilation to carry away these impurities and supply the needed fresh air instead.

Poisons in Impure Air.

It has in several instances been proved by experiments that these im-

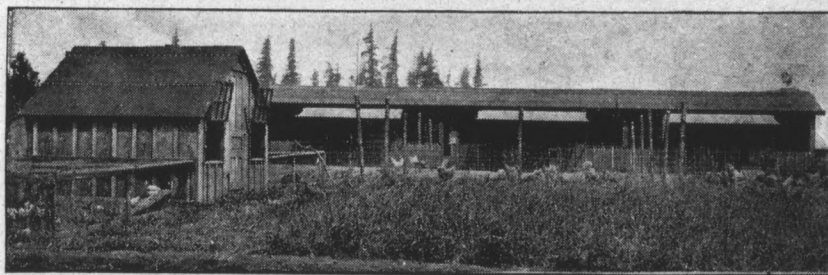
the most eggs or makes economical gains in flesh.

The three most common causes of dampness in the poultry house are: A poor location, faulty floor construction and improper ventilation. A poor location may be any place that does not have the best of air and water drainage. Any spot that is low or that does not have an outlet to ground that is considerably lower is likely to have poor air drainage. This means that if the henhouse is located in such a place the damp air is likely to settle in and about it and the frost will linger there late in the spring and make its appearance with the coming of colder weather. Such a location shortens the real laying season to a great extent.

Suitable Localities for Poultry Houses.

In selecting a location for the poultry house the one with a southern slope, on a fairly high piece of ground is about right, for aside from being brighter and more cheerful in winter it will also be drier than any other exposure.

Have your windows curtained with muslin of a heavy weave, and use as little glass as possible, for there is nothing that will draw as much mois-



A Practical Way of Providing Fresh Air for Poultry.

purities given off by one animal are much more poisonous to another animal than to one breathing them off the lungs. The lungs of all farm stock and poultry are the purifying instruments of the individual, and here the whole body forces off poison, depending upon these organs for new life. You can prove this for your own satisfaction. Put a mouse in a self-sealing jar and make the cover tight. In a few minutes he will begin to show signs of suffocation. Then without admitting any more fresh air than you can help, introduce the second mouse. This second mouse, even in the jar the shorter time, will die before the first mouse will. The reason is that the second mouse did not really die of suffocation, for if he had both would have died at the same time, but he was killed by the poison given off from the lungs of the first mouse. It is entirely possible that this is the reason why so many hens in apparently good physical thrift drop dead off the roost. The ventilation is poor and the birds become poisoned by the gases from the lungs of their perchmates.

The dropping-boards should be cleaned often, and the boards sprayed or some clarifying material used in refreshing them. The gases which issue from droppings goes immediately to the sleeping birds, and aside from the body poisons, gives them a double dose of poison, thus lowering their efficiency to a low point. Thousands of hens do not lay because they are poisoned.

A Matter of Moisture.

The water which fowls drink is not excreted as in other animals of the farm, but is carried off by the air that the bird breathes. The air that the hen breathes passes to every part of the body and gathers moisture. If the air is dry it gathers the moisture easily and quickly. If the air is already moist it takes up very little more moisture. This in turn means that more air must be breathed to do the same amount of work. The result is a panting hen even though the day be quite cool. A panting hen is uncomfortable and is not the one that lays

ture into a hen house as glass. By allowing proper ventilation—not drafts—but the circulation of fresh air in proper quantities, your flock will be both healthy and profitable.

New York.

EARL W. GAGE.

GAPES.

Can you tell me what to do for my little chicks? I think they have the gapes. They will stretch their necks and open their bills every few minutes. I can hear them make a noise after they go to their sleeping quarters, like sneezing. Some of them die. Can you tell me what to do? Mrs. A. M. S.

In eradicating gapes, it is important to isolate all affected birds, so that the worms and eggs coughed up or voided in excrement may not be eaten by other chickens or contaminate the food and water. All dead birds should be burned, and those not having the disease should be allowed to run on fresh land on which there has been no poultry for several years.

The food troughs and water dishes should be frequently scalded and the coop disinfected. Potassium permanganate should be used in the drinking water to sterilize it. One or two teaspoonfuls of a stock solution is sufficient for ten quarts of water.

The individual surgical method seems to be the only sure way of ridding an infested bird of these parasites. This can be done with a small quill feather which has been stripped with the exception of a small tuft at the end, and which after moistening with turpentine should be introduced carefully into the trachea, turned around and withdrawn. This will usually displace a large number of worms in the trachea, but care must be taken not to injure the delicate lining of the air passages.

This disease is often fatal in chickens from one to four weeks old. In older chickens and hens it will not produce fatal results, but such birds are a source of infection. Wet clay soils are especially favorable to the gape worms, and they thrive best in warm wet weather.

MILO D. CAMPBELL CHAS. J. ANGEVINE

BEACH FARM GUERNSEYS

Average yearly production 422.3 lbs. of fat, three fourths of them making their records as two year olds. By the use of a pure bred sire, a big improvement can soon be attained if the right selection is made. The breeding of the Beach Farm Herd is as good as can be found, and we guarantee them to be free from contagious diseases and to be satisfactory in every way or money refunded. Write and let us tell you about them.

CAMPBELL & ANGEVINE,
Coldwater, Michigan.

VILLAGE FARMS, Incorporated
Grass Lake, Michigan,
GUERNSEY CATTLE
BERKSHIRE HOGS

Reg. Guernsey Bulls, serviceable age, great grand sons of Gov. Chene, also grade Guernsey and Jersey heifers 6 wks old \$20 each. Avondale Stock Farm, Wayne, Mich.

Guernsey (May Rose) Bull for sale, born Sept. 5, 1913. Splendid animal in every respect, Dam 520 lbs. fat class F. J. K. Blatchford, Auditorium Tower, Chicago, Ill.

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

Guernseys, yearling bull, also a bull calf, Gr. J. Son, Pauline Scottwood 745 lbs. fat, cheap enough so you can buy. J. M. Williams, No. Adams, Mich.

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

Herefords—One Bull Calf. ALLEN BROS., PAW PAW, MICH.

HEREFORDS: 4 Bulls, 4 Heifers. EARL C. McCARTY, Bad Axe, Michigan.

Do You Want A Bull?

Ready For Service.

From a grand daughter of The King of the Pontiacs. Sired by a bull that is more than a half brother to the Champion Holstein Cow of the World, and whose dam is a 30 lb. 6 1/4 % fat daughter of Pontiac Aggie Korndyke who has more 30 lb. daughters than any other living bull. If you do write for pedigree.

EDWIN S. LEWIS, Marshall, Mich.

HOLSTEIN BULLS FOR SALE

3 of them 1 year old in Nov. By 31 lb. sire. Dams above 21 lbs. as heifers. Price \$100. Younger bulls by son of Johanna McKinley Segis \$50. up. BLISSVELDT FARMS, Jenison, Michigan

FOR SALE

SOME VERY FINE YOUNG BULLS. Whose sires have as high as 81 lbs. of butter behind them. As they are young, will make a low price on them. BIGELOW'S HOLSTEIN FARM, BREEDSVILLE, MICH.

HOLSTEINS, a nice straight deep bodied, blocky built bull calf, born Oct. 5th, 1915. His 7 nearest dams have A. R. O. records that average better 7 days 23.35 lbs., milk 533.36 lbs. W. B. READER, Howell, Mich.

30 lb. bull for sale, 2 years old, by a son of King of the Pontiacs. Dam sold for \$1000 in Detroit sale. Ferd. J. Lange, Sebawing, Mich.

\$75 gets Hazel-let grandson of Maplecrest De Kol Parthena and Pontiac Maid 30.2 lb. Born March 28, Dam Pontiac Hesperia 2nd, 14.80 lb; 436.5 lb; her dam's sire brother to sire of world's record cow 3134 lb milk 1 yr. M. L. McLAULIN, REDFORD, MICH.

I Have Holstein Bulls, Bull Calves and Cows. I can show breeding records, individuality and attractive prices. L. E. CONNELL, Fayette, Ohio.

"TOPNOTCH" Holsteins

By careful retention, for many years, of largest producing females, and use of superior sires, a breeding herd of wonderful quality has been established. We are selling young bulls of this "TOP NOTCH" quality, of serviceable age, at moderate prices. Information, pedigrees, etc., on application. McPHERSON FARMS CO., Howell, Michigan.

FOR SALE Two Holstein Bull Calves

6 months old from 20 lb. dams. FREEMAN J. FISHBECK, Howell, Michigan.

Grade up your herd with one of our Holstein bulls. Their six nearest dams on the sire's side average 24 lb butter in 7 ds. The semi-official yearly records of three of these dams, including two two-year old heifers, average 842 lb. of butter and 18,000 lb. of milk; Six to nine months of age and from A. R. O. dams. Peaceland Stock Farm, Three Rivers, Mich. Chas. Peters, Herdsman. C. L. Brody, Owner, Port Huron, Mich.

HOBART W. FAY, MASON, MICH. REGISTERED HOLSTEINS ESTABLISHED 1904.

CHOICE HOLSTEIN BULLS—all from A. R. O. dams. Entire herd on Semi of test for yearly work. Jr. 2-yr. old just finished year's record of over 15,000 lbs. milk, over 1000 lbs. butter record in mature class. Cherry Creek Stock Farm, M. E. Farnelle, Prop., Hilliards, Mich.

Reg. Holstein Bull Calf, 2 nearest dams average 80 lb. milk per day Pontiac Korndyke and Hengerveld DeKol breeding. Prices right. John A. Rinke, Warren, Mich.

FIRST \$100 CHECK

Gets 15 month old, Handsome Thoroughbred Holstein Bull. World record Sire. Dam 25 lb. 3 year old. Have three as good, same age. C. E. Winters, Augusta, Mich.

Holstein Calves, 10 heifers, and 2 bulls 15-16ths pure. H 5 weeks old, beautifully marked, \$30.00 each, crated for shipment anywhere. Edgewood Farm, Whitewater, Wis.

FOR SALE—5 two year old Registered Holstein heifers and one 2 year old Bull for \$125 each. Pine Hill Farm, R. No. 3, Howard City, Mich.

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

Veterinary.

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

Cows do not Come in Heat.—Will you please tell me what to give or do for my cows to bring them in heat? E. K., Carsonville, Mich.—Give 1 dr. of ground nux vomica and 2 drs. of ground capsicum in feed twice a day.

Cow Gives Bloody Milk.—I have a cow that occasionally gives bloody milk from both fore teats and I might say that in the early milking, the milk seems to be free from blood. Mrs. E. G., Lowell, Mich.—Your cow should be milked carefully, also prevent her stepping over fences, bars, logs, door sills, out of ditches or lying down on pieces of wood or pebbles that might bruise fore part of udder. No medicine is required.

Food Poison.—My young pigs seem to thrive well until two months of age, then die very suddenly without showing any symptoms of illness, merely uttering a squeal before expiring. They were fed sweet milk from the separator. I changed and fed sour milk, also gave worm medicine, but nine of them died. J. H. H., Freeland, Mich.—I am inclined to believe that your pigs die the result of food poison and it is up to you to prevent their death, as I do not believe they die of disease.

Medical Question.—Is turpentine a good remedy for worms in pigs? If so what quantity should be given at a dose? J. P., Jonesville, Mich.—The dose of turpentine for a pig is from one to three drams and it is best administered in eight or ten times its bulk of linseed oil, cottonseed oil, gruel or milk. This is a dose for a hog weighing between 75 and 200 lbs. weight. I might say that turpentine is a fairly effective vermicide.

Swollen Eye Lids.—I have several pigeons troubled with sore eyelids and would like to know what can be done for them? I might add that I believe this trouble is contagious. H. J. F., Ida, Mich.—Your pigeons perhaps suffer from a contagious ulcerative disease of the eyelids and the best remedy would be tincture of iodine cautiously applied occasionally, but possibly the worst cases should be destroyed. Your roost should be disinfected and thoroughly cleaned.

Nasal Catarrh.—My eight-year-old horse has been coughing and sneezing for the past six weeks; has a slight nasal discharge and blows some when the weather is hot. G. L., Bradley, Mich.—Give him a teaspoonful of powdered sulphate iron and a tablespoonful of ground gentian at a dose in feed two or three times daily.

Chronic Stocking of Sheath.—I have an eight-year-old gelding that swells in sheath when allowed to stand in the stable, but if exercised swelling seems to leave; however, it is sure to return. W. K., Owosso, Mich.—Give him 2 drs. of acetate potash at a dose in feed twice daily, when necessary to keep his kidneys active. He should have daily exercise.

Enlarged Gland—Surfeit.—Have a horse eight years old with movable bunch in throat, also has skin eruption on part of body. H. A. F., Reed City, Mich.—Apply tincture iodine to bunch three times a week, also wash body with one part coal tar disinfectant and 40 parts water daily. Give him a tablespoonful of cooking soda at a dose in feed or water three times a day.

Abnormal Appetite.—My cows are inclined to eat any old thing, such as leather, pieces of cement, rotten wood and rubbish. J. C., Kingston, Mich.—Feeding an unbalanced ration is the common cause of this ailment. Mix together one part ground nux vomica, two parts charcoal, five parts ground gentian and give each cow a tablespoonful at a dose in feed twice a day.

Rheumatism.—Pigs ten weeks old seem to be rheumatic. I feed them milk, wheat middlings and some corn. J. H. B., Cassopolis, Mich.—Feed less corn, more oats and give them each 2 grs. of sodium salicylate at a dose three times a day.

Bunch on Stifle.—Colt four weeks old has soft bunch on stifle. G. W., Barryton, Mich.—Apply tincture iodine one part and three parts of spirits of camphor to bunch twice a week.

Loss of Power.—Spring pigs die of paralysis of hind quarters. G. G., Merrill, Mich.—Give each pig 10 grs. of potassium iodide twice daily.

Diseased Cord.—I have a colt that is 14 months old that has bunch where testicle was removed; he walks stiff. W. F., Isabella, Mich.—Give him 40 grs. of potassium iodide at a dose two or three times a day. If this treatment fails a surgical operation will certainly effect a cure, and it is not dangerous.

Aug. 3 5th Public Sale of Duroc Jerseys Aug. 3

BROOKWATER FARM

This Offering Features:

30 Yearling Sows bred for fall farrow to such noted boars as Panama Special, Brookwater Cherry King and Gold Model. 3 Ready for service Boars. 12 Spring boar pigs and gilts, sired mostly by the great breeding boar, The Principal Herd. We believe this is the best offering we have yet sold and no breeder wishing to buy Durocs can afford to miss this sale. Send for illustrated catalog.

Aug. 3 BROOKWATER FARM, ANN ARBOR, MICHIGAN Aug. 3

Herbert W. Mumford, Owner. O. F. Foster, Manager

DEATH TO HEAVES

HEAVES, COUGH, DISTRESS AND INDIGESTION CURE.

Some cases cured by 1st or 2nd \$1 can. Three cans are guaranteed to cure heaves or money refunded.



The original and the up-to-date Standard Veterinary Remedy for Heaves; free booklet explains fully. 34 years sale and veterinary use.

CURES HEAVES BY CORRECTING CAUSE—INDIGESTION. IT'S A GRAND CONDITIONER AND WORM EXPELLER

Safe. Most economical. Excellent for Cattle and Hogs. \$1.00 per can at dealers, at same price by parcel post. THE NEWTON REMEDY CO., Toledo, Ohio

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

Senior herd bull, Majesty's Wonder 90717, for sale, sire Royal Majesty, Dam Mina's Dewdrop, his full sister Majesty's Buttercup produced 763.2 lbs butter in 1 yr. Sons of Royal Majesty are scarce, here is a chance to get one reasonable, must sell to avoid too close breeding, write for particulars, also choice young bulls from above sire. Alvin Balden, Capac, Michigan.

Hillside Farm Jerseys A 10 mos. old, solid color bull now offered for sale. Dam is a R. of M. cow with record of 546 lbs. of butter as a 3 yr. old. He is a fine individual. Price right. C. & O. Deake, Ypsilanti, Mich.

Maple Lane R. of M. JERSEY HERD offers for sale: tuberculin tested cows, heifers, bulls, and bull calves backed by several generations of R. of M. breeding. IRVIN FOX, Allegan, Michigan.

JERSEY BULL CALF FOR SALE

Ready for service. Majesty—Raleigh breeding. Meadowland Farm, Waterman & Waterman, Ann Arbor, Mich.

REGISTERED JERSEY BULLS FOR SALE

1 yearling, and Bull calves from 8 to 10 months old. Also 3 cows. Write your wants. SMITH-PARKER, R. D. No. 4, Howell, Michigan.

JERSEY BULL CALVES from High testing \$25.00 each. \$25.00 each. FRANK LAMB, CASSOPOLIS, MICH.

BIDWELL SHORTHORNS

For "Beef and Milk" Registered bulls, Scotch topped roans, reds and white for sale. Farm at N.Y.C. Depot; also D. T. & I. R'y.

Address G. R. Schroder Mgr. BIDWELL STOCK FARM Box B, Tecumseh, Mich.

Albion Stamp 352670

Shorthorn Cattle of both Sex for Sale

W. W. KNAPP, Howell, Michigan.

DAIRY BRED Shorthorns of best Bates strains, young bull 8 months old for sale, price \$150.

J. B. HUMMELL, MASON, MICHIGAN.

FOR Sale—Reg. Short Horn Bulls by Maxwellton

Monarch 2nd, a son of Avondale, from 8 to 10 mos. old John Schmidt, Reed City, R. No. 5, Michigan.

SHORTHORN COWS FOR SALE: No Bulls at present.

R. R. Station, Elsie. H. B. PETERS, Carland, Mich.

Shorthorn AND POLLED DURHAMS FOR SALE.

Have red roan and white. Have over 100 head in herd. C. Carlson, Leroy, Mich.

Shorthorns—Dairy or beef bred. Breeding stock all ages for sale at farmers' prices. C. W. Crum

Secy. Cent. Mich. Shorthorn Breeders' Assn., McBride, Mich

Two yr. red shorthorn Bulls. Roan Calf 9 mo. old

Full Angus Bull calf, 8 mo. old, not reg. Priced to move quick. CHASE'S Stock Farm, Marlette, Mich., R. 1.

Registered Shorthorn Cattle, young bulls and heifers \$100.00, bred cows and heifers \$150.00. Write.

W. J. BELL, ROSE CITY, MICHIGAN.

Milking Shorthorns, roan 3 year old, Bates bred herd bull \$250. Young bulls and heifers.

DAVIDSON & HALL, TECUMSEH, MICHIGAN.

REGISTERED SHORTHORN 1 heifer 7 mo. old, 1 heifer 2 mo. old, 1 heifer past 2 yr. old.

H. W. MANN, Danville, Mich.

Red Polled Cattle. Have a fine young bull and

O. I. C. pigs for sale. John Berner and Son, Grand Lodge, Mich.

FOR SALE—Two Reg. Holstein cows. due to freshen

in Aug. Age 4 and 13 yrs. Both have A. R. O. records. Price for both \$325. Chas. J. Cook, Fowlerville, Mich. Box 438.

HOGS.

Royalton Bred Berkshires. Six weeks old pigs, both

sexes, registered, nice shaped and marked. \$7.00 each. Order quick.

D. F. VALENTINE, Supt., Temperance, Mich.

Berkshires of best breeding, of various ages, either

sex, all registered stock, no akin, special reduced price. Write your wants quick.

Mitchell's Lakeside Farms, R. 2, Bloomingsdale, Mich.

SWIGARTDALE FARM

HOLSTEINS AND BERKSHIRES

We have for sale a fine bull calf born March 6th, nicely marked, dam a nineteen pound three year old, price \$100. In Berkshires we have a nice lot of fancy fall boars, sired by Sensational Chalmers Masterpiece 2nd, also spring boars, these are all large high class animals, of unsurpassed breeding, our prices are right, and we guarantee to please, or return your money.

Swigartdale Farm, Petersburg, Mich.

The Very Finest Berkshire Pigs Cheap

C. S. BARTLETT, Propr. Pontiac, Michigan

Berkshires. I have 6 choice fall gilts bred for Sept.

farrowing at \$25 each for immediate delivery. A. A. PATULLO, R. 4, Deckerville Mich.

DUROC JERSEYS

A choice lot of spring pigs, both sex, pairs and trios, not akin. Prices reasonable. Send for pedigrees. THE JENNING'S FARMS, R. F. D. 1, Bailey, Mich.

Duroc Jersey Boars and Red pigs, price, weight

etc. given. I guarantee satisfaction, express prepaid. J. H. Banghart, East Lansing

Duroc Jerseys, some choice Jan. boars, spring pigs,

pairs & trios not akin, a few sows for June farrow of leading blood lines. W. C. Taylor, Milan, Mich.

Duroc Jerseys—Fall and spring pigs either sex, from

choice sires. S. C. STAHLMAN, CHERRY LAWN FARM, Shepherd, Michigan.

Duroc Jersey Sows and gilts bred for

early Sept. farrow. Spring pigs, either sex. E. D. Heydenberk, Wayland, Mich.

For Sale, Duroc Jerseys, choice breeding spring pigs

either sex. Prices right. John McNicoll, Station A, R. 4, Bay City, Mich

DUROC JERSEYS, Apr. pigs either sex, boars ready for

service and a few bred sows for Sept. and Oct. Some Holstein cows bred for fall. E. H. Morris, Monroe, Mich.

DUROC JERSEYS;— all sold out for the present. Wm. W. Kennedy, Grass Lake, Michigan.

DUROC JERSEYS—A few fall boars for sale.

Carey U. Edmonds, Hastings, Michigan.

Duroc Jerseys I have some good last September

boars and gilts. Gilts will be bred for September farrow.

H. G. Keesler, R. No. 5, Cassopolis, Michigan

Dobson's Durocs Combined, size, quality, breeding.

Herd boars, spring boars, spring sows for sale. Orlo L. Dobson, Quincy, Michigan.

Duroc Jersey Boars Ready for service. Big,

Grand Champion blood lines. Gilts bred for Sept. farrow. F. J. DRODT, R. 1, Monroe, Michigan.

Durocs, Sows to farrow Aug. and Sept., spring pigs,

either sex. Percheron Stud colt one year old. E. J. ALDRICH, Tekonsha, Cal. Co., Mich., Bell Phone.

Duroc Jerseys. Sows bred for Aug. and Sept. litters,

also early Spring Boar pigs. M. A. BRAY, OKEMOS, (Ingham Co.) Mich.

Duroc Jerseys, if you want a spring boar sired by

Principle 4th, you'll have to hurry, are going fast, only a few left. J. Robert Hicks, R. 3, St. Johns, Mich.

DUROC JERSEY PIGS 10 weeks old \$10.00 each.

FRANK LAMB, CASSOPOLIS, MICHIGAN.

CHESTER WHITES Sows bred for Sept. farrow, spring

pigs in pairs, not akin. F. W. ALEXANDER, Vassar, Mich.

Raise Chester Whites

Like This

the original big producers

I HAVE started thousands of breeders on the road to

success. I can help you. I want to place one hog from

my great herd in every community where I am not already represented by these fine early developers—ready for market at six

months old. Write for my plan—More Money from Hogs.

G. S. BENJAMIN, R. F. D. 10 Portland, Michigan

O. I. C. BRED GILTS. Also young boars

J. CARL JEWETT, Mason, Mich.

Registered O. I. C. Swine

Stock For Sale—All Ages

Correspondence Solicited, Walters House, Walters

Brightside Farm

Grand Lodge, Mich.

O. I. C. Swine—A nice lot of spring pigs. Write

your wants. Meadow View Stock Farm, Holland, Michigan. R. R. No. 5.

O. I. C. October boars weighing 200 lbs. at \$25

each for April shipment.

C. J. THOMPSON, Rockford, Michigan.

O. I. C's. Send me your order for choice spring boars, shipped O. O. D. and registered in purchaser's name. G. P. ANDREWS, Danville, Mich.

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Large Type P. C. Gilts and sows. Bred for Mar. and

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BIG Type Poland Chinas, Sired by Big Type King,

our 1000 lb. boar. Spring pigs, sired by big type

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Bone. W. Brewbaker & Sons, Elsie, Michigan.

For Sale Poland Chinas either sex, all ages. Some

thing good at a low price. P. D. Long, R. F. D. No. 8, Grand Rapids

Finance and Investment

The Fundamental Characteristics of Municipal Bonds.

THE municipal bond is probably the best known security among the many hundreds of millions of bonds held by American investors. The rapid progress made in the improvement and development of our cities requiring the funds of the people as well as the assistance of the government has forced the education of investors to the attractive features and safety of the bonds of our country. Many investment bankers earn their livelihood through the distribution of these securities, many investors have enjoyed the safe employment of their surplus money and to the everlasting credit of all concerned it may be said that the record of this bond is probably the best of any of the four divisions of bond securities. Sustained default causing permanent loss to the bondholder is a very rare thing among municipal bonds today. In fact, probably 75 per cent of all losses took place during the reconstruction period immediately following the Civil War when the southern states were so hard pressed to meet their obligations. During still another period there was a great tendency to issue bonds in aid of railroad development and for other enterprises where the funds were misappropriated or the securities were illegally issued, causing many disgraceful losses to innocent holders. But it may be safely stated that this condition is permanently over, and thanks to sane municipal bond laws, and the ever tightening scrutiny of those houses identified with municipal bond offerings municipal finance is in a very healthy condition and the securities very highly regarded by the conservative investor or institution.

The first thing to remember is that the municipal bond is merely the promise of the issuing community to pay the holder a certain sum of money at a certain fixed time with interest in the meantime at a certain fixed rate. The important thing to consider is then, first: Is the credit of the community good, is the intent to pay present; second, has the community the resources or ability to carry out its intentions; is the purpose for which the debt is incurred a sound, business or practical necessity. In the careful scrutiny of these features and considerations the more important elements are covered.

The character of the people make or unmake good credit. A community made up of citizens well known for their individual debt-paying tendencies enjoys likewise the confidence of the bond-buyer and a progressive, intelligent, thrifty, honest population has many times enabled or greatly assisted the borrowing of funds to pay for a needed improvement. Certain sections of the country have the advantage over others in this respect, due to the fact that over a period of years a credit has been established through frequent bond issues promptly taken care of at maturity. Of course, a section enjoying prosperity is in better repute than a place that shows signs of retrogression or where growth has stopped. A metropolitan community can borrow money on more favorable terms than a rural community largely because the density of population makes for permanency and care in the city's financial procedure. The laws regulating the investment of savings bank funds in the east have rigid requirements as regards the size of cities whose bonds are offered for this purpose.

Bearing in mind the fact that the taxing power is the security behind a municipal bond it is necessary to observe that a proper tax levy has been made coincident with the issuance of the bonds. Furthermore, it is important that the tax levied be paid promptly when due. The ability to pay taxes is in direct ratio to the wealth or assessed valuation, also greatly affected by the income-producing qualities of the business or other interests. A rich

agricultural area is as good a basis for a municipal loan as is a prosperous manufacturing city because the burden of taxation falls no more heavily on one than on the other. The elements entering into the considerations of the ability to pay are practically the same with a municipal unit as with an individual or corporation only in the first instance the different agencies act collectively. Where the ability to pay is present but the desire lacking, then the bondholder may resort to the courts and in not a few instances have the courts forced payment on bonds held by innocent purchasers. But the instances where payment of just debts incurred for a proper purpose, is withheld are rare for the simple reason that before the bonds are issued discussions for and against the enterprise thoroughly air the pros and cons.

The third important consideration then, is the purpose for which the money is raised. Schools, necessary public buildings, bridges, paving or sewers, funds for certain city activities together with roads, ditches, drainage or irrigation, levees, constitute a perfectly reasonable excuse for the sale of bonds, provided that the bonds are retired during the life of the improvement and not allowed to become a burden on the future generation. The need for an improvement usually begets a desire to pay for it, and a reckless expenditure for an extravagant development carries with it a change of heart in the form of default and delays in the future payment of the bonds. To correct this situation the law steps in and clearly specifies for what purpose may money be borrowed and to what extent without going to the people for a vote, and requires a clear majority at election in other instances. It is a very easy matter to determine the merit of a bond issue and municipal borrowing in this particular may be more easily traced than the operations of an individual or a corporation.

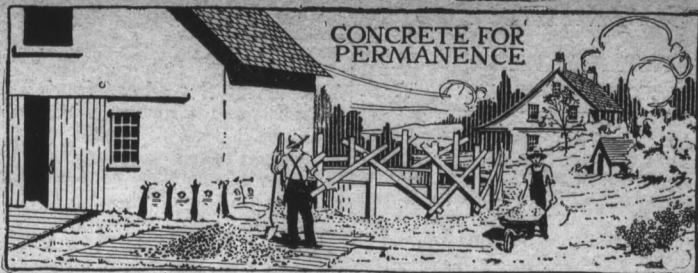
The law assists legitimate borrowing through the formation of school districts, road districts, levee and drainage districts and other districts isolated from the larger communities solely for the purpose of borrowing money and carrying on the activity for which the bonds were issued. The same considerations affect these issues as in the case where the securities are issued by the larger cities and villages and the principal of law and credit are the same. Of course, much has been said concerning the extent to which borrowing has been carried, by those who feel that the borrowing of money is in itself a reckless transaction. However, in order that our country may progress materially in proportion as the population increases it is necessary to expend considerable money for the public good and one cannot economize in civic affairs the way one can in his kitchen.

J. R. MILLIGAN,
Financial Editor.

BOOK NOTICES.

"Text-Book of land Drainage," by Joseph A. Jeffery, land commissioner D. S. S. & A. Railroad, formerly professor of soils in the Michigan Agricultural College, is an illustrated work of 256 pages thoroughly covering every phase of drainage problems to be met upon the ordinary farm, including the scientific principles of drainage, drain construction methods, etc. The book contains nearly 100 illustrations which make the text more clear to the layman. Published by the Macmillan Co., New York City. Price \$1.25 net.

"Fertilizers," by the late Edward B. Voorhees, A. M., B. S. C., Director of the New Jersey Experiment Station and Professor of Agriculture at Rutgers College, and revised by John Voorhees, B. S. C., Assistant Agronomist, New Jersey Experiment Station, covers in its text the source, character and composition of natural, home-made and manufactured fertilizers and includes suggestions as to their proper use for different crops and conditions. Dr. Voorhees is considered to be one of the best authorities on fertilizers the country has produced. The book contains 365 pages and is liberally illustrated. Published by the Macmillan Co., New York City. Price \$1.50 net.



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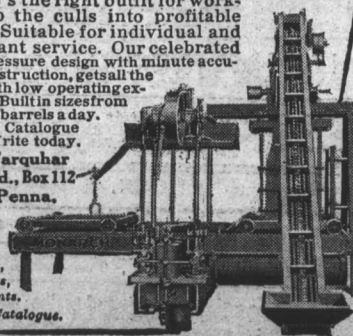
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