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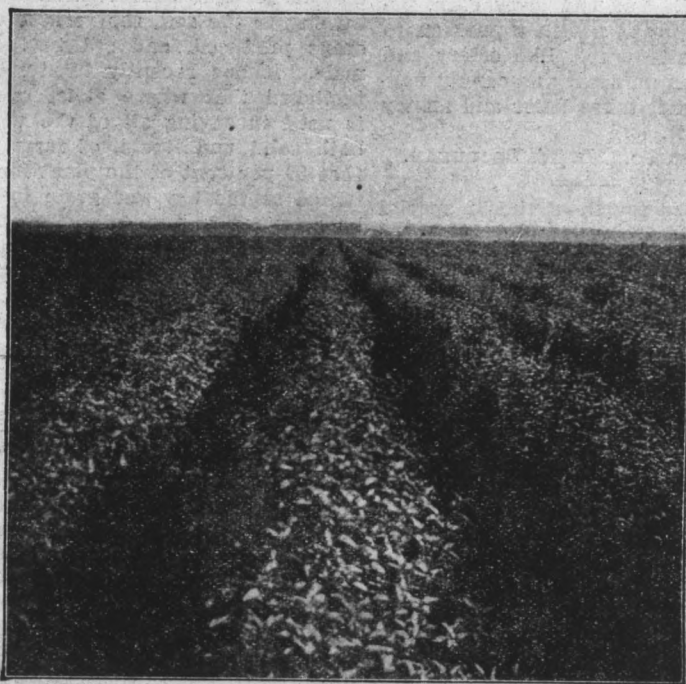
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Peppermint and its Relation to Soil Building.

THE peppermint oil of the world is produced on the muck land in Southwestern Michigan and in a few counties in Northern Indiana, with some 'mint farms in Eaton, Muskegon and Saginaw counties, not including Japanese oil, which is used mostly for its menthol and which is not a true peppermint. The total yearly product, exclusive of the Japanese, is estimated at about 450,000 pounds avoirdupois, by which it is bought and sold. There are two distinct varieties, the American and English, or "Mitchem." The English has almost wholly superseded the American, being better adapted to our soil and climate, and favored by the trade. It is also hardier and a better yielder. On many farms the two varieties are mixed to the detriment of the grower, so it is not always easy to get pure English roots for setting, which is of prime importance.

The ideal farm is one having both high land and muck land, which is a distinct advantage on account of the rotation and putting humus in the soil from the products of the muck, which is long on humus, being practically all decayed vegetable matter. Some muck has a varying content of sand, or clay, or both. Most mint farms are all muck and no way has been found to restore fertility to them only by the use of fertilizers. Muck responds quickly and profitably to commercial fertilizers on account of its humus and moisture, which rises by capillary attraction. Large crops of mint can be grown for many years in succession on the same ground by the proper use of commercial fertilizers.

The mint plant, after the oil is removed, makes good feed for stock and gives as much feeding product per acre as ordinary meadows, makes good bedding for stock and has greater absorbent qualities than any hay or straw. It is simply ideal in the manure



A Stand of Peppermint Typical of Michigan Mint Fields.

pile. Plowed under as straw it puts more humus in the ground than anything else at one application. In the writer's personal observation mint charges from the still have been spread on thin, light land to dry for hay, the same ground being used two or three times the same season, and when plowed after such use for two seasons the ground looked like prairie, and responded with bounteous crops for several years.

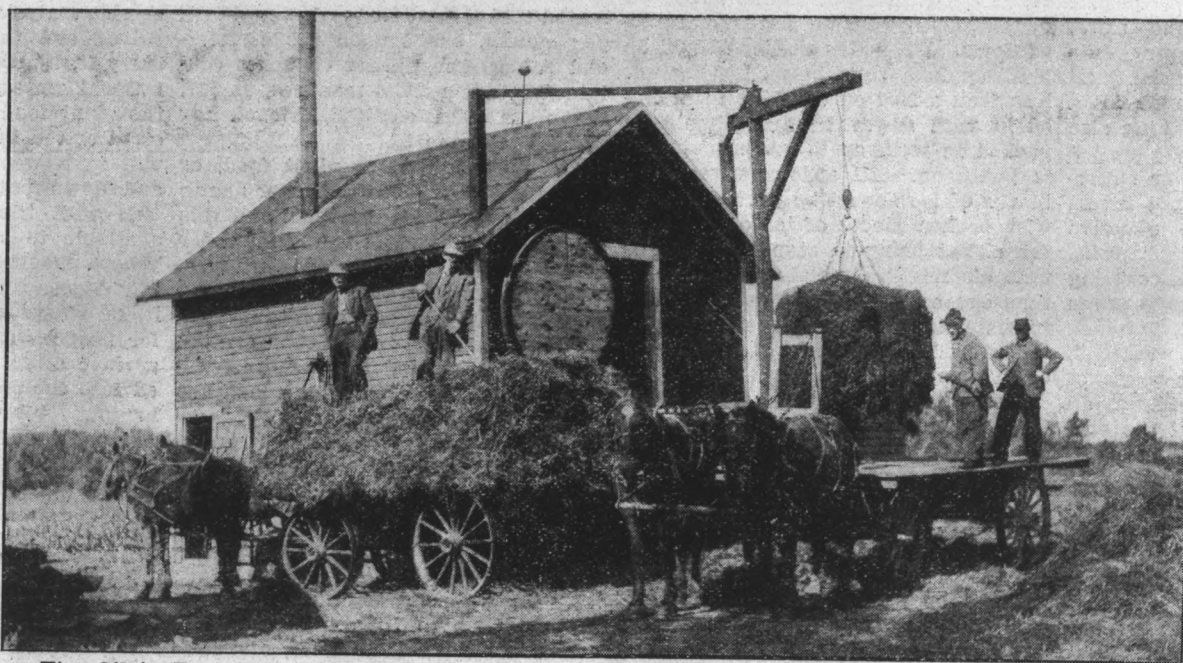
Idle horses winter in good condition on mint hay alone. It is just laxative enough to keep the digestive tract in fine condition. It is fairly good feed for cattle and is ideal for sheep. The hay is easily and quickly "made" by spreading the "spent" plant direct from the still, on some thin land, and when dry, curing in big cocks. It should be handled with slings.

There is wide variation in the yield of oil per acre, say 20 to 60 pounds, with sometimes a second cutting the same season of six to 20 pounds.

Muck, to pay out for mint or any crop, must be thoroughly drained and subdued at the start. Unless springy, small open ditches are best and cheapest. Springy places should be tapped by underdrains. Summer fallowing is practiced to subdue after plowing, using a disc, without lapping, and a pole drag alternately, thereby killing six to eight crops of weeds during the season if plowed in the spring.

No extra equipment is needed to grow mint except a still—a small co-operative still in a neighborhood, with capacity to handle about 100 acres, easily solves the matter at small individual expense.

Don't rush into mint raising. Just grow into it easily and cheaply. Get four or five sacks of fine English roots, the best money will buy. The next spring the roots from them will set an acre or more. During the season prepare your land and the following April



The Oil is Extracted at the Still and the Residue Returned to be Utilized for Feed or Fertilizer.



A Gang of Men Planting Peppermint on one of the Big Mint Farms of Southern Michigan where Mint Growing is Most Highly Developed.

set your mint. An acre of good roots will set 10 to 15 acres. Build your still and you are launched in the business.

Mint is set in shallow furrows made with a marker three to three and one-half feet apart, throwing the roots from a sack carried over the shoulder. They should lie in a continuous string, one to two roots in a place. Cover the roots lightly with the feet as you proceed. The planting can never be done too early—April planting is best, the twentieth of April is the ideal date. Give the plants shallow, level cultivation and hoe twice. Let no weeds go to seed. This is important. Why? You grow mint on this field without replanting for several years. Each year, in October, you plow under, about five inches deep, all the mint on the farm except what spring planting you will need for planting stock the ensuing spring. This plowed under mint is worked with a harrow only the next spring and early summer, to kill out half to two-thirds of the growth, else it will grow too thick, keeping out the sun and air and thus lessening the yield of oil.

Mint, after the first season, or old mint, is harvested from the middle of July to the middle of August. First crop, or new mint, is harvested from August 10 to September 5. New mint is usually cut with scythes. Old mint with mower and horse rake. The bet-

ter mint is cured before stilling, the better is the hay. It must be cured without breaking or losing the leaves. The oil is in little sacks on the under side of the leaf, so the theory is to get a prolific growth of large thick leaves.

Mint has few insect enemies, will stand quite severe frosts, especially in the spring, will thrive in a wet season and defies drouth. In fact it gives best results in dry seasons. Under proper conditions I have never known a failure in the mint crop in 22 years. It can be stored in small compass and held indefinitely. It is harvested at a time when other farm work is not pressing.

Now, if you cannot grow mint put your muck in shape to grow other crops. Don't be satisfied with a bush pasture and a little "Sauger grass." You can make an acre produce twice as much pasture which will have nutrition in it. You can grow corn, potatoes and hay if not in a position to grow intensive crops, like celery and onions. It is an asset you cannot neglect, even if it takes labor and money to redeem it.

Van Buren Co. D. W. BRODHEAD.

This is the fourth of the 52 special articles to be published in consecutive issues of the Michigan Farmer. In the next issue will appear the first special article on "Organization for Community Welfare."

Best results can be obtained when between 18 inches and two feet are left for packing. In these times when there are so many uses for ice during the warm season of the year, every farmer who is located near a stream or pond where ice is available in the winter should provide a means for keeping a supply in storage. Although this may seem early in the season to be thinking about getting in a supply of ice, it is none too early to build or make over a shed or house in which it may be kept. By following the directions that have been given one will have little trouble in building an inexpensive house and keeping ice satisfactory.

Indiana.

C. H. WHEATLEY.

BARNYARD MANURE.

Success in farming depends upon the economical conservation and returning to the soil, the residue of the crops produced, and fed to the animals. It has recently been well established that where strict economy is used in saving all of the voidings both solid and liquid, of farm stock, that 80 per cent of the plant food contained in the hay and grain fed, may be returned to the soil. The farmer who lavishly expends in waste, the essence of his farm fertility, must sooner or later go into bankruptcy. Fertility of the soil is the farmer's capital, and if he continues to draw on this, without returning its equivalent, it is only a question of time when he will have broken his bank.

Manure Losses Large.

In referring to recent statistics, carefully compiled, the estimated loss from the value of barnyard manures in the United States, by careless handling, amounts to a value of \$750,900,000. This estimate is for plant food alone, and does not contemplate the physical value to the land, that would have accrued, had this waste been applied to the soil. Under careful tests made at experiment stations, it is estimated that the voidings of every horse per annum, based upon the commercial value of fertilizing elements contained in commercial manures, as \$27, that from every cow \$20, of each hog \$8, and of sheep \$2.

The most expensive plant food, or element, with which the farmer has to deal and supply, is nitrogen, and this is the one chiefly lost in the improper conservation of barnyard manure. While the custom with many farmers, of using gutters of concrete behind their horses and cows to conserve the liquid voidings, and the manure hauled to the fields as soon as a load has accumulated, is approved, it is deplorable to still see piles of manure accumulating for a year, under the eaves, where by leaching or burning, its most valuable element is either washed away into the streams or evaporated into the air, and lost.

Conditions Affecting Value.

From time to time I have bought considerable stable manure, and it is often amusing to hear the prospective seller extoll its value, saying "that it is well rotted, having laid in the pile a whole year." Aside from its value as humus, such manure has little commercial value.

In estimating the value of manure it is important to know the value of the fertilizing elements contained in the corn, oats, hay or other materials fed to the animals. It might increase the length of this article too much to go into details, with tables showing the comparative value of the manurial worth of the foods used. It will be apparent to every thinker, that the richer and more concentrated the food, such as bran, cottonseed or oil meal, as well as the clovers, alfalfa, etc., the greater will be the nitrogenous quality of the manure. Liquid manure is much richer in nitrogen and potash than solid manure, and where insufficient absorbents are used or

where the stable floor is not tight, there is sure to occur great loss. The manure of well fed animals is richer than that from underfed stock, for the reason that more of the elements of heat and growth in the underfed animal will be extracted, to supply the needs of the body, whereas if well fed the surplus will be voided in the excreta. The manure of young and growing animals is less rich in plant food, than is that from mature animals, as growth must be supported, whereas the mature animal only requires sustenance.

When to Apply.

The fresher the manure is when applied to the land, the greater will be the saving of its fertilizing elements, but there may be, and often are, conditions under which hauling fresh manure directly to the field may not be advisable. It is a question as to which is the more profitable mode of applying manure, whether before or after plowing. Theoretically, the applying of manure to the surface of plowed land to be cultivated in seems plausible. When manure is applied to the surface of unplowed land in winter and when the ground is frozen, and especially as is more often the case, when applied to the higher lands, there must be great loss from melting snows and excessive rains, washing the manure to the lower lands, and often into streams where its loss is permanent. Another objection to applying manure to unplowed land is, and this is especially true of strawy or coarse manure, where applied to heavy soil, that it is buried so far below the rooting of many surface feeding plants that they cannot readily reach it, and being thus buried the solvent effect of the oxygen of the air cannot reach it, and in case of dry weather it is slow to decay, when forming a dry blanket between the upper and lower soil it prevents capillary action from pumping moisture to the root zone of the plants growing above it. When rain falls on the soil it percolates down through it and any soluble material in its way will be dissolved and the tendency will be to carry it, by the free passage of gravitational water, to the subsoil. Thus the plant food in manure, buried six, eight or ten inches below the surface, will in a wet time be carried down and down until, forming a combination with insoluble bases, it is unavailable to surface feeding crops. Where manure can be reduced to a fair degree of fineness, by composting it, or where short cut straw is used for bedding it should be used on the surface after plowing and well worked into the soil with the cultivator or harrow. When thus applied, being near the surface, the action of the rain, and the oxygen of the air, will hasten fermentation and decomposition, the rain will dissolve the plant food just where it is needed, in the surface soil, where the plants will appropriate it, and the humus mingling with the upper soil will act as a mulch, conserving moisture in a dry time.

New York.

B. F. MACK.

THE QUARANTINE ON HAY AND STRAW MODIFIED.

The provisions of the federal quarantines declared on account of the foot and mouth disease have been somewhat modified in so far as they apply to shipments of hay and straw. The new regulations provide that hay and straw cut prior to August 1, 1914, and baled prior to October 1, 1914, may be shipped without disinfection from any of the quarantined areas, provided that it has been stored away from cattle, sheep or swine. Hitherto it was necessary that hay should not only have been cut before August 1, but that it should also have been baled before that date.

Office of Information, U. S. Dept. of Agriculture.

The Ice House for Farm Use.

AN expensive structure with double walls, double doors, costly foundation, or an underground structure is not necessary in order to keep ice through the summer months. Of course, if one can afford and prefers it, a neat, attractive and expensive structure is all right. Three things are essential to the safe-keeping of ice. These are bottom drainage to carry off water without admitting air, top ventilation to permit moisture from escaping, and third, surrounding the ice on every side with a non-conducting material. All these conditions can be met in a cheap made-over shed, if nothing else is available.

If it is necessary to build an entirely new building one need not invest much money for a cheap but effective house can be made with single walls, using one-inch boards and covering the cracks with strips. This requires no framework except sill of 6x6 inch material, plates of 2x4 inch material, corner posts and two door posts of 2x4 inch material, and the rafters; all of the rest may be made of the one-inch boards and strips.

For the foundation, frame the sills together at the corners, lay them flat on the ground, which has previously been leveled, and fill the space inside level full with broken rocks or blocks of wood. This will afford drainage and keep the ice from absorbing heat and moisture from the earth. Place the corner and door posts, then the plates across the top, and there will be frame work enough to support the side boards. These should be placed vertically and nailed to the sills and plates. A girdle placed about half way up the sides of the building and extending around it will add a great deal to the strength of the structure.

The roof is a most important part of the building. It must be tight and rain-proof for if it leaks the rain will get through and melt the ice rapidly. The roof should project a foot or 18 inches over all of the sides. The door should be in one of the gable ends and should be in two sections, an upper and lower. A strip should be nailed across the bottom of the upper section so that when the doors are closed it will extend below the break that is made between them and thus prevent a draught of air through the crack, which would tend to cause the ice

nearby to melt. When the house is being filled boards should be placed across the door-way on the inside between the door posts to prevent the sawdust from falling out when the door is open. A small opening should be made in each gable for ventilation.

With the house thus completed, and with a pile of sawdust at hand, it is ready for filling as soon as the ice can be obtained. A layer of sawdust about a foot in depth should be spread over the entire inside and well tramped down. Upon this the ice should be built up in a solid mass, leaving not less than a foot on all sides to be filled in with sawdust which should be packed in well, as the filling process is going on. All space between the blocks of ice should be packed tightly with broken pieces of ice or sawdust, the object being to stop all passages that air might circulate through and thus cause melting. When the filling is completed the top of the ice should be covered all over with a foot or two of sawdust.

There is less relative waste in a large than in a small bulk of ice, and for this reason it is well to plan for even more than is needed. A ton of ice occupies about 40 cubic feet of space. A house 10x12 feet, and eight feet high, will take care of a mass of ice 8x10 feet, allowing a foot on each side to be packed with sawdust. If built up seven feet high, such a mass of ice will contain 560 cubic feet, equal to about 14 tons. This amount is sufficient to supply the needs of two, or perhaps three, families during the entire summer.

After the ice has been placed in the house it will be necessary to look at the sawdust occasionally and pack it down as it shrinks. Unless this is done some of the ice will be exposed to air currents and will melt rapidly as a result. On this account it will always be found advisable to have an extra couple of feet of sawdust on top of the pile of ice so that it will be available to fill in when the other sawdust becomes settled.

When sawdust cannot be obtained a substitute can be found in dry chaff, grass, cut straw and such material, but these do not exclude the air as perfectly as sawdust. When the substitute materials are to be used a wider space between the ice and the walls should be left for the packing.

Good Roads in Michigan.

SAGINAW county has 213 miles of good roads. This year the county has built 28 miles of macadam, five and a half miles of gravel and one mile of field stone road. Saginaw has earned \$175,600 in state reward money, and the amount of money spent for all road building purposes to date reaches above \$1,300,000. Saginaw supervisors have authorized a tax of \$1.80 per thousand valuation for good roads in 1915, which will make available over \$146,000, or nearly twice as much as has ever been raised before. Good roads have added immeasurably to the prosperity of the county. As a single instance the sugar beet industry in the Saginaw Valley would be greatly crippled but for the stone roads which permit hauling the beets to the weigh stations during the rainy fall seasons when ordinary dirt roads are impassable.

W. S. Antisdale, superintendent of roads in Muskegon county, has completed half a mile of a new type of construction on the Whitehall road, north of Dalton. It was the aim to build a road having all the cementing qualities of limestone, but with a hard wearing surface that would stand up under heavy automobile and team traffic. Specifications call for a base of six to seven inches of limestone, watered and rolled, and on top of this a surfacing of washed gravel passing an inch screen, with all clay and fine stuff removed. The gravel surfacing is then rolled into the limestone, which holds it like a cement, with the hard gravel exposed to traffic. The new road is 16 feet wide and appears to be a fine type of highway.

Two years ago Lapeer county voted in favor of good roads and spread a two-mill tax, which has produced a fund of \$36,254 annually. Each of the 18 townships has had its share of the benefits, but the construction has been piecemeal and has been subject to criticism. This fall, by vote of 10 to nine, the supervisors have suspended the work for a year at least, on the ground of high taxes rather than of opposition to road improvement. Meantime good roads work in Lapeer county will be done by the townships and cities as separate units.

Mason county supervisors have employed a traffic officer with motorcycle at \$100 per month to put a stop, if possible, to violations of law by speeding automobilists.

Flint celebrated "Good Roads Day" October 29, with over 10,000 visitors, despite the rain. Genesee county voted \$500,000 for good roads a few years ago and has been active, receiving one-twelfth of the reward money paid by the state. "In two years," says the Flint Journal, "Genesee county has literally picked itself up by the boot straps and lifted itself out of the mud to a position that is the envy of other counties of Michigan." And the work will go on. Another half mill has been voted by the supervisors. It has just been decided also to build nine more miles from Royal Oak to Pontiac, which will complete the good roads highway from Flint to Detroit.

A movement is well under way to build 30 miles of concrete road between Grand Haven and Grand Rapids. A Grand Highway Association has been formed, with Wm. B. Connelly, of Spring Lake, as secretary, and three miles of highway is now assured. The first half-mile at the Grand Haven end has been completed and Ottawa county commissioners have voted to extend same another mile and a half to the township line. Spring Lake village will build a mile of road within the corporate limits, which will be completed next season.

Jackson county supervisors have voted \$94,615 for good roads next year, or an increase of \$34,000 over this year. This appropriation is a little less than a mill and a half on each

dollar assessed valuation. About 22 miles will be built, including three miles of trunk line at cost of \$18,690; five and a half miles of 12-foot road, costing \$25,000, and 13.5 miles of nine-foot road at a cost of \$41,740; also 6,900 feet of road from Jackson city limits to Vandercook Lake, \$9,185.

Oakland county has a much larger program for road building next year than was carried out this year and has appropriated over \$120,000 for the purpose. The commissioners will assist in building the proposed concrete road between Pontiac and Detroit, providing the Legislature does not cut down the state reward money it has been paying in the past.

The good roads issue won out by a big majority at the recent election in Washtenaw county and a good roads district is created, composed of Ann Arbor city, Ypsilanti city, Ann Arbor township, Northfield, Pittsfield, Salem, Scio, Superior and Ypsilanti townships.

The township of Ogden, in Lenawee county, has voted a bond issue of \$90,000 for good roads. The specifications are macadam, 12 feet wide on road bed and 20 feet on entire grade, and seven inches in depth. The first road to be built will be seven miles between Ogden and Whiteville.

Money for road machinery authorized by the supervisors of Calhoun

A GOOD CROP OF CORN.

We, from time to time, read in your valuable paper about some of our brother farmers who have been fortunate in raising an extra good crop of one kind or another. As we have been very fortunate at Cherry Dale Farm in raising a good crop of corn this year we would be pleased to learn through your paper if any of our Michigan farmers have done better, and if so, how they did it.

We planted seven and one-half acres of Yellow Dent corn on May 19; September 17 we filled our 65-ton silo from 2 7/8 acres, and it has only settled about one door and a half. This is good evidence that it was well filled. Since filling silo we have husked out 766 bushels of fine corn from the balance of the acreage mentioned.

Part of the ground was bean ground last year and part timothy sod, with some barnyard manure applied to fertilize. The corn was drilled six quarts per acre, in rows 42 inches apart. It was given good cultivation and no weeds allowed to grow.

Tuscola Co.

J. H. Wood.

ANOTHER GOOD YIELD OF CORN.

The accompanying cut is made from scenes taken on the farm of Wm. F. Maitrott, of Bloomfield township, Oakland county. The corn in this field husked out an average of 174 bushels per acre. It was grown in exactly four months, being planted May 8 and



One Hundred Seventy-Four Bushels Per Acre is the Record for this Field.

county, includes the purchase of a motorcycle to aid in arrests for violations of speed laws.

Manistee county voted to adopt a two-mill tax for good roads and to reduce the board of road commissioners from three members to two.

Grand Traverse county raises a mill and a half tax for better roads, which amounts to \$18,400, without the three townships of Whitewater, Grant and Peninsula that are not under the county road system. Charlevoix county will raise three mills, or \$34,000. Emmet county will raise two mills, amounting to \$23,000. Cheboygan county raises two mills and this county also bonds for \$75,000 for building trunk lines. Wexford will raise one mill and in addition citizens of Cadillac subscribe \$700 a mile for every mile built on the main lines. Missaukee county will raise three mills, amounting to \$18,000. And besides, there are many townships in Antrim, Benzie, Leelanau and other counties that are building and repairing roads.

The road commissioners of Wayne and Monroe counties met recently in Detroit and adopted a resolution asking Governor Ferris to appoint a commission to investigate road conditions in this state, with necessities for improvement of same, and to report at the coming session of the Legislature, recommending the text of a law that will cover the building, improvement and maintenance of good roads.

A BIG EAR OF CORN.

I have one ear of yellow dent corn that I would like to have beaten by Michigan Farmer readers. It has 24 rows and 1,152 kernels, all perfect.

Livingston Co. J. W. McGunn.

down very firm and solid. Sweet clover requires a firm seed bed for best results. Also there are a great many "hard seeds," so-called, in sweet clover; that is to say, the seeds have a hard coating which is so impervious to water that the moisture does not penetrate them readily, and many of these hard seeds will not germinate the first season after sowing. On this account, it might be a better plan if this ground is not too rolling, to sow the seed very late this fall or during early winter, depending on the action of the elements to cover it sufficiently, and giving a longer period for the moisture to penetrate the seed during the wet weather of early spring than would be possible by spring sowing, especially if any attempt is made to work the seed into the soil. Inoculation, would probably be beneficial, either by the soil or the pure culture method. Some are of the opinion that it is not as necessary as with alfalfa, but a good many experienced growers of alfalfa are coming to be of the opinion that if the soil conditions are made suitable to promote a normal multiplication of the bacteria, that inoculation is not as necessary for alfalfa as has been generally supposed, providing that these preparations are made a sufficient length of time before the seed is sown. Where limeing is done the same season the seed is sown, however, inoculation is quite important. After sweet clover had once been grown upon this land, there is probably no doubt that it could be successfully seeded by this method, and if the land is in a condition so that it could be successfully seeded to clover in the rye there is every probability that the plan might succeed on the first trial. It would be a good idea to sow some clover with the sweet clover so as to insure a good covering in case the sweet clover failed to make a thick stand.

A CHEAP CARBON REMOVER.

An ignorant laborer in the testing room of an engine factory is responsible for one of the greatest boons to motorists ever discovered.

A tester had just started a kerosene engine and as it is necessary to "live" up a kerosene motor with gasoline injected from a squirt can into the air intake of the carburetor, he was industriously helping the machine along when the squirt can ran dry.

Calling the laborer he told him to fill the can with gasoline. The laborer, not understanding English very well, filled the can with water and brought it back to the tester.

Meanwhile the engine was running along as best it could, smoking and missing fire, until a little "gasoline" was shot into it from the refilled squirt can, when to the astonishment of the tester the motor picked up speed and ran without smoking.

Naturally he investigated matters and eventually traced the improvement to water in the squirt can. He then tried it on a gasoline motor and discovered that while it did not greatly affect the operation of a gasoline engine it would remove any carbon collected on the inside of the cylinders.

It is surprising how few repair men, experts, and motor car drivers know about this handy method of removing carbon from a motor, so the chief engineer at one of Detroit's great automobile factories has consented to give the following instructions for its use:

Procure a squirt can, fill it with water from the faucet in sink or garage, start your motor, raise the bonnet on the carburetor side and with the can inject a few drops of water into the air intake of the carburetor while the motor is running. Keep this up a few drops at a time for several minutes. It certainly is easier than taking the motor down to scrape out the carbon, and really does clean out the motor in good shape.

I have a piece of rye, fall sown, on rather light soil. Would I be safe in sowing sweet clover seed in spring, as one sows other clover seeds? Is it as necessary to inoculate sweet clover as it is to inoculate for alfalfa seeding? If inoculation is advisable, what would be the best method of inoculating when the seed is to be sown in the spring with a nurse crop of fall rye?

Emmet Co.

SUBSCRIBER.

The only way to determine whether sweet clover could be successfully seeded on this soil by spring sowing in fall sown rye, would be to make the experiment. In the writer's opinion, there would be no very great certainty of getting a good seeding in this way. Sweet clover will undoubtedly thrive on thinner soil than will common red clover or alfalfa, provided other conditions are favorable. Like alfalfa, it seems to require an abundance of lime in the soil for best results. It is often seen growing in gravel banks on fills made along railroads or highways, and making a very luxuriant growth on what would seem to be a very poor foundation so far as soil fertility is concerned. Ordinarily, however, this gravel contains a good deal of lime, and it has another quite essential requirement in that it packs



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The Fruit Grower's Experience.

It is said that experience is the best teacher. So it is, for without taking advantage of experience, either that of our own or someone else, we would make little progress in any line of work. Experience along certain lines of work is very valuable because it gives us almost exact information for taking care of future conditions very similar to those in which we have had our experience. In fruit growing and farming, however, experience does not furnish us with information which we can use with the same exactitude as in other lines of work. This is because we are dealing with Nature, and she is ever changing. Experience is therefore an assistant of judgment, and judgment based on experience is the fruit grower's stronghold.

Each Season Different.

One prominent fruit grower said that he would learn considerable in one season, only to find that it was of little value in another because conditions were entirely different. His statement would suggest that the fruit grower should not base his coming season's work too much on his conclusions of the past season's experience, but that he should be ever observing and then take care of conditions as they arise according to his best judgment. There is nothing of mathematical exactness in fruit growing, and the rule of thumb method if applied to fruit growing will fail.

The reader should not think that the above is to belittle the value of experience; it is rather to bring out the importance of good judgment. Experience is most valuable and the fruit grower should treasure the knowledge he has gained through experience.

Ideal Weather Conditions.

Nature has been kind to the fruit grower during the past season, and there have been few seasons in the past which have been as favorable for the development of good fruit. There was very little muggy weather which would tend to the development of fungus diseases; still there was plenty of well distributed rainfall so that even uncultivated orchards did not suffer from the lack of moisture. This unfavorable weather made spraying especially effective, and thorough work showed results. In the matter of temperature the season was also quite normal, and as temperature has the greatest influence on the development of insect life, our insect pests appeared at their normal time, and were therefore easily controlled by spraying. The large amount of clear, sunny weather also produced fruit of especially good color.

Tent Caterpillar and Blight.

Perhaps the most serious things, aside from the abnormal market conditions, that the fruit grower had to contend with, was the tent caterpillar in the northern part of the state, and the blight which was quite prevalent in all parts of the state. The tent caterpillar has been developing for several seasons, and because no concerted action was taken by the people in the district involved, it became quite a serious pest last year. The blight also was quite prevalent in 1913, and because the blight cankers were not taken care of, it was, true to the predictions of fruit authorities, quite serious in many sections. It was always supposed that the blight developed more quickly on vigorous, well-growing trees, but this season's experience show that in many cases, it was the worst on the old trees. It was also shown this year that weather conditions have considerable effect on the spread of the blight. It was noticed that it spread faster immediately after damp or rainy weather. Its development immediately after blossoming time also clearly indicated to doubters that the blossom was the principal means of introducing the blight

into the tree. That the blossoms should be so affected showed that the bees and other insects which visit the blossoms are the principal means of distributing the blight bacteria.

Cut Out the Blight Cankers.

While the cutting out of the blighted limbs is the accepted way of controlling the blight during the growing season, it is a method which is doubted by many. There is little doubt, however, that the cutting out of the blight cankers in which the bacteria pass the winter is necessary, and the fruit grower can spend his time at this season of the year to no better advantage than to go through the orchard and cut out these cankers, whether they be on trunk or limb. In doing this work, care should be taken to thoroughly disinfect the wounds with either a dilute solution of carbolic acid, corrosive sublimate or a concentrated solution of lime-sulphur.

This season's experience with reference to marketing which is probably the most impressive experience the fruit growers have had this year, indicates that the fruit grower should get his orcharding down to the most economical management. Aside from endeavoring to lessen the cost of production, the fruit grower should endeavor to eliminate waste as much as possible by using the by-products of the orchard to greater advantage. Cider presses and evaporators may be a part of the orchard equipment of the future. Fruit growing is past being a business of abnormally large profits, but will continue to be one which will give good returns for economical and scientific management.

Send in Your Experiences.

Most every fruit grower learns something each year that has been of value to him. He may have some arrangement by which his pruning tools are always convenient and still be out of his hands when he is climbing a tree or ladder, or he may have found some little thing which made the work more efficient, and still easier, in spraying, cultivating, harvesting, or any other orchard operation. If you have come across anything that has been of value to you along this line, pass it along and let the Michigan Farmer to be the means of bringing it to the attention of the other fellow. We will be glad to publish helpful experiences.

GROWING HOTHOUSE LETTUCE.

The almost gigantic proportions to which the lettuce forcing industry has attained during the past twenty years may not be generally known to the readers of the farm journals. Whether this form of tilling will ever be overdone cannot, of course, be foretold, but it is not likely to occur, if at all, for a long time to come. It is a very exacting work, requiring both skill and patience. While lettuce growing, or the growing of any other crop for that matter, is easy in the open and in the natural season, it is far from being an easy matter to grow it out of season and under glass. In the latter case the conditions and natural requirements of the crop must be produced artificially.

Three Crops in a Season.

Our lettuce forcing house yields three crops in a season. It is of uneven span, 50x150 feet, and is heated by hot water. We have never used steam heat in forcing lettuce, but there are advantages in this method, among them being the little room the heating pipes require, the ease with which they can be introduced here, there and everywhere where needed and whenever needed, the little labor required in running the apparatus, and the quickness and precision with which a given temperature can be maintained, no matter what the weather outside may be.

Our first winter crop is at this date, (October 28), nearly ready for cutting. After it has been cut, it will give place to the second crop which will mature in February when the third crop will be set. This will mature during April, and then we set the house with cucumber plants which have been started in boxes about the middle of March.

Starting the Plants.

We start the lettuce in flats 10x18 inches, and four inches deep. The plants are transplanted when about four weeks old, and are set 4x6 inches. This means six plants to the square foot of space. The variety grown is the Grand Rapids, which is a loose leaf lettuce, and very popular in this section. In mid-winter it usually requires about twelve weeks to mature a crop of lettuce, but the market does not particularly require mature lettuce. We seldom allow it to occupy the beds more than eight or nine weeks. We sell by weight, and while lettuce not fully grown does, of course, not weigh as much as that fully grown, we lose on that account, but we gain in that we are in this way enabled to grow more crops in a season.

The Best Temperature for Forcing.

Our experience has been that the best temperature for lettuce is about 45 degrees at night and from 15 to 20 degrees higher during the day. Of course, the temperature depends a good deal upon the condition of the crop. A high temperature and a dry temperature are detrimental to the good development of lettuce. Young lettuce, like blossoming plants, love bright, sunny weather, and in the sunniest parts of the house are always the finest.

The greatest enemy and drawback to lettuce forcing is the green fly. We can overcome them by smoking at least twice a week with tobacco smoke.
D. LEATHERMAN.

THE APPLE SHOW AT PONTIAC.

Another example of the co-operation between the farmers and the business men was the apple show held at the Armory in Pontiac, on Nov. 19-21. The Horticultural Society prepared and set up the fruit exhibit and the Commercial Association furnished the building and the advertising of the show. This latter consisted of signs on the interurban cars running from Pontiac to other points, cards in store windows and circulars sent to those likely to be interested.

The fruit exhibit which consisted of two banks of apples, containing about 200 exhibit boxes of apples each, was most attractive. The fruit was of very good quality and of a very fine color, and it surprised many who are not actively interested in fruit growing to learn that such high quality fruit was grown in their country. One exhibit of interest was a collection of dummy boxes filled with the contents of an entire barrel. This showed up in very fine shape the evenness and quality of the pack the exhibitor made. Another exhibit which was interesting was a collection of fruit bought from the wagons of growers who were hauling fruit to the Detroit market. This exhibit showed the high quality of fruit that the progressive fruit growers within reach of Detroit were hauling to that market in their wagons and motor trucks.

Prof. L. R. Taft judged the fruit and also gave a talk on "Fertility of the Orchard," Friday afternoon. Prof. H. J. Eustace was the speaker for Saturday afternoon.

The premium fruit of this show is to be exhibited by the Oakland County Horticultural Society at the meeting of the State Horticultural Society at Kalamazoo. This being a fact, one can safely predict that the Oakland County Society will have an exhibit at Kalamazoo worthy of considerable attention.

Practical Science.

THE RELATION OF THE COST OF PRODUCTION TO SELLING PRICE.

BY FLOYD W. ROBISON.

In the last several years a great deal has been written concerning intensive agriculture. Old and current methods of farming have been criticized and the trend of the advice given farmers by agricultural writers has been toward intensive agriculture. It has been assumed and argued that this country must produce more products per acre in order to relieve the increasing demand for food and to make the business of farming financially more attractive to farmers. The methods employed have been the practice of intensive cultivation and the more liberal use of commercial fertilizers. Very little attention has been given to moderate fertilization and moderate cultivation with the idea of

Under pioneer conditions the highest yields have been the most profitable because they were the result, not of expensive methods of farming, but of especially rich spots of land or of favorable seasons, costing nothing extra beyond the increased expense of harvesting. It is still true that high yields are profitable if they can be cheaply produced, but the general principle is that the higher the yield the greater the cost, not only per acre but per bushel.

This natural operation of the economic laws of diminishing returns in farming is best illustrated by an experiment begun many years ago by Lawes and Gilbert, at Rothamsted, England, the oldest experiment station in the world. They applied, every year for twelve years, different amounts of complete fertilizer to adjoining fields of wheat, with the following results:

Fertilizer applied.	Av. 12 yrs.	Increase	Increase per 200 lb.
None.	18.4 bu.		
200 lbs.	28.4 bu.	10.0 bu.	10.0 bu.
400 lbs.	36.4 bu.	18.0 bu.	8.0 bu.
600 lbs.	38.0 bu.	19.6 bu.	1.6 bu.

producing the maximum economical returns. Maximum yields without consideration for economy has been the cry, too much, we fear, and in this connection it is interesting to note from the pen of Dr. Eugene Davenport of the Illinois Experiment Station, a very interesting article on the relation between yields and prices. This article is so timely and of such a character that we feel the information it contains should be passed on to Michigan farmers as follows:

The following points are generally

Fertilizer applied.*	Av. 52 yrs.	Increase	Increase per 200 lb.
None.	14.8 bu.		
200 lbs.	23.9 bu.	9.1 bu.	9.1 bu.
400 lbs.	32.8 bu.	18.0 bu.	8.9 bu.
600 lbs.	37.1 bu.	22.3 bu.	4.3 bu.

*Nitrogenous fertilizer with abundance of mixed minerals.

assumed without argument by writers and speakers discussing agriculture:

1. That large yields are always profitable and that the best farmer is the one who raises the most per acre.
2. That large yields are a natural antidote for the high cost of living.
3. That when prices are low the farmer should raise his yields to protect his income.
4. That everybody is suffering because of the "slipshod and wasteful methods of the American farmer."
5. That we should now copy the intensive methods of older countries and that more capital is needed for the best results.

As a matter of fact, there is truth in all these propositions, but it is mixed with an amount of error and of misconception concerning the economic laws governing agricultural production that is dangerous both to the farmer and to the consumer.

We are just emerging from a pioneer agriculture, in which land had little value, because it was abundant, and labor was the principal element in the cost of production. If the American farmer has been wasteful of fertility it is because he has had it to waste, but he has been exceedingly economical of labor, which was costly, and has produced the cheapest food the world has ever eaten, or ever will eat, though the yields per acre have been little more than half those of older countries. Our question has been not how much per acre but how much per man, and in this the American farmer has been right, even though his average yields have been low.

We are, however, approaching old-country conditions. Land is growing scarce, and therefore costly, so that elements other than labor have begun to enter into the cost of production and food is necessarily higher.

By this we see (fourth column) that as an average of the twelve years the first 200 pounds of fertilizer returned 10 bushels, but that a second 200 pounds increased the yield only eight bushels above the first, and that a third 200 pounds returned but a little over a bushel and a half above the double dose, showing that increased outlay is not always followed by correspondingly increased yields.

The experiment was continued, and at the end of 52 years the results were as follows:

These figures for half a century show the same principle of diminishing returns in a modified form. Due to soil exhaustion, the yields from the unfertilized land decreased during the 52 years. On account of a few bad seasons, the average effect of the first dose (200 pounds) was slightly decreased. Owing to the accumulation of residues of fertilizer, the effects of the second and third doses were relatively larger than for the twelve-year period, though subject to the same law of diminishing returns. That is to say, the last dose of fertilizer was less than half as effective as the first; or, what is the same thing, the last increment of increase, cost more than twice as much per bushel as the first.

In the more intensified agriculture that is just ahead of us, the question is, therefore, not how much the farmer can produce per acre, but how much he can afford to produce. His yield must depend, not mainly upon his knowledge of production, but upon the price of the product.

For example, in the tables quoted, each 200 pounds of fertilizer cost \$7.50. With wheat at a dollar a bushel a little computation will show that both the single and double application would pay, but that the triple application would swallow all the profits and more. At eighty cents a bushel, only the first dose would make money; while at fifty cents a bushel, none of the treatments would pay, and both the farmer and the public would have to be contented with the lower yields from untreated land until such time as the consumer was willing to pay a higher price for his food. In this way is yield dependent upon price, and it is the natural way in which supply adjusts itself to demand as expressed in price.

(Continued next week).



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That Red Ball on Rubber Footwear stands for long wear and good service. It means tough, properly treated rubber,



Figure the cost of rubber footwear on the cost per day's wear and you will see why "Ball-Band" gives most wear for the money.

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"Ball-Band" Arctics are made with one, two and four buckles. The Red Ball is on the sole. Look for it. The tops are best cashmere.

The "Ball-Band" Coon Tail Knit Boot is knit, not felt, insuring the utmost wear and service. The patented snow excluder keeps out snow and dirt. Heavy gum overs to fit. This boot is completely shrunk. Can be washed when dirty.

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We don't ask you to pay us a cent until you have used this wonderful modern light in your own home ten days, then you may return it at our expense if not perfectly satisfied. You can't possibly lose a cent. We want to prove to you that it makes an ordinary oil lamp look like a candle, beats electric, gasoline or acetylene. Lights and is put out like old oil lamp. Tests at 14 leading Universities show that it

Burns 50 Hours on One Gallon common coal oil (kerosene), no odor, smoke or noise, simple, clean, won't explode. Three million people already enjoying this powerful, white, steady light, nearest to sunlight. Guaranteed.

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will be given to the person who shows us an oil lamp equal to the new Aladdin in every way (details of offer given in our circular). Would we dare make such a challenge if there were the slightest doubt as to the merits of the Aladdin? **GET ONE FREE.** We want one user in each locality to whom we can refer customers. To that person we have a special introductory offer to make, under which one lamp is given free. Write quick for our 10-Day Absolutely Free Trial Proposition and learn how to get one free.

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Largest Manufacturers and Distributors of Kerosene Mantle Lamps in the World

Men with rigs make \$100 to \$300 per month Delivering the ALADDIN on our easy plan. No previous experience necessary. Practically every farm home and small town home will buy after trying. One farmer who had never sold anything in his life before writes: "I sold 51 lamps the first seven days." Another says: "I disposed of 34 lamps out of 31 calls." Thousands who are coining money endorse the Aladdin just as strongly. **No Money Required** We furnish capital to reliable men to get started. Ask for our distributor's plan, and learn how to make big money in an unoccupied territory.

Dont Lose Calves with SCOURS



You Can Cure Them

No need to lose your calves by Scours! Can now be quickly and completely cured! Calves mean money—it pays to raise all born. You can do it, if you use

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Only remedy on the market that is positively guaranteed to cure Scours in all animals. If it fails, we'll refund your money immediately.

Get a bottle at once—at your dealer's or by mail from us for \$1. Keep it always on hand for emergency. It pays!

"This spring my dairy of fifteen was affected with Scours. It cost a lot of money and took entire dairy down. I tried several remedies without result. I ran onto Scours Special and tried it. Two two-year-old heifers were so bad they had to be lifted. Two doses of the medicine brought every animal around and they are in splendid shape today."—S. G. McGaughey, Spragueville, N. Y.

Send for Booklet on Scours—Free.
THE CALF SAVER CORPORATION
Spruce St., Gouverneur, N. Y.



WHY NOT PREVENT Foot and Mouth Disease

The Government will not let you even try to cure it, but preventive measures are encouraged.

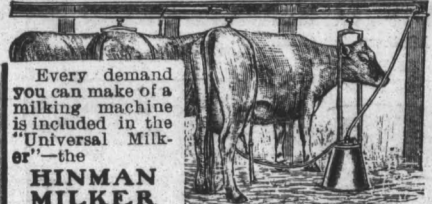
Sulfothen Will Save Your Stock

Sulfothen is a most powerful germicide and disinfectant. It will destroy any bacterium. Powerful, Penetrating, Safe, Efficient, Economical.

A solution of one part to 250 parts of hot water makes a perfect germicide. It does not destroy tissue or coagulate albumen, and is in no way dangerous. It is used in medical and surgical practice, veterinary practice, as a disinfectant and deodorant in all farm buildings, sinks, drains, etc., and will prevent cholera and other epidemics among swine, sheep and poultry.

1 Pound \$1; 1 Gallon \$4; Sample 2 oz. 25c delivered
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HINMAN MILKER

It enables a boy to milk 25 cows an hour. 250,000 cows milked daily. It is noiseless, light, easily cleaned, easily adjusted. Exclusive features—no vacuum in pail; no piping—just a simple drive rod; only two moving parts; quick pail changing idea; separate machines. "A success for 6 years." Write for name of nearest Hinman owner and our last booklet "Making More Money With the Hinman Milker."

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DRIED BEET PULP

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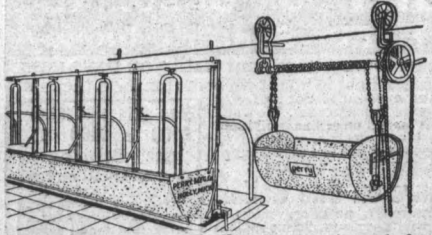
Because it Increases the Production and Lowers the Cost.

It is a vegetable feed and is not adulterated.

Order of your dealer or write.

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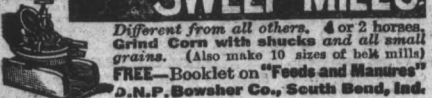
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Every dairyman wants the best equipment for his money. PERRY COW STALLS do the best work. cost the least, have more new time-saving features than any other on the market. Write for proposition J. also catalog at once.

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Different from all others. 4 or 2 horses. Grind Corn with shucks and all small grains. (Also make 10 sizes of belt mills) FREE—Booklet on "Feeds and Manures" J.N.P. Bowser Co., South Bend, Ind.

Dairy.

CONDUCTED BY COLON C. LILLIE.

STORY OF THE BREEDS.

I wish you would give me the history of the Ayrshire cattle. I would also like to know if you think they are one of the coming dairy breeds and also what you think of them as beef animals.

Saginaw Co.

M. B.

Ayrshire Cattle.

The native home of this breed is in the county of Ayr in southwestern Scotland. Like most other English breeds of improved live stock, the name is derived from the locality in which the breed was developed.

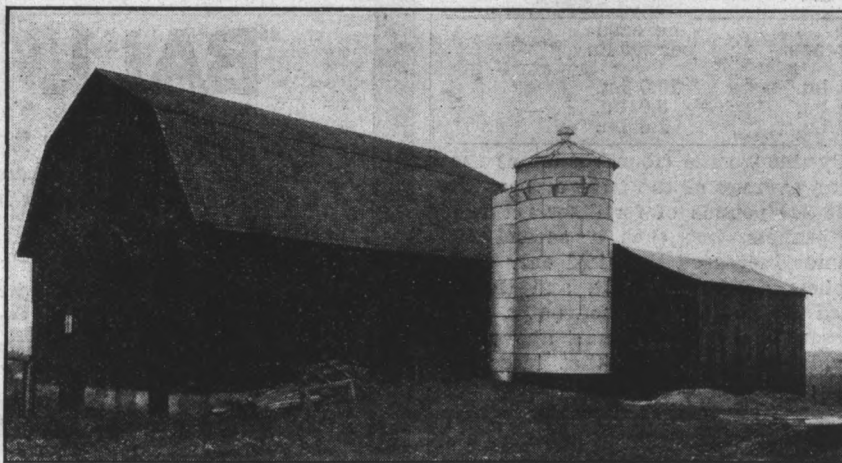
The origin of the breed is rather complicated, although Aiton, the only early authority writing on this subject, in 1811 recorded the breed as native to the county improved by the introduction of outside blood, probably of the Teeswater cattle which were the foundation of the Shorthorn

slowly than do individuals of the beef breeds. Being of the dairy type it cannot be expected that they would compete with the beef breeds in the production of meat.

The American Ayrshire Breeders' Association maintains a herd book for the breed with an advanced registry class. The minimum year record for cows five years old or more is 8,500 pounds of milk and 375 pounds of butter. The excellent quality of some American herds of this breed is attested by the fact that the Grand Champion cow at the recent Dairy Show at Chicago was an Ayrshire, and a grand individual, as any reader may determine by referring to her photograph as reproduced in a recent issue of the Michigan Farmer. The distribution of the breed is wide, although they have never gained great popularity in this country outside of the eastern section.

ALLEGAN COUNTY COW CONTEST.

I saw a report of the cow contest at the State Fair and, as the Allegan county fair ran a contest along simi-



"Zyro" Metal Silo Recently Erected by Wallace Brown, of Orkland County.

breed, while other outside breeds may have contributed somewhat to the improvement of the native stock. Other writers claim that Channel Island and Shorthorn crosses were early used in Ayrshire, while West Highland cattle, Devons and to some extent Herefords, all are said to have been introduced into some of the herds in the county. The breed was early subject to fads in color, having originally been black and white, later red and white, then brown and white.

From these accounts of early writers, it will be noted that the Ayrshire breed is cosmopolitan in its ancestry, and owes its excellence largely to selection from types associated with large dairy production, particularly with a view to securing a product most suitable for the manufacture of cheddar cheese, which is an important product of Ayrshire. Ayrshire milk has long been standard for making this cheese in Scotland, owing to the fact that it contains the standard amount of fats and solids desired for the purpose. Thus the Ayrshire breed has been developed into a pre-eminently special purpose breed along these lines.

As a butter cow, the Ayrshire is secondary to some other breeds, although individuals of the breed have made some very creditable butter records. The milk records of individuals of this breed compare very favorably with other special purpose breeds, Holsteins excepted.

In size the Ayrshire cows are larger than the Channel Island breeds, the American standard of size for cows being 1,000 pounds. The individuals of this breed naturally carry somewhat more flesh than the more refined dairy types, and the steers make very saleable carcasses of good killing quality, being superior to other special purpose dairy breeds in this regard. They are handicapped in the matter of beef production, however, by the fact that they mature and feed more

lar lines, I thought your readers might be interested in a report of the two winning cows, which were Holsteins.

We charged market prices for grain and hay, and \$3.00 per ton for sweet corn fodder. We allowed 30 cents a pound for butter-fat and three cents a pound for solids not fat.

The minimum dry matter requirement was 20 pounds.

Two ounces of fat was credited to every cow for each ten days they had been in milk, exclusive of the first 40

HOW TO HAVE GENTLE COWS.

To have gentle cows, we should commence by being gentle with them while calves; yet I have seen some shamefully abused in trying to teach them to drink. I remember seeing one great strapping man (?) get out of patience because he could not get a calf to drink. Getting astride its back he crowded it into the one corner of its stall, saying, as he forced its head into the pail, "There, now, drink, d—n you." But the calf did not drink. I do not imagine that such treatment would increase its appetite much, do you?

"Language" Not Necessary.

Only a few days ago I picked up one of our farm papers and the first thing to attract my attention was this: "However, anyone who has ever tried it, must remain skeptical of the possibility of teaching a calf to drink without using language that would not be admitted to a family newspaper."

I am glad to say, it was not in the Michigan Farmer that this assertion was made. I do not believe it would uphold such principles.

We always let the calf get good and hungry when first taken from the mother, then we take warm milk fresh from the cow and for the first few times give it our finger, wet with the milk. With this method it is very seldom we have any trouble in getting calves to drink.

Gentle Treatment Effective.

If they receive gentle treatment from the start, they will look for nothing else and it will become second nature to them, and they will expect nothing different. For the coming cow I much rather have the calf that has been brought up with caresses, than the one brought up by "language that would not be admitted to a family paper."

To show whether they appreciate kindness or not, I will relate a little incident that transpired with us, several years ago. In the purchasing of a horse, two two-year-old steers and one yearling heifer were disposed of—the purchaser taking them to his farm some 15 miles distant. After they had been gone five or six weeks, on arising one morning we found them lying at the gate; and the caressing and petting they received, you may be assured, was duly appreciated.

Our pasture and barnyard are on opposite sides of the highway. We open both gates and the stable door,

Cow No. 1.			
Miebloem De Kol Artis.			
	1st day.	2nd day.	3rd day.
Milk, pounds	59.7	60.7	57.9
Per cent fat.....	4.00	3.906	4.2
Pounds fat	2.388	2.371	2.432
Value of product .....	.8552	.8499	.8654
Cost .....	.3181	.3181	.3181
Net profit .....	.5371	.5318	.5473
Total	\$1.6162		

Cow No. 2.			
Bertha Veeman Artis.			
	1st day.	2nd day.	3rd day.
Milk, pounds	40.7	40.4	38.7
Per cent fat.....	4.312	3.9	3.85
Pounds fat	1.756	1.576	1.491
Value of product.....	.6234	.5687	.5406
Cost .....	.2862	.2862	.2862
Net profit .....	.3372	.2865	.2544
Total profit .....	.8741		
Fresh March 18, 1914. Credit for time in milk.....	.45		
Total	\$1.3241		

days. Amount limited to 24 ounces of fat.

The owner of the two winning cows was M. E. Parmelee, of Hilliards. Both were registered animals and splendid individuals. The cow winning first in the contest was given sweepstakes by Prof. Anderson in the judging ring.

The first cow was fed a ration consisting of 50 pounds of corn fodder, seven pounds of alfalfa, 12 pounds of grain, consisting of bran, cottonseed meal, gluten meal, oats, barley, and oil meal. Cow No. 2 received the same ration, except that she was given only 10 pounds of grain.

Allegan Co.

ROBT. H. ADDY.

then just go on the hill and call, "Come Bos," when they look up and then make a bee line for the barn, each one going to its own stall where they find a ration of grain awaiting them. While many have to lead their cows in, or else chase all over the farm after them, this habit of finding the grain ration awaiting them, does away with all this trouble, and from the oldest cow to the youngest, they will hustle to their places, knowing what is awaiting them.

A little petting when calves, and a little graining when cows, goes far toward making things satisfactory in the dairy.

J. M. W.

Live Stock.

NATIONAL WOOL GROWERS' CONVENTION.

The annual meeting of the National Wool Growers' Association, which has heretofore usually been held in the winter, convened at Salt Lake City, November 12-14. Auspicious weather and more favorable season of the year combined to procure a large attendance of sheepmen from many parts of the country, even as far east as Illinois, which was ably represented by Prof. Coffey.

In addition to the literary and business features, was added the great educational exhibit of the National Wool Warehouse & Storage Co., of Chicago. This display showed wool in all its various stages from the sheep's back to cloth, and also furnished much enlightenment as to the different grades of wool. Methods of preparation and marketing wool in Australia were also described by two visiting Australians.

The address of President Hogenbarth outlined the past development of the sheep industry and the factors

which must be considered in its continued progress. Chief of these are: Sheepmen must learn principles of breeding, preparation of and marketing of their products. There must be greater co-ordination between the various factors in the business, as bankers, railroads, dealers and manufacturers. Proper legislation to aid and protect the industry from unjust and unnecessary obstacles, and greater interest on the part of the proper governmental departments; proper economical methods of care and feed; the importance of organization and of supporting their own institutions.

The reports of the secretary and treasurer disclosed an expenditure of over \$8,000 this year, much of which was incurred in protecting sheep shippers' interests before the Interstate Commerce Commission.

The addresses were largely practical talks by representative sheepmen, which aroused discussion and questioning by members. C. H. Williams, of Montana, related his experience of over thirty years with cross breeding,

one notable result of which was that he found the pure-bred ram gave the best results when used on average ewes. A representative of the Forest Service stated that sheep grazing on the national forests were decreasing in numbers, and cattle and horses increasing. Feeding cottonseed cake in the winter on the open range was declared by Hugh Wood, of Idaho, to be a profitable transaction by decreasing losses and increasing wool production. But a few years since such feeding was considered entirely impossible and impractical. Declaring that the entire sheep industry was founded on the range ewe, Roscoe Wood, of Wyoming, maintained that improvement along practical substantial lines could be best and most quickly obtained by selection of ewes and by judgment in breeding and using pure-bred rams. I. W. McClure, of Utah, advocated ram auction sales, while Hugh Sproat, of Idaho, told of the losses caused to sheepmen by predatory wild animals, especially the coyote, and insisted that a uniform county law in the states aided by federal support, was the only way to exterminate these pests.

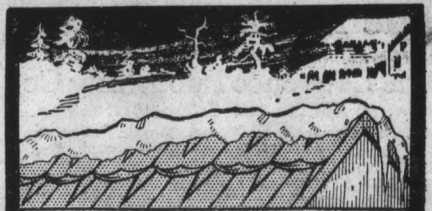
A strong resolution was passed protesting against the action of Secretary of State Bryan, at the solicitation of American woolen manufacturers, at

(Continued on page 476).



The Story of the Eradication of Foot and Mouth Disease as Told by the Camera.

1—The trench prepared for burying the cattle, and lime sacks piled on bank. Water has seeped into bottom of trench. 2—Corralled for the slaughter. 3—All have been killed by shooting. 4—Slashing the hide before burying. 5—Carcasses piled in trench and covered with lime. 6—Ready to cover with dirt. Trench 8 ft. deep.



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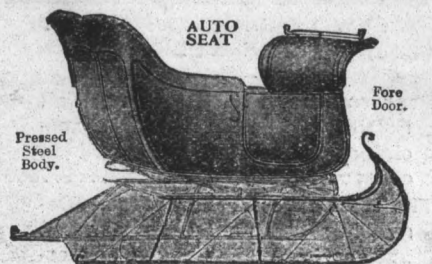
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DETROIT, NOV. 28, 1914.

A FEW LEADING ARTICLES OF THE WEEK.

Peppermint and its Relation to Soil Fertility.—The fourth of 52 special articles to be published in consecutive issues469

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Winter Management of Ducks and Geese.—Essentials in winter care which will make the flock more profitable486

CURRENT COMMENT.

The report of the Saginaw Market conference held at Saginaw last week for the purpose of discussing ways and means to better marketing conditions for the bean crop particularly, which will be found on another page of this issue, reflects the very satisfying interest which was taken in this proposition by the large number of farmers present. Some weeks ago the chairman of this conference wrote a short article for the Michigan Farmer, on the bean situation, in which he expressed the opinion that if a conference of fifty or more leading bean growers were called for the purpose of taking definite action in this matter, the result would be an early advance in the price of beans. Our faith in the interest which would be taken in such a propaganda by the bean growers of the state was so great that we at once urged him to take the initiative and, with the aid of other influential farmers and educators, call such a meeting at the earliest possible date. The issue of the call for the Saginaw conference followed, with the result that a preliminary organization of Michigan bean growers has been effected, and there is now a good prospect that a thorough organization of this industry will result, and this special line of agricultural production in Michigan will be greatly benefited thereby. Incidentally, it should be

noted that the bean market took an upward turn directly after the calling of this conference. Other causes no doubt contributed to some extent to this rise in prices, but there is little doubt but that the psychological effect of this movement was also reflected in the market for the product of Michigan bean growers.

Much of the success of this new movement will depend upon the co-operation of the great body of farmers who grow this special cash product. If the interest taken in this meeting by the bean growers of central Michigan can be taken to indicate the general attitude of the bean growers of the entire state, such co-operation will not be lacking. Perhaps the greatest danger to this new movement is the very enthusiasm of some of those participating in the movement, who favor the early establishment of co-operative elevators for the handling of this Michigan product, and view with doubt the feasibility of any other plan of bettering market conditions. While this may be the ultimate and ideal outcome of the present movement, its actual accomplishment will be recognized as impractical in the near future. In the meantime there is no doubt that great benefit would accrue to the bean growers of the state from the participation in the matter of price making, which would be insured by an organization such as it is hoped may result from the action taken at Saginaw, and which contemplates as a natural result a material lengthening of the marketing season for this staple crop.

We bespeak for this movement the hearty interest and co-operation of every bean grower in the state, particularly in the twenty-five or more bean growing counties in which an early attempt will doubtless be made to secure the local organization of growers. Michigan Farmer readers will be advised of further developments as soon as plans are matured by the committee appointed at the Saginaw conference for further definite action.

In a statement issued this week by the Office of Information, U. S. Department of Agriculture, the hope is expressed that Michigan is now free from foot and mouth disease. All herds known to be infected have been killed and buried, including 18 shipments of infected cattle shipped into Michigan from the Chicago stock yards, and no active cases are now known to exist. To make sure of their entire freedom from the disease, inspection is now being made of every farm in all regions previously infected. If no new cases are found it is probable that the general quarantine of the state will be raised at no distant date, but the embargo on stock and other products from infected districts will doubtless remain in force until all danger of further infection is past. Restrictions will, however, be gradually removed as in the former outbreak of the disease in this state, until such time as it is judged to be safe to discontinue the quarantine of even infected areas.

The states most seriously affected at the present time are Ohio, Illinois, Indiana and Pennsylvania. Like Michigan, there are states in which the feeding industry is well developed, and in which a large future, as well as present, loss will be entailed by the outbreak due to the impossibility of shipping in feeders at present or in the near future. The full extent of this loss cannot be accurately estimated, but it will be large, as will also the loss on stock now ready for market, particularly hogs, the price of which has been affected to a marked degree because of the shipping restrictions which have existed in recent weeks. Owners of live stock which can be carried over until the embargo is removed will find this the more profitable course to pursue.

NATIONAL WOOL GROWERS' CONVENTION.

(Continued from page 475).

tempting to secure from Great Britain a modification of the embargo on Australian wool whereby shipments might be made to the United States.

A resolution was also passed asking the Department of Agriculture to not relax its efforts to secure the eradication of foot and mouth disease, because of lack of funds.

Important resolutions adopted were: Asking Congress to authorize an immediate classification of the unoccupied public domain into agricultural and grazing lands; demanding ante-mortem as well as post-mortem inspection of imported meats the same as is required of domestic meats; that dealers of imported meats be required to post a notice in their shop that they handle imported meat, as a protection to the consumer; calling attention to the danger of disease in imported meats, hides, wool and other animal products, and asking the federal government to enforce every possible precaution against infection from such sources; asking the Interstate Commerce Commission to determine minimum weights of double deck cars of lambs according to actual floor loading space; declaring unfair a tariff which places a duty on manufactures of wool and none on wool, and asking for a reasonable duty on wool; asking for the standardization of wool the same as cotton, and for a pure fabric law.

Election of officers resulted as follows: President, F. J. Hagenbarth; Salt Lake City; vice-president, M. I. Powers, of Arizona, and A. J. Knollin, of Illinois; secretary, S. W. McClure, Salt Lake City; treasurer, F. D. Miracle, Helena, Mont.

Salt Lake City was chosen as the permanent meeting place.

HAPPENINGS OF THE WEEK.

Foreign.

European War.—Changes in the war situation have been mostly in the east where the Germans and Austrians are struggling hard to gain a decisive victory over the Russians. The latter had pushed their line into Prussia on the north, threatened Posen at the center and advanced well to the west in Galicia, Austria, when the Germans by massing their strength at the center caused the invaders to fall back. This attack, however, is now reported to have been checked and with the Russian concentration of troops between the Warthe and Vistula rivers completed it is believed that Warsaw will not suffer from an attack before winter closes the season for moving troops. In the west the Germans have ordered the city of St. Nicholas, Belgium, with a population of 40,000, evacuated and trains are being withheld east of Brussels, which leads experts to believe that big developments are at hand, probably with Britain as the objective. No important engagements have been reported in France and Belgium. The Austrians are now renewing their efforts to reduce Serbia, but the latter country has thus far successfully resisted the northerners. Belgrade has been under fire for some time but continues to hold out and the reports would lead us to believe that the invaders will need to strengthen their positions before the city can be taken. Turkish forces are said to have reached the Suez Canal. The story now is, that the British battleship, "Audacious," which sunk off the coast of Ireland a fortnight ago, was torpedoed by a German destroyer.

Mexico City has experienced considerable disorder during the past few days. Gen. Carranza's soldiers evacuated the city last week, turning the affairs over to the rebel authorities. During the change the city was without proper protection and terror reigned. Foreign diplomats protested against the situation, but no relief was given. It is expected, however, that as soon as the Federal government can be re-organized, the situation will improve.

English aviators flew over the Zeppelin gun works at Friedrichshafen, Germany, Sunday, and did some damage by dropping bombs among the buildings. One of the airmen was brought to the ground, while the other two escaped.

Reports are current that a revolutionary plot in which several members of the Russian Duma are alleged to be implicated, has been discovered, and the government at Petrograd is

Be sure to read page 519 in next week's issue.

investigating and taking every precaution to protect itself against an uprising.

Rioting occurred among prisoners on the Isle of Man last Thursday, when five of them were killed and 11 wounded. The prisoners had planned to escape.

National.

Three vessels have been reported lost on Lake Superior last week, and two others are so long overdue that fears are expressed for their safety. Eighteen persons are known to have perished and 32 others are missing.

Eight lives were lost in a tenement house fire in New York city Sunday morning. It is believed that the fire was of incendiary origin.

As a result of the firing upon the American cruiser Tennessee by the Turks at Smyrna, Secretary Daniels of the War Department has given the commanders free reign as regards their duty in the far east. The war vessels in no case, however, are to busy themselves in the aid of subjects of other nations; the protection of Americans is to be their sole duty.

A general conference on rural credits is being held at Washington this week under the auspices of the executive council of State Grange.

Gov. Ammons of Colorado will ask President Wilson to withdraw federal troops from that state, maintaining that the Commonwealth is now able to protect life and property within the mining district where the strike is on.

MICHIGAN FARMERS' INSTITUTES.

County Institutes.

Roscommon Co., Roscommon, Dec. 1-2; Crawford Co., Grayling, Dec. 2-3; Cheboygan Co., Wolverine, Dec. 4-5; Otsego Co., Vanderbilt, Dec. 5; Montmorency Co., Atlanta, Dec. 5; Wexford Co., Manton, Dec. 11-12; Missaukee Co., McBain, Dec. 14-15; Lake Co., Bristol, Dec. 16-17.

One-Day Institutes.

Osceola Co., Sherman Twp., Nov. 30; Tustin Dec. 1; Leroy, Dec. 2; Avondale, Dec. 3; Evart, Dec. 4; Muskegon Co., Casnovia, Nov. 30; Ravenna, Dec. 1; Cloversville, Dec. 2; Fruitport, Dec. 3; Lonsdale, Dec. 4; Dalton, Dec. 5; Missaukee Co., Shippy, Dec. 1; Morley, Dec. 2; Stittsville, Dec. 3; Moorestown, Dec. 4; Butterfield, Dec. 5; Montmorency Co., Lewiston, Dec. 3; Big Rock, Dec. 4; Royston, Dec. 7; Otsego Co., Elmira, Dec. 3; Lakeview, Dec. 4; Johannesburg, Dec. 7; Lake Co., Chase, Dec. 5; Baldwin, Dec. 7; Sauble, Dec. 14; Luther, Dec. 15.

Mason Co., Logan, Dec. 8; Victory, Dec. 9; Scottville, Dec. 10-12; Kalkaska Co., Rapid City, Dec. 8; Excelsior, Dec. 9; South Boardman, Dec. 10; Orange Twp., Dec. 11; Springfield, Dec. 12; Wexford Co., Buckley, Dec. 14-15; Antioch, Dec. 16; Cadillac, Dec. 16-17; Boone, Dec. 18.

Antrim Co., Kewadin, Dec. 14; Alden, Dec. 15; Bellaire, Dec. 16; Central Lake, Dec. 17; Ellsworth, Dec. 18; Alba, Dec. 19.

Kalamazoo Co., Texas, Dec. 14; Oshetemo, Dec. 15; West Oshetemo, Dec. 16; Alamo, Dec. 17; Damon Church, Dec. 18; Kalamazoo, Dec. 19.

Oceana Co., Cranston, Dec. 15; Benona Center, Dec. 16; Mears, Dec. 17; Weare, Dec. 18; New Era, Dec. 19; Blooming Valley, Dec. 21.

Branch Co., Algansee, Dec. 15; California, Dec. 16; Kinderhook, Dec. 17; Gilead, Dec. 18; Noble, Dec. 19.

Farmers' Week, Agricultural College, East Lansing, March 1-6.

MICHIGAN BEEKEEPERS' ANNUAL CONVENTION.

On Wednesday and Thursday, December 9-10, at the Michigan Agricultural College, East Lansing, the Northern Beekeepers' Association will gather for their annual convention.

The two days will be spent discussing the various phases of beekeeping. The speakers will tell their brother beekeepers, with less experience, how they have succeeded in making beekeeping their source of gaining a livelihood. During the convention one will meet and talk with a large number who are keeping bees, and ideas are freely interchanged.

One man will tell the short cuts he takes to make up bee supplies; another tells his method of swarm control; still a third explains how he gets his bees to work in comb honey supers. Everyone seems anxious to give any information that will benefit the beekeepers at large.

Members of the association welcome all beekeepers of Michigan, whether members or not.

Come along and bring the ladies, on Wednesday and Thursday, December 9 and 10.

Magazine Section

LITERATURE
POETRY
HISTORY and
INFORMATION

MICHIGAN FARMER
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JOURNAL
ESTABLISHED 1843.

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SCIENTIFIC and
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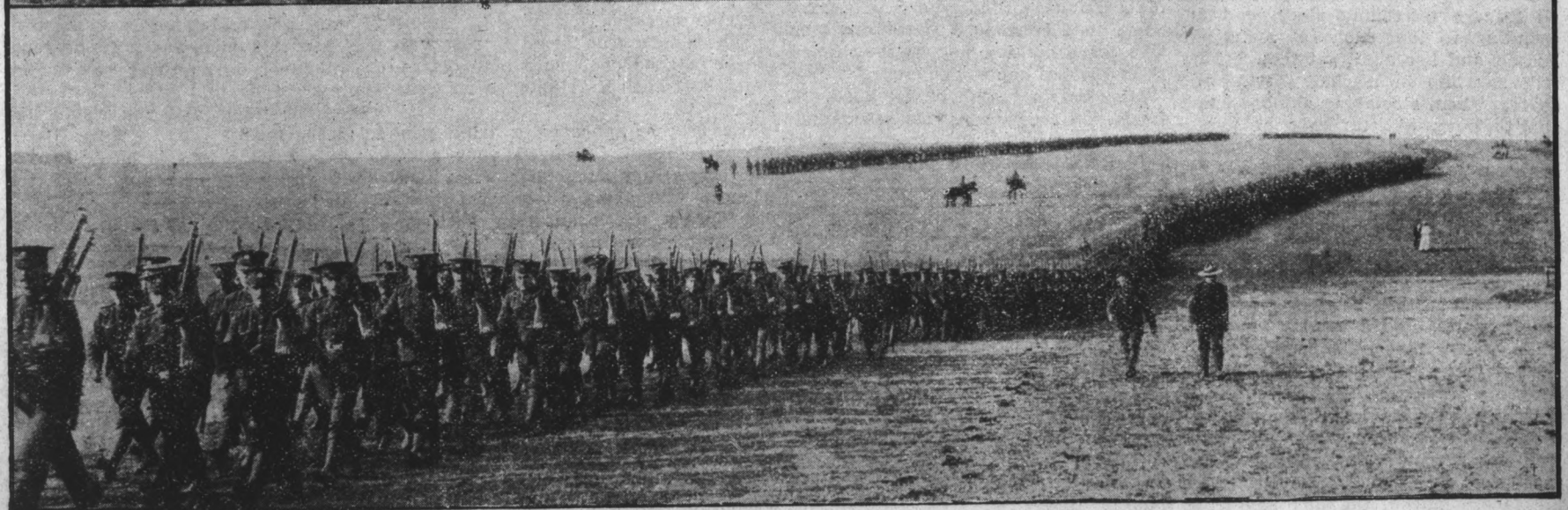
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Winston of the Prairie

BY HAROLD BINDLOSS.

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Synopsis of Previous Chapters.

Farmer Winston, a bankrupt homesteader, accepts a proposal to simulate Lance Courthorne, an adventurer. Courthorne and his pals struggle with the police, kill Trooper Shannon, who leaves evidence pointing to Winston as the murderer, and smuggle through some illegal distillery products. To Silverdale, a settlement founded by Colonel Barrington, Maud Barrington, his niece and ward, has just returned from Montreal. The Colonel is worried over a fall in wheat prices, and also over the coming of Lance Courthorne, Miss Barrington's cousin, to Silverdale to claim a share of his father's estate. Maud Barrington learns more of her cousin's unsavory past. Winston, in the meantime, pushes on to Montana, is held for Courthorne by an officer, who discloses to him the belief that Winston is the murderer of Shannon. Mail for Courthorne is opened by Winston. Complying with instructions in the letter, he meets and confers with a lawyer respecting Courthorne's inheritance at Silverdale, visits the colony. Some of his actions fail to tally with Courthorne's reputation. He wins the good will of Dane, the Colonel's adviser. The real Courthorne, supposed to have been drowned during the smuggling, now reappears in Montana, meets Ailly Blake, whose life he had blighted and who is now engaged to one Potter, rancher. Winston, returning from Winnipeg, finds Miss Barrington at one MacDonald's, and in an attempt to reach Silverdale they are caught in a blizzard. The night is spent at a lonely building and the following day they reach home through the heroic efforts of Winston.

CHAPTER XI.—(Continued).

The return journey was even more arduous, and now and then Maud Barrington felt a curious throb of pity for the worn-out man who, during most of it, walked beside the team; but it was accomplished at last, and she contrived to find means of thanking him alone when they reached the Grange.

Winston shook his head, and then smiled a little. "It isn't nice to make a bargain," he said. "Still, it is less pleasant now and then to feel under an obligation, though there is no reason why you should."

Maud Barrington was not altogether pleased, but she could not blind herself to facts, and it was plain that there was an obligation. "I am afraid I cannot quite believe that, but I do not see what you are leading to."

Winston's eyes twinkled. "Well," he said reflectively. "I don't want you to fancy that last night commits you to any line of conduct in regard to me. I only asked for a truce, you see."

Maud Barrington was a trifle nettled. "Yes," she said.

"Then, I want to show you how you can discharge any trifling obligation you may fancy you may owe me, which, of course, would be more pleasant to you. Don't allow your uncle to sell any wheat forward for you, and persuade him to sow every acre that belongs to you this spring."

"But however would this benefit you?" asked the girl.

Winston laughed. "I have a fancy that I can straighten up things at Silverdale, if I can get my way. It would please me, and I believe they want it. Of course, a desire to improve anything appears curious in me!"

Maud Barrington was relieved of the necessity of answering, for the Colonel came up just then, but, moved by some sudden impulse, she nodded as if in agreement.

It was afternoon when she awakened from a refreshing sleep, and descending to the room set apart for herself and her aunt, sat thoughtfully still a while in a chair beside the stove. Then, stretching out her hand, she took up a little case of photographs and slipped out one of them. It was a portrait of a boy and a pony, but there was a significance in the fact that she knew just where to find it. The picture was a good one, and once more Maud Barrington noticed the arrogance, which did not, however, seem out of place there in the lad's face. It was also a comely face, but there was a hint of sensuality in it that marred its beauty. Then with a growing perplexity she compared it with that of the weary man who had plodded beside the team. Winston was not arrogant, but resolute, and there was no stamp of indulgence in his face. Indeed, the girl had from the beginning recognized the virility in it that was tinged with asceticism

and sprang from a simple strenuous life of toil in the wind and sun.

Just then there was a rustle of fabric, and she laid down the photograph a moment too late, as her aunt came in. As it happened, the elder lady's eyes rested on the picture, and a faint flush of annoyance crept into the face of the girl. It was scarcely perceptible, but Miss Barrington saw it, and though she felt tempted, did not smile.

"I did not know you were down," she said. "Lance is still asleep. He seemed very tired."

"Yes," said the girl. "That is very probable. He left the railroad before daylight, and had driven round to several farms before he came to MacDonald's, and he was very considerate. He made me take all the furs, and, I fancy, walked up and down all night long, with nothing on but his indoor clothing, though the wind went through the building, and one could scarcely keep alive a few feet from the stove."

Again the faint flicker of color crept into the girl's cheek, and the eyes that were keen as well as gentle, noticed it. "I think you owe him a good deal," said Miss Barrington.

"Yes," said her niece, with a little laugh which appeared to imply a trace of resentment. "I believe I do, but he seemed unusually anxious to relieve me of that impression. He was also good enough to hint that nothing he might have done need prevent me being—the right word is a trifle difficult to find—but I fancy he meant unpleasant to him if I wished it."

There was a twinkle in Miss Barrington's eyes. "Are you not a trifle hard to please, my dear? Now, if he had attempted to insist on a claim to your gratitude you would have resented it."

"Of course," said the girl reflectively. "Still, it is annoying to be debarred from offering it. There are times, aunt, when I can't help wishing that Lance Courthorne had never come to Silverdale. There are men who leave nothing just as they found it, and whom one can't ignore."

Miss Barrington shook her head. "I fancy you are wrong. He has offended, after all?"

She was pleased to see her niece's face relax into a smile that expressed unconcern. "We are all exacting now and then," said the girl. "Still, he made me promise to give him a fair trial, which was not flattering, because it suggested that I had been unnecessarily harsh, and then hinted this morning that he had no intention of holding me to it. It really was not gratifying to find he held the concession he asked for of so small account. You are, however, as easily swayed by trifles as I am, because Lance can do no wrong since he kissed your hand."

"I really think I liked him the better for it," said the little silver-haired

lady. "The respect was not assumed, but wholly genuine, you see, and whether I was entitled to it or not, it was a good deal in Lance's favor that he should offer it to me. There must be some good in the man who can be moved to reverence anything, even if he is mistaken."

"No man with any sense could help adoring you," said Maud Barrington. "Still, I wonder why you believe I was wrong in wishing he had not come to Silverdale?"

Miss Barrington looked thoughtful. "I will tell you, my dear. There are few better men than my brother, but his thoughts, and the traditions he is bound by, are those of fifty years ago, while the restless life of the prairie is a thing of today. We have fallen too far behind at Silverdale, and a crisis is coming that none of us are prepared for. Even Dane is scarcely fitted to help my brother to face it, and the rest are either over-fond of their pleasure or untrained boys. Brave lads they are, but none of them have been taught that it is only by mental strain, or the ceaseless toil of his body, the man without an inheritance can win himself a competence now. This is why they want a leader who has known hardship and hunger, instead of ease, and won what he holds with his own hand in place of having it given to him."

"You fancy we could find one in such a man as Lance has been?"

Miss Barrington looked grave. "I believe the prodigal was afterwards a better as well as a wiser man than the one who stayed at home, and I am not quite sure that Lance's history is so nearly like that of the son in the parable as we have believed it to be. A residence in the sty is apt to leave a stain which I have not found on him, though I have looked for it."

The eyes of the two women met, and though nothing more was said, each realized that the other was perplexed by the same question, while the girl was astonished to find her vague suspicions shared. While they sat silent, Colonel Barrington came in.

"I am glad to see you looking so much better, Maud," he said, with a trace of embarrassment. "Courthorne is still resting. Now, I can't help feeling that we have been a trifle more distant than was needful with him. The man has really behaved very discreetly. I mean in everything."

This was a great admission, and Miss Barrington smiled. "Did it hurt you very much to tell us that?" she asked.

The Colonel laughed. "I know what you mean, and if you put me on my mettle, I'll retract. After all, it was no great credit to him, because blood will tell, and he is, of course, a Courthorne."

Almost without her intention, Maud Barrington's eyes wandered towards the photograph, and then looking up she met those of her aunt, and once more she saw the thought that troubled her in them.

"The Courthorne blood is responsible for a good deal more than discretion," said Miss Barrington, who went out quietly.

Her brother appeared a trifle perplexed. "Now, I fancied your aunt had taken him under her wing, and when I was about to suggest that, considering the connection between the families, we might ask him over to dinner occasionally, she goes away," he said.

The girl looked down a moment, for realizing that her uncle recognized the obligation he was under to the man he did not like, she remembered that she herself owed him considerably more, and he had asked for something in return. It was not altogether easy to grant, but she had tacitly pledged herself, and turning suddenly she laid a hand on Barrington's arm.

"Of course, but I want to talk of something else just now," she said.

A PRAYER.

BY EDITH DART.

As dreams before waking
Our visions depart
Of peace and forsaking
Of war's cruel dart.

While brotherhood preaching
Mankind's common lot,
Now Europe starts teaching
By powder and shot.

O! nations in combat,
O! peoples who fight,
God mercifully grant that
Shall triumph the right;

And once again men may
In brotherhood dwell,
Resolving to put away
War's cruel spell.

Then shall we rejoicing
In peace end all strife:
Our gratitude voicing
By better lived life.

"You know I have very seldom asked you questions about my affairs, but I wish to take a little practical interest in them this year."

"Yes," said Barrington, with a smile. "Well, I am at your service, my dear, and quite ready to account for my stewardship. You are no longer my ward, except by your own wishes."

"I am still your niece," said the girl, patting his arm. "Now, there is, of course, nobody who could manage the farming better than you do, but I would like to raise a large crop of wheat this season."

"It wouldn't pay," said the Colonel who grew suddenly grave. "Very few men in the district are going to sow all their holding. Wheat is steadily going down."

"Then if nobody sows there will be very little, and shouldn't that put up the prices?"

Barrington's eyes twinkled. "Who has been teaching you commercial economy? You are too pretty to understand such things, and the argument is fallacious, because the wheat is consumed in Europe; and even if we have not much to offer, they can get plenty from California, Chile, India and Australia."

"Oh, yes—and Russia," said the girl. "Still, you see, the big mills in Winnipeg and Minneapolis depend upon the prairie. They couldn't very well bring wheat in from Australia."

Barrington was still smiling with his eyes, but his lips were set. "A little knowledge is dangerous, my dear, and if you could understand me better, I could show you where you were wrong. As it is, I can only tell you that I have decided to sell wheat forward and plow very little."

"But that was a policy you condemned with your usual vigor. You really know you did."

"My dear," said the Colonel, with a little impatient gesture, "one can never argue with a lady. You see—circumstances alter cases considerably."

He nodded with an air of wisdom as though that decided it, but the girl persisted. "Uncle," she said, drawing closer to him with lithe gracefulness, "I want you to let me have my own way just this once, and if I am wrong, I will never do anything you do not approve of again. After all, it is a very little thing, and you would like to please me."

"It is a trifle that is likely to cost you a great deal of money," said the Colonel dryly.

"I think I could afford it, and you could not refuse me."

"As I am only your uncle, and no longer a trustee, I could not," said Barrington. "Still, you would not act against my wishes?"

His eyes were gentle, unusually so, for he was not as a rule very patient when anyone questioned his will, but there was a reproach in them that hurt the girl. Still, because she had promised, she persisted.

"No," she said. "That is why it would be ever so much nicer if you would just think as I did."

Barrington looked at her steadily.

"If you insist, I can at least hope for the best," he said, with a gravity that brought a faint color to the listener's cheek.

It was next day when Winston took his leave, and Maud Barrington stood beside him, as he put on his driving furs.

"You told me there was something you wished me to do, and, though it was difficult, it is done," she said. "My holding will be sown with wheat this spring."

Winston turned his head aside a moment, and apparently found it needful to fumble at the fastenings of the furs, while there was a curious expression in his eyes when he looked around again.

"Then," he said, with a little smile, "we are quits. That cancels any little obligation which may have existed."

He had gone in another minute, and Maud Barrington turned back into the stove-warmed room very quietly. Her lips were, however, somewhat tightly set.

CHAPTER XII.

Speed the Plow.

WINTER had fled back beyond the barrens, to the lonely north at last, and although here and there a little slushy snow still lay soaking the black loam in a hollow, a warm wind swept the vast levels, when one morning Colonel Barrington rode with his niece and sister across the prairie. Spring comes suddenly in that region, and the frost-bleached sod was steaming under an effulgent sun, while in places a hardy flower peeped through. It was six hundred miles to the forests on the Rockies' eastern slope, and as far to the Athabaskan pines, but it seemed to Maud Barrington that their resinous sweetness was in the glorious western wind, which awoke a musical sighing from the sea of rippling grass. It rolled away before her in billows of lustrous silver-gray, and had for sole boundary the first upward spring of the arch of cloudless blue, across which the vanguard of the feathered host pressed on, company by company, towards the Pole.

The freshness of it all stirred her blood like wine, and the brightness that flooded the prairie had crept into her eyes, for those who bear the iron winter of that lonely land realize the wonder of the reawakening, which in a little space of days dresses the waste, that has lain for months white and silent as the dead, in living green. It also has its subtle significance that the grimmest toiler feels, and the essence of it is hope eternal and triumphant life. The girl felt the thrill of it, and gave thanks by an answering brightness, as the murmuring grasses and peeping flowerets did, but there was behind her instinctive gladness a vague wonder and expectancy. She had read widely, and seen the life of the cities with understanding eyes, and now she was to be provided with the edifying spectacle of the gambler and outcast turned farmer.

Had she been asked a few months earlier whether the man who had, as Courthorne had done, cast away his honor and wallowed in the mire, could come forth again and purge himself from the stain, her answer would have been coldly skeptical, but now with the old familiar miracle and what it symbolized before her eyes, the thing looked less improbable. Why this should give her pleasure she did not know, or would not admit that she did, but the fact remained that it was so.

Trotting down the slope of the next rise, they came upon him, as he stood by a great breaker plow with very little sign of dissolute living upon him. In front of him the quarter-mile furrow led on beyond the tall sighting poles on the crest of the next rise, and four splendid horses, of a kind not very usual on the prairie, were stamping the steaming clods at his side. Bronz-

ed by frost and sun, with his brick-red neck and arch of chest revealed by the coarse blue shirt that, belted at the waist, enhanced his slenderness, the repentant prodigal was at least a passable specimen of the animal man, but it was the strength and patience in his face that struck the girl, as he turned towards her, bareheaded, with a little smile in his eyes. She also noticed the difference he presented with his ingrained hands and the stain of the soil upon him, to her uncle, who sat his horse, immaculate as usual, with gloved hand on the bridle, for the Englishmen at Silverdale usually hired other men to do their coarser work for them.

"So you are commencing in earnest in face of my opinion?" said Barrington. "Of course, I wish you success, but that consummation appears distinctly wonderful."

Winston laughed as he pointed to a great machine which, hauled by four horses, rolled towards them, scattering the black clods in its wake. "I'm doing what I can to achieve it, sir," he said. "In fact, I'm staking somewhat heavily. That team with the gang plows and cultivators cost me more dollars than I care to remember."

"No doubt," said Barrington dryly. "Still, we have always considered oxen good enough for breaking prairie at Silverdale."

Winston nodded. "I used to do so, sir, when I could get nothing better, but after driving oxen for eight years one finds out their disadvantages."

Barrington's face grew a trifle stern. "There are times when you tax our patience, Lance," he said. "Still, there is nothing to be gained by questioning your assertions. What I fail to see, is where your reward for all this will come from, because I am still convinced that the soil will, so to speak, give you back eighty cents for every dollar you put into it. I would, however, like to look at these implements. I have never seen better ones."

He dismounted and helped his companion down, for Winston made no answer. The farmer was never sure who actuated him, but, save in an occasional fit of irony, he had not attempted by any reference to make his past fall into line with Courthorne's since he had first been accepted as the latter at Silverdale. He had taken the dead man's inheritance for a while, but he would stoop no further, and to speak the truth, which he saw was not credited, brought him a grim amusement and also flung a sop to his pride. "Presently, however, Miss Barrington turned to him, and there was a kindly gleam in her eyes as she glanced at the splendid horses and widening strip of plowing."

"You have the hope of youth, Lance, to make this venture when all looks black—and it pleases me," she said. "Sometimes I fancy that men had braver hearts than they have now, when I was young."

Winston flushed a trifle, and stretching out an arm swept his hand round the horizon. "All that looked dead a very little while ago, and now you can see the creeping greenness in the sod," he said. "The lean years cannot last forever, and even if one is beaten again, there is consolation in knowing that one has made a struggle. Now, I am quite aware that you are fancying a speech of this kind does not come well from me."

(Continued next week.)

BITS OF WISDOM.

Exercise is the chief source of improvement in all our faculties.—Blair.

One thorn of experience is worth a whole wilderness of warning.—Lowell.

Never educate a child to be a gentleman or a lady alone, but to be a man, a woman.—Herbert Spencer.

A man can find more reasons for doing as he wishes than for doing as he ought.—John Ruskin.

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Men who have been accustomed to pay \$1.00 per garment and more than twice that sum for a union suit of winter underwear, can scarcely believe their eyes when they examine Hanes Underwear for the first time.

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Woman and Her Needs

At Home and Elsewhere



Michigan's Happy Babies—No. 4.

By DEBORAH.

BEGINNING with the weak formula given last week, the mother has the difficult, but absorbing and fascinating task, of gradually strengthening the baby's food so that he may get as quickly as possible all the food he can digest properly and comfortably and begin to show a weekly gain of at least four ounces. This gain need not be expected for the first week, nor indeed for the second in most cases. In every case the infant loses a half pound during the first few days, which he will quickly make up, however, if properly fed.

In making any increase in the baby's food, either in changing the size of the meal or in strengthening the formula by adding more cream, skim-milk or sugar, the mother must remember never to make a sudden change. The formulas printed for our guidance are usually arranged for certain periods of the baby's age, a formula for the first week, then from two weeks to a month, another for two months old, etc. Thus the formula for the child a week old may read eight teaspoonsful of cream, and for the balance of the month four ounces daily. This does not mean that when the baby is seven days old he is to be given eight teaspoonsful of cream and on the eighth a jump is to be made to four ounces. On the contrary, on the eighth day the mother is to continue to add a teaspoonful of cream just as she has been doing, watching the effect on the child's digestion, and the same on each succeeding day, until at the end of the month the amount of cream has been brought up as near to the formula as the child can take.

Always remember that no formula is printed for your individual child. They are all general rules which you must adapt for your own little one, and your judgment is of more value than all the advice of all the doctors in the world, who are not right on the spot to watch the case hourly as you are.

Beginning the second week you may begin to add skim-milk to the formula you are then using, providing everything is going all right. On the day that you make your first addition of skim-milk do not add any more cream, however, as in that case you could not tell which upset the digestion if any difficulty occurred. Start with a tablespoonful the first day, and skip a day before adding more. If the child digests this comfortably you may add a teaspoonful the third day, continuing the additions during the next three weeks until the child is taking from one to two ounces daily at the end of the first month. Some children will not be able to take more than an ounce, while those more robust can take more. It is for you to decide what is best for your own baby.

Meantime continue the additions of cream to the formula, bringing the total up to from two to four ounces daily at the end of the first month. The total amount depends entirely upon your baby's digestive powers. With a delicate baby never add cream and skim-milk on the same day, nor increase the size of the feed on the day you increase its strength. A healthy baby might stand an increase both

in quantity and quality, or increases of proteids and fats on the same day, but if you are having trouble with your baby the only safety lies in observing every tiny precaution. It is better to work slowly and be safe than to try to hurry the child and make matters worse. Do not worry about the weight, unless the baby begins to lose. His weight may remain stationary for several days, but if he is not worrying and the stomach and bowels are all right, there is no danger.

During the first week the amount of lime water taken during the 24 hours may be raised to two tablespoonsful, and after this to four tablespoonsful daily, giving a little more in hot weather. This should always be added just before the feeding.

The addition of sugar to the food is the simplest. For the first week one ounce of milk sugar to 16 ounces of food is the standard rule. This may be altered during the next three weeks until at the end of the first month the ratio is one ounce of milk sugar to 14 ounces of food. Remember to use half as much granulated

sugar as milk sugar. After the first month the amount need vary but little, except to decrease if you begin to add starch to the diet in the shape of gruels or patented baby foods. Starch and sugar have the same general effect, and if you add starch the sugar will necessarily decrease, or the baby will be getting too much of this sort of food.

"I didn't mean to be late yesterday," said Grace, flushing guiltily, "but it was so pleasant out doors and we must have a garden."

"Yes, and a bumper crop of sugar beets, too, which same need my attention this minute," said John. And whistling boyishly he started fieldward.

DEBORAH.

HOME QUERIES.

Household Editor:—I used the formula printed in Michigan Farmer last week for my baby, but he cried and acted hungry. He is six weeks old and that does not seem like enough food for him.—Mrs. M.

He probably is hungry, and if the stomach and bowels are in normal condition you can increase the strength of the food at once. Give at least an ounce of cream, or two tablespoonsful, and one tablespoonful of skim-milk. Increasing these amounts on alternate days as you see he can digest them. When he can not stand any further increases in the strength of the food, make the feedings a little larger, adding a half tablespoonful to every other bottle to begin with. If he vomits sour food an hour or so after eating, reduce the fat, or cream. Too much cream also will loosen the bowels.

SHORT CUTS TO HOUSEKEEPING.

For slight bowel trouble such as children frequently are troubled with, our grandmothers prescribed thickened milk. As a corrective of ordinary diarrhoea this remedy is today efficacious, is easily prepared and palatable. Take a pint or more of sweet milk and set it over the fire. While it is heating stir up some wheat flour with cold milk as for thickening for gravy, only the lumps need not be entirely removed. Use half a cupful or more, according to the quantity of milk. When the milk reaches the boiling point drop in the flour mixture by spoonfuls and let it cook for a few minutes, observing care that it does not burn on the bottom of the dish. Salt to taste and allow it to cool. To be eaten warm with or without sugar.

—E. R. R.

FASHIONS BY MAY MANTON

Our large Fashion Book, containing illustrations of over 700 of the season's latest styles, and devoting several pages to embroidery designs, will be sent to any address on receipt of ten cents.

The Domestic Crucible—3.

John Advances Some Philosophy.

THERE is one thing we must remember, Grace, and that is not to talk over our tiffs with outsiders."

John Ludlow pulled the little curl that always would hang down over his wife's forehead, as he spoke, and dropped down on the comfortable lounge beside her in the dining-room.

"Why, John Ludlow, what are you talking about?" Grace said reproachfully. "That sounds as though you thought we were going to spend our time quarreling." She picked up a bit of fancy work as she spoke, but waited for John's reply before beginning to "count stitches."

"Not at all," said John, stretching out on the couch, and dexterously pushing Grace off as he did so. "Not at all, but of course, we will scrap sometimes, and the thing to do is to keep still about it afterwards."

"The idea," said Grace, dropping her work and pouncing upon John to recover her place on the couch. "Not a month married, and you begin to talk about quarreling already. 'Speak for yourself, John, maybe you want to quarrel, but I don't.'"

"It isn't a question of wanting to," replied John, "It's a matter of doing. I say we're bound to scrap sometime or other, and I want to prepare for it beforehand. All married folks quarrel."

"It isn't at all necessary," Grace said rather warmly. "No well-balanced couple need have any disagreeable words."

"Righto," said John, warding off the sofa cushion Grace hurled at his head with an aim that shattered all remarks about woman's ability to throw straight. "Of course they needn't, but they do. You see, we're real folks and not story book ones. And so long as men are men and women are women, with viewpoints as different as black

and white, I say married folks are bound to scrap."

"What awful words, 'scrap' and 'quarrel,' said Grace. "They have no place in a true home."

"Well, say 'heated argument' if you like that better," John suggested amiably. "Or just say that husbands and wives are bound to disagree sometimes. I don't care how you express it so long as we keep it to ourselves."

"If you mean my mother," said Grace, "of course I wouldn't tell her. I'd never have her know we had a word of difference. Why, she and father are always in perfect accord. I couldn't imagine their disagreeing over anything."

"Except over what to name the farm, and the color the house should be painted, and where you were to go to school," laughed John. "Of course, they had no words over those matters. Things just went as your mother said and your father went out to the barn and swore at the horses."

"Why, John Lldlow," Grace cried tearfully. "How can you say such dreadful things of my father and mother?"

"Just to show you that they are human," said John, "and that they and you and I and all the other life partners in the universe could never by any possibility think alike on every subject. Why, we're going to disagree over this thing if we don't stop talking about it."

"Well, I'll promise never to tell anyone if we do," Grace said, dabbing her eyes with a bit of cambric. "And I, at least, am determined never to disagree about anything."

"Here's hoping," John said cheerfully, as he gave her a hearty hug. "And as a good beginning have dinner on the stroke of 12 today instead of 15 minutes after, won't you?"



No. 8213—Girl's Dress. Cut in sizes 10, 12 and 14 years. Size 12 years requires $4\frac{1}{4}$ yards of 36-inch material with $4\frac{1}{2}$ yards of banding.

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No. 8214—Child's Petticoat. Cut in sizes 2, 4 and 6 years. Size 4 years requires $1\frac{1}{2}$ yards of 36-inch material. The above patterns will be mailed to any address by the Fashion Department of the Michigan Farmer on receipt of ten cents each.

Grange.

SOME OF MICHIGAN'S NEEDS.

A talk on education, entitled as above, was given by State Superintendent of Public Instruction Fred L. Keeler, at the meeting of Calhoun Pomona Grange, November 12, when it was entertained by Home Grange at Stanley Hall.

Mr. Keeler, as the head of the Educational System of Michigan, stands for plain, practical branches of learning and wishes to abolish useless fads. He says that the boy and girl should learn domestic science and agriculture at home, and in school let them thoroughly master the subject of reading, writing and arithmetic.

He said that in his opinion, the child's first year in school is the most important, it is then he acquires the habits of application and thoroughness, or does not.

Mr. Keeler said that a school board should look upon the work of hiring a teacher as its most serious and important duty, which should receive the conscientious thought and consideration of its members.

"And now, you mothers and fathers," he said, "see that your boys and girls are properly taught to read, that they may acquire the reading habit; that in arithmetic they master the practical problems which the average man and woman use in everyday life. See that they are taught to write a plain legible hand that can be read by anyone with ease. And finally, make them your chums, take them into partnership. Herein lies the secret of keeping them on the farm, and from the ways of wrongdoing."

Mrs. A. F. Mead read a well written paper, "Michigan Today and Yesterday," in which she gave incidents of Michigan's pioneer life, and concluded with a history of its resources and great agricultural advantages of today.

Several musical numbers were rendered by the Stanley Orchestra, an organization of which Calhoun Pomona is justly proud, and "America" and "Michigan, My Michigan" were sung by the Grange, accompanied by the orchestra.

Stanley Grange is one of the enterprising Granges of the state and has recently added 20 feet to its hall, including a well planned, well equipped kitchen, and upstairs two cloak rooms and toilets.

Altogether this was one of those worth-while, enjoyable occasions, of which our Order has so many.—Mrs. Laura A. Minges.

AMONG THE LIVE GRANGES.

Charlotte Grange has been invited to exemplify the third degree at the meeting of the State Grange at Battle Creek this winter, and already the degree team is at work preparing for the event. Last winter this team gave the work in the Masonic Temple during the big county rally, and at that time Miss Jennie Buell, of Ann Arbor, state lecturer, was present, and expressed her wonderment at the manner in which Charlotte Grange did the work, and said the rest of the state should have an opportunity to benefit by seeing the work exemplified at the meeting of the State Grange. There are 38 members in the team, which includes the famous Harvest March contingent, and there will be a large delegation from Eaton county at Battle Creek next December to cheer the team in their work.

Unless All Signs Fail, State Master John C. Ketcham will report to the meeting of the National Grange in November that Eaton county leads the world for the past year in the matter of increase in Grange membership during the past year. The National Grange will meet in regular session at Wilmington, Delaware, next month and if Eaton county can go before that body and show that its percentage of growth has been the greatest of any county in the United States it will be some honor for this county and for Michigan Grangers. It will

be remembered that during last winter the various Granges of this county enjoyed a most remarkable growth, so much so that it attracted the attention of the state officers, and Master J. C. Ketcham has become interested and is anxious to carry off the honors for Michigan at the National Grange. At a recent meeting at Chester, Mr. Ketcham urged the members to get busy for the next three weeks and secure as many members as possible in order to make the title clear by goodly margin, and the members of the various Granges throughout the county are busy with that end in view.

INFORMAL LECTURERS' CONFERENCE.

Constituting a short course in rural leadership for Grange Lecturers and others engaged in organized work in country neighborhoods. To be held at Lecturers' Headquarters, State Grange, December 8-11, Battle Creek, Mich.

Tuesday, 8:30 a. m.

Opening exercises, in charge of Mrs. Laura A. Minges, Lecturer, Calhoun Pomona.

"Our need of training for rural work," Miss Jennie Buell, Lecturer State Grange.

General discussion, led by Mrs. Clara L. Sullivan, Lecturer, Jackson Pomona.

Wednesday, 8:30 a. m.

Opening exercises, in charge of Mrs. Edith Wagar, Lecturer, Wayne Pomona.

"Discovering and developing rural leadership," C. L. Rowe, State Secretary for County Work of Y. M. C. A.

General discussion led by Mrs. J. W. Spangenberg, Lecturer Kent Pomona.

Thursday, 8:30 a. m.

Opening exercises, in charge of R. N. Seward, Lecturer, Menominee Pomona.

"Uses of exhibits, demonstrations, pageants, drills, etc., in drawing out latent ability," R. D. Bailey, Farmers' Institute Worker.

General discussion, led by Mrs. Dora H. Stockman, Past Lecturer Capitol Grange.

Friday, 8:30 a. m.

Opening exercises, in charge of Mrs. B. B. Lincoln, Lecturer, Huron Pomona.

"Wixom Community's Federation of organizations," Rev. Fay Cilley, Pastor Wixom Church.

General discussion of community co-operation, led by Chas. M. Gardner, Editor National Grange Monthly.

COMING EVENTS.

Wayne County Pomona will meet with Lenawee County Pomona, Thursday, December 3, at Adrian.

Farmers' Clubs

CLUB DISCUSSIONS.

Have Report of Boys' and Girls' Work.—Somerset Farmers' Club met Saturday, October 31, at the Somerset parsonage with Rev. M. Guy Vanbuskirk and wife. In the absence of the president, Mr. Vanbuskirk acted as chairman. Following the opening exercises Mr. Vanbuskirk reported his work in the township among the boys and girls in the junior contest of agriculture. There were upwards of 40 who took part, and in their display at the county fair at Hillsdale, secured a large number of the prizes, both firsts and seconds. He was well pleased with the work as a beginning and hopes to see many more interested the coming year, and better results. A paper by Mr. Frank Smith, "Are the state and county fairs any help to the farmer?" His belief was in the affirmative. Thinks it a great stimulus to attend the fairs, especially your county fair. He thought the State Fair not up to the standard this year, lacking in a good display of live stock which is of such interest to the farmer. Was too much given to side shows, etc. The states which make most of their fairs are the greatest in agriculture. This paper was discussed by several present. Another paper, "The social advantages of farm life compared with twenty years ago," was presented to the Club by Miss M. L. Smith and discussed by Mrs. Mary Lane. Miss Catherine Smith, Mrs. E. White and Mr. Vanbuskirk, who thought there was a good chance to preach a sermon, and indeed, he advanced ideas well worth listening to and remembering. The Club then adjourned to meet with Mr. and Mrs. Mart Walworth, Saturday, November 28. This meeting will be the election of officers for 1915.—Mrs. Z. E. White, Cor. Sec.

Woman's Day, 1914, will go into Club history as a veritable homecoming for Ingham County Farmers' Club.

It was held with Mr. and Mrs. Frank Seely at the Fuller Homestead and was one of the largest meetings ever held by the Club at a private residence, but the rooms were ample and the arrangements so complete that everyone felt at home. This farm has been in possession of the Fuller family since 1856 and the father, James Fuller, helped to build better than he knew, by being one of the charter members. The table committee worked well and faithful, and after all were served, with Mrs. Watts at the piano, the Club all joined in singing. President Ives called attention to the State Association, which meets in December at Lansing, and Mr. and Mrs. Alfred Allen were elected delegates to represent us there.

Pilgrim Mothers.—Following the business session the meeting was turned over to Mrs. Jewett, who introduced as the first speaker Mrs. Ellett, who read an interesting and instructive paper upon "Pilgrim Mothers." In part she said: "Of those who came over in the Mayflower there were 18 wives whose work was that of homemaking, and told of the work done in those early days. Instead of the conveniences of today, they had only the light of the pine knot or the dim candle, fire in the fireplace with a foot warmer and a warming pan to take the chill from the ice cold bed. She described the work necessary to start a fire with the flint and steel and many would rather borrow fire. A Boston clergyman copied his sermons by the light of a pine knot and the second book published in those early days was a "Complete Cook's Guide," and gave several recipes taking much time for preparation, among them the real succotash. In spreading the board there was a salt cellar in the center, something like our loving cups, and distinguished persons would sit above the salt cellars and others below. Pewter was the pride of every household and the daughters of the wealthy families were all taught to work. Spinning was one of the fine arts and a pound of wool would make 48 miles of yarn. Children were taught to knit very young and patchwork served as a pastime, quiltings being quite social functions. She described a day's routine of work, also gave the necessary things for a lady's wardrobe, as well as the pilgrim's father's wardrobe.

"Women in Business" was the topic presented by Mrs. Melton. After telling facts about Mrs. McCormick, the old-fashioned mother, Mrs. Potter Palmer, Mrs. Netcher, and other business women living in Chicago, said not all business women live there, but are everywhere. The woman's building at San Francisco Exposition will be a marvel of woman's industry, and in Kansas there are 1,200 scientific woman farmers. She spoke of a truck farmer near Ann Arbor who, after the death of her husband, not only carried on the work, but enlarged it, and everywhere woman was man's helpmeet—when yoked together, and capable of doing great things alone. She spoke of the business methods necessary to keep the home and closed with a specially apt little poem, "A Brave Fight."

"Women Agriculturists."—Mrs. Hemans gave the last paper of the afternoon, upon "Women Agriculturists," and said women were certainly equal to men as regards industry, and there were many openings for her. She spoke of the busy bees and that the care of them could easily be done by the women and that she would pass by the care of poultry, as all farm journals were full of advice of what and how to do. One woman had made a success of packing apples and that brand was found so uniform that no inspection was given, and it was a long time before the buyers found that the packer was a woman. She had packed as high as 56 barrels in a day and would hire no man that could not pack 60 barrels. Then woman makes a good sales agent, she gets busy with the telephone and takes orders for fresh fruit, butter, eggs, jellies, pickles, and can sell more than the farm can produce. The success of one depends not upon location or luck, but pluck and perseverance, and farm women are home-makers.

The next meeting of the Club will be held the second Saturday in December, with Mr. and Mrs. Guy Bate-man, at which time the annual election of officers will occur.—Mrs. J. E.

FARMERS' CLUB FAIRS.

Bedford Farmers' Club. The Bedford Farmers' Club held a most successful fair October 6, at the homes of J. W. Harmon and W. R. Irwin. Nearly 300 people were present and very fine exhibits of live stock, fruits, vegetables, honey, grains, grasses, dairy products, needlework and cookery were shown. There was a good program of sports, etc. Red and blue ribbons to the number of about 200 were needed to mark the prize winners.—Mrs. R. W. Irwin, Reporter.



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Markets.

GRAINS AND SEEDS.

November 24, 1914.

Wheat.—Although prices do not vary considerably from the basis of last week's dealings, American grain traders are firm believers in a strong market for the future. Notwithstanding the fact that farmers have been liberal sellers during the past fortnight, the increase in the visible supply has amounted to less than two million bushels, which is accounted for by the large exportations to Europe. Canada's crop is small, and shipments from there caused a decrease in her visible supply which is an unusual thing for this season. Last week's bearish news consisted largely of good crop conditions in Argentina, but trading was given a scare when reports came from there Monday of the presence of black rust. The wheat on passage to Europe is about two million bushels greater than last week. The demand for flour is increasing. One year ago the price for No. 2 red wheat was 96c per bushel. Quotations for the past week are:

	No. 2	No. 1	Dec.
Wednesday	1.13½	1.10½	1.15
Thursday	1.13½	1.10½	1.15
Friday	1.13½	1.10½	1.15
Saturday	1.13½	1.10½	1.15
Monday	1.13½	1.10½	1.15
Tuesday	1.13½	1.10½	1.15

Chicago, (Nov. 23).—No. 2 red wheat \$1.14½@1.16½; Dec., \$1.15½; May \$1.12½.

Corn.—Transactions in old corn are practically at an end in the local market. New corn is ruling quiet and easy. Weather conditions have been ideal for the handling of the corn crop; it has enabled farmers to secure the grain in first class condition, and favors delivering to the elevators. This has had a depressing effect upon values, which accounts for the decline. Feeding has been interrupted also by the foot-and-mouth disease, thus cutting off a portion of the demand. One year ago the local price for No. 3 corn was 77½c per bushel. New corn sells about 7c below old. Quotations for old corn are as follows:

	No. 3	No. 3
	Mixed.	Yellow.
Wednesday	75	77
Thursday	75	77
Friday	75	77
Saturday	75	77
Monday	73	75
Tuesday	73	75

Chicago, (Nov. 23).—No. 2 yellow corn 71¼@71½c; Dec., 65½c; May, 70½c.

Oats.—This market has recovered the fractional loss of last week. The grain rules steady and active. There is scarcely any change in the visible supply from a week ago. The strength of the market lies largely in the demands of exporters on European account. One year ago standard oats were quoted at 43c per bushel. Quotations for the week are as follows:

	Standard.	No. 3
		White.
Wednesday	50	49½
Thursday	50	49½
Friday	50½	50
Saturday	51	50½
Monday	51	50½
Tuesday	51	50½

Chicago, (Nov. 23).—No. 3 white 48½@50c; standard 50¼@50½c; Dec., 49½c; May 53½c.

Rye.—This grain continues to advance and No. 2 is now quoted at \$1.05, which is 1½c higher than last week.

Beans.—Dealers are now paying better prices for beans. There is some demand from foreign countries. Farmers are not crowding the market with offerings. The trade should continue on the present level or higher. Detroit quotations are: Immediate and November shipment \$2.45; December \$2.50. Chicago demand is strong at firm to higher prices. Pea beans, hand-picked, choice, are quoted at \$2.70@2.90 common at \$2.55@2.65; red kidneys, choice at \$3.25@3.50.

Clover Seed.—Market is firm and quiet. Prime spot quoted at \$9.25; December \$9.35; March \$9.55; prime alsike sells at \$9.60.

Toledo.—Prime cash \$9.17½; December \$9.20; March \$9.47½; prime alsike \$8.70.

FLOUR AND FEEDS.

Flour.—Jobbing lots in one-eighth paper sacks are selling on the Detroit market per 196 lbs., as follows: Best patent \$6.20; second \$5.80; straight \$5.35; spring patent \$6.50; rye flour \$5.60 per bbl.

Feed.—In 100-lb. sacks, jobbing lots are: Bran \$24; standard middlings \$25; fine middlings \$32; coarse corn

meal \$32; corn and oat chop \$28 per ton.

Hay.—Quotations are higher. Carlots on track at Detroit are: New, No. 1 timothy \$16@16.50; standard \$15@15.50; No. 2, \$13@14; No. 3, \$10@12.

Chicago.—Choice grades are in good demand and higher, while common is steady. Choice timothy \$17@18; No. 1, \$15@16; No. 2, \$12.50@13.

Straw.—Steady. Rye \$7.50@8; oat straw \$7@7.50; wheat straw \$7@7.50 a ton.

Chicago.—Rye straw \$9@9.50; oat and wheat straw \$6@6.50.

DAIRY AND POULTRY PRODUCTS.

Butter.—Market is steady at last week's prices. Extra creamery 32c; firsts 29c; dairy 21c; packing stock 20c per lb.

Chicago.—Market is steady with little change in prices. The call for the higher grades is good. Prices generally are a shade lower than last week. Extra creamery 32c; extra firsts 30@30½c; firsts 27½@29½c; seconds 24@26½c; packing stock 21½c.

Elgin.—Sold at 32c, which is the same as last week.

Eggs.—Market firm with prices slightly advanced. Fresh stock sells at 30c per dozen; current receipts 26½c.

Chicago.—For fresh eggs the market is steady, but for refrigerator stock it is easy. Prices are slightly higher. Miscellaneous lots, cases included 20@29½c per dozen; ordinary firsts 27@28c; firsts 29@30c.

Poultry.—Market is easy, due to liberal receipts. Prices are slightly lower. Springs 12c; hens 12c; ducks 14½@15c; geese 14@14½c; turkeys 18@20c.

Chicago.—Heavy supply has kept prices unchanged in spite of heavy demand. Fowls and turkeys are weak. Quotations on live are: Fowls 10½@12c; spring chickens 12c; ducks 12½@13c; guinea hens per dozen \$3.50; young guinea hens \$2@4; turkeys 17@18c; geese 11½@12c per lb.

FRUITS AND VEGETABLES.

Fruits.—Pears, Keiffers 50@60c; grapes 13c for blue, per pony basket. **Chicago.**—Pears, Keiffers \$1.75@2.25 per bbl; black grapes 18@22c per 8-lb. basket.

Apples.—Market is gaining tone but due to large supply prices have not advanced much. Average receipts 50@75c per bu; \$1.50@2.50 per bbl.

Chicago.—Market is about steady for barrels and boxes. Medium and common meet with poor sale. Holders of bulk are anxious to sell on account of expected cold weather. Baldwins \$2@2.25; Kings \$2.50@2.75; Wageners \$2@2.25; Jonathans \$3.50@4; Greenings \$2.50@2.75; Northern Spy \$2.25@2.50; bulk apples 50@90c per 100 lbs., according to quality. Western box apples are selling for 50c@2.25 per box.

Vegetables.—Cabbage firm at last week's prices 75c@1 per bbl. At Chicago demand is fair but supply liberal, quoted at 90c per bbl, \$10 per ton for Danish.

Potatoes.—Market easy, due to liberal supply. Carlots 30@35c per bu; in bulk 35@40c per bushel in sacks; at Chicago the market held steady at advanced prices. Michigan white, in bulk, are quoted at 45@52c per bushel; at Greenville, Mich., 30c in bulk.

Onions.—Market firmer and prices are higher, quoted at \$1 per hundred in bulk. At Chicago the market is well supplied, Michigan stock being quoted at 85@90c per 100 lb. sack.

WOOL.

The scarcity of supplies of wool is becoming more marked each week. Not only are dealers finding their stocks dwindling, but manufacturers also have limited supplies on hand. They have been buying merely to take care of orders as they come in. As a result prices continue firm with a tendency upward. In fleece wools, particularly, dealers are obtaining legitimate profits on wools which they put in at high prices. Quarter and three-eighths have sold recently at 29@30c, and washed fleeces have advanced a cent or two per pound. Territory wools are higher. Foreign receipts are very small, being only about one-tenth of what they were at this time a year ago. There is no immediate prospect of this country securing wools from England or her colonies. Sales for the week ending November 14 aggregated four million pounds.

GRAND RAPIDS.

The bean market is showing unusual activity, with an advance of several cents in this market, and reports of \$2.50 offered to farmers in some sections is reported. The crop was not so good as at first reported and the war situation has created a strong inquiry for export. Wheat is unchanged for Tuesday buying. This is

Thanksgiving week and dealers are paying 17c for live birds, but prefer to buy them dressed at 19@20c. Fowls are 10@12c; ducks 11c and geese 10@12c. The potato situation seems unchanged.

DETROIT EASTERN MARKET.

Tuesday's market was much larger than last week's, with prices firm to higher. Apples are still offered freely, with the quality better than for any period this fall. Prices range from 50c@1, with the average around 70c. Potatoes 50c; cabbage 50c; turnips 50c; onions 60@70c; celery 20@30c per large bunch; eggs 42@45c per dozen; poultry was offered freely, with turkeys at 25@26c per lb; ducks 20c; geese \$2@2.50 each and chickens of good quality \$1.50 per pair. A few loads of hay were offered at \$17@19 per ton, according to quality.

CHICAGO LIVE STOCK MARKETS.

November 23, 1914.

Cattle. Hogs. Sheep.
Receipts today..10,000 18,000 15,000
Same day 1913..15,507 35,704 40,900
Last week30,491 132,227 65,840
Same wk 1913..58,777 178,848 114,921

The week opens with about 4,000 distillery-fed cattle from Peoria received by Morris & Co., the packers, direct, out of total receipts of 10,000 cattle, leaving but 6,000 offered on the market, and most of these are butcher stock. Cows and heifers are selling a little higher in a number of instances, and steers are firm, but there is a lack of prime beefs, which are nominally firm. Hogs are about a dime higher, with a small supply and a good demand at \$7.10@7.75. Hogs marketed last week averaged 220 lbs. The sheep market has had a big break in prices, despite the meager run, with choice lambs going at \$8.50@9 and some fat yearlings at \$7.35. Wethers are very scarce and nominally steady, while choice ewes are quotable around \$5.25@5.40.

The very peculiar conditions under which the stock yards were reopened on Monday last week were extremely unfavorable for sellers, as no stock was allowed to be shipped from here and all stock had to be slaughtered within 36 hours of its arrival. Stock arrived in sealed cars, bearing certificates from owners that the cattle came from states free of the foot and mouth disease, and all stock was inspected by federal forces on arrival, while all carcasses were inspected immediately after being slaughtered. Absence of outside competition enabled the local packers and smaller butchers to fix prices, and after an early spurt of prices upward on Monday, the trend of the market was in a downward direction, with hogs following a similar course. A limited number of prime heavy steers and fancy yearlings brought \$10.75 early on Monday, with the next best sale at \$10.55, while prime steers and yearlings mixed sold at \$9.75@10.40. By noon this advance disappeared, and there was a slow trade. During the remainder of the week buyers asserted their power unmistakably, and the market dropped to a basis of \$5.75@10.25 for poor to prime steers, with prime yearlings going at the top price. Prices were 75c lower than on Monday, with heavy beefs off most as a rule, and there were instances of \$1 decline from Monday's values on \$8.50 steers. Butchering cows and heifers sold at \$5.35@9.25, canning and cutting cows and heifers at \$3.60@5.30, native bulls and stags at \$4.75@8, range steers at \$5.40@9 and poor to fancy veal calves at \$8.50@11.50, with sales of rough heavy calves all the way down to \$5. While there was more life to the cattle trade by Thursday because of the unusually meager receipts for the week, yet ruling prices were the lowest seen since last June. As no cattle could be shipped from here alive, country shippers withheld stockers and feeders as a rule.

Hogs pursued a downward course much of last week, following an excited and high opening on Monday morning, when speculators paid up to \$8.25 for prime butchering lots. This boom disappeared before the day was over, as the packers refused to follow the advance, and when sales were made the "scalpers" got the worst of the bargain. Further sharp breaks in prices followed on other days, with some rallies, the only large receipts being 36,923 hogs on Wednesday. Taking the six principal western markets together, their combined receipts for the week of all kinds of stock were quite moderate in numbers and far less than a year ago. In order to hold prices down, some of the big packers brought in large supplies of hogs on some days from other western markets. These helped to swell the supply, and hog receipts made a better comparison with those of a year ago than either cattle or sheep. Provisions followed a downward course in prices in sympathy with the raw material and sold much below the figures paid

a year ago. After prime hogs had sold down to \$7.55 there was a rally that left prices on Saturday at \$7@7.65, prime medium, heavy and prime light selling around top figures. Pigs brought \$5.75@6.95.

Sheep and lambs were marketed so sparingly from all quarters that higher prices prevailed, although on some days sheep sold off. Lambs were in strong demand, and prime lots soared to \$9.35, with some lambs that were fattened for the International among those that brought \$9.25. The big packing concerns brought in some large numbers of fat old ewes from St. Paul, while the receipts on the open market ran largely to native and fed western flocks, including a liberal representation of live muttons from nearby feeding stations. Receipts from Idaho, Wisconsin, Michigan and Ohio were cut off by federal quarantines. A few big bunches of warmed-up lambs that averaged but 45 pounds sold at \$5.85. The week closed with lambs selling at \$6.50@9.35, yearlings at \$6.50@8, wethers at \$5.50@6.10, ewes at \$3.25@5.50 and bucks and stags at \$4@4.50.

Horses experienced a dull week if "warriors" are excepted, these being wanted at \$130@180 per head. Commercial horses moved slowly, and the embargo placed by the states of New York, Massachusetts and Connecticut on horses from other states, injured the market seriously. A few carloads of horses were purchased for shipment to Pennsylvania, and the Italian government stationed a buyer at the stock yards, so that continued purchases of army horses may be expected. Horses sold all the way from \$60@100 for the cheaper kinds up to \$240@285 for the better class of drafters. Expressers of quality sold around \$170@210.

LIVE STOCK NEWS.

The war has put a stop virtually to the importation of horses into the United States from England, France and Belgium, and this is expected to result in stimulating the sales of high-class American sires and mares. Last year this country imported 1,482 Percherons from France, 977 Belgians from Belgium, 185 Shires from England and 98 Clydesdales from Scotland. For weeks past we have been selling large numbers of mounts and cavalry horses to the countries at war, and this demand shows no indications of diminishing in the smallest degree.

The wide-spread prevalence in the United States of foot and mouth disease promises to play an important part in the consumption of corn. Many cattle that are already fat enough to be marketed from the quarantined districts must remain on feed.

The public is well protected from the sale of meats from cattle infected with the foot and mouth disease, by both federal and state inspectors. The inspection everywhere is thorough, and all infected animals are buried immediately after being killed, and buried in quicklime.

Not long since a sale was made in the Chicago stock yards of two cars of steers that averaged 1,613 lbs. at \$10.75 per 100 lbs. after being fed in Iowa for less than four months. The first cost as feeders was \$7.50, and the cattle made good profits for the owner. Another sale was made of a load of 1,291-lb. steers at \$9.60, these cattle having been fed in Iowa less than two months. They showed a good profit.

Wonderful improvement in saving the Iowa hogs from cholera is reported, and the 1914 loss is estimated as less than one-half of that for 1913, when enormous numbers died from the malady. Hog cholera cost the American farmers approximately \$70,000,000 last year, the loss in Iowa being placed at about \$30,000,000. The Iowa farmers are co-operating with the officials of the experiment station in using serum, and results have been unexpectedly good. Cholera immune hogs have had a large sale, and the cost of serum has been reduced more than one-half.

Contrary to expectations, the placing of wool on the free list was followed by much higher prices, the war playing an important part in stopping imports of wool from Europe.

IMPORTANT MEETING OF HORTICULTURISTS.

The forty-fourth annual meeting of the Michigan State Horticultural Society is to be held at Kalamazoo, Dec. 1-2-3. The program covers three full days with one evening session and an annual banquet. Practical talks will be given by successful fruit growers from Michigan and from New York state and a very large exhibit of horticultural products and spraying material is to be made. Every up-to-date fruit grower should be at this meeting.

Complete programs are now ready and can be obtained of R. A. Smythe, Secretary, Benton Harbor, Mich.

THIS IS THE FIRST EDITION.

In the first edition the Detroit Live Stock Markets are reports of last week; all other markets are right up to date. Thursday's Detroit Live Stock markets are given in the last edition. The first edition is mailed Thursday, the last edition Friday morning. The first edition is mailed to those who care more to get the paper early than they do for Thursday's Detroit Live Stock market report. You may have any edition desired. Subscribers may change from one edition to another by dropping us a card to that effect.

CROP AND MARKET NOTES.

(Continued from page 485).
potatoes 30c; cabbage \$6@8 per ton.

New Jersey.

Morris Co., Nov. 14.—Meadows are drying up on account of long continued drouth, practically no rain since the latter part of August. Rye looks good, but wheat not so good. Corn was a bumper crop, and a large amount will be fed up at home. The only stock fed here is hogs. New corn \$16@17 per ton; pork, dressed 12@13c; butter 35c; eggs 42c; wheat \$1; rye 85c.

Ohio.

Brown Co., Nov. 17.—Farmers are busy shredding corn, which is an average crop, though there is considerable mouldy corn. Beans, also late potatoes, were good. Early sown wheat and rye looks fine. Farmers have on hand their fat hogs, which cannot be sold owing to the quarantine for foot and mouth disease. The young grass and clover are looking well. Heavy cattle \$6.50; sheep \$4.75 @5.50; wheat \$1.10@1.12; corn, new 65c; oats 45c; butter 22c; eggs 30c.

Guernsey Co., Nov. 17.—Potatoes are 80 per cent of an average crop. Corn will average 50 bushels per acre. Meadows and new seeding in fine condition. Only an occasional bunch of fat hogs for sale. A considerable number of herds of cattle are being fed. The whole state is under quarantine. Fat hogs are \$9 dressed; chickens 14c; butter 30c; eggs 28c.

Hancock Co., Nov. 18.—The weather is very cold, delaying corn husking. Corn is yielding from 75 to 100 bushels per acre. Wheat and rye look good; new meadows are good. About the average amount of feed in farmers' hands, but not much grain being marketed. Many are holding their wheat for higher prices. Quite a number of cattle and hogs being fed, but not many sheep fed. All live stock from Chicago is shipped under quarantine. One carload of feeders were killed on account of the hoof and mouth disease. Some hog cholera is reported. Wheat \$1.08; corn 70c per cwt; oats 46c; rye 80c; barley 50c; chickens 10c; butter 30c; eggs 30c; apples 80c per bushel; potatoes 60c.

Shelby Co., Nov. 17.—Corn husking is nearly finished. Wheat is not in very good condition, having been attacked by insects. Meadows are fair, rye good. There is plenty of feed for home use, but not much for sale except a small amount of corn. Hogs are about the only stock fed. Hogs \$6.75; cattle \$6@7.50; wheat \$1.06; oats 43c; corn 80c; butter-fat 29c; eggs 28c.

Indiana.

LaGrange Co., Nov. 16.—The average yield of potatoes was about 60 bushels per acre. Beans were a poor crop. Most meadows were pastured rather closely on account of shortage of pasture. Young clover looks fine. Wheat seems to be affected by the fly, the warm fall favoring the development of this pest. Most farmers are well supplied with all kinds of feed excepting hay, which is scarce. A little wheat and oats are yet for sale. The only stock being fed are hogs and cattle. The hogs are about ready for market, but cannot be shipped on account of foot and mouth disease. Wheat \$1.04; rye 95c; butter 30c; eggs 27c.

Jay Co., Nov. 19.—Potatoes about 85 per cent of an average crop. Corn husking is being pushed, and yield is about 60 bushels per acre. Meadows are in fine shape, and much seeding is reported, especially alfalfa. The farmers are feeding more than the usual amount of stock. Practically all the feed is in the farmers' hands on account of foot and mouth disease, though none is reported in this and adjoining counties. No shipping of stock, and nothing moving except for local demand. Roads are in fine shape. The Grange is active here, and the community spirit is developing.

Kansas.

Marion Co., Nov. 16.—There are no potatoes or apples; all vegetables are shipped in. Corn husking is about all done. Wheat looks fine, though some fly is reported in early sown fields. Rye affords fine pasture. New alfalfa and meadows are in good condition but the ground is a little dry. Not much doing in cattle buying. Cattle and hogs are the only stock fed, and there is some complaint of sick hogs. There is a surplus of roughage, en-

silage, etc. Not much wheat left in farmers' hands, but plenty of oats. Wheat 96c; corn 55c; potatoes 75c; apples 70c@81 per bu; eggs 26c; butter 30c; chickens 10c.

Finney Co., Nov. 16.—There is a smaller acreage of wheat sown than last year, on account of dry weather. Farmers are stacking their feed and hauling wheat and alfalfa hay to the market. Alfalfa sells for \$7 per ton; kaffir and cane \$3@5; cottonseed cake \$1.80 per cwt; corn \$1.30 per cwt; potatoes 85c per bushel; apples 90c per bushel; butter 30c; eggs 30c; hogs \$7; cattle \$5.50.

Minnesota.

Lyon Co., Nov. 18.—Corn is unusually good, yielding about 80 baskets per acre. Very little rye was sown this fall. Oats is the chief crop in this locality. There is an abundance of feed on hand, and there is quite a surplus of grain going to market, in spite of the fact that considerable feeding is being taken up. Hay \$4@6; corn 57c; oats 40c; wheat \$1; butter 30c; eggs 25c.

Missouri.

Warren Co., Nov. 16.—The crop of early potatoes is short but late ones were good. Beans have done well, so has the late corn. Meadows are doing well, and there was a good deal of new meadow land sown. Wheat and rye are doing fine. There are some cattle and a few hogs being fed. Farmers will have just about enough feed, but no surplus to sell. Wheat is being hauled in at \$1.05; corn 90c; oats 55c; hogs \$8; butter 30c; eggs 28c.

Nebraska.

Pierce Co., Nov. 14.—The weather is fine, and corn husking is about finished. Early potatoes were fair, but late ones were not worth digging. The meadows are in good shape, and all stock looks fine. Beans were good, but not a large acreage grown. Most farmers have some alfalfa to feed. There will be a large amount of oats and corn for sale. Eggs 22c; cream 27c; butter 21c.

Cass Co., Nov. 16.—Corn husking is being rushed, is of good quality and yielding around 35 bushels per acre. Winter wheat looks fine. Not many are feeding stock, but farmers generally have plenty of feed. Wheat mostly marketed; some oats left to sell, and soon a large amount of corn will go to market if prices hold up. The weather has been fine and warm, with no snow and but little frost. Wheat \$1.02; oats 42c; new corn 55c; hogs \$6.75; cattle \$5@6; potatoes 60c; apples \$1; butter 30c; eggs 25c.

South Dakota.

Meade Co., Nov. 16.—Alfalfa threshing is about finished, and the yield and quality of seed is excellent. Potato yields varied considerable, some good and some very light. The range never had better feed, and all stock is in fine condition. Winter wheat and rye look good. There is a good amount of grain still in farmers' hands. Hogs are plentiful and cheap. Corn 85c; potatoes \$1.75 per cwt; cream 35c; butter 25c; eggs 25c. There is a large acreage being plowed, and farmers are also doing considerable work on the roads before the freezing weather sets in.

Tood Co., Nov. 16.—Farmers are busy securing corn, which is yielding from 30 to 45 bushels per acre, and the quality is good. Potatoes yielding 75 to 100 bushels but are very cheap this fall, bringing 30@35c per bushel. Beans were a very good crop. Fall grains look good. Farmers have lots of feed for winter, and plenty of corn for sale. Corn 50c; potatoes 30@35c; wheat 89@90c; oats 40c; butter 25c; eggs 25c.

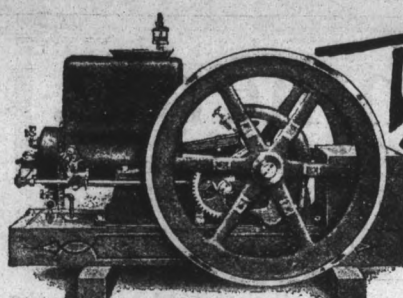
Colorado.

Weld Co., Nov. 14.—Potatoes were a good yield and good quality. Beans and corn good. Meadows are in fine condition; new seeding good; wheat and rye good, though not a large acreage planted, on account of the dry spell, though some are planting since a recent shower. Most farmers have plenty of feed, and there is still a quantity of small grain for later market. A good many cattle and sheep and some hogs are being fed. Sugar beets almost all delivered. Wheat \$1.47 per cwt; potatoes \$1 per cwt; butter 30c; eggs 35c.

Washington.

Klickitat Co., Nov. 14.—Weather is fine with plenty of moisture and no killing frosts. Potatoes were a fine yield, beans and corn light; meadows in fine condition, wheat and all fall crops look fine. Cattle and hogs are scarce but all are healthy. Not much grain for sale except wheat. Quite an amount of hay being sold at \$15@20; beef 11@12c; pork 11@12c; veal 12@15c; potatoes \$1 per cwt; butter 35@40c; eggs 50c; apples, best 75c@1.25 per box; No. 2, 50@75c.

The state authorities placed a complete quarantine on cattle, swine and sheep on the Chicago stock yards during the latter part of last week as the foot and mouth disease broke out beyond all bounds, and 600 infected stock steers in the yards had to be slaughtered.



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THE MICHIGAN FARMER,
DETROIT, MICH.

Farm Commerce.

Marketing Perishable Crops Through Associations.

By EARL W. GAGE.

THE co-operative idea among fruit and truck growers has passed the experimental stage and is become an important factor in present-day farming. It has revolutionized the markets of the country. Scarcely any well-developed fruit growing section is without its associations in one form or another. In some sections we find that the Grange has taken the lead; in others, growers have developed their established organization for a definite purpose. One organization will attend to marketing alone; others will take to the more broad avenue of buying for their members aside from selling their crops.

Inasmuch as new fruit and truck regions are continually being opened and developed, in answer to the increasing populations of our cities, a brief study of the various associations of a few sections in particular, should serve to lead those residing in old established communities to awaken to the vital import of the co-operative plan.

Advantages Are Many.

The benefits to be derived from the co-operative action are many. Small growers can make combination shipments in car lots, which is to be considered economic from producer's and consumer's viewpoint. This is well established in such regions as certain fruit-growing sections of Ohio, New York and Michigan; it is too little appreciated in many sections of the same states. Organizations, through the volume of their business, can secure minimum transportation rates. They can afford to maintain daily telegraphic communication with all of the important market centers and thereby enable their members to divert the car lots already enroute to places where the demand is greatest. This is being continually illustrated each year in the Chautauqua and Erie grape belt section of New York and Pennsylvania. And the growers are advised when to hold their produce and when to ship, which eliminates the usual slipshod methods of flooding markets at one time and starving them at others.

Organizations are in a position to know the actual supply of their respective communities, and to know just what grading should be done to meet with the demands of the markets to which they ship. Therefore, the managers are able to work in perfect harmony, regulate prices to a considerable extent, and place more money in the producer's pocket for a little additional labor and care in packing. Successful associations demand choice products. By an interchange of ideas and experience, members are placed in a position to eliminate unprofitable varieties of fruits or vegetables from the community and to develop thorough and economic systems of cultivation.

Co-operative associations are fast spotting the western map. In the state of Colorado more than 50 recognized associations exist, with a large number that are just opening their eyes. These organizations market fruit and produce grown in the respective sections.

Grading and Packing at a Central Point.

While the various systems used are quite similar to those employed elsewhere, it will be well to consider these methods briefly. There are two methods of packing and grading fruit; in one instance the association does all the packing, the growers delivering the fruit to the packing house just as

taken from the orchard. Here the packers, under the direction of a superintendent, sort the fruit into the various grades, and at the same time pack it into boxes or crates. Should there be any culls they are returned to the grower and are at his disposal.

Each grower is given a number, which is used to designate his fruit throughout the season. As each box



Many Associations Supervise the Entire Work of Harvesting, Packing and Selling the Fruit Crops.

is packed it is marked with his number and the grade. When the boxes are loaded into the cars the number of boxes, the varieties, and the various grades which belong to any grower are kept account of and duly recorded. In this way the price for each box of fruit in any one car is easily determined in a few minutes by looking over the records on file.

Where there is a very large amount of fruit to be handled it is impossible for the association to do the packing, consequently the growers assume this responsibility. With this arrangement the organization employs an inspec-

and it is a difficult position to fill. Upon him rests the reputation of the organization's name, so that the growers must stand ready and willing to aid him in every respect, and not become angered if he is forced to refuse their product as A1.

A charge of about five per cent is charged against each member of the association to defray the annual expenses. Then, in case the packing is done by the association, an additional charge is made for the work to cover this expense, such as labor, boxes, labels, nails, etc. Any surplus is, of course, equally distributed as premiums to members. Any grower may become a member so long as there is stock for sale, and the owner of one share is entitled to as many privileges as the owner of 100 shares. But there

is a limit to the number of shares one man may hold.

Growers are asked to give a conservative estimate of their crop early each season. The manager may visit each orchard, and with this knowledge in hand, is able to enter into contracts for the delivery of given amounts of various varieties or grades.

One of the greatest hindrances of the co-operative idea is distrust. In all associations there are quite sure to arise jealousies. Each grower believes that he is supplying a better grade of fruit than his neighbor, and should,



Packing Parsley.—Associations handle large enough quantities of truck crops to seek buyers in distant markets, whereas the offerings of a single grower would not warrant such expense.

tor, whose duty it is to inspect each load as it is delivered. This he does by opening the boxes on the side in the case of apples, when a good estimate of the contents may be made. If the pack is satisfactory not more than two boxes may be opened. If unsatisfactory, several may be examined, and if all run under the inspector's standard, the entire load must either be graded lower or re-packed.

The great load of responsibility rests upon the inspector's shoulders,

therefore, receive a higher price. This feeling that someone else is reaping the cream will be found more particularly where the co-operative plan is in its infancy. Established associations are more or less immune for the members have reached a point where they appreciate the great good they are receiving in return for a small commission.

An Example.

The Peninsular Produce Exchange operates along the lines of the New

York, Philadelphia & Norfolk, and the Baltimore, Chesapeake & Atlantic railroads. It has 40 shipping points at each of which is an agent who inspects and brands the grade of produce, and reports to the head office at Olney the amounts and grades of fruit and truck received. The general manager in the head office is in touch by wire with prices in all the large market centers, and as soon as the daily reports of receipts and grades are wired in from his local agents, he is in a position to make his sales and place his consignments where the demand is greatest. The exchange spends annually more than \$12,000 in telegraph bills regarding crops, markets, and prices. The annual sales amount to more than \$3,000,000, and the organization swings this enormous business on a capital stock of less than \$50,000. The principal products shipped are sweet and Irish potatoes, as well as numerous vegetable crops which are liable to be ruined in switching, and with which great care must be taken.

Instances of successful organizations might be noted from nearly every prominent fruit and vegetable growing section of the country. But these statements are sufficient to demonstrate the possibilities of such institutions anywhere. While the details of organization will vary more or less yet the members of each community can work out their own problems largely through an efficient business manager.

New York. EARL W. GAGE.

MICHIGAN CROP REPORT FOR NOVEMBER.

Wheat.—The final estimated yield of wheat in the state is 19.27, in the southern counties 19.12, in the central counties 20.83, in the northern counties 16.87 and in the upper peninsula 21.70 bushels per acre. The estimated total yield for the state is 14,015,290 bushels. The condition of growing wheat as compared with an average per cent is 95 in the state, 94 in the southern counties, 98 in the central counties, 96 in the northern counties and 93 in the upper peninsula.

The total number of bushels of wheat marketed by farmers in October at 85 flouring mills is 205,832, and at 98 elevators and to grain dealers 253,452, or a total of 459,284 bushels. Of this amount 305,673 bushels were marketed in the southern four tiers of counties, 122,922 in the central counties and 30,689 in the northern counties and upper peninsula. The estimated total number of bushels of wheat marketed in the three months August-October is 4,500,000. Forty-four mills, elevators and grain dealers report no wheat marketed in October.

Corn.—The estimated average yield per acre of corn in bushels is 33.95 in the state, 33.49 in the southern counties, 36.45 in the central counties, 32.76 in the northern counties and 31.62 in the upper peninsula.

Glover Seed.—The per cent of acreage of clover seed harvested as compared with the previous year is 85 in the state and northern counties, 84 in the southern counties, 86 in the central counties and 93 in the upper peninsula.

The average yield per acre in bushels is 1.62 in the state, 1.39 in the southern counties, 1.75 in the central counties, 2.27 in the northern counties and 4.00 in the upper peninsula.

Beans.—The final estimated average yield per acre in bushels is 11.28 in the state, 10.26 in the southern counties, 12.16 in the central counties, 12.27 in the northern counties and 11.39 in the upper peninsula.

Potatoes.—The estimated average yield per acre in bushels is 112.27 in the state, 112.37 in the southern counties, 108.90 in the central counties, 109.20 in the northern counties and 140.77 in the upper peninsula.

Commercial Fertilizers.—The per cent of farmers who have used commercial fertilizers on their wheat this fall is 36 in the state, 43 in the southern counties, 37 in the central counties, 10 in the northern counties and eight in the upper peninsula.

Live Stock.—The average condition, in the state, of horses is 97, cattle 90, sheep 101 and swine 96.

The haste to get rich and the intense struggles of business rivalry probably destroy as many lives in America every year as are lost in a great battle.—J. F. Clarke.

MICHIGAN BEAN GROWERS ORGANIZE.

A million dollars is a large sum of money—to lose. If such a sum were equitably distributed among even a large number of farmers, it would swell their bank accounts in a very comfortable manner. Hon. James N. McBride, chairman of the market conference held at Saginaw, Mich., on November 20, declared that the bean growers of Michigan might easily have saved for themselves that sum had they been adequately organized before the season for marketing this year's crop. He pointed out to the 200 or more farmers who were present at this conference, that yield and demand considered, the market for beans should have opened this year at at least \$2.25 per bushel. Instead of that, the market opened at \$1.75. It has, up to the present time, advanced from 40 to 45 cents per bushel, which on the 2,500,000 bushels which it is estimated have been marketed up to the present time, would have netted the growers around a million dollars more with organized controlled marketing. This conference, which was called by a number of interested farmers who are identified with prominent farmers' organizations and in agricultural extension work, as will be noted from the announcement which appeared in a recent issue of the Michigan Farmer, has disproved the contention often heard that the farmers are not sufficiently interested in the marketing problem. The attendance of more than 200 farmers from several bean growing counties in central Michigan is ample proof that the farmers are interested in this proposition, and the manner in which they attacked the problem is still more conclusive proof of that fact.

After the conference was called to order by Mr. McBride, he was made its permanent chairman, and several talks were given at the morning session presenting different views upon the proposition. President Welch, of the Michigan Bean Growers' Association, was present, and gave an illuminating talk on the manner in which the market price of beans is arrived at by the trade under present conditions. He also expressed in behalf of his organization willingness to co-operate with the bean growers in maintaining an equitable price for beans throughout the marketing season as a means of eliminating the speculative character of the business as at present conducted. Under present conditions, a large part of the crop is marketed as soon as ready and, with the elevators overstocked, the general result is an abnormal downward curve to the market from which dealers as well as growers often suffer.

Hon. A. B. Cook, of Shiawassee, touched upon the plans which had been considered at previous local conferences, advocating plans which were later tentatively approved by the conference. State Dairy and Food Commissioner Helme advocated a state marketing commission whose business it would be to collect market information and statistics and act in an advisory capacity to aid the farmers of the state in disposing of their products at maximum prices. Others present addressed the conference briefly at the request of the chairman, after which a committee of three was appointed to draw up plans of organization for submission at the afternoon session. At this session the committee reported two plans, the first of which was a very loose organization through the establishment of a permanent committee to act in an advisory capacity after getting the most reliable information possible relating to crop conditions. The other plan provided for a more comprehensive organization in the state, for local county organizations and for a much broader scope of work to be carried out by the officers of such an organi-

zation, including the collection of statistics, the determination of a minimum price which the product should command, the arbitration of disputes and the consideration of the system of grading now in vogue to determine its justice to the grower. After a full discussion of both plans from all angles, it was voted by those present to organize a state bean growers' association, and steps were taken to that end; several county organizations were also formed by growers present.

Chairman McBride was authorized to appoint a committee at his discretion to perfect plans for the extension of the organization throughout the bean growing sections of the state, in order that the organization may be put on a practical footing at a future meeting to be called some time next month.

Aside from the interested bean growers present, all of the men who joined in issuing the call for this conference were present at the meeting, as well as a number of others who were interested in this effort. It may be considered a propitious beginning of a movement which promises much of benefit to the bean growers of the state. The detailed plan of the organization to be effected will be published in these columns at an early date.

Crop and Market Notes.

Michigan.

Eaton Co., Nov. 16.—Bean threshing almost finished, and yield nine to 15 bushels per acre. Very few being marketed. Corn is about half husked, and will average 75 to 100 bushels. Meadows and new seeding are in extra fine condition. Early planted wheat has been damaged some by the fly. About one-half of this season's stock is still in farmers' hands. The quarantine for foot and mouth disease has hindered the marketing of live stock. Wheat \$1.02; beans \$2; oats 42c; corn 75c@80c; potatoes 30c; butter 20c@25c; eggs 28c; steers 6c@7c; calves, live 5 1/2c; hogs, live 6 1/2c; dressed 8 1/2c.

Livingston Co., Nov. 17.—New seeding, wheat and rye never looked better. Corn yield and quality is good. Beans light yield and poor quality owing to the blight. No stock is being marketed owing to the quarantine, and precautions are taken to keep the foot and mouth disease out of this county, there being more pure-bred cattle in this county than in any other in the state.

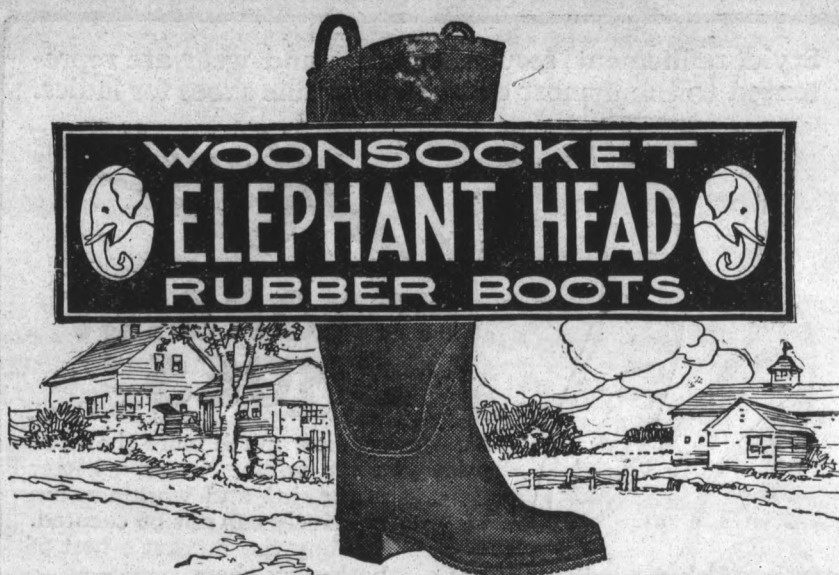
Ottawa Co., Nov. 18.—Some wheat fields look well, while others sown early are damaged by the fly. Rye does not seem to be injured. Potatoes are averaging 90 bushels per acre and bringing 35c. Beans average 15 bushels. There was not enough corn grown for home use, as so much is put into silos. About 50 per cent of fall plowing done.

Shiawassee Co., Nov. 16.—Farmers are busy husking corn, which is extra good, and threshing beans which are good. Potatoes are extra good but the price is small. Meadows and new seeding are going into winter in fine shape. Wheat and rye look fine. Some cattle and lambs are being fed; hogs ready to market are being held on account of the embargo. Plenty of feed in farmers' hands, and some grain is being sold. Wheat \$1.02; oats 44c; beans \$2.15.

New York.

Orleans Co., Nov. 16.—Wheat is the best in years. Not much rye sowed. Potatoes fairly good. Yield of beans light, red beans good and acreage was large; corn is good. Meadows and new seeding fairly good. There is very little surplus grain for sale except winter wheat, half of this season's crop being in farmers' hands. There is very little stock raised, but farmers have plenty of feed for winter. There is scarcely any produce being marketed except apples, which bring from \$1.75@2 per bbl. Buyers are offering 35c for potatoes and many farmers are storing them.

Genesee Co., Nov. 16.—This has been the finest fall on record for finishing the season's work, plowing, etc. Potatoes yielded as high as 350 bushels per acre. Beans poorly, four to ten bushels per acre. Most corn good, 75 to 100 crates per acre. Meadows in good condition; new seeding improved wonderfully since the fall rains. Wheat and rye are fine. Most farmers have plenty of feed for own use, and some will have a surplus. Some will also have grains to sell. If foot and mouth disease does not prevent, some lambs and cattle will be fed. Apples are about all marketed. Some beans sold at \$2.10 per bushel; (Continued on page 483).



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Winter Management of Ducks & Geese.

No matter whether ducks are kept for winter eggs or for breeding purposes in the spring, they should receive good care during the winter months. Those varieties which lay only from late winter until the last of June will produce fewer eggs during the hatching season if they are not properly fed and cared for in winter than they will if given good care during the cold season. Some breeders allow their ducks to wander about at will every day during fall and winter, sleep where they can at night, and pick up for themselves what food they can find. Needless to say, ducks never prove very profitable while thus managed.

Furnish Ducks Dry Quarters at Night.

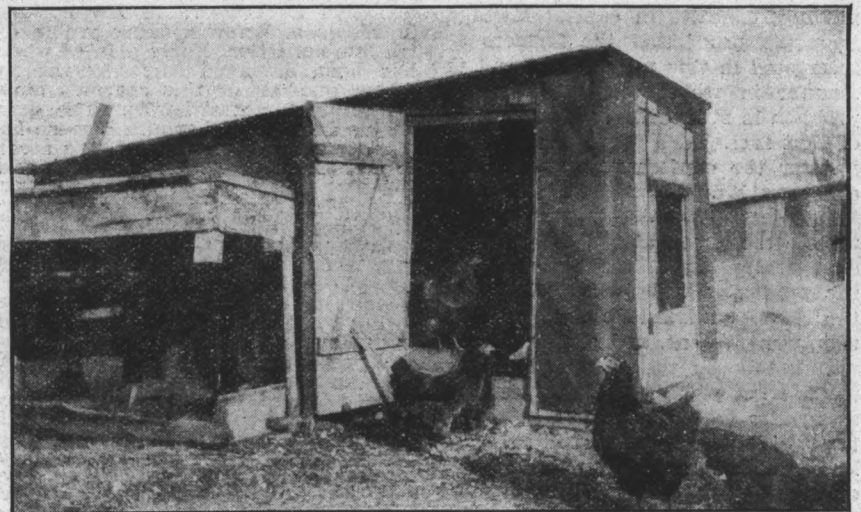
Ducks are considerably hardier in some respects than other poultry, but they demand dry quarters at night at all seasons. They do best when they can have a house to themselves, but the same house may be used for either young or old fowls. The duck house need never be an expensive building, but it must be such as can be kept perfectly dry inside at all times. An open shed will not do. Ducks are well protected by their feathers and can endure a great deal of dry cold, hence the duck house need not be constructed for warmth. Cold winds, rains and snows must be excluded, however, and a good dry floor is very essential because ducks sleep on the floor. A plank floor ele-

ter, the aim should be to feed so as to have the birds in a vigorous, healthy condition at the opening of the laying season. The ration should be different from that given the chickens. It should be varied at least a part of the time and must not be too highly concentrated. A warm mash, composed of bran, corn meal and cooked vegetables, is relished greatly by the birds on cold mornings. In fact, good results can be secured by giving this mash regularly morning, noon and night, allowing the birds all that will be eaten quickly and clean. For the sake of variety, however, raw vegetables and a little whole grain, soaked for an hour before feeding, is good.

The Care of Geese.

Until the arrival of grass and insects the ducks may be given about all they will eat if the feed is not too highly concentrated. If the feed is placed in a trough, with slats attached, less waste will occur. An abundance of drinking water and coarse grit should be kept available at all times.

The stock geese should be provided with a dry shed or building facing the south for their winter quarters. The shed, or house should be kept clean the same as the duck house. Although geese can endure a great deal of ill treatment and filth, this is not the proper treatment to accord them. The bedding material in their house needs to be cleaned out two or three times



An Economical Farm Poultry House.

vated several inches from the ground is preferable. The building should be well lighted. The duck house requires no furnishings in the way of perches or nest boxes, but several inches of clean straw or other litter should be kept on the floor at all times for bedding. The bedding material should be changed frequently, before the old bedding becomes damp or badly soiled. An abundance of bedding material helps to keep the floor clean, it provides comfort for the birds at night and during the laying season it prevents soiled or broken eggs.

Ducks Easily Cared For.

Before cold weather sets in the duck house should be put in the proper shape for winter, then the birds should be trained to roost indoors by driving them inside each evening and fastening them in, until they have learned what is expected of them. The fowls will soon learn where they belong at night and will then go to their quarters of their own accord. During fair weather the fowls may be allowed their liberty in the daytime, as they enjoy being out in the open air, but they should not be allowed to wander around through the snow in cold weather.

Except for the work of feeding, the ducks require the least attention of any fowl during the winter. The building should be kept clean and sanitary at all times, of course, but dust baths need not be provided, and swimming water is not necessary in winter. With the breeds which do not lay in win-

ter, the aim should be to feed so as to have the birds in a vigorous, healthy condition at the opening of the laying season. The ration should be different from that given the chickens. It should be varied at least a part of the time and must not be too highly concentrated. A warm mash, composed of bran, corn meal and cooked vegetables, is relished greatly by the birds on cold mornings. In fact, good results can be secured by giving this mash regularly morning, noon and night, allowing the birds all that will be eaten quickly and clean. For the sake of variety, however, raw vegetables and a little whole grain, soaked for an hour before feeding, is good.

The winter feed for geese may consist of almost any kind of whole or ground grains. Equal parts of bran, corn meal and middlings, moistened with warm water, is good for breakfast and in the evening a meal of whole oats and corn may be given. Vegetable food, such as steamed clover, silage or cooked vegetables, should also be supplied occasionally. Geese should not be fed with the other poultry and separate quarters are required.

Indiana.

W. F. PURDUE.

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DUROC JERSEYS—Fall pigs for sale either sex, also some fine April and May gilts. **BERT SWEET, R. R. No. 1, Hudsonville, Mich.**

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DUROC JERSEYS—Spring pigs of either sex at reasonable prices. Pairs not akin. **W. J. BAUMAN, Burr Oak, Michigan.**

Duroc Jerseys—For sale, of the heavy boned type, a few choice boars and fall pigs. **M. A. BRAY, Okemos, Ingham Co., Michigan.**

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Large Strain P. C.—One extra good fall yearling from large litters of the best breeding; 9 sows farrowing 88 pigs.

Veterinary.

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

Advice through this department is free to our subscribers. Each communication should state history and symptoms of the case in full; also name and address of writer. Initials only will be published. Many queries are answered that apply to the same ailments. If this column is watched carefully you will probably find the desired information in a reply that has been made to someone else. When reply by mail is requested, it becomes private practice, and a fee of \$1.00 must accompany letter.

Contagious Abortion—Churning Difficult.—Two months ago one cow lost her calf at seven months, at which time her milk was bitter; it was difficult to convert cream into butter and I might add that this cow has gained but little in her milk yield; besides, it is bitter and we have trouble to make butter. She has a good appetite and appears to be in perfect health. F. C. B., Reed City, Mich.—If your cow has vaginal discharge, wash her out three times a week with the following solution: Made by dissolving 1 dr. of permanganate potash in a gallon of clean tepid water. Change her feed, clean hands and udder before milking, be sure that the pail you milk into is thoroughly cleaned and that the milk is kept in a clean place free from bad odors and where the air is not foul. A cow that miscarries at or before the seventh month period, never milks as well as if she carried calf for full period.

Wolf Teeth.—Some time ago I bought a colt and am told it has two small wolf teeth and when driven acts a little nervous as if mouth was sore; besides, her sight seems to be affected. J. S., Boyne, Falls, Mich.—Extract the wolf teeth and it may be that shedding temporary grinder teeth may affect her health. Give a half teaspoonful of nux vomica, a tablespoonful of fluid extract of gentian at a dose three times a day.

Gastro-Intestinal Catarrh.—I am very much worried over a disease that has got in my flock of hens. First symptom is often a little lameness in one leg, bowels very loose, passages either yellow or white. Their combs usually turn black, some of the hens die quickly, others linger along, but are of no account. Mrs. P. S., Owosso, Mich.—Dissolve 1 dr. citrate of iron in a gallon of drinking water, also give each one 1 gr. of subnitrate of bismuth at a dose three times a day until their bowels improve. Kindly understand the importance of cleanliness and thorough disinfection. Their roosting place should be whitewashed with fresh lime; you should also spray roosting poles and floor of coop with one part carbolic acid and 49 parts water.

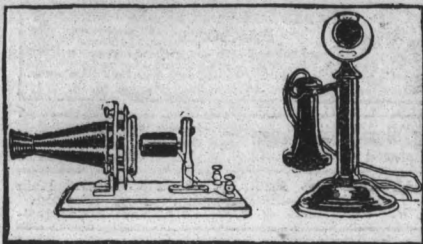
Enlarged Gland—Stocking.—I would like to know what I had better apply to reduce a bunch in throat of horse, which does not appear to do him much harm. I might add that this bunch has been there two or three years and increases a little in size every year. When this horse is allowed to stand in stable, his legs stock. J. H. K., Marion, Mich.—Apply one part iodine and seven parts of fresh lard to bunch two or three times a week. Also give him 1 dr. potassium iodide at a dose in feed or water twice a day. Mix together one part powdered sulphate iron, one part ground nux vomica, two parts powdered nitrate of potash and four parts ground gentian and give him a tablespoonful at a dose two or three times a day. He should have daily exercise.

Hard Milker.—I have a valuable Holstein cow that milks very hard, making it disagreeable to milk her. What would you suggest to dilate the milk passage? G. D. C., Horner, Mich.—A highly polished steel probe is the best kind of an instrument; however, its point must be dull and you should have probes of different sizes in order to dilate teat canal. A teat expander which opens when pressure is applied on handle, is most commonly used by veterinarians, but they should be handled with care, avoiding rupturing fibers of the teat canal.

Rheumatism—Sweeney.—A year ago I purchased a mare that has shown lameness in both fore and hind quarter and her shoulders have also become sweeney. She has also passed a few worms. C. S., Farmington, Mich.—Give your mare 1 dr. salicylate of soda at a dose three times a day; also a teaspoonful of sulphate of iron and a dessertspoonful of salt once a day. Apply equal parts of turpentine, aqua ammonia and olive oil to atrophied muscles of shoulder three times a week.

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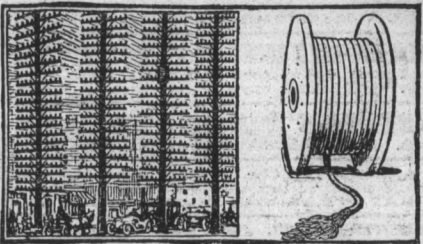
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1876

Standard
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To-day



Early
Telephone
Exchange

Typical
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