

MICHIGAN FARMER

AND LIVE STOCK JOURNAL.
PUBLISHED WEEKLY. ESTABLISHED 1843.

The Only Weekly Agricultural, Horticultural and Live Stock Journal in the State.

VOL. CXXXII. No. 5.
Whole Number 3437.

DETROIT, MICH., SATURDAY, JANUARY 30, 1909.

75 CENTS A YEAR
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FARM NOTES.

Storing Manure in the Summer.

I have a team hauling horse manure from the city each day. During the winter I spread it immediately but the problem is what to do with it in the summer. I have thought of digging a pit down to the blue clay for storage, this pit to be filled to the depth of say two feet with manure, to be followed with a coat of land plaster "to fix the nitrogen." These layers to be repeated as long as it is possible to drive the team over the mass. What do you think of the plan or can you suggest something better? What form of land plaster and what depth of its application would you recommend?

Wayne Co. FARMER.

This problem is one of importance to every farmer for it involves the whole question of economic handling of stable manure. Without any doubt, the method of hauling directly to the field and spreading while fresh is the preferable one to follow at all seasons of the year where possible, and where one has a regular supply which is drawn each day during the year, it would, in the opinion of the writer, be profitable to so arrange the crop rotation that one would have a place to spread it directly from the wagon or spreader at all times during the year.

This could be managed by spreading it on the fields used for pasture during the early part of the summer when the balance of the farm is devoted to crops in the regular rotation. Then as soon as the hay is cut, the meadow is a profitable place to spread the manure, and during the winter the best place to put it is on the sod land that is to be planted to corn or other crops the following spring. Of course, there will be times when it will be impracticable to get on the land to spread the manure but this will involve storage only for a short time when the losses from such storage will be inconsiderable as compared with the losses which necessarily take place where the manure is stored thruout the summer by any known method, for it is a well demonstrated fact that manure cannot be stored by any method for any considerable length of time without very appreciable losses, both of available plant food and humus. Particularly is this true with horse manure in which fermentation takes place much more rapidly than in most other kinds of stable manure. Where practicable it is advisable for this reason to mix the different kinds of manure where storing, either in a pile, a pit or a shed prepared for the purpose, but, of course, this would be impracticable in this case where but one kind of manure is available.

Now in considering the merits of the scheme outlined in this inquiry let us first consider the causes of the losses in

A FEW LEADING ARTICLES OF THE WEEK.

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plant food and humus above referred to. The decomposition of manure in a pile or pit is due to the action of two classes of microscopic plants which multiply very rapidly and which are known under the general name of bacteria. The first of these two general classes of bacteria to work in the decomposition of manure are known as aerobic bacteria,

or bacteria which can work only in the presence of air which affords them the oxygen necessary to their development. The action of this class of bacteria is very rapid in horse and sheep manure but much slower in cow and hog manure, thus causing the former kinds of manure to heat rapidly from the action of these bacteria when stored in loose piles. This

heat of the pile causes the rapid evaporation of the moisture which it contains which may be seen to rise from the pile in the form of vapor. This vapor also carries away with it valuable plant food in the form of ammonia, which is liberated from the nitrogen compounds in the manure by the action of the bacteria. Thus during the activity of this class of bacteria a large percentage of nitrogen contained in the manure is lost and the pile becomes "fire fanged" from the excessive heat generated in the process of fermentation.

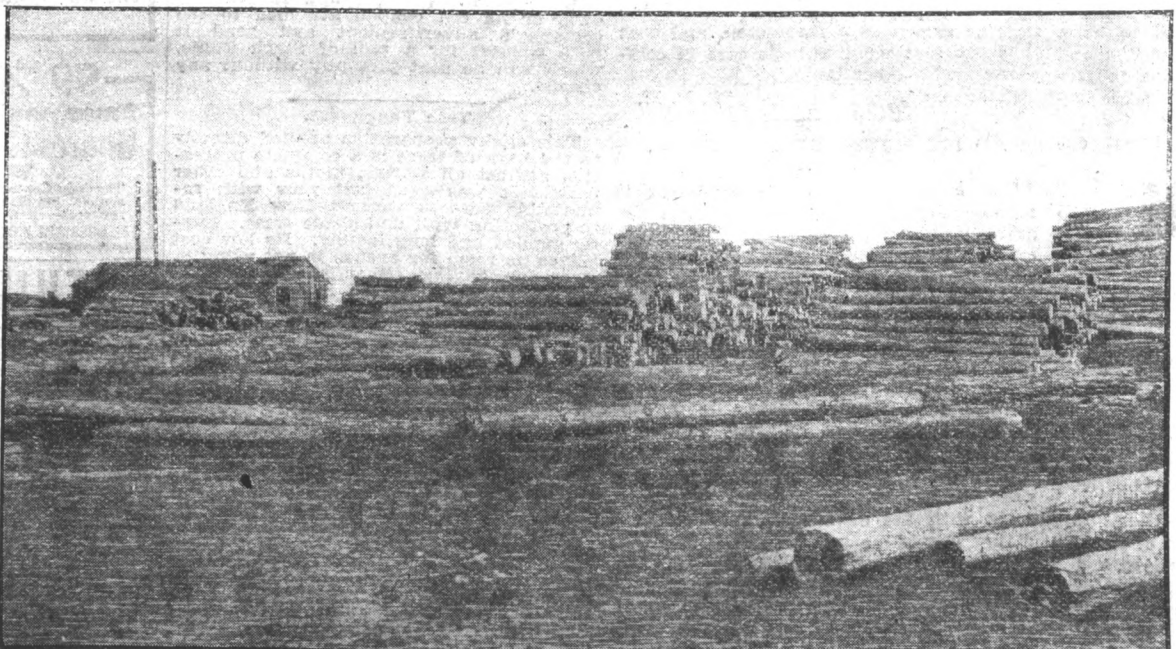
The early losses in storing manure then, may be said to be due almost wholly to this class of bacteria and, in order to reduce that loss to a minimum where manure must be stored for any considerable length of time, the aim should be to make the conditions such that they will not favor the development of this class of bacteria. As above noted, the mixing of the different kinds of manure will retard this early fermentation to a considerable degree. Another means to the same end is to pile it compactly enough to keep the air out, which will effectually prevent their development. This fact is greatly in favor of what is

commonly called the deep stall method of preserving manure, that is, of spreading the manure out thinly and evenly each day in a stall or shed to which live stock has access and which will favor it being tramped down so closely as to exclude the air, and thus prevent the development of these aerobic bacteria. It is quite impossible to pack it down solidly enough in a pile or pit to secure this condition, but where it is stored, the desired condition will be more nearly approached by a frequent moistening of the pile which is beneficial in two ways. A certain amount of moisture is necessary for fermentation to take place in the pile but if the manure is made quite wet the temperature is lowered to a degree which is not favorable to the rapid development of the bacteria, and the water also checks the fermentation by limiting the amount of air that can enter the pile. Thus by controlling these conditions, the losses can be reduced to a minimum.

The use of land plaster as suggested in this inquiry would doubtless be beneficial. In the first place land plaster is a good absorbent and retains moisture with tenacity, but the greatest benefit to be derived from its use is due to the chemical action which takes place when it is combined with manure. Land plaster, or sulphate of calcium as it is chemically known, acts upon the carbonate of ammonia the volatile salt into which the nitrogen in the manure is converted



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by rapid fermentation into an inviolable form, thus fixing it in the manure instead of permitting it to escape in the form of vapor, which is particularly noticeable as the well known odor of ammonia about horse stables and piles of horse manure. But that the losses in the manure cannot be eliminated by this means in their ordinary handling is clearly shown by an experiment conducted at the Cornell station where two tons of cow manure from the stable were placed out of doors in a compact pile and left exposed from April until September, 300 pounds of gypsum being mixed with it. It was found by chemical analysis that this manure lost 49 per cent of its gross weight, 41 per cent of its nitrogen, 19 per cent of its phosphoric acid and 8 per cent of its potash and was reduced in value from \$2.29 to \$1.60 per ton. A similar test with horse manure with which no gypsum was mixed showed a loss of 57 per cent in gross weight, 60 per cent in nitrogen, 47 per cent in phosphoric acid, 76 per cent in potash, reducing the value per ton from \$2.30 to \$1.06. Of course, in the larger pile or in the pit this loss would be less but still there would be an appreciable loss, altho it is probable that the losses in the mineral elements of the plant food were caused by leaching after the mass had been largely decomposed and rendered soluble by the action of the beneficial anaerobic bacteria or the class which are active only in the absence of air, which loss will be largely prevented in a pit. But the labor of storing the manure in a deep pit and again removing it and spreading it on the fields would be considerable and would be avoided by the plan of arranging the rotation so it could be hauled directly to the field throughout the year.

The use of floats or ground phosphate rock instead of gypsum in combination with manure has many points to recommend it. Phosphate rock or floats is chemically known as the phosphate of calcium. When used in fertilizers, it is treated with sulphuric acid to make the phosphorus available as a plant food but when combined with manure the acids of the manure act upon it in much the same way, converting the floats into soluble phosphoric acid and sulphate of calcium, or gypsum, which in turn has the same chemical affinity for the carbonate of ammonia in the manure as when applied in the form of land plaster and has the additional value of adding a certain amount of soluble phosphoric acid to the manure. Other substances which are recommended by some authorities for use with manure are sulphate of copper or blue vitriol, and sulphate of iron or copras, probably on the theory that these substances will check fermentation in the pile by destroying the aerobic bacteria, but unfortunately we have no data as to the actual result of the use of these substances in farm practice.

The manure pit and cistern have not grown in favor with the farmers of this country, altho they are very largely used by the farmers of the European continent, but, as before noted, the extra labor involved makes the practice of questionable economy in this country. Where it is desired to use this method of storing manure, it would probably be more economical to simply have a basin with a clay or cement bottom of sufficient depth to prevent the leaching of manure from rains, and then pile it in as compact piles as possible, using a liberal amount of floats or gypsum as suggested in this inquiry. But in addition to the loss of the plant food, there is bound to be a loss of humus due to the formation and escape of carbonic acid gas due to fermentation, which, with other gasses escaping from the pile, accounts for the loss of weight noted in the above described experiments.

The facts above presented should be carefully considered by every reader, since they show something of the losses sustained in the depreciation of farm manures as too often handled. It would certainly be good economy to stop this big leak on farms where it still exists, by the adoption of better methods in handling the manure crop and thus obviate the losses by removing their cause as far as practicable.

A Substitute for Hay.

I expect to be short of hay this year and would be pleased to know thru your paper what would be a good substitute for hay, to be raised on sandy soil.

Muskegon Co. JOHN LARSON.
If the soil is in a good state of fertility and contains sufficient humus, oats and peas will make a very satisfactory substitute for hay. But if the soil is not adapted to peas, it would be better to grow millet, which does better on a well drained and fairly fertile soil than upon

a heavier or more moist soil. It makes a very good hay except that it should be fed with care to horses, unless cut before the seeds commence to form, but it is a surface feeding crop and rather hard on the class of soil to which it is best adapted. It, however, fills an important place, particularly as a catch crop, owing to the fact that it may be sown quite late in the season, during the latter part of May or first of June.

TIMBER AS A FARM CROP.

While we are cutting our winter's supply of wood we should think and plan as to whether we shall be able to do the same thing twenty-five or fifty years hence, and whether we are so managing our wood lot that we can expect to make it a source of permanent income, or whether with a continuance of the present treatment we will be without timber at some future time.

The two chief precautions in preserving the young timber and seedlings in the forest are (1), not to cut the young and growing timber unless it is crowding and needs thinning out, and (2), not to allow stock to run in the woodlot habitually. A woodlot continually pastured will have little young timber as the seedlings are trampled down and killed before they can get a good start, or are broken off if they are a few feet above the ground. An occasional pasturing may do little harm, but it should not be practiced to any great extent if one is to keep the woodlot renewed. It is easier to allow the young timber to grow than to attempt to make entirely new plantings of similar varieties.

Farmers who have no woodlot or who wish to set other varieties of trees not found in the natural forest will do well to consider the planting of a small area to trees. On many farms there are locations which would be ideal for the growth of trees, but which are now of little use. Areas of peculiar shape, side hills, high knolls surrounded by swamp, and such locations will grow a timber crop more economically than anything else.

We have been using a side hill for this purpose, planting a few trees each year, and have the plot nearly filled now. Catalpa, locust, and chestnut were used, mostly the first mentioned variety. The chief trouble with them is that they die down considerably each winter, which makes it difficult to get and keep a good central leader. This is especially true on the lower ground, and the trees do not make a good growth here. The locust have grown rapidly, make quite a straight tree, and do not die down badly, but they sprout from the root considerably, and are subject to the attacks of borers. The chestnuts were hard to transplant and less than one-fourth of them lived. I believe the forestry department of Michigan considers the locust the surest of the post trees for this state.

Any one who contemplates the planting of an acre or more to trees may secure the aid and co-operation of the state forestry department. They will take a soil survey, advise as to the varieties best adapted to the location, and assist in planning and planting the plot if desired.

They can also furnish trees at reasonable prices to those who promise to follow their instructions. About all that is required of the farmer is to give the trees some care the first few years, and keep an accurate account of the expenses of growing the crop. Figures from a number of plantations show that timber may be grown as a farm crop, and that it is one that requires little care in comparison with other crops.

Calhoun Co.

S. B. H.

AN ICE HOUSE ON THE FARM.

The expense of a small ice-house is merely nominal and the convenience can scarcely be estimated. Those who do not care to build a permanent ice house can construct one with small expense that will answer the purpose very well; it will be found however, that "make-shifts" are in the end more expensive than a permanent and desirable building in the first place, then the expense being incurred once and for all. The size of the ice house depends upon circumstances, but one 12x18 feet square and 14 feet high will contain ice enough to supply the ordinary family. The house should be built with 2x4 or 2x6 studding and the siding should be put on so that it will be as nearly air tight as possible. On the inside the building should be lined with matched boards. No floor is necessary but a drain, to care for the water from the melting ice must be provided. The foundation should be tight to pre-

vent the air from entering as the entire circulation of air must be over the ice.

In putting the ice in the house, a space of one and one-half feet should be left all around between the ice and the sides of the building; and this space should be tightly packed with sawdust. About six inches of saw-dust should be placed over the top of the pile of ice.

If there is good drainage for the melting ice, a good circulation of air over the top of the pile and proper care taken in readjusting the packing after removing ice from the building, there will be no question about having a supply of ice thru the entire summer.

Ohio.

S. C.

FREQUENT CHANGES IN POLICY UNPROFITABLE.

General farming is a complicated business and competition is unlimited. So far as the cash crops are concerned it would be absolutely impossible to tell beforehand what the general result will be as to their quantity. About the only thing the farmers can do to help each other in case there is an oversupply of any one special crop is for those who are financially able not to throw their part of the crop on the market while the prices are too low. As regards the productions of the different branches of farming there is no one special branch but what can be made unprofitable by too many engaging in it, unless there is a good prospect that the demand for such special products will increase at the same rate that the total quantity of the commodity is being increased, otherwise it will wipe out the profits. There is no time but what one or two of the branches are for a time more profitable than the others. This is a great temptation for many to change, to drop some of the less paying crops and get in the more paying lines. This is usually about the time when things begin to change. There are a great many who are constantly changing from one branch to the other and they seem to be unlucky in getting in at the wrong time. It is also a bad thing for the others for they, if caught, are equal sufferers by the resulting depression of prices.

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Much has been said in the past and will undoubtedly be said in the future, about farm management. It is extremely difficult for one to write an article on this subject and tell how a farm should be managed. As a matter of fact, it cannot be done, only in a very general way. Farm management is something that is easy for some but extremely difficult for others. A farm manager should be a man of executive ability. There is just as much chance to use talent in this direction in the management of a farm, as there is in the management of a railroad, or a manufacturing establishment. It takes the same kind of talent to manage a farm and make it a success as it does to manage any other kind of a business. It cannot be done unless one gives it his whole thought and study. A man who hasn't his mind on his farm and its operation, cannot be a good farm manager. He cannot hope to make a farm foreman that will be of any particular credit to himself. He has got to study the proposition in a general way and then he has got to work out the details specifically. A farm manager differs from a farm foreman in many essentials. Farm management is the general plan not only of the farm and the business as a whole, but the plan for the carrying out of each division of the farm, while a farm foreman simply has to do with the carrying out of each. A farmer must be the farm manager and the farm foreman too. He must make his own general plans and then he must carry these plans into successful execution.

Most failures that are made on farms come from the fact that there is fault in the management. Most all of the staple agricultural crops can be produced on Michigan soils at a profit over and above the labor, interest on the investment, etc., but there is a lack in the general plan, in the general system, in the working for a purpose which prevents the utilization of the profits made in growing a crop of corn or a crop of wheat, so that, as a whole, the farm is not a successful business. This comes from the fact that the farmer has no executive ability. He allows the cogs to slip and break, and the machinery gets out of whack. He has not the right plan in the beginning and he doesn't carry his plans into successful operation. Some people can make more money on a farm sitting in the rocking chair on the front stoop and never lifting their finger, to do any physical labor, than another man can to work hard from morning till night the year round. Now, why is this? Simply because one knows how to manage a farm, and the other does not. We see this exemplified in every neighborhood. I know a case personally where a man married a farmer's daughter, consequently married the farm, and yet he cannot get a good living off the farm, work as hard as he will. Everything seems to go against him. It is simply because he doesn't know how to farm, and doesn't know how to manage it. He hasn't executive ability enough to run the farm. That farm will furnish any family a good living, just with proper management. The right kind of a man could sit on the front door step and direct operations properly and the farm would yield a good living to the family. No, there is something in farming besides hard work. You have got to use your head as well as your hands. To make the greatest success you must use both your head and your hands, but if you can use only one, you will make the greater success by using your head alone than you will your hands alone. Farming is a business. Just a plain, old-fashioned business, and we have got to put business principles back of it if we want to make a success out of it. We have got to first have the right kind of plans, and then you must see that you yourself, or some one else carries out these plans.

COLON C. LILLIE.

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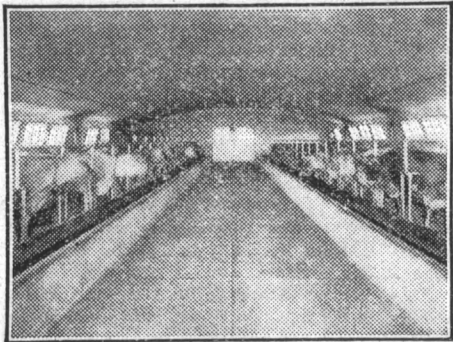
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LIVE STOCK

STATE BREED MEETINGS.

As announced in the program for the meeting of the Michigan Improved Live Stock Breeders' and Feeders' Association and noted in the columns of The Farmer, a goodly number of the State Breed Associations called their annual meeting at the Agricultural College on Tuesday, Jan. 12, these meetings being held at practically the same hour in the different buildings assigned to them on the college campus. It being impossible for the editor to attend them all, the secretaries of the various associations holding meetings at that time were written for a brief report of the meeting held by the respective organizations with which they were connected. All of them have not responded to date but we are able to present brief reports of a majority of such meetings in this issue as follows:

Michigan Horse Breeders' Association.

At the recent meeting of the Michigan Improved Live Stock Breeders' and Feeders' Association, held at East Lansing, Jan. 12-13, the horsemen organized the Michigan Horse Breeders' Association, with Robt. Gibbons, Detroit, president, J. G. Palmer, Belding, secretary, and W. B. Otto, Charlotte, treasurer. Vice-presidents as follows: Henry Waldron, Ann Arbor, representing Percheron interests; C. C. Hoag, Charlotte, representing Belgian interests; C. F. Sattler, Charlotte, representing Coach interests; Geo. Ackerman, Elton, representing Clydes, Shires and Suffolks; W. W. Collier, Pontiac, representing Standon bred interests; A. P. Green, Olivet, representing Shetland Pony interests.

The great object is improvement of the horses in this state thru government regulation of stallion practice. A legislative committee, consisting of the president, secretary and treasurer and such other members of the Michigan Horse Breeders' Association as they see fit to act, was appointed to draft a bill, to be presented to this session of the legislature which will make it necessary for all stallion owners to license their stallions, telling the public exactly what they are. Stallions are to be examined for hereditary or transmissible unsoundness and disease and a list of such unsoundness and diseases will be specified in the bill. Pedigrees are to be examined and those properly signed and from a stud book recognized by the U. S. Government, and horses with such papers are classed as pure bred. Horses with pure breeding on one side or the other are classed as grades. A "non-standard bred" class is provided for.

First, we want sound horses, that conform to the standard of their respective breeds, and secondly, we want all stallions to be of pure breeding. We cannot expect to put the grade horse out of business immediately, as such a thing would be an injustice to their owners, but we do expect to give them one or two years to dispose of such horses and replace them with horses of pure breeding.

The U. S. Government does not recognize the grade horse and the state of Michigan should not. When the grade stallion owners have disposed of their grade stallions to some man in another state, and they have replaced the grade with a horse of pure breeding the horse breeding interests of the state of Michigan will be increased many fold. If the U. S. Government would take up the eradication of grade stallions in these United States and eradicate them, they would have accomplished a thousand times more in 10 years for horse interests of this nation than they will accomplish in fifty years with their present attempt to establish some American breeds of horses. If it could be established that nothing but good horses of pure breeding could be used for breeding purposes, the American draft, coach or harness horse would soon be established and recognized by the world as such.

Let Michigan be the first state to do something toward pure breeding in horses and the increased valuation of her horse kind will soon arouse other states to similar action for good individualship and pure breeding in horses.

Michigan Shorthorn Breeders' Association.

The annual meeting of Michigan Shorthorn Cattle Breeders' Association was held in the veterinary laboratory of the Agricultural College, Tuesday afternoon, January 12. A good attendance of students and breeders listened to an able address by Hon. Fred. A. Baker, of De-

troit, and other speakers. Mr. Baker, in his remarks emphasized the importance of growing good, and increasing yields of corn and pastures in advance of live stock improvement. With liberal feed and continued use of pure-bred Shorthorn bulls, farmers could produce the best beef cattle in the world. A spirited discussion of pertinent topics followed, and after an address by Vice-president P. P. Pope, officers were elected for the ensuing year as follows:

President, P. P. Pope, Mt. Pleasant; vice-president, G. F. Ottmar, Merle Beach; secretary and treasurer, Alfred Allen, Mason; Directors, Dell Dawson, Sandusky; J. F. Clemens, Bath; H. B. Peters, Burton.

Michigan Guernsey Cattle Club.

The Michigan Guernsey Cattle Club met at the Michigan Agricultural College on Tuesday, Jan. 12, with a good attendance. The officers elected for the ensuing year were as follows: President, M. J. Shered, of Bloomingdale; first vice-president, T. V. Hick, Battle Creek; second vice-president, H. Rosema, of Fremont; third vice-president, H. H. Schueller, of Grass Lake; secretary and treasurer, A. M. Brown, East Lansing. The meeting was addressed by Mr. Caldwell, of Peterborough, N. H., secretary of the American Guernsey Cattle Club. Mr. Caldwell gave a very interesting account of the origin of the Guernsey cattle and their introduction into this country, together with records of some of the famous producers. There was an attendance of some fifty or seventy-five persons interested in the breeding of Guernsey cattle. This was substantially all that was of special interest at the meeting.

Michigan Merino Sheep Breeders' Association.

The annual meeting of this organization was held at the Agricultural College on the afternoon of Tuesday, Jan. 12. The following officers were elected for the ensuing year: President, H. E. Moore, Orchard Lake; vice-president, H. L. Mayo, Nashville; secretary, E. N. Ball, Ann Arbor; treasurer, R. D. Stephens, South Lyons; directors, Jay Smith, Dexter; C. C. Dorr, Grass Lake; C. S. Allen, Pulaski; T. E. Spalding, Tipton; Jas. Inman, North Branch; pedigree committee, E. W. Hardy, Howell; T. V. Quackenbush, Plymouth; R. D. Stephens, South Lyon. Part 3 of Vol. 4 is in print and nearly ready for distribution. The following committee was appointed to consider uniting with some other association, the committee to report at the next annual meeting: H. E. Moore, E. N. Ball, R. D. Stephens.

The association has 12 members who are recording American Merinos, and \$170.00 in its treasury.

Michigan Oxford Down Sheep Breeders' Association.

The Michigan Oxford Down Sheep Breeders' Association held its annual meeting in the Horticultural Laboratory at M. A. C. on the afternoon of Tuesday, Jan. 12. There was a fair attendance of breeders and much interest was shown in the meeting by those present. Officers elected for the ensuing year were as follows: President, I. R. Waterbury, Highland; secretary and treasurer, B. F. Miller, Flint; directors, F. W. Bailey, Coral; J. A. DeGarmo, Muir; L. N. Olmstead, Muir; A. P. Hagaman, Leonard; A. L. Wright, Bad Axe.

Following the business meeting an interesting discussion with regard to the most desirable type in the breed was participated in by most of the members present and following the adjournment of the meeting all repaired to the college barns for an examination of the specimens of the breed maintained at M. A. C. and further discussion of the matter of breed type. A financial report showed a comfortable balance in the treasury of the association, and the calling of future meetings was left with the president and secretary.

Michigan Duroc Jersey Breeders' Association.

The Michigan Duroc Jersey Breeders' Association met in the M. A. C. dairy building at 2 p. m. on Tuesday, Jan. 12. President A. W. Mumford being unable to be present, Chas. Bray was appointed president pro tem. Meeting well attended and breeders looking forward to advances in breeding stock the coming year. There were good talks on diseases and their treatment, notably hog cholera, by Prof. R. S. Shaw and others. Chas. H. Bray, of Okemos, was elected president for the coming year, and M. T. Story, of Lowell, was re-elected secretary and treasurer.

(Reports concluded in next issue.)

ERADICATION OF BOVINE TUBERCULOSIS.

Address delivered by Prof. J. J. Ferguson, of Chicago, before the Michigan Improved Live Stock Breeders' and Feeders' Association.

The control and eradication of consumption, the great "White Plague" of the human family, is each year attracting more attention, from medical circles and the general public. It causes not only enormous loss of human life, but great financial loss as well, since many of its victims are men and women with many years of productive life still possible, but for its ravages. Such advance has been made in the study and knowledge of the disease that its regulation is already a matter of certainty, while the possibility of working out some specific remedial treatment is each year becoming a matter of greater probability.

In the minds of our most eminent health authorities there is a well defined connection between tuberculosis as found in the human, and bovine tuberculosis affecting domestic live stock. Dairy products are nearly all consumed in the raw state. If produced from animals affected with tuberculosis they are a menace to public health. The danger from such infection is especially great with infants, young children and subjects with reduced vitality. The danger from this source is shown by a recent ordinance passed by the city of Chicago, prohibiting the sale of milk and milk products in Chicago on and after January 1, 1909, unless such products come from cows shown to be healthy by the tuberculin test. Milk and cream from all other cows must be pasteurized before being offered for sale to Chicago people. While this action may appear radical, it is likely to be adopted by other large cities in the near future. Public health must be safe-guarded, regardless of expense and private interests.

The economic loss in this country, account of bovine tuberculosis, is very great. The loss on animals slaughtered for food is about five million dollars annually. This, with the loss from decrease in milk production and depreciation in dairy and cattle and hogs, about ten million dollars more, makes a total annual charge against the country of, at least, fifteen million dollars. According to statistics of the United States Bureau of Animal Industry, covering more than one-half of all animals slaughtered for food in the country last year, the following percentages were found affected with tuberculosis:

Cattle	.961
Calves	.026
Hogs	2.049

This covers premises having federal inspection. The percentage of the fifty-million animals slaughtered for food purposes, without inspection, is probably considerably greater. Records of tuberculin tests covering 15 years, show that on an average about 10 per cent of the dairy cattle, 1 per cent of other cattle, and 2 per cent of the hogs, in this country are affected with tuberculosis; the average percentage of all cattle being about 3.5 per cent.

Bovine tuberculosis is so insidious in its attack, and usually so obscure in its progress, that, unless in advanced stages, the disease cannot be detected by ordinary physical examination by expert stockmen or veterinarians. Its spread is favored by artificial conditions, such as damp, badly ventilated stables, lack of exercise, high feeding, and other conditions tending to reduce vitality and resistance. There is a wide difference in the relative proportion of animals condemned for tuberculosis at slaughter houses in different sections of the country. Cattle and sheep from the far western ranges show a much smaller percentage condemned, than those raised under the more artificial conditions in the central states. At Fort Worth and South St. Paul, where cattle from the range country are handled, the percentage condemned is less than 50 per cent of condemnations at Chicago, where a large proportion of cattle received are from farms and feed lots; the same is true within limits regarding hogs. By far the highest percent of infected subjects come from dairy districts. In dairy sections, where control measures have not been taken, tuberculosis hogs are most numerous. With the increase of dairying in Minnesota, it is noted that in 1902 one hog out of 1,210 was tubercular; in 1904 one of 667.

The disease affects all kinds and grades of cattle; it is no respecter of breeds; is found in the herds of fancy breeders and exhibitors of pure-bred live stock and in the model herds of Agricultural Colleges and Experiment Stations as well

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In order to build up a healthy herd, free from tuberculosis, not only must the premises be maintained in sanitary condition, but only healthy animals should be maintained. One tuberculous cow will, in a short time, liberate enough germs to infect all the cattle and swine on the premises. Where premises are free from disease they can be kept so only by periodical tuberculin tests and the refusal of the owner to introduce any but healthy animals into the herd. The matter of cleaning up the infected herd and premises is one requiring time, care, and, often, large expense. The passing of laws, compelling the slaughter of all animals found infected with tuberculosis, is unnecessary, since many animals so affected, might prove profitable in the dairy for several years, and finally on slaughter pass inspection and be perfectly safe and healthful for food purposes. Tuberculosis is not necessarily fatal. In the packing-house many animals are found in a perfectly healthy condition, showing evidences of once having had tuberculosis.

The problem of eradicating tuberculosis is of individual and state interest. The part of the individual farmer lies in maintaining sanitary premises; in breeding only from healthy animals and refusing to buy for breeding purposes, animals which have not passed the tuberculin test, and in seeing that the local creamery does not act as a central station for spreading germs of tuberculosis from infected herds thru the medium of skim-milk, buttermilk and whey returned to the farms.

Tuberculosis has long been a favored theme for state legislation. Many radical, unwise and impracticable state laws have been passed, aiming at its control. The experience of many states seems to lead to the following conclusions:

1. There should be a State Sanitary Live Stock Board or Live Stock Commission having authority over contagious diseases. This Commission should have power to pass upon the health of all animals in the state. The commission should have power to isolate, quarantine, and if necessary, destroy affected subjects. Such stock should not be allowed to go to a public market for sale, except subject to state regulation.

2. A state law should prohibit the importation of pure-bred or grade animals for breeding purposes within the state, unless accompanied by certificate of health. Such laws are already in operation in several states and other states will shortly enact similar legislation.

3. A state law, like that of Wisconsin, should compel pasteurization of all dairy by-products from creameries, cheese factories, etc., before being returned to the farm.

4. One of the chief difficulties in framing acceptable legislation on tuberculosis has been the matter of compensation to owners of infected animals ordered slaughtered. The experience of most states, having a law carrying compensation, has been that, since the public health is a charge of the state it is only fair that the state, at large, should help bear the burden of individual loss. At the same time the compensation feature has been sadly overlooked in many cases, having offered the means whereby unscrupulous men have marketed almost worthless animals at many times their actual value. While it is true that a diseased animal, unfit for breeding or food purposes, is practically worthless, many stockmen are not willfully responsible for the presence of the disease in their herds. In Nebraska, tuberculosis is being steadily eradicated without state compensation.

Much has been heard regarding the "Bang" system of handling herds affected with tuberculosis. The writer has studied this system carefully and has discussed it fully with Dr. Bang. My conclusion is, that while it is possible to take a herd affected with tuberculosis and build up from it a perfectly healthy herd, by isolating calves at birth, and keeping the new herd entirely separate, it is a system involving great care and expense. It would be much better to dispose of the infected herd, disinfect the premises thoroly and begin anew with a foundation herd known to be free from tuberculosis.

Regarding bovo-vaccination as a preventative of tuberculosis, experience indicates it would be far better to keep tuberculosis out of the herd than to attempt to build up resistance in this manner. At the Wisconsin Experiment Station, as well as in several private herds, a number of animals treated with bovo-

vaccine have succumbed to tuberculosis.

The keeping of a perfectly healthy herd is strictly within the ability of every farmer and stockman in the country. It can be had only at the price of constant vigilance; the use of clean, airy, well-lighted buildings, kept sweet and wholesome and keeping away from the farm all live stock other than those known to be free from disease.

BOVINE TUBERCULOSIS AND ITS ECONOMIC BEARING.

Address delivered by Dr. C. E. Marshall, of M. A. C., at the recent meeting of the Michigan Improved Live Stock Breeders' and Feeders' Association.

Professor Fisher, of Yale University, says that the death rate of tuberculosis in all its forms in the United States amounts to 164 per 100,000 population, and the number of deaths from this disease in 1906 was 138,000.

Based upon these figures, he claims that 5,000,000 people in the United States will die of tuberculosis. The cost to the United States, according to his estimates, amounts to \$1,100,000,000 per annum; or in other words, \$8,000 per death. Of this cost, \$440,000,000 falls upon others than the consumptive.

Professor Wilcox, of Cornell University, places the loss in New York state at 16,570 persons in 1907, and estimates the cost to New York state at \$52,251,757.

Professor Henderson, of Chicago University, claims that New York city suffers a loss of \$23,000,000 annually from tuberculosis, that Illinois suffers \$36,551,000 loss, and that the United States suffers \$320,000,000 loss. In 1904 Michigan had 2,306 deaths from pulmonary tuberculosis and 441 deaths from other forms of tuberculosis. At the present time, the loss from tuberculosis is estimated at about 3,000 per annum. These figures assist in forming some notion of the extent of human tuberculosis.

In order to show the intimacy existing between human tuberculosis and bovine tuberculosis, let me furnish a summary of some experiments:

Dr. Hess, of New York City, testing 107 specimens of milk taken from various sources in the city, finds that 16 or 17 per cent contained germs of tuberculosis which were able to produce the disease in animals. Of eight tests of pasteurized milk, he found one containing germs still capable of producing the disease of tuberculosis.

The spread of tuberculosis, both bovine and human, thru creameries and cheese factories, is well known.

E. C. Schroedder, of the Bureau of Animal Industry, Department of Agriculture, finds that about 41% per cent of cattle, and probably more, having tuberculosis, eliminate the germs of the disease from the body by means of fecal matter. Since it is recognized that ordinarily, fecal material in one form or another enters the milk, it is easy to understand how the milk may become infected even when the udder of the cow is not involved.

As to the existence of tuberculosis among cattle, some idea may be gained by quoting a few reports:

Dr. Melvin, Chief of the Bureau of Animal Industry, says that of 53,973,337 animals slaughtered and inspected by Federal authorities for the year ending June 30, 1908, 0.961 per cent of adult cattle were tuberculous, 0.02 per cent of calves were tuberculous, and 2.049 per cent of hogs were tuberculous. Of 400,000 cattle tested with the tuberculin manufactured by the Bureau of Animal Industry, 37,000, or 9.25 per cent were tuberculous. Based upon the data available to him, he estimates that 10 per cent of milch cows are tuberculous, only 1 per cent of all other cattle are tuberculous, and 2 per cent of the hogs are tuberculous. He places the average percentage for all cattle at 3.5 per cent; in other words, 3.5 per cent of all cattle in the United States have tuberculosis. The loss in food-producing animals for the United States due to tuberculosis, is estimated by him at \$14,000,000 annually.

Professor Wilcox, of Cornell University, places the loss to the owners of cattle in New York state alone at \$1,500,000 per annum.

Dr. A. R. Ward, of Berkeley, California, estimates that 8 per cent of the dairy cattle in the vicinity of San Francisco are tuberculous.

Dr. Reynolds, of the Live Stock Sanitary Board of Minnesota, states that they found 36.8 per cent of the registered cattle tested about the state tuberculous and that 7.7 per cent of the grade cattle were tuberculous.

Dr Russell gives the following table as

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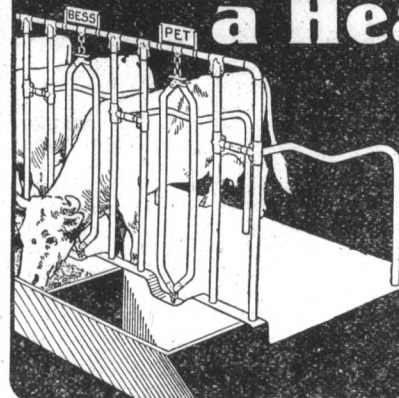
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the results of their test in Wisconsin over a period of seven years.

Year.	Number of herds tested.	Number of animals showing reactions.	Number of animals tested.	Number of animals reacting.	Per cent of animals affected.
1901....	22	10	425	84	19.7
1902....	14	5	306	42	13.7
1903....	11	4	182	5	2.7
1904....	33	13	688	44	6.4
1905....	41	17	726	44	6.0
1906....	339	146	5,781	704	12.0
1907....	630	171	10,740	469	4.3

The report for Massachusetts of 1907, speaks of testing herds owned by individuals who voluntarily requested examination of their herds. It was found that 33½ per cent reacted to the tuberculin test. Of 935 pure-breds tested in Maine, 20½ per cent reacted.

These figures are sufficient to enable one to gather some idea of the prevalence of bovine tuberculosis as it exists in the United States.

A word may be said concerning the value of the tuberculin test. It is more forcibly stated in the evidence offered by Melvin than from any other source available to me.

Out of the 400,000 cattle tested, it was found that accurate tuberculin tests existed in the percentage of 98.81.

So far as can be learned from reliable sources, tuberculin produces no serious results in the animals, and does not interfere in the milk flow. A physical test cannot be relied upon unless the disease has advanced to such a degree that the animal becomes a very serious menace, not only to the associating animals, but also to the community at large.

Judging from the reports coming from various sources, it is safe to say that it costs 50 cents per head to test cattle with tuberculin. This is under the assumption that the animals are not so widely scattered as to make it difficult for an individual to occupy his entire time. Where the state carries out the disinfection of stables it is estimated that it costs the state about \$1.00 a test.

According to Reynolds, of Minnesota, Wisconsin paid \$60,000 for condemned animals during the years 1907 and 1908, and that 40,993 cattle were tested; consequently, according to these figures, it must have cost Wisconsin at least \$70,000 to test 40,993 cattle. If the number of cattle in Wisconsin is placed at 3,240,000 as recorded by Reynolds, only a little over one per cent of the cattle of the state could have been tested at a cost of \$70,000.

Minnesota is reported by Reynolds to have tested 1,329 registered animals and 25,887 grade animals. Minnesota was allowed in the neighborhood of \$65,000 to meet the expense of the work. The number of cattle tested, as compared with the total number of estimated in Minnesota, is about 0.9 per cent.

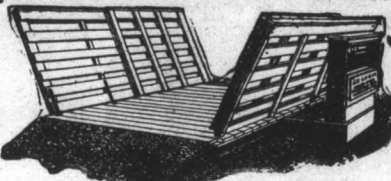
According to Reynolds' figures, Pennsylvania tested in 1906, 5,300 cattle out of a total of 2,000,000. This represents a little more than 0.2 per cent of the cattle of the state. The cost for this work is in the neighborhood of \$25,000 to \$30,000.

These figures do not want to be taken as alarming or in any sense as representing a task impossible, but rather to indicate the stupendous nature of the work that is before us.

We feel safe in saying, (1) that all milk sent to creameries and cheese factories should not be allowed to go back to the farmers in the form of skimmed milk or whey unless thoroly pasteurized. (2) that all stock imported for breeding should be tested by state officials; (3) that, perhaps, carriers, as railroads and steamboats, should not handle breeding animals which are not accompanied by certificates of health; (4) that compensation granted for losses, is a question that should be carefully considered inasmuch as in most states where they have condemned animals they have suffered from reactionary consequences; (5) that no policy should be adopted unless it can be carried thru to the end and no policy should be inaugurated that is to benefit a few at the expense of the many unless great gains are to be obtained in the eradication of the disease.

Angus cattle carried off the honors at the recent Western Live Stock Show held in Denver, where the champion fat steer was a black two-year-old produced by H. W. Moore, of Brush, Colorado. The first prize in the steer herd contest also went to the Angus breed, being won by W. J. Hiller, of Newton, Iowa. Herefords were second in the contest. There was a fine display of feeder cattle, and W. T. Carpenter, of Tarkio, Missouri, paid \$5.50 per 100 pounds for a bunch of six cars of feeder steers that averaged 1,040 pounds.

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The strongest, most durable and accurate scale made. Built more substantially and contains 300 to 500 pounds more material than any other scale. If Indiana Pitless Scales are not the best, why do others try to imitate them? The cost to erect scale ready for service will hardly exceed \$6.00. Complete scale above the ground.

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Every scale guaranteed absolutely U. S. standard for 10 years. For catalog and prices write to
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The Greatest Importing and Breeding Establishment in the World.

Three large importations for 1908, greatly exceeding in numbers those of any other importer and including the tops of all the great breeding establishments of France. Many noted prize winners. Safest guarantee. Most reasonable prices. Remember, that whether you want mares are stallions, colts or matured animals, Oaklawn is today and always has been headquarters for the best. Next large importation to arrive Dec. 1st.

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DEATH TO HEAVES
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A veterinary remedy for wind, throat and stomach troubles.
Strongly recommended. \$1.00 per can. Dealers, or exp. prepaid.
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49 Percent Protein and Fat. Richest cattle feed on No. 11 and prices. F. W. BRODE & CO., Memphis, Tenn.

ONE CASE STEEL SEPARATOR NEW

and Case 16 H. P. engine nearly new. Steel Tank Tender and Wagon, all complete ready for field. A bargain if taken at once. Cash or exchange.
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Eggs for hatching. Price, 15 for \$1.26 for \$1.50; 50 for \$2.50; \$4 per hundred. Satisfaction guaranteed. Colon C. Lillie, Coopersville, Mich.

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125 Egg Incubator and Brooder Both For \$10

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If you had a thousand dollars invested in a horse, would you let him suffer from a bad cough or the heaves? I think not, when you know positively that he could be cured at a very moderate expense. Send me one dollar and receive in return a treatment of

HOVEY'S COUGH AND HEAVE POWDERS,
and if after you have given them a fair trial you are not satisfied with the results, I will cheerfully refund your money.
W. M. HOVEY, Marshall, Mich.

JACKS AND MULES.

Raise mules and get rich. 220 fine large jacks, jennets and mules 14 to 17 hands high, weigh from 700 to 1,500 lbs., good ones. Cheap now. Will pay a part of buyer's R. R. fare and shipping. Stock guaranteed. Write for prices today.
KREKLER'S JACK FARM
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Jack and Jennetts For Sale.

If you want a first class Jack or Jennett at the very lowest prices, visit our barns, for they are full of high class stock, and can sell them to you right, and save you the middleman's profit. All stock guaranteed. Send for my 25 reasons why it pays to raise mules. Address
BAKER'S JACK FARM, Lawrence, Ind.

PERCHERONS for sale. 1 Stallion 4 yrs., wt. 2000. 1 Stallion 10 yrs., wt. 1800. Both black and Reg. sure breeders and Brilliant bred. Right every way; will sell at a bargain if sold soon.
WM. BIRD, St. Johns, Mich.

ONE IMPORTED BELGIAN BAY STALLION, weight 1,800 to 1,700 lbs.; 1 Registered MORGAN Stallion, chestnut, weight 1,200 lbs. Sell or exchange for other property.
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PUBLIC SALE of Aberdeen-Angus cattle, on Wednesday, February 3, at the farm, 2½ miles north and west of Nashville, Mich. Eight head of Prince Itos and others. Will meet trains.
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Herd headed by **UNDULATA BLACKBIRD** ITO 83836, one of the best sons of **PRINCE ITO 50006**, and Grand Champion Bull at the Detroit and Grand Rapids Fairs of 1907 and 1908. Herd consists of **Ericas, Blackbirds, Frides, etc.**
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ABERDEEN ANGUS bulls, cows, heifers. Polled Durhams, milk strain. Bargains, freight expenses to buyers of five head.
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Ayrshire Calves for Sale. A choice lot of a few yearling bulls, bred with greatest care, Berkshire Pigs—stock from Lovejoy & Son and C. S. Bartlett. Write for prices. Inspection solicited.
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HOLSTEIN FRIESIANS—a fine bull calves Royal King. **W. B. JONES, Oak Grove, R. No. 3, Mich.**

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A few young cows soon to freshen, 3 now fresh, 3 bulls and 3 bull calves. Write for what you want.
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We have "Top Notch" young Holstein Bulls that combine in themselves the blood of cows that now hold, and in the past have held, world's records for milk and butter fat.

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HEREFORDS:—Both sexes and all ages for sale. Also Poland-China hogs. **R. E. ALLEN, Paw Paw, Mich.**

RED POLED BULLS, from 6 to 15 months old, sows. **John Berner & Son, Grand Ledge, Michigan.**

JERSEY BULL CALF, born March 10, '08. Dam's average yearly milk record 5 years 8526 lbs.; test 5.4-19.4. Sire's Dams rec. 10062 lbs. as 2-year-old test 5.2-10.4. **Murray-Waterman Co., Ann Arbor, Mich. R. 6.**

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Three young bulls ready for spring service, out of good cows with records of 400 to 500 pounds of butter in a year with only ordinary care. Also a fine lot of young calves. Write for description and prices.
COLON C. LILLIE, Coopersville, Mich.

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T. F. MARSTON, Bay City, Michigan.

CHOICE JERSEYS. Large St. Lamberts. Young stock of either sex for sale.
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MONTREY STOCK FARM. Red Polled Cattle Bulls & Heifers 10 to 14 months. Cows all ages, prices low. **E. BRACKETT, Allegan, Michigan.**

Francisco Farm Shorthorns

Three choice, dark red, richly bred, young bulls, from 8 to 16 mos. old. They are good enough to head pure bred herds and are priced worth the money.
F. P. POPE, Mt. Pleasant, Michigan.

J. B. CROUSE STOCK FARM,

HARTLAND, MICH., breeder of **SHORT-HORN CATTLE.** Have all ages, both sexes. Color—reds and roans. Quality and prices right.

3 Shorthorn Bull Calves, pure bred, about one year old.

ALFRED ALLEN, Mason, Mich.

SHEEP.

ERDENHEIM FARM

SHROPSHIRE

EDWIN S. GEORGE, Owner.

Rams and Ewes for Sale.

WRITE FOR PRICES TO

ROBERT GROVES, Shepherd,

R. F. D. No. 3, Pontiac, Mich.

GO INTO SHEEP RAISING

If you now have a common flock it will pay you to get into better stock. **GOOD SHEEP** are sure money makers for you, besides their wool and lambs the fertilizing and weed destroying benefit to farm is worth all it costs to keep them. For over twenty years I have been improving my flocks of Oxford-downs, Cotswolds, Lincolns and Delaines, until today "Parsons sheep" are known to be among the best in the country, being the largest owner and breeder east of the Mississippi am in position to offer for sale in any numbers, choice dark faced $\frac{1}{2}$ to full blood golden fleeced shropshire ewe lambs at \$9.00 each. Choice full blood ram lambs fit for service \$12.50 each. All are well woolled, good size and of uniform appearance; will accept orders for one or more sheep or car lots, (cash must accompany order for ten sheep or less). You run no risk for if I was not reliable and responsible this paper would not print this notice—order today and you will get a flock you can be proud of. I started with 10 sheep 22 years ago, what I have done you can do.
ROMEYN C. PARSONS, Grand Ledge, Mich.

RAMBOUILLET—Flock founded 1892 with 40 ewes selected from one hundred registered ewes of the best breeding possible. **J. Q. A. COOK, Morrice, Mich.**

SHROPSHIRE HALL STOCK FARM.

We will make special prices on ewes that are bred, also on ewe lambs. We also have 80 high grade Shropshire ewes, 1 to 3 years old, all bred to lamb in April to an imp. Shropshire ram. Price \$6 each if taken soon.
L. S. DUNHAM & SONS, Concord, Michigan.

SHROP. BREEDING Ewes bred to high class rams very cheap now. Also Beef-Milk Shorthorns, and P. C. Swine. M. B. Turkeys. Write today for price list F. Maplewood Stock Farm, Allegan, Mich.

HOGS.

CHOICE FALL GLITS and boar pigs. Right breeding and prices right. Also a few aged sows bred for spring farrow. **A. A. Pattullo, Deckerville, Mich.**

BERKSHIRE SOWS

bred to a great son of **MASTERPIECE** for spring farrow. Also a few extra choice young boars of equally rich breeding.
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Chester Whites. I have 4 boars farrowed in Feby., long bodied, growthy fellows. Also March and April farrow, either sex. Also a choice yearling boar. **W. O. WILSON, Okemos, Mich.**

ADAMS BROS. IMPROVED CHESTER WHITES—Won more premiums in '08 than any other herd in Michigan. 10 choice boars ready for service. Glits open or bred to Junior Champion boar of Michigan. **ADAMS BROS., Litchfield, Mich.**

CHESTER WHITES—Five sows bred for April farrow. Fall pigs of superior individuality. Write for description and price.
COLON C. LILLIE, Coopersville, Mich.

O. I. C. Sows bred to Farrow in April, kept until sure in pig for \$20. Choice lot. **E. E. BEACH & SON, Brighton, Mich.**

O. I. C.'s—ALL AGES. Thirty sows bred for spring farrow. Shipped on approval. **H. H. JUMP, Munith, Mich.**

O. I. C. from premium stock all sold except a few October pigs. Hood's Stone House Stock Farm, H. N. Hood, C. Phone 761-8r., Adrian, Mich.

O. I. C. "PREMIUM STOCK." Choice boars ready for service. ¼ off next 30 days. Glenwood Stock Farm—OPHOLT BROS., Zeeland, Michigan, R. 6. Phone 94.

O. I. C. Spring boars all sold have a few choice glits left to be bred for spring farrow. Satisfaction guaranteed or your money back. **A. NEWMAN, R. No. 1, Marlette, Mich.**

DUROC JERSEYS—A few bred sows for March farrow and April farrow, for sale.
CAREY U. EDMONDS, Hastings, Mich.

DUROC Jersey of size and quality. 40 Boars ready for service. 50 sows at Farmers Prices. Satisfaction Guaranteed. **J. C. Barney, Coldwater, Mich.**

SPECIAL SALE of large, good style, prolific, young and mature Poland China Sows bred to extra heavy boned boars. **Robert Neve, Pierson, Mich.**

P. C. SOWS—Bred to L. & W. Perfection boar. Extra choice and cheap. **WOOD & SONS, Saline, Mich.**

P. C. SOWS of spring farrow, weight 175 lbs. up to 275 lbs. They are the kind that makes buyers money, and they are all bred to the two best boars in Michigan. **BUFF ROCK COCKERELS**, from prize-winning birds, priced to move them quick. All stock shipped c.o.d. **WM. WAFFLE, Jr., Coldwater, Mich. Both Phones.**

Francisco Farm Poland-Chinas Now offering 20 grand young sows to be bred for April farrow. A fine lot of fall pigs. Write for what you want. **Colon C. Lillie, Coopersville, Mich.**

MICHIGAN HEADQUARTERS FOR BIG POLANDS Two herd boars bred by Peter Mouro, for sale. Bred sows, pigs not akin. **J. C. BUTLER, Portland, Mich.**

POLAND-CHINA Glits, bred. Light Brahma, B. P. Rock and White Wyandotte cockerels for sale. **E. D. BISHOP, Route 38, Lake Odessa, Mich.**

Yorkshires—Six splendid young sows bred for April farrow. A fine lot of fall pigs. Write for what you want. **Colon C. Lillie, Coopersville, Mich.**

WHEN writing to advertisers just say "Saw your ad. in the Michigan Farmer."

LIVE STOCK NOTES.

Buyers of feeders in the Chicago cattle market are still showing a decided preference for steers which can be given the minimum amount of high-priced feed and finished off in a few months, altho of late there has been a broadening inquiry also for the lighter-weight feeders and good stockers. Feeder steers averaging around 1,080 pounds have brot \$5.25 per 100 pounds, and limited sales have been made of heavy, well-bred feeders at \$5.50 to \$5.60 for shipment to Ohio. The large demand for these light cattle from killers also makes competition for them keen and explains why they are selling so high. The average quality of the cattle now being marketed is not at all good, but the average demand does not ask for high-grade beefs. Great numbers of cattle have gone from western markets to feeding sections in recent weeks, and there is no danger of a beef famine for months to come. Average prices of cattle are much higher than in former years, and careful feeders are making money, but it is easy to lose in the end by paying at the start too high prices for feeders. A few days ago an order was filled in the Chicago market for two car loads of well-bred feeder cattle that averaged 1,200 pounds at \$5.75 per 100 pounds, being the highest price paid this season. These cattle will be given a short feeding and returned to market. They were already attractive to killers.

Seldom has there been such a fine chance for making big profits on feeding lambs and sheep as at the present time, the amount of feeding in most sheep sections being much less than usual. Lambs naturally hold out the strongest inducements to feeders, as they are far more popular with buyers than are sheep and sell at an extremely high premium all the time. At such a time it is extremely poor policy to market half-fat flocks, as so many sheepmen are doing, as they thereby cheat themselves out of certain liberal profits. It is not generally believed that the best prices of the season have been seen, and it is among the probabilities that \$9 per 100 pounds will be obtained for prime lambs in the Chicago market before grass-fed flocks make their appearance in the market. Sheepmen are still eager to pick up "warmed-up" flocks of lambs, and they have been offering from \$6.50 to \$6.80 per 100 pounds in the Chicago market, but have succeeded in doing very little buying, as killers gobble up nearly everything in sight. Colorado sheepmen are doing much less feeding than usual, the Arkansas Valley being the only exception.

Michigan sheep and lamb feeders have been obliged by the Illinois quarantine against Michigan to market their stock in Buffalo recently, and they have been heavy losers thereby, as Chicago prices were much higher than those paid in Buffalo. Owing to the glut at Buffalo, prices were on the down-grade there at times that the Chicago market was on the up-grade. All this has worked in favor of eastern sheepmen, and Ohio feeders have been sending their flocks to the Chicago market with unusual freedom. Iowa farmers also have found the Chicago market an exceedingly profitable one for their flocks, and such has been the scarcity of fat muttons that half-fat stock has been sold extremely high. The receipts of sheep and lambs in western markets, several weeks ago so liberal that prices were most of the time declining, have been very small of late, and unusually high prices have prevailed, especially for choice lots.

Ira W. Griswold, of Grant county, Wis., sold on the Chicago market recently a consignment of 259 head of choice fed western lambs averaging 80 pounds at \$8 per 100 pounds, the highest price at that time. These lambs were bot in the Chicago market the first day of last October at \$4.75 per 100 pounds, and were fattened in standing corn, supplemented with clover hay hauled to the fields after frost appeared. For the one hundred days the lambs made a gain of 21 pounds net from purchase to sale weights, and after paying all expenses, barring feed, they doubled in value. Mr. Griswold fed 2,400 lambs in the same manner last summer, and none put on less than 20 pounds gain. The day he sold his \$8 lambs in the Chicago market he bot two car loads of feeding steers for spring feeding on grass.

Every week sees the hog market on a firmer basis and the prospects more remote than ever for a realization of the plans announced by the Chicago packers some time ago for putting the price to a \$5 basis. What has done more than anything else to bring about more favorable conditions for sellers is the greatly increased eastern shipping demand resulting from the lack of any considerable supply of hogs in eastern sections and compelling eastern packers and butchers to look to the west for fresh supplies. The east is buying, as usual, the choicer class of hogs, leaving the commoner class of hogs for the western packers. Chicago packers are paying the ruling prices reluctantly, yet they are glad to put up provisions at present figures, apparently having no misgivings as to the future of the market for product. The recent cash demand for provisions has been unusually large on domestic account, and exporters are once more looking favorably on our surplus products, despite the unusually high prices.

As the winter season advances the demand for cattle runs even more strongly on fat little yearling steers and heifers that do not come too high, and the extremely small offerings of long-fed heavy cattle fully suffice to meet the limited requirements of buyers. Recent top sales have been 50 cents per 100 pounds or more lower than a month ago, while other kinds of cattle have been advancing in price. As things are now, there is mighty small encouragement for producing heavy beef cattle, and stock feeders generally are acting accordingly, fully realizing that the way to make money quickly is to feed cattle a short time, making them fat by skillful feeding.

VETERINARY

CONDUCTED BY DR. W. C. FAIR,
CLEVELAND, OHIO.

Advice thru 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. In acute cases, where we believe that immediate treatment will be necessary, reply will be made by return mail, free.

Mange.—I have a horse about 16 years old that rubs himself almost continually. He has rubbed so much that the hair is nearly all off back of his ears. What shall I do for him. T. A. W., Traverse City, Mich.—Give ½ oz. Fowler's solution at a dose in feed two or three times a day, and apply 1 part coal-tar disinfectant and 15 parts water to sore parts of body once daily.

Foot Soreness.—Can anything be done to relieve a horse that has been sore and stiff for a long time? It was brot on by eating too much grain. Her shoulders are not alike. S. C. B., Bayport, Mich.—I am somewhat inclined to believe she was foundered from eating too much wheat. Blister coronets once a week, apply cerate of cantharides.

Mange.—Calf has some sort of skin disease about his eyes and neck, the hair falls off in patches. O. D. L., Oxford, Mich.—Apply one part coal-tar disinfectant and three parts vaseline to sore parts of skin daily until a recovery takes place. Also give a teaspoonful fluid extract sarsaparilla at a dose in feed twice a day.

Cow has Warts on Teats—Stifle Ailment.—I have a cow that has a great many warts on udder and teats and would like to know how to take them off? I also have a horse that backs with difficulty; am sure his trouble is in stifle joint, the joint does not slip out but his leg locks. G. H. G., Caledonia, Mich.—Apply acetic acid to warts and clip off those that have long necks. Give 2 drs. sulphur at a dose in feed twice daily. Blister stifle lightly, using cerate of cantharides and it will strengthen ligaments of stifle, for they are weak.

Ozena.—My 9-year-old mare has been sick for the past two months; she has a heavy discharge from both nostrils. She is not swollen in glands. Had her examined by two different Vets. They are unable to tell what ails her. S. B., Fremont, Mich.—Your mare suffers from ozena—give ½ oz. powdered sulfate iron, ½ dr. powdered sulfate copper at a dose in feed two or three times a day. She should be well fed, kept in a warm, well ventilated stable and exercised some every day.

Chronic Stocking.—I have a mare that stocks in both hind legs when standing in stable. However, this swelling of the limbs leaves soon after she is exercised. I am told that she has always stocked during the winter months. H. S., Kalamazoo, Mich.—No perfectly healthy horse should stock when standing in stable over night. Stocking is not a disease but a result of other ailments. Give 4 drs. powdered rosin at a dose in feed twice a day for ten days, then once a day until well; bandage in cotton and feed enough well salted bran mash or vegetables to keep the bowels open and active.

Weak Back—Sluggish Kidneys.—I have a mare that seems to be weak in her kidneys and stocks in both hind legs. When she gets down she is unable to get up without help. She is bright, has a good appetite and is in foal. Have given her buchu leaves in feed but it fails to do any good. Any advice you give me will be thankfully received. L. O. B., Baldwin, Mich.—Your mare is weak in back and her kidneys are torpid. Give 2 drs. powdered rosin, ½ oz. gentian, ½ oz. ginger and ½ dr. ground nux vomica at a dose in feed two or three times a day; also apply equal parts alcohol, spirits camphor and bay rum to back three times a day. Feed her some vegetables to keep her bowels open.

Cough—Kidney Disease.—Kindly tell me what to do for my hogs. They have a cough and within the last week two of them have died and in looking them over I find that they are swollen about sheath and belly—the skin being the color of hard tempered steel. C. M. C., Homer, Mich.—Give each full grown hog a teaspoonful ground ginger and two-thirds of a teaspoonful of powdered rosin at a dose in feed night and morning. Their bowels should be kept open by giving them either 1 oz. doses of castor oil or an ounce of sulfate of magnesia at a dose daily. I suggest that you feed them more vegetables and less grain for a few days; besides, oblige them to exercise some daily.

Indigestion.—I bot a sheep last fall that was thin and scoured some. The man who sold him to me said it was caused from running in a corn field and over-eating. He does not scour but seems cold and humped up and out of condition. A. B., Jones, Mich.—Give sheep a teaspoonful tr. gentian and a teaspoonful tr. cinchona at a dose twice a day. Feed some ground oats and clover hay.

Tough Milking Cow.—What can be done to make milking of a hard milking cow easier? W. C. H., Adrian, Mich.—Use two milking tubes at a time; if you do not own these instruments the Lawrence Publishing Company can supply you and save you some money. We deliver a 2½ inch for 25 cents, a 3-inch for 30 cents and a 3½ inch for 35 cents. Before ordering, measure teat, be sure and get them long enough.

Spasm of Larynx.—Being a subscriber, and seeing your veterinary column full of good prescriptions for alling stock, I would like to learn what you think ails my pigs? They are well fed, and in good condition. Their ration consists of corn meal and shorts with milk and a light

(Continued on page 109).

Farmer Jones Talks On Wire Fence Buying



No. 1—All Strong Fence

YOU want to use your memory as well as your eyes when you buy wire fence. Remember the wire fences you have seen that were rickety eye-sores after they have been up only a few years.

Ask yourself about the cause and whether there is a remedy.

Then think whether the fence you are looking at may not become just that kind of a fence too after a while.

I go in for the big wire fence every time.

The size of the wire is really the very first consideration. I want big wires and I want them all big.

Consult your own experience.

It is the same as mine. You know as well as I do that your fence is no stronger than the weakest wire in it.

When a little wire snaps, there is a hole. The fence is weaker at that point and the hole invites attack. When your animals find a weak spot or place where they can get their heads through, you don't need to be told how fast the fence goes to pieces.

It's the little wire that starts it going. The little wire is just a kind of a bluff in a fence—put in for a filler, a cheap substitute. But the bluff don't go with a breachy bull. It doesn't go with any animal when there's a hole in the fence.

My way is not to try to bluff—not to put in little wires. I want every wire to mean something.

* * *

But there's a better reason why I want big wires—all big wires.

Rust is the great enemy of wire fence.

It destroys more fence every year than all the rooting, horning, jumping animals in the world.

What's the life of little wires compared with big ones when rust gets a hold?

Consult your own experience again. Recall some of the little wire and some all big wire fences that are five or more years old. You will have your answer.

With the big wire, there's something to work on. There's a substance there that takes time for the rust to eat away.

With the little wire the rust hasn't any more than got started until it's gone.

The little wire fence is soon gone. The big wire fence lasts. There are years and years difference in the life, but there's not very much difference in the first cost. I choose to pay just a little bit more by the rod at first, and get a good deal more at the last.

* * *

Is my reasoning good?

There's another trick worth knowing.

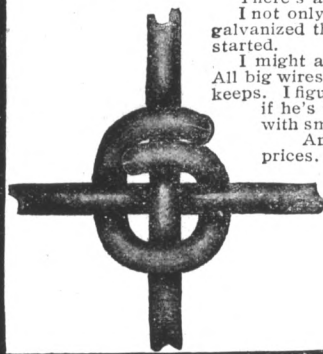
I not only use all big wires, but I buy the kind that are so heavily galvanized that it's a mighty long time before rust can ever get started.

I might as well tell you the whole truth. I buy Empire Fence. All big wires. All No. 9. It's all strong and it's galvanized for keeps. I figure I get two lives in my fence to the other fellow's one, if he's using all small wires, or large top and bottom wires with small filler.

And I buy it right straight from the factory at factory prices. So I pay but little, if any more than my neighbor does for his small or mixed wire fence. I'm away ahead.

You can get a free sample and factory prices on the kind of fence I'm talking about—"Empire, All No. 9 Wire"—if you write to the Bond Steel Post Company, 16 East Maumee St., Adrian, Michigan.

Farmer Jones

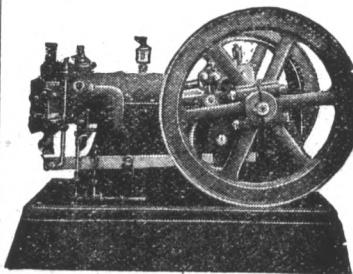


It is hard to appreciate the strength and solidity of

THE FROST WIRE FENCE

unless you have seen a string of it already erected. The Frost is the original Coiled Spring Wire Fence, made from Heavy High Carbon Steel Wire and warranted to last a lifetime. The only fence that provides for a uniform contraction and expansion, and consequently the only fence which successfully resists the action of heat and cold. Factory woven and Field erected. Best and cheapest fence made. Free catalog describing Fences and Gates sent on request.

THE FROST WIRE FENCE CO.
DEPT. C, CLEVELAND, OHIO



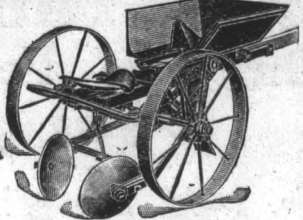
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The Gasoline Engine that combines QUALITY, DURABILITY and ECONOMY. A perfect farm power. It will lessen your work and increase your income. It will pump water, grind feed, churn, run a separator, saw wood, bale hay, shell corn and is adaptable to many other purposes. In Stationary from 3 to 50 H. P., Portables, all sizes. Send for our Picture Book Catalog—Free.

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Market.
Thousands
In Use.



No Farmer who raises an acre of potatoes a year can afford to be without this machine. Write today for circular and prices. Satisfaction guaranteed.

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is our new book for the use of poultry raisers. Keep account of your eggs, chicks and profits. Our Diary shows how and also tells about our new Incubators. It tells why our prices are so low. The Diary is free. Better write for it today. Tell us if you are thinking of buying an Incubator and what size you want. We pay freight. Geo. Ertel Co., Quincy, Ill.

DIG A HOLE IN A JIFFY WITH IWAN PATENT POST HOLE AUGER

NO MORE BLISTERED HANDS, tired backs, picks, spades or shovels. This low-priced implement bores through wet or dry clay, sand, gravel or gumbo; always sharp—easily lifted and unloaded. Write for "Free Book." Learn all about this wonderful tool and we will tell you where to see one. Address: IWAN BROS., Dept. U, South Bend, Ind.

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HEAVY SINGLE WIRE. STRONG. DURABLE. The only absolutely successful single strand barb wire ever made. M. M. S. Poultry Fence Saves 50% We make the most complete line of Field, Hog, Poultry and Lawn Fencing in the country. Write for our new catalogue. **DEKALB FENCE CO., - DEKALB, ILL.** Southwestern Office and Warehouse, Kansas City, Mo.

BROWN FENCE

The heaviest, strongest, best galvanized fence made. A more substantial, stock-resisting, time-defying fence was never stapled to posts. Free samples with catalogue showing 150 styles at prices from 15c per rod up and full particulars—free on request. **WE PAY FREIGHT** We will send you a sample of our all No. 9 wire fence. You can test it any way you like. File it and see how thick the galvanizing. The "BROWN" will commend itself to you. It is the best. Free Catalogue. **The BROWN Fence & Wire Co., Dept. 49, Cleveland, Ohio.** **SAMPLE FREE**

FARM FENCE 16 cts. a rod

For a 26-inch high Hog-tight Fence. Made of heavy wire, very stiff, strong and durable; requires few posts. Sold direct to the farmer on 30 DAYS FREE TRIAL. Catalogue free. **INTERLOCKING FENCE CO., BOX 30, MORTON, ILLINOIS.**

FENCE Strongest Made

Made of High Carbon Double Strength Coiled Wire. Heavily Galvanized to prevent rust. Have no agents. Sell at factory prices on 30 days' free trial. We pay all freight. 37 heights of farm and poultry fence. Catalogue free. **COILED SPRING FENCE CO., Box 21, Winchester, Indiana.**

15 Cents a Rod

For a 22-inch Hog Fence; 16c for 26-inch; 19c for 31-inch; 23 1-2c for 34-inch; 27c for a 47-inch Farm Fence. 50-inch Poultry Fence 37c. Lowest prices ever made. Sold on 30 days trial. Catalogue free. Write for it today. **KITSELMAN BROS., Box 278, MUNCIE, IND.**

FENCE 13c Up Per Rd.

Get our 1909 prices on any style fence. We sell direct, you get all dealers' and jobbers' profit when you buy direct from our factory. Write at once. **Anchor Fence & Mfg. Co., Dept. L, Cleveland, O.**

LAWN FENCE

Many designs. Cheap as wood. 32 page Catalogue free. Special Prices to Churches and Cemeteries. Coiled Spring Fence Co., Box 1, Winchester, Ind.

WARD FENCE Farm and Old fashioned galvanized. Elastic spring steel. Sold direct to farmers at manufacturers prices. Write for particulars. **Ward Fence Co., Box 544, Decatur, Ind.**

POULTRY AND BEES

HOW HE HAS MADE A SUCCESS WITH TURKEYS.

How often we hear people say that they are not going to try to raise any more turkeys because they are difficult to rear. At the same time others are raising large flocks every year and at a good profit. There are several reasons why many are not successful turkey raisers. I think the main reason is carelessness in selecting the breeding stock. Many sell their large early-hatched birds to supply the holiday trade, because these fowls weigh most. Then they will use the small late-hatched ones as breeders, and wonder why the eggs do not hatch strong, healthy poults. There is no class of poultry in which vigor and mature breeders count for so much as in the turkey.

As spring approaches we mate from ten to fifteen females to a tom at least a year old, and have never been bothered with weak poults. It is planned to have half of the hens old ones, as their eggs hatch better, tho they will not lay as many as the young hens. I raise nothing but the White Holland and would ask for nothing better in the way of breed; they require less range than other varieties, are plenty heavy for our markets here, and when dressed present a fine appearance as there are no black pin feathers.

Near the close of the cold season the turkeys are mated and confined to an orchard containing about four acres, where they are kept until the young turks are old enough to forage. An open shed serves as a shelter, and they are fed here every night to induce them to come here to roost. Boxes and barrels are scattered around the orchard in secluded places, straw being put in them, and the hens will generally take to them for their nests. The eggs are gathered every day and china eggs put in their place to keep Mrs. Turkey from changing her nest. As the eggs accumulate we set them under chicken hens. When hatched the poults are given to a turkey hen if one is broody at that time; if not, the chicken hen is allowed to raise them, tho they do not make as good mothers as the turkey but for sitting I like them better. If a turkey hen wishes to sit, after laying a cluster of eggs, we break her up by putting her outside the orchard. She soon gets over her broody spell and is put back to lay another cluster, which we let her hatch and raise the poults. A third cluster is not desirable, as the poults do not do well when hatched so late. They do not attain a marketable size in time for the holiday demand, nor do they mature enough to make good breeders.

I have failed to mention that during the breeding season we feed nothing but oats to our turkeys, and not too many of these, as a fat turkey never lays fertile eggs. Oyster shells and grit are supplied the same as for other poultry. When the poults are hatched we leave them on the nest until 24 hours old, when hen and turks are moved to a pen made of foot boards stood on edge, making a pen 12 ft. square with a shelter in one corner. This is put on grass and moved every few days. The hen is not confined at all, but will not go far from the pen and will be a better mother than when confined. The first feed is fine grit and stale bread moistened with milk and well seasoned with pepper. Feed only what will be eaten up clean, giving it about three times a day and keeping milk or water before them at all times. When taken from the nest the hen and poults should be dusted well for lice. A little kerosene and lard applied about the head, under the wings and around the vent will generally rid them for awhile.

As the weather grows warmer and the poults get larger they are given the run of the lot, being fed only at night to bring them home to roost. The food now consists of bread and middlings, moistened but not sticky, and ground oats. Most of their living from now on they will pick up themselves. In the early fall corn is fed gradually until, towards the holidays, they should be getting all they will eat up clean, with a feed of oats once in a while for variety. As the frost kills the vegetation it is well to feed twice a day, as the insects and seeds are not so plenty as earlier in the season.

Do not feed new corn until it is well matured or you will lose your year's crop from indigestion. Do not try to keep the

young poults in too close confinement after getting them started. Their natural instinct is to roam, and they will be stronger, harder stock after it. After six weeks old give them the run of the farm and you would be surprised at the quantity of weed seeds and destructive insects they will devour in a day's travel, but always learn them to come home for the night.

The Thanksgiving market is generally the best, but there will be some that will not be ready until Christmas. I have sold in many different ways, but get the best prices when selling direct to the consumer. Go to the people of your town and find out if they intend to have turkey for their feast; if so, convince them that your turkeys are better than the general run, and that you would like them to try one. Talk quality; when price is asked advance it 3c to 5c above the market price and agree to refund the money if the bird is not worth it. To get this extra price you must take considerable care in dressing and cooling, and the fowl should be delivered wrapped in clean paper in a business-like manner. Once these customers find that your product is above the average you will have no trouble to find a market, and you can set your own price, as long as the quality of the goods will warrant it. Do not sell your best specimens. Keep them for your next year's breeding stock or your turkey crop will be a disappointment to you and you will find yourself among those who claim there is no money in turkeys.

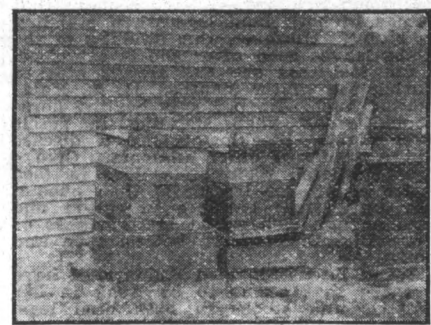
Kalamazoo Co.

W. R. FARMER.

BEEKEEPING FOR THE AMATEUR.

A Profitable Side Issue for the Farmer.

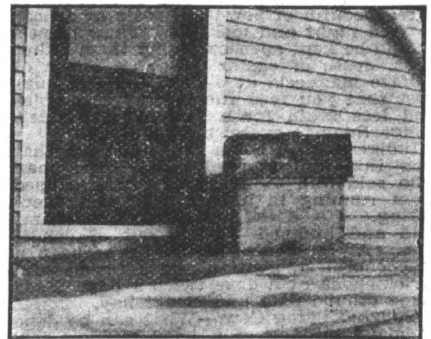
To watch a professional beekeeper working among his bees, removing the well-ripened honey from the hives, all squarely built in the little sections as only the bees themselves know how, is a sight likely to create in the observer a desire to handle bees for himself and secure at first hand for his family that sweet of all sweets. To say the least, the operation is highly fascinating. Without question there are many localities in which a few colonies of bees



An Unused Corner of the Yard will Accommodate a few Colonies.

would do well and furnish the owner an abundant reward for the little care which they require. In fact, there are few sections where the usual farming operations are carried on which will not support at least a small apiary, while under favorable conditions and with intelligent treatment there are few investments more profitable.

The question of locality, then, for a small apiary is not a serious one. The personal equation, the adaptability of the would-be beekeeper to the work, is far more important. If he is cool and clear-



Even the Flat Porch Roof will do, but More Shelter is Needed in Winter.

headed, able to stand the saucy taunts of an occasional enraged bee as it buzzes outside his veil as he works, if he can act quickly, yet without that apparent nervousness so annoying to the bees themselves, and has a liking for the work, he has the first qualification. If in addition he is willing to make a thorough study of the subject and is a keen observer of details he may succeed. At

Weak Little Boys

may become fine strong men. Some of the strong men of to-day were sickly boys years ago. Many of them received

Scott's Emulsion

at their mother's knee. This had a power in it that changed them from weak, delicate boys into strong, robust boys.

It has the same power to-day. Boys and girls who are pale and weak get food and energy out of **Scott's Emulsion**. It makes children grow.

Send this advertisement, together with name of paper in which it appears, your address and four cents to cover postage, and we will send you a "Complete Handy Atlas of the World" :: :: **SCOTT & BOWNE, 409 Pearl Street, New York**

MORE CHICKS INSURABLE INCUBATORS

In addition to being recognized as the World's Best Hatcher of stronger chicks than any other, **CYPHERS FIRE-PROOFED, INSURABLE INCUBATOR** for 1909 bears the Insurance Label without which you cannot get insurance on your buildings. Take no risks. Buy no machine without the label. Our 212-page Free Book tells all about it. Write today. **CYPHERS INCUBATOR COMPANY, Buffalo, N. Y.** Boston, Mass.; New York City; Chicago, Ill.; Kansas City, Mo.; Oakland, Cal.

CUT PRICES!

240-Egg Incubator, \$10.00.
120-Egg Incubator, \$7.50.
100-Chick Outdoor Brooder, \$5.50.
100-Chick Indoor Brooder, \$4.50. Why pay double these prices for machines that are no better? Get our Free Book—learn how we can sell at such low prices. Book is full of pictures; tells how to raise poultry. **Poultry Book** **Reliance Incubator Co., Box 563, Freeport, Ill.**

Hatch With the Least Cost Per Chick

That is what we guarantee you can do with the **Invincible Hatcher**. Try it and if it doesn't produce more strong, healthy chicks than any other incubator, regardless of price, send it back. 50-Egg Size Only \$4.00. Same low prices on larger Hatchers, Brooders and Supplies. Write to 176-page FREE catalogue. **The United Factories Co., Dept. X22, Cleveland, O.**

Hatch Chickens by Steam

Stahl "Wood-on-Hen" and "Excelsior" Incubators assure big hatches. Well-built, reliable, practical—thousands in use. Catalogue free. **GEORGE H. STAHL, Box 50, Quincy, Ill.**

SHOEMAKER'S BOOK ON POULTRY

and Almanac for 1909 contains 220 pages, with many fine colored plates of fowls true to life. It tells all about chickens, their care, diseases and remedies. All about incubators and how to operate them. All about poultry houses and how to build them. It's really an encyclopedia of chickendom. You need it. Price only 15c. **C. C. SHOEMAKER, Box 594, Freeport, Ill.**

Michigan Best White and Golden Wyandottes, Barred Rocks, Rhode Island Reds, Rose and Single Comb White, Brown, Buff Leghorns, S. S. Hamburgs, Bronze, White and Buff Turkey Toms, \$4.00 each. Toulouse, Embden, Gray African, Brown and White China Geese. All varieties of ducks. E. J. HASKINS, Pittsford, Mich.

Barred Plymouth Rock cockerels and pullets. Good color, size and shape. Cockerel and pullet matings. Eggs in season. W. C. Kempster, Coldwater, Mich.

MAMMOTH BRONZE TURKEYS, beautiful plumage, standard bred. **MRS. THOS. WYCKOFF, Rambouillet Farm, Orchard Lake, Mich.**

BUFF ROCK COCKERELS—Healthy, handsome. Farm raised. Good size and color. Price \$1 up. **WILLIS S. MEADE, R. No. 3, Holly, Mich.**

FOR SALE—20 White Wyandotte Cockerels \$2.50, \$3.00 & \$3.50 each. From vigorous and good laying stock. **A. Franklin Smith, Ann Arbor, Mich.**

R. C. BROWN LEGHORN COCKERELS, and pullets. Standard breed. Farm Range birds. \$1 and \$1.50 each. **J. R. Inskeep, Holly, Mich.**

S. C. Brown Leghorns. Only 50 cockerels, 25 pullets left for sale. Best birds on earth for the farmers. Order to-day. Satisfaction guaranteed. **FRED MOTT, Lansing, Mich.**

SILVER, Golden and White Wyandottes. A nice lot of good cockerels still left. Satisfaction Guaranteed. **C. W. Browning, Portland, Mich.**

Single Comb Black Minorca Cockerels for sale. A few choice pullets also. **R. W. MILLS, Saline, Mich.**

Breeders. Black Minorca, Buff Orpington, R. I. Red \$1 & \$2 while they last. Red cockerels and pullets. **Edwin R. Cornish, Edwardsburg, Mich.**

DOGS.

FOX AND WOLF HOUNDS of the best English strains in America; 40 years experience in breeding these fine hounds for my own sport. I now offer them for sale. Send stamp for Catalogue. **T. B. HUDSPETH, Sibby, Jackson Co., Mo.**

COLLIES—Bred bitches and puppies for sale. Stud dogs for service. **W. J. ROSS, Rochester, Mich.**

TELL the advertisers when writing that you saw their ad. in the Michigan Farmer.

least, he will be warranted in purchasing a single colony, or perhaps more. A year or two only will be required to prove the experiment a failure or a success. If the former, the investment is not large; if the latter, it may be added to as desired.

The following suggestions are given for those who may wish to start an apiary:

When to Buy.

If you are near an apiary, a colony can usually be procured most cheaply at swarming time, (May or June). The usual custom is to furnish the hive and have the apiarist put a new swarm into it. It can then be removed at night and if taken a mile or more away there will be little danger of the bees returning to the old apiary. Such a colony should make enough honey during the season to carry it thru the winter and in a good season considerable surplus honey. Bees may also be shipped from a distance at this time if the weather is not too warm. Occasionally good, strong colonies may be got in the fall after the season is over. The purchaser, however, runs the risk of wintering, which is great. In the spring, if vigorous colonies are to be had, a higher price will have to be paid. They will, however, yield the purchaser a second swarm in a favorable season which,

market, few of which are patented. Don't buy a patented hive. Beekeepers have their choice as to the kind of hive and some use different styles for comb and extracted honey. Usually it is the best plan to use hives for which supplies may be most readily procured and to have all hives alike so that the frames may be interchangeable. The Langstroth hive is the one most commonly used. It can be got of almost any dealer and is very simple. It is best to buy the first hive. After that, is one has time and a little ingenuity, he can make up the summer's supply of hives during the stormy days of winter.

For the farmer or fruit grower there are few side issues which can be carried on more profitably and with so small an investment of money, time and labor, as beekeeping when rightly managed. It requires his careful, personal attention during the swarming season and when the honey flow is heaviest, yet it does not seriously interfere with his other work, a few minutes every few days being all that is required except to hive the swarms. Even this may be controlled to a large extent by artificial swarming.

Like gardening it borders on the intensive rather than the extensive method of agriculture. It is a fascinating occupa-



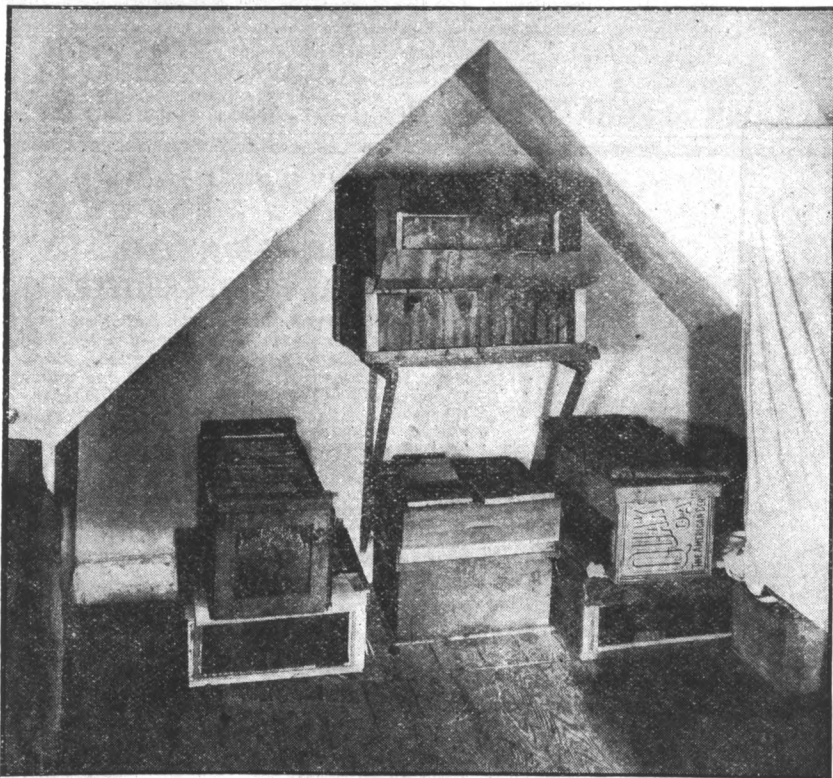
An Attic Apiary within two blocks of the State Capitol which Produces from 100 to 200 lbs. of Honey per Colony each year.

if he is able to hive successfully, will start the increase of the apiary.

What Kind to Buy.

Two kinds of honey bees are now common in this country, viz., the common or black bee, and the Italian. There are also hybrids of the two in varying degrees. The Italian is the larger of the two, is lighter or yellower in color, is easier to handle and by far the best honey gatherer. A pure Italian colony may be hard to get, but a hybrid colony will be

tion, inviting and requiring study, necessitating but a small investment and but little ground space. Almost any waste spot may be used for the apiary, provided it is dry and the rubbish kept down. An unused corner of the back yard, a vacant shed or barn, or even the attic of the house, may be utilized. The work of putting up sections, building hives, etc., may be done on stormy days when outside work cannot be done. The bees are of inestimable value in assisting to fertilize



An Attic Apiary Requires no Extra Protection in Winter. Less Expensive Hives may be used as they are Protected from the Weather.

better than the common blacks. The amateur will have to rely almost wholly upon the honesty of the apiarist in this matter but should request a pure Italian colony, or one as nearly so as possible.

Kind of Hive.

There are several good hives in the

fruit blossoms and, finally, they yield a table delicacy second to none and a source of income gleaned from your neighbor's garden as well as your own while doing him a service which he should appreciate.

Agri. College.

W. J. WRIGHT.

Great Fences

AMERICAN FENCE

Made of wire that is all life and strength — wire that stretches true and tight and yields just enough under impact to give back every jolt and jam it receives.

Made of materials selected and tested in all the stages from our own mines, through our own blast furnaces and rolling and wire mills, to the finished product. Our employment of specially adapted metals is of great importance in fence wire; a wire that must be hard yet not brittle; stiff and springy yet flexible enough for splicing—best and most durable fence material on earth.

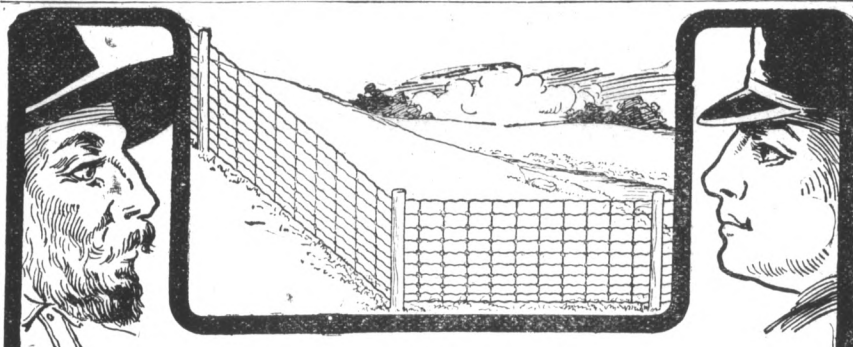
To obtain these and in addition apply a quality of galvanizing that will effectually protect against weather conditions, is a triumph of the wiremaker's art.

These are combined in the American and Ellwood fences—the product of the greatest mines, steel producing plants and wire mills in the world. And with these good facilities and the old and skilled employees back of them, we maintain the highest standard of excellence possible for human skill and ingenuity to produce.

Dealers everywhere, carrying styles adapted to every purpose. See them.

American Steel & Wire Co.
Chicago
New York
Denver
San Francisco

ELLWOOD FENCE



Down Hill or on Level

ANTHONY FENCE is erected without difficulty, and the stays are parallel with the posts on slope or hillside, same as on level land.

Every farmer who has Anthony fence says that the Anthony knot Stands Alone when a fence buyer learns of its merits. A strong, smooth, compact knot.

No Kink in the Line Wire Inside the Knot

Made from tough wire in an Anthony machine. There is but one Anthony knot and it is in the **ANTHONY FENCE** the **ONE** "Best Fence on Earth." Made for anything of any size that needs to be fenced, and by a concern that knows how to construct a fence for service. The best of everything that enters fence construction is in the Anthony. Equal length of line wire guaranteed. Let us tell you more about it. Write for our booklet today.

The ANTHONY FENCE CO.,

19 Michigan St.,

Tecumseh, Michigan, U. S. A.

See That Knot

The Anthony Knot Souvenir Hat Pin shown below, mailed free. The head is an exact Anthony knot as it appears in the fence.

FREE

Made from copper wire, silver plated. See the knot yourself, and get a hat pin for a member of your family.

See That Knot

No expense—just make the request.

THE DAIRY

CONDUCTED BY COLON C. LILLIE.

CORN MEAL WITH CORN SILAGE.

I want to make up a good balanced ration for cows giving milk. Oats are worth 55c per bu., corn 70c, and wheat bran \$26 per ton. I have 20 bu. of peas that are worth \$1 per bu. I will feed ensilage night and morning and will feed pea straw at noon. There is considerable corn in the ensilage.

Leelanau Co. J. D. P.
You are not practicing the right principles in feeding corn meal in connection with corn silage that contains a good proportion of ear corn. You have a the silage that you need and cannot balance a ration, or make a balanced ration, by feeding corn meal with corn silage. It is like carrying coals to Newcastle. You have all the carbohydrates in the ration that you need. What you want is a concentrated grain food, rich in protein, to help balance up the wide ration of the corn. The pea straw, of course, is a good roughage food for the cows. It is not as good as clover hay because it is not as palatable; but you could use at least one feed of pea straw a day, but I would prefer to have a good, liberal feed of clover hay with it.

Oats at 55c make a very expensive ration and you can't afford to feed them. Also, as in corn, the per cent of protein is not high enough to balance this ration. I would sell the corn and the oats and buy cottonseed meal and oil meal to feed with the wheat bran. Or, if you think that the wheat bran is too high, as it certainly is when compared with oil meal and cottonseed meal, I would simply feed cottonseed meal and oil meal. To my own cows this winter we are feeding all the clover hay and shredded corn fodder they will eat up clean as a roughage; then we feed 30 lbs. of corn silage a day, and for a grain food we use 2 lbs. of cottonseed meal and 2 lbs. of oil meal. This is the ration for the best cows. Those that do not give so much milk receive a somewhat smaller amount of grain.

At \$1 per bu. you cannot afford to feed the peas, but had better sell them and buy cottonseed meal. To illustrate: peas contain about 22 per cent of protein, consequently, 20 bu. of peas would contain 264 lbs. of protein. This is worth \$20. Hence 1 lb. of protein would be worth 7.6c. Cottonseed meal contains 41 per cent of protein, or a ton would contain 820 lbs., which is worth \$30; thus 1 lb. of protein in cottonseed meal is worth 3.6c, showing that a pound of protein in cottonseed meal is 4c cheaper than in the pea meal. Therefore it would pay you to sell your 20 bu. of peas for \$20 and take the \$20 and buy cottonseed meal for the cows. If I was going to feed cottonseed meal I would not make the entire grain ration of it but would prefer to do as I am doing, feed cottonseed meal in the morning and, in the evening, linseed meal or oil meal. This gives more of a variety and is better. While the linseed meal will cost a little bit more, for the sake of getting a variety and not having too much cottonseed meal, I believe it will pay to buy it.

THE BUTTER WILL NOT COME.

I have two cows, one coming fresh in March and the other in June. Have failed to get butter from their cream for some weeks. Churn at temperature of 70° and have churned as long as two hours without getting butter. Cream becomes foamy and looks like whipped cream. I feed cornstalks and bean straw at noon and a few sugar beets at night. Antrim Co. PETER WIELAND.

Here is another case where there is trouble in getting the butter-fat in the milk to gather in the form of butter from stripper cows. As I have stated before, we always have several inquiries during the winter with regard to this difficulty. Sometimes a poor ration and improper care and handling of the milk and cream will cause much of the trouble; but I am inclined to think that in a majority of instances it comes from cows that are well along in the period of lactation, or from strippers. About the only advice that I can give is to scald the milk, or pasteurize it. Before setting the milk in pans or in the creamery put it on the stove in pans and allow it to stand there until it gets real hot but do not allow it to boil; then set it away for the cream to rise. In most instances this will put the butter-fat in condition so that it will separate from the cream when it is churned.

I am inclined to think that you are a little at fault in not feeding a good ra-

tion to the cows. Cornstalks and bean straw, with sugar beets at night, do not make a very good ration. Of course, for the cow that is coming fresh in March you cannot do much, because the time is too short. The cow that isn't coming in until next June ought to give milk until April or May, and I would advise that you get corn meal and wheat bran, mix them half-and-half by weight, and give this cow 3 or 4 lbs. at first. Probably you can increase this to 5 or 6 lbs. per day. Then the cow that is coming fresh in March ought to have a little grain because it will put her in better shape to give milk when she comes fresh, and if you do not get your pay for your feed now, you will then, because the grain ration fed at this time will have an accumulative effect and you will surely get your money back when the cow comes fresh.

AUXILIARY DAIRY MEETINGS.

During the week of Jan. 10 two auxiliary meetings of the Michigan Dairymen's Association were held, one on the 13th and 14th at Tecumseh, Lenawee Co., and one on the 15th and 16th at Salem, Washtenaw Co. Besides state speakers, local speakers participated in the program, making two very interesting meetings. State Analyst Robison, at Tecumseh, gave a very interesting lecture on "Tuberculosis, and how the state should attempt to control it," while at Salem he talked on the enforcement of the dairy and food laws. Prof. Shaw, of M. A. C., gave a very interesting lecture at Tecumseh on breeding up, or improving, the dairy herds of the state. He said the only practical way is to purchase dairy sires for use on the best cows in the herds now owned. Then select animals from their offspring and breed them to a dairy sire of the same breed. In a few years a great change will be manifest in the character of the dairy cows. He recommended the formation of bull associations so that the farmers of a community could own bulls collectively, thus making it unnecessary for each individual farmer to make such an investment.

At Salem, Dr. Marshall, of the College, gave a very instructive lecture on "Contagious Abortion in Cows." He said that this disease is causing more loss to the farmers of the state of Michigan than tuberculosis or any other disease that he is aware of. He said it is more prevalent than a great many people realize. It is a disease that until recently was not very well understood.

Dr. Marshall also talked on tuberculosis. He does not hold a very positive opinion on the question which is being discussed very thoroly in the state just now, viz., as to whether the state should pay for cows destroyed because affected with tuberculosis. The greatest difficulty, in the matter is that we cannot see how this is going to terminate, as there is a possibility that if all the cows in the state were tested and the state compelled to pay for those condemned, it might swamp the state.

At Salem much interest was manifested in the idea of a co-operative cow-testing association and an effort will be made by the leading dairymen there to organize such an association in the near future.

Some Future Auxiliary Meetings.

The Traverse City Dairymen's Association has requested the Michigan Dairymen's Association to hold one of its auxiliary meetings in connection with their district association meeting some time in March. They have been in the habit, heretofore, of holding an annual meeting and it has become a very important meeting in that locality, in some years rivaling, in point of attendance, the state association's annual meeting. The principal reason for having a meeting held in connection with, or under the auspices of, the state association is that they may get a stenographic report of the meeting, as the state association will then furnish the stenographer, and the stenographic report will be printed in the annual report of the Michigan Dairymen's Association.

An auxiliary meeting will be held with the Oceana County Dairy Association, at Hart, some time in the spring. For the greatest good of the dairy industry, there ought to be a local dairymen's association in every county, or district, in the state; then auxiliary meetings of the state association could be held in connection with them and the reports of all published in the annual report. This annual report is getting to be a book of several hundred pages and should be in every home, as it contains much valuable thot on dairy topics.

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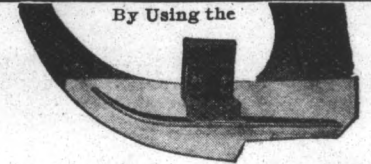
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WHY DOES OUR CREAM TEST VARY?

I would like to learn the reason for variations in our cream tests. We have a separator and sell cream to the creamery. The tests vary from 6 to 7 per cent, the amount of cream being the same. Would the amount of water used to rinse the cream from the separator lower the test? The quantity and kind of feed given the cows has not been changed.

Cass Co.

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Various reasons might be assigned why cream tests vary from time to time. The water used in rinsing the separator bowl certainly has a great deal to do with the test. Where only a small amount of cream is produced and water is freely used to rinse the bowl, it would make a great difference in the per cent of butter-fat in the cream. The cream would simply be diluted so much with water, and when this is all stirred up together and the sample properly taken, the water would be taken into consideration. Now, if you don't use as much water one time as another, or if you use the same amount of water each time but the amount of cream varies, that would change the test.

Cream tests are liable to vary from time to time under similar conditions from the fact that the man at the creamery does not succeed in getting a strictly accurate sample every time. Sometimes he gets a sample which is richer in butter-fat than the cream, and sometimes he gets a sample which is not quite so rich as the cream. Now, if a man is honest and does his work as thoroughly as possible, these samples will average up and nobody will be defrauded, but it would be expecting too much of a man that he should sample and test the same can of cream on different days and have the tests agree to the tenth part of one per cent. Cream, however, under similar conditions ought not to vary 6 or 7 per cent; that is too much. Sometimes the sampler is a little careless in taking the sample, and that of course makes a variation in the test. If you change the speed of your separator, that will change the per cent of your butter-fat. If, for any reason, you have richer milk one time than another, that changes the per cent of butter-fat, because, the richer the milk is in butter-fat the richer the cream will be in butter-fat, because the cream separator is set to take out a certain portion, or certain per cent, of the milk which runs thru it. Consequently if you take out 10 per cent of a can of milk which analyses 5 per cent, you will have richer cream than you will to take 10 per cent out of milk which contains only 4 per cent butter-fat.

Patrons of creameries should, so far as possible, check up their cream with the creamery. It is entirely feasible to take a sample of the cream after thoroughly stirring it, and take it down and have it tested to compare with the sample taken at the creamery. No creamery man will refuse to test your sample of cream. That would check up on his sampling and his testing. Then if there was great discrepancy, I should take a sample of cream, divide it, and send part of it to the creamery to be tested; then, unbeknown to the creamery man, I would send part of it to someone else, say the State Dairy and Food Department, and have it tested there for comparison. In this way, any patron of a creamery can find out, beyond a question of a doubt, whether careless work, or dishonest work, is being done in the creamery or not. All differences of this sort ought to be talked over with the creamery man. Let him know that you are interested in your cream. Let him know that you are watching him. Let him know that you expect to have a square deal and that you only want a square deal with everyone else, and I think you will find that your differences will disappear and you will have no reason to be dissatisfied.

WILL IT PAY TO BUY GRAIN FOR COWS?

I am feeding a herd of dairy cows this winter. Have plenty of good fodder and good clover hay but am short of grain. I would like to know whether, in your opinion, it would pay me to buy grain for the cows. Also what kind of grain I should have and how much I should feed to each cow.

Monroe Co.

C. H.

I think anyone can afford to buy grain for cows or any other kind of stuff to feed with roughage, because if grain is not but it will take just so much more roughage to carry the cows thru. You might as well mix in a little bit of grain with it, thus saving some of the roughage, and it will make you a more economical ration. If a man hasn't the feed himself he can afford to buy it if he could afford to feed it of his own raising.

What difference does it make. If you have a crib of corn and it's worth 60c per bu., what difference does it make whether you feed that on your own farm or, if you didn't have the corn, go outside and buy it at 60c per bu. If you didn't have faith enough to feed it you would sell it.

I take it for granted that these cows are giving milk this winter. If they are, I certainly think it would pay to feed them a good grain ration. I know of nothing better than corn meal and wheat bran, mixed half and half by weight, to feed with the clover hay and cornstalks, as long as you haven't any succulent food to go with it. If you had a succulent food like corn silage, I would recommend some cottonseed meal. You would improve the ration a little bit by mixing one-half corn meal by weight, one-fourth wheat bran by weight and one-fourth oil meal by weight. That is, take 100 lbs. of oil meal, 100 lbs. of wheat bran and 200 lbs. of corn meal; mix these to feed in connection with the clover hay and cornstalks.

If these cows are not giving milk now but are coming fresh in the spring, then they would not need a very heavy grain ration now, but they ought to have a little. It will put them in much better condition to do well when they do come fresh in the spring. If they are cows fresh now, or soon to freshen, the amount to feed each one will depend upon the individuality of the cow. A pretty good rule to follow is to feed 1 lb. of the grain mixture to every 4 lbs. of milk that the cow gives in a day. Or you can feed 1 lb. of the grain mixture per day for every pound of butter-fat that the cow produces in a week. This is a liberal ration and if you find you can make a greater profit by not feeding so much, then it would be proper for you to cut down the ration somewhat.

IS IT PRACTICAL TO BUILD A HOME-MADE SILO?

Do you consider it practical to build a silo of timber that can be bot here? Some think it would be cheaper than buying a manufactured silo. Is the cement silo practical?

Oceana Co.

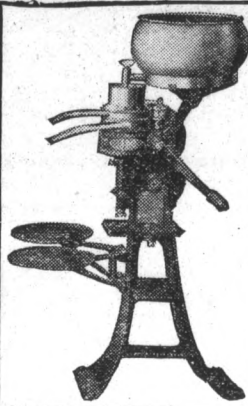
WM. LEONARD.

Thousands of farmers have built their own silos and these silos have given good success. Some have been failures, to be sure, but the majority of them have given good satisfaction. You can make a stave silo by simply getting 2x6 hemlock staves and getting them dressed. Set them up, nail to each other until you get around on your circular foundation; then put on the hoops and draw them up tightly together. If the staves are straight and true, and you get it set up true, there is no reason why you shouldn't have a good silo. I know of several of these in use that are giving splendid success. Of course, you ought to have a little ingenuity in regard to such matters yourself, or else hire a carpenter that has some.

You can also make a lath-and-plastered silo and do all the work yourself, if you have any ingenuity in this direction. Make your circular foundation, put on a circular sill and set your studding 16 in. apart; lath it on the inside with board lath. They ought to be good stout lath, say 3/4-in. thick so they won't spring in between the studding; then plaster it with cement plaster made by mixing one part cement to two parts good sharp sand. You will need a coat of cement from 1/2 to 3/4 in. thick. Now anybody can do all of this work. There is nothing particular about it at all. You can lath and plaster it on the outside if you want to, or you can put on common clapboards. When this is completed you have just as good a silo as anybody.

Any of the patent silos made by different firms are good. They take the pains to tongue and groove the staves so that when put together they are perfectly tight and it makes a good silo. They cost, perhaps, a little bit more, but, taking everything into consideration, it is almost as cheap as you can make one yourself.

A cement silo is certainly practical. The only objection I see to a cement silo is the first cost, and the first cost is not so much the cost of material as it is the labor. It takes quite a lot of labor to mix the cement and elevate it to make solid-wall silos, but when it is done and plastered on the inside with a good, smooth coat of cement plaster, you have a silo that will last almost indefinitely, but it will cost just about as much to plaster a cement silo on the inside as it will a lathed silo, and I don't know that it will last much longer, because there is nothing to wear out about a lath-and-plastered silo.



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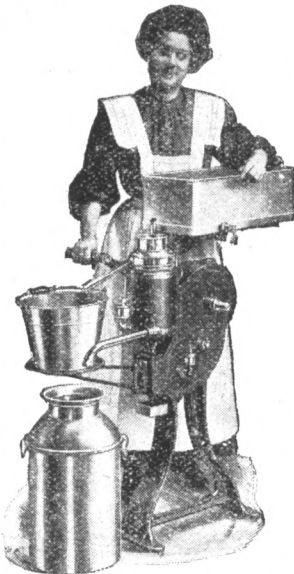
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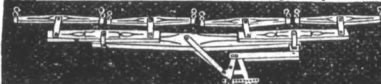
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CURRENT COMMENT.

The Water-Power Controversy. Mention was made in a recent comment of the action which has been taken at Lansing in the appointment of a legislative committee to make a full and complete investigation of the water-power resources of the state and the progress of their development by various corporations, as preliminary to legislative action looking towards state control of this semi-public enterprise.

As might naturally be expected the various interests affected by this investigation are on hand to protest against such action by the state, declaring it to be "premature," "unnecessary," and characterizing it as "a farce." They naturally make the claim that the state has no right to interfere and that where private parties have bot the riparian rights of a stream by the purchase of lands affected on either side, and obtained from local authorities the necessary permission to dam the stream, that the state can exercise no control over such development. The plea is also made that legislative action at this time will delay needed progress in water-power development and that it will be time enough to take action in the matter when all of our great water-powers have been developed.

To the end that our readers may have a better understanding of this problem and its relation to the public welfare, we will take this opportunity to inform them touching the opinion of noted economists on the question, as well as the action which has been taken in some other states toward the state control of this great natural resource. A good deal of valuable data upon this subject was presented by Curtis E. Lakeman in the January number of the Review of Re-

views, under the title of "State Control of Water-Power," to which we are indebted for the facts given touching the plans which have been adopted for state control in other states.

The first state to make a move in this direction was New York where a law was enacted last year directing its State Water Supply Commission to undertake a critical survey and estimate of the water powers of New York. This movement was started by Gov. Hughes independently and in advance of the national conservation movement, which includes a consideration of the water-power question as well as that of other natural resources of the country. In his first message to the general assembly of New York in 1907, Gov. Hughes advocated the placing of undeveloped water-powers under state control in order that they might be preserved and held for the benefit of all the people instead of being surrendered to private interests, maintaining that it would be difficult to exaggerate the advantages which would ultimately accrue to the people of the state from these great resources of power if the common right is duly safe-guarded. The work of this commission is now well under way and in a report which was submitted on February 1, of last year, a concrete example was given of what might be done in the development of water-power by the construction of a large storage dam which would hold the flood waters tributary to certain streams, and enable them to be distributed throughout the season, thus making more valuable the water-powers already developed and in operation on the streams below them, as well as furnishing a vast amount of power at the point of distribution. It was after receiving this report that an appropriation bill was passed by the New York legislature for the purpose of continuing such surveys during the past year, and the water-power resources of the state are now being carefully inventoried by experts and some broad policy of control and development will undoubtedly result from this preliminary work which has already been done in the Empire State.

In Wisconsin an entirely different plan has been worked out for encouraging private enterprises in the development of water-power under public supervision. The constitution of Wisconsin, like that of Michigan, does not permit the state to make any appropriation for internal improvement. To this end a law was passed in Wisconsin, during the legislative session of 1907, providing for the incorporation of a private company known as the Wisconsin Valley Improvement Company, which was authorized to construct, acquire and maintain a system of water reservoirs on the Wisconsin river and its tributaries. All of the state's riparian and flowage rights in the streams in question were assigned to the company to which the authority of eminent domain was also delegated. This company is authorized to charge and collect tolls on all logs and timber floating in said streams and from the owners of each and every water-power located on same which is benefited by the conservation measures adopted by this corporation. The state retains specific control over the company by the following method: The company is obliged under its charter to make annual reports to the Wisconsin Railroad Commission, showing its expenditures, stock issues, capital and the schedule of its charges. If the profits of the company increase beyond a certain prescribed limit, it is compelled under the provisions of its charter to reduce its toll charges in proportion. Thus the state is enabled to fix the financial position of the company and to enforce the provisions of its charter. The state retains further control over the situation by reserving the right to take over the company whenever permitted to do so by constitutional amendment.

Another instance of public water power development is to be found in the Chicago Drainage Canal where power installation already partly completed is expected to furnish 40,000 horse power and a proposed extension of the canal would add 20,000 horse power to this amount.

In Canada steps have been taken toward state ownership and development of water-power by the creation of two successive hydro-electric commissions with extensive powers, a movement which grew out of a wide-spread demand for cheap power in Ontario where the cost of power was excessively high owing to the distance of available coal fields. The first of these commissions appointed in 1905 made an investigation which re-

sulted in the creation of a second commission, which is still in existence. This body has wide authority, upon the application of any municipality in the province for a supply of electric power, to take the necessary steps to furnish this power, either by building new plants and transmission lines or by entering into agreements with existing companies to furnish the required power, or if no satisfactory agreement can be reached to expropriate the plant and furnish the power on behalf of the government at rates based on actual cost of production.

The federal government has already made a survey of water-power resources of Michigan and upon a request from the committee of investigation will send an expert to Lansing to supply such information as is in their possession. In this connection an interesting phase of the problem has been suggested, it being claimed by some well informed people that some of the water-power development companies which are being floated in Michigan are being capitalized on a fictitious basis, the possibilities of the development schemes involved being rated very largely above their actual capacity of power development, and the suggestion is being made that in arriving at approximately exact conclusions as to the possible development of certain streams the investing public will be supplied with valuable information for its guidance and protection.

The above reference to steps which have been taken in other states and in Canada was made simply as a matter of general interest. It is very probable that the legislative committee will find that none of them are wholly applicable under Michigan conditions. Most of our Michigan streams are better adapted to water-power development than are the streams of New York, many of which have a mountain origin and give a widely variable flow. On the other hand many of Michigan's best streams, from a water-power standpoint, have their head waters in a great plateau still covered with timber and with a soil of a porous nature which absorbs the rainfall and moisture from the melting snows and gives it up to the streams gradually, thus making the flow peculiarly uniform throughout the season, whether that season be wet or dry. This is a very great advantage and eliminates an important problem in water-power development. During the past season some of the streams of New York and Pennsylvania which have already been developed, were practically dry and furnished little water-power, while most of the streams of Michigan remained at nearly a normal level.

This investigation will be followed with interest by the people of Michigan, since with the growing scarcity and the increased cost of fuel which is sure to result at no distant date, an increasing dependence will necessarily have to be placed upon the full development of our water-powers as a source of light and power and possibly heat. That our water-powers will be equal to the demand made upon them in this respect is the belief of many competent scientists, and the adequate protection of the public's interest without unnecessary hindrance to comprehensive schemes of development now in hand would prove a happy outcome of this timely action.

There is perhaps no better index of the prosperity of a community or state than the small savings of its people as indicated by the aggregate of bank deposits. The annual report of the State Banking Commissioner shows the total of deposits in state banks in Michigan to be \$175,063,499. This amount is deposited in 353 state banks and six trust companies, doing business in the state. During the past year 33 new state banks have been organized and the capital stock of the state banks has been increased by \$1,281,500. At the date of this report there were 893,127 persons in the state having deposits in these banks. This condition of state banks is a matter for congratulation to the whole people of the state, but particularly to the farmers, as they represent largely the smaller banking institutions in the interior of the state, which receive their deposits very largely from farmers. It is true that under the law which permits the establishment of small national banks a good many banks of this character have been established in communities where considerable of their patronage is drawn from the rural districts, but the proportion of such banks is small in comparison with the proportion of state banks which are located in small towns throughout the state, drawing their patronage very largely

from the prosperous farming communities in the surrounding territory.

As the total of bank deposits is a very good index of the prosperity of a state, or community, so the habit of keeping a bank account is a very good index of the prosperity of the individual. The man who once establishes this habit as a rule pays cash for the things he buys, getting the lowest price on the goods and the best quality of goods for his money. He is apt to be a more careful buyer than the man who buys on credit and his custom is everywhere sought because of the fact that his business is cash. The real saving in dollars and cents, as well as the larger dividend in an increased self-respect and independence is all in favor of the habit of maintaining a bank account, even tho it be a small one. The fact that a man may be in debt upon his farm or home is no argument against the keeping of a bank account. There are always times when he has some surplus money which is much safer in a bank than in his own home, notwithstanding the prejudice to the contrary and the distrust of banks which is so common. Business men are generally large borrowers, yet no business man would think of undertaking to do business without a bank account, and it is just as essential to the farmer as to any other business man.

That the number of depositors in banks is yearly increasing is not only a sign of increased prosperity among the people of our state but also an indication of a gradual improvement in their business methods. With the advent of the postal savings bank the fear and distrust which are so commonly entertained of such institutions will be removed and those who are afraid of such financial institutions will have a safe depository for their money, which is guaranteed by the national government, at a small rate of interest. But the small bank account against which they can check in their ordinary business transactions will be just as essential and the sooner the habit is formed the better for the individual and for the community in which he does business.

HAPPENINGS OF THE WEEK.

Foreign.

The steamship Florida, a Spanish boat, rammed the steamship Republic off the coast at Nantucket, Massachusetts, during a fog last Saturday. The Republic was so badly damaged that it went down while being towed into harbor after her passengers had been taken off and transported to the steamer Baltic. The Florida was also damaged to a considerable extent. There were 1,600 persons aboard the Republic. After the accident wireless telegrams were sent out and a message was caught by the station at Nantucket, which station because of its stronger batteries was able to cover a larger territory than the apparatus upon the ship, and sent to all the boats in its latitude informing them of the wreck and directing them to the place of the accident. In a short time a large number of vessels were hunting for the unfortunate boats. By reason of the wireless telegraph the only casualties of the affair were four persons killed by the collision. The Florida is tho to be responsible for the accident as it apparently was under full speed when the boats met.

Archbishop A. R. Sweetman, primate of all Canada, died at Toronto, January 24.

Earl of Leicester, one of the oldest English peers, died at his ancestral home, Holkham Hall, Norfolk, England, last week.

The Canadian Pacific railroad has planned to electrify its road thru the mountains of the west. The waterfalls available will furnish all the power necessary for the change.

Dr. Ritter, present minister from Switzerland to Japan, has been named as prime minister to the United States to succeed the present incumbent.

Thru the diplomacy of president Gomez diplomatic relations have been restored between Venezuela and France.

The police have interfered with the Marseilles restaurant keepers who have been exacting exorbitant prices from the American soldiers for goods at their places.

A volcano in the vicinity of San Casciano, Italy, which was active in 1661, when the town was destroyed by an earthquake, is again becoming active and slight shocks have been felt by the inhabitants.

Earthquake shocks in the southern part of Yucatan caused the drying up of many streams, springs and wells. So scarce has become the water supply in sections that the inhabitants have been compelled to move.

The bursting of a dam, caused by the heavy rains in the Transvaal, Africa, flooded mines and drowned 173 men last week.

The Mexican government has raised the ban against the shipment of firearms across the border from Texas. This embargo was inaugurated after the revolutionary disturbances started along the border about a year ago. Close inspection is still given to the shippers of all such goods.

Joseph Chamberlain, the former head of the English government, is improved from his recent illness and now declares

that he may again enter the arena of politics as a champion of the tariff issue. Mr. Chamberlain is 72 years old.

National.

In the amount of water power generated Michigan is eighth among the states of the Union.

A grand jury is now investigating the transactions leading up to and terminating in the purchase of the Panama canal properties by the United States government. This investigation grew out of the recent attacks made by certain publications against the government. It is expected that President Roosevelt may be called as a witness.

The United States senate passed a resolution last week recognizing Lincoln's birthday as a national holiday. An appropriation was also passed for the survey of a highway from Washington to Gettysburg to be known as "Lincoln's Way."

Fire in a crib in Lake Michigan off the Chicago coast resulted in the death of about 50 workmen. All the bodies have not as yet been recovered from the tunnel and lake.

The public service commission of the state of New York will investigate the express rate charges for carrying in that state. It is held that excessive dividends are paid upon the capital invested in the property and operation of the express business.

The stockmen of Michigan are again disappointed by the news that another outbreak of foot and mouth disease has occurred in Wayne county. The report is denied by the inspector in charge but the announcement will likely keep the men who are watching the situation vigilant and the quarantine firm.

In declaring that benzoate of soda is harmless to the humane system when taken in moderate quantities the Supreme Court voted contrary to the instructions by the bureau of chemistry of the department of agriculture.

The favorable reception of the anti-race track gambling bill which is now before the legislature of California is spreading consternation among the followers of the turf. The law is patterned after the New York measure.

The international balloon contest for the James Gordon Bennett cup will be held next fall. The airships will start from Zurich, Switzerland.

In his report of Cuban conditions Gov. Magoon makes specific mention of the old battleship Maine, the destruction of which caused the war between the United States and Spain, and declares that it is a reproach upon the country to permit the vessel to remain longer in the waters of Havana harbor. It is also causing transportation much inconvenience by obstructing the waterways in an important part of the bay.

The action of the California legislature with regard to the measures known as anti-Japanese bills, is watched with much concern as the result may make relations between the United States and Japan unpleasant. The bills purport to make it unlawful for aliens to acquire title to and hold lands in that state.

Recommendations were made by the treasury department that national bank examiners be paid a salary instead of fees. It is the opinion of the officials that the change would secure from the deputies more efficient service.

Chicago is to have a wool exchange, and it will probably become the great central market of the country as a result of the \$400,000 stock company that has just been formed, composed of Chicago and western capitalists. The plan as announced, is to erect a concrete fireproof warehouse that will have capacity for storing more than 150,000,000 pounds of wool. The corporation is designated the National Wool Warehouse and Storage Company. It is stated that sheepmen of the northwest are financially interested and have pledged 25,000,000 pounds of wool yearly.

CROP AND MARKET NOTES.

Washtenaw Co., Jan. 20.—We are having some very delightful weather and while there is a lack of snow for sleighing, still wheeling is good and the farmer's business goes merrily on. It is an ideal time for clearing up the low ground woodlots. The down timber is being closely gathered and the dry condition of swamps and the frozen condition making it possible to do the work expeditiously. The live stock industry has been sadly hampered and much loss resulted from the fool way the quarantine laws have been used. While it is all very well to confine stock to the limits of the townships in which there may be disease, the tying up of vast areas where stock is entirely healthy and subjecting them to the loss and inconvenience, is very much against the best interests of either individuals or the state and as is usually the case the farmer is the one to bear the burden, for the buyers of Detroit, taking advantage of the situation, have bled them to the limit. Hogs, in spite of the low price are pretty closely marketed. Prices at present, \$5.50; good cattle, 5c; butter, 30c; eggs, 27c; oats, 50c; corn, 35c per basket. Dairy meetings and institute work occupying the attention of farmers.

Livingston Co., Jan. 18.—We are having good winter weather with but very little snow. The first of the month the weather was quite severe and as there was no snow on the ground wheat suffered somewhat. Ice cutting is in full swing, it being about 12 inches thick. The roads have been fine nearly all winter and farmers are making use of them in hauling their produce to market. Stock is moving quite rapidly since the lifting of the quarantine and prices are much better than a month ago. Farmers that kept their lambs will realize a good profit on them as they are now offering from \$6.50 to \$7.50 for good lambs. Markets are as follows: Wheat, 98c; beans, \$2; rye,

70c; corn, 80c; oats, 47c; potatoes, 60c; butter 20c; eggs, 28c.

Lapeer Co., Jan. 25th.—A good rain fell on Jan. 22 and 23, the first of the season. The frost is all out and the water went down into the soil, just as it should. Wheat and rye are looking green at this date. Winter weather has been favorable to farmers thus far, and most have work well in hand. Manure is being spread over fields more and more each winter. Next spring will find many yards clean in this locality. Prices of all produce remain good, except for clover seed. Barley is selling at \$1.50, beans, \$2; cream, 32c; corn, 71c; chickens, 10c; eggs, 28c; hogs, live, 4½c, dressed, 6¼c; lambs, 6c; wheat, \$1; rye, 72c; oats, 49c; potatoes, 60c; red clover, \$5; alsike, \$7; hay, No. 1, \$7.50.

Northern Isabella and Southern Clare Co.'s., Jan. 23rd.—After about seven weeks of fine sleighing and nice winter weather, we have a thaw and two nights' rain and the fields are nearly bare, which stops lumbering and wood drawing. Not much farming being done at present. The seed pea men are hustling for contracts with the farmers, also the sugar beet men. A large acreage of beans will be planted next spring. Quite a lot of land changing hands. Wheat has reached the dollar mark in Clare.

Ottawa Co., Jan. 25.—On the night of Jan. 21, rain commenced falling and steadily continued for two days and nights. The result is the snow has all disappeared, the frost is all out of the ground, and many creeks that were almost dry are now full of water, but the roads, which were in good condition before the rain, and were so dry as to be dusty, are now very muddy. Wheat is beginning to look quite green again. The mild weather is having some effect on the markets. The county round-up farmers' institute was held at Coopersville, Jan. 22 and 23. As it rained both days, the attendance was not as large as it would have been if the weather had been fair, but those who had the chance to attend seemed to be well satisfied, and much interested in the different subjects that were discussed by the state speakers. The quarantine still hinders the shipping of hogs, cattle and sheep from this section.

MICHIGAN FARMERS' INSTITUTES.

For the month of February the following County Institutes have been arranged:

Allegan Co., Hopkins, Feb. 2-3; Barry Co., Hastings, Feb. 6; Berrien Co., Coloma, Feb. 4-5; Branch Co., Coldwater, Feb. 8-9; Cass Co., Cassopolis, Feb. 5-6; Hillsdale Co., Litchfield, Feb. 10-11; Ingham Co., Mason, Feb. 19-20; Ionia Co., Ionia, Feb. 2-3-4; Jackson Co., Concord, Feb. 9-10; Lenawee Co., Adrian, Feb. 11-12; Livingston Co., Howell, Feb. 18-19; Oakland Co., Pontiac, Feb. 17-18; Van Buren Co., Bangor, Feb. 3-4; Washtenaw Co., Ann Arbor, Feb. 12-13; Wayne Co., Canton, Feb. 15-16.

One-day Institutes will also be held as follows:

Barry Co., Nashville, Feb. 1; Woodland, Feb. 2; Carlton Center, Feb. 3; Freeport, Feb. 4; Star Grange Hall, Feb. 5; E. M. Moore, Orchard Lake, State Speaker. Eaton Co., Mulliken, Feb. 1; Eaton Rapids, Feb. 10; W. F. Raven, Brooklyn, State Speaker.

Hillsdale Co., Bankers, Feb. 1; Camden, Feb. 2; Cambria, Feb. 3; Likely's Corners, Feb. 4; Mud Lake, Feb. 5; Jonesville, Feb. 6; Peter Voorheis, Pontiac, State Speaker.

Jackson Co., Munith, Feb. 1; Grass Lake, Feb. 2; Norvell, Feb. 3; Brooklyn, Feb. 4; Liberty, Feb. 5; Hanover, Feb. 6; Peter Voorheis, Pontiac, State Speaker.

Livingston Co., Deerfield Twp., Feb. 1; Tyrone, Feb. 2; Oak Grove, Feb. 3; Hamburg, Feb. 4; Parker's Corners, Feb. 5; Fowlerville, Feb. 6; Wesley Schlichter, Brown City, State Speaker.

Washtenaw Co., Webster, Feb. 1; Northfield, Feb. 2; Salem, Feb. 3; Superior, Feb. 4; Chelsea, Feb. 5; Manchester, Feb. 6; N. I. Moore, Hanover, State Speaker.

Oakland Co., Clarkston, Feb. 8; Ortonville, Feb. 9; Farmington, Feb. 10; Wixom, Feb. 11; Commerce, Feb. 12; Highland, Feb. 13; Wesley Schlichter, Brown City, State Speaker.

Wayne Co., Redford, Feb. 8; Inkster, Feb. 9; Eureka, Feb. 10; Romulus, Feb. 11; Willow, Feb. 12; Rockwood, Feb. 13; N. P. Hull, Dimondale, State Speaker.

Ingham Co., Leslie, Feb. 9-10; N. I. Moore, Hanover, State Speaker; Williams- ton, Feb. 13; W. F. Raven, Brooklyn, State Speaker.

Shiawassee Co., Corunna, Feb. 22; Prof. H. A. Huston, Chicago, J. P. Davis, of Sheridan, Ind., and Hon. H. S. Earle, Lansing, State Speakers.

Michigan State Round-up Farmers' Institute will be held at Mt. Pleasant, Feb. 23-26, 1909.

Imported Canadian Seed Oats.

This is an age of specialties. Galloway Brothers, of La Jora, Saskatchewan, and Waterloo, Iowa, are making a specialty of raising seed oats. The firm is composed of William Galloway, the well known manure spreader manufacturer, of Waterloo, Iowa, who is known to most of our readers, and J. W. Galloway, his brother, who operates the large farm. We believe it will pay everyone of our readers to send for a free sample of their new seed oats.

Continue My Advertisement.

Wm. Waffle, Jr., Coldwater, Mich., who has been advertising Poland-Chinas, in remitting for his advertisement writes: "You may continue my advertisement, which I assure you has been very satisfactory."

About six months ago I received one of your sewing machines. It arrived in perfect condition. During the six months I have made good use of it and am as well pleased with it as tho I bot a \$50 or \$60 one.—Mrs. Trivett Bowditch, Hillsdale, Mich.



CONGO NEVER LEAK ROOFING

FREE SAMPLE

A Genuine SURETY BOND GUARANTEE with every roll of Congo.

So many guarantees are given nowadays that to a certain extent they have lost their value; but the one which accompanies each roll of Congo is different from all others.

It is a genuine Surety Bond backed by the National Surety Co., one of the largest and best known Surety Companies in this country. It protects you absolutely.

It is a distinct, clear-cut guarantee, and any man who desires

the best roofing for his money, and wants the same backed by a reputable house as well as by a Surety Bond, can do no better than invest in Congo.

Samples will be sent for the asking, and we know if you test it thoroughly, as a roofing should be tested, there will be no hesitation on your part in securing it quickly.

Further information, samples, etc., on request.

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REINFORCED CONCRETE BRIDGES

ARE ABSOLUTELY PERMANENT. COST NOTHING FOR REPAIRS.

Grow Stronger With Use. Are Practically Flood Proof. WE DESIGN AND BUILD THEM.

CENTRAL ENGINEERING CO., ENGINEERS AND CONTRACTORS, DETROIT

HEAT YOUR HOME WITH A CONCRETE FURNACE

Build it yourself. Total Cost \$25. Plans and complete information, \$1.

DETROIT CONCRETE CO., Detroit, Mich.

DAIRYMAN FARMER WANTED—Man by the year with help of his own, to farm 120 acres and care for 25 cows. Don't answer this unless you have had experience, and like dairy work. L. E. CONNELL, Fayette, Ohio.

FARMS AND FARM LANDS FOR SALE OR EXCHANGE

146-Acre Farm, near town, fine buildings. Big barn. Inquire W. H. LOVELY, Howard City, Mich.

FOR SALE CHEAP—80-acre farm, good soil, some buildings, 3½ miles from R. R. 50 acres cleared, 30 acres under brush, only \$12.00 per acre. JESSE PARKER, Laingsburg, Mich.

MICHIGAN FARMS ALL SIZES Southern & Central Counties. Write for list, S. R. HAYES, Ashton Building, Grand Rapids, Mich.

EXCELLENT 100-acre farm, 9 miles from Pontiac. Nine acres hardwood timber; 65 apple trees, first-class barns, six-room house. Price \$50 an acre. H. W. Kinney, care Bancroft House, Saginaw, Mich.

CALIFORNIA LAND, \$1 acre cash payment; balance purchase 90 cents month per acre; close San Francisco; no taxes; no interest; 5-acre tracts; level, rich, clear; ready to plow; irrigated; perpetual water rights; immediate possession; particulars, maps, photographs free. STEVENSON COLONY, 1414 Market St., San Francisco.

Virginia Farms and Homes. FREE CATALOGUE OF SPLENDID BARGAINS. R. B. CHAFFIN & CO., Inc., Richmond, Va.

WHY PAY RENT when you can buy the Best Land in Michigan at from \$6 to \$10 an acre near Saginaw and Bay City. Write for map and particulars. Clear title and easy terms. STAFFORD BROS., (owners) 15 Merrill bldg., Saginaw, W. S., Mich.

STOCK FARM FOR SALE OR EXCHANGE, 480 acres near Saginaw, about 50 acres cleared, good two-story frame house, basement barn, chicken house, corn crib, granary and sheep shed, fine pasture and plenty of elegant water. Can use stock of general merchandise or bunch of horses and cattle. Address S, care Michigan Farmer, Detroit, Mich.

Michigan Farm Bargains

80-Acre—Lapeer Co., \$3,800. Half cash. Black loam soil; near markets; good buildings. A good farm.

160-Acre—A dandy, \$50 acre. 3 barns, good house; everything fine; near Detroit.

320-Acre—Shiawassee Co., a magnificent proposition. \$45 acre; half cash.

Farms of all kinds. Tell us what you want. BOURNE & FISK, 501 Chamber of Commerce, Detroit.

160 ACRES—40 miles from Detroit—clay and gravel—9-room house, good barns and outbuildings; 5 acres timber. \$10,500.

135 ACRES—38 miles from Detroit—2 miles from electric (Macomb county); 8-room house; good buildings on stone foundation. \$9,600.

SEND FOR CATALOG OF FARMS. "FARM HEADQUARTERS" CHAS. D. FISKE, 713-14-15 Chamber of Commerce, Detroit, Mich.

Growing Crops 365 Days In The Year.

On the Gulf Coast of Texas I am selling rich productive land at low prices and on easy terms. Several crops a year are grown. With the same work there that you do here you get several times the result. You don't eat up or feed up in winter what you make in summer there. Northern people are rapidly buying land and prices must soon double. Railroad fare refunded to land buyers. Most healthful and delightful climate, write me for further information today.

ALFRED E. POULSEN, Battle Creek, Mich.

Money Counts

and farmers in Tidewater Virginia and Carolina are counting money made from large crops this season. You can do likewise. Ideal climate; three crops a year; best corn, hay, potato and truck lands, near fine markets, at low prices and on easy terms. Why not share this prosperity? F. L. MERRITT, Land and Indust' Agt., Norfolk and Southern Railway, 20 Citizens Bank Building, Norfolk, Va.

Money Making Farms

Oranges, figs, pecans, vegetables and staple crops pay \$100 to \$500 an acre. Our land is located where the temperature ranges between 55 and 80 degrees above zero the year around. This land is high, perfectly drained, pure water, half hour from city (79,000) and near to gulf. Ideal place for home, health, profit. Low price, easy terms, attracting desirable class of settlers. Free booklet.

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A HOME AND PROSPERITY

Where science has triumphed over nature. Where one sure crop at guaranteed prices nets \$100 per acre. Another sure crop nets over \$75 per acre. Where cotton is sure for one bale per acre and often makes two. Oranges, bananas, garden truck, often nets over \$500 per acre. Let us tell you about this wonderful irrigated land that is sure of yield, low in price, easy to buy, easy to cultivate, grows everything, and gives robust health—climate never prevents outdoor work.

ALBA HEYWOOD, Pres., San Benito, Texas.

The NATION'S GARDEN SPOT

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In Virginia, North and South Carolina, Georgia, Alabama and Florida, write to

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OREGON.

Have you stopped to consider what great opportunities exist in this favored region for safe and profitable investment? Thousands are coming here from the East and Middle West. Land values are advancing and will continue to advance with the rapidly growing population. If you want valuable and reliable information about city real estate, suburban acreage, farm, fruit or timber lands, write us. We have made money for others; we can make it for you. We furnish pamphlets free; personal inquiries carefully answered.

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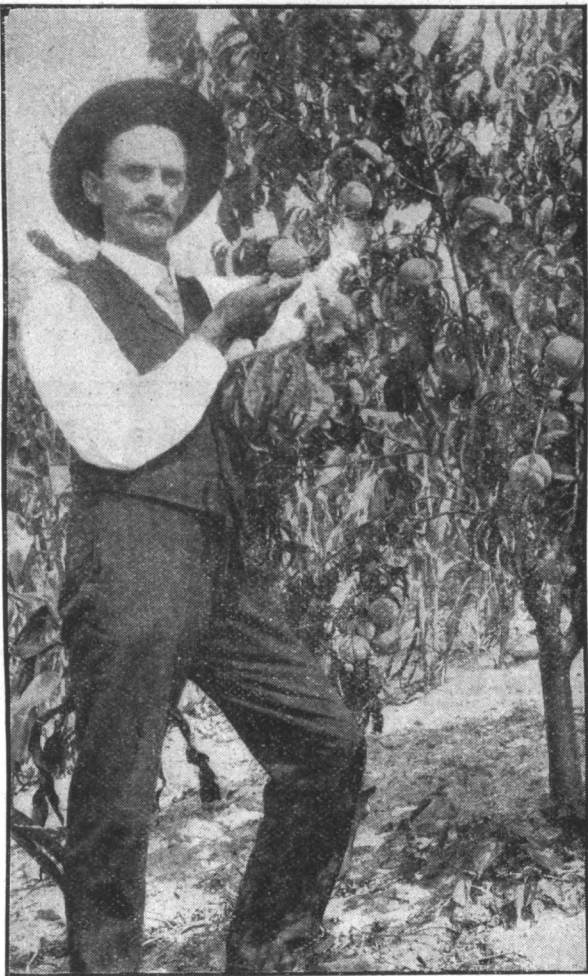
Cheap Tennessee Farms Making Men Rich!

Fortunes are being made on fertile Tennessee farms. They raise big crops of Cantaloupes, Cabbage, Tomatoes, String Beans, Green Corn, etc., also Horses, Cattle, Sheep, Swine, Poultry and Eggs. Write me at once for Free Literature. I'll tell you how to get one of these splendid farms for \$5 to \$20 per acre. Act quickly! H. F. Smith, Traf. Mgr. N. C. & St. L. Ry. Dept. P, Nashville, Tenn.

HORTICULTURE

FRUIT POSSIBILITIES IN MICHIGAN.

Discouraged fruit growers can be found in every community. Enthused by some well-written article, or book, or by the personality of some advocates of the industry, or more likely by the representations of a tree agent anxious to do business, some person without careful consideration of the requirements and limits of the fruit-growing business, brings his courage to the sticking point and invests in a commercial fruit plantation. This happens about once each decade in every community. In the communities outside the fruit belt there is very likely to be an equal number of failures. But the these men may be decried for their "wreckless" investments the knowledge coming from their many failures and few successes is gradually widening the possibilities of fruit growing. In a large number of cases, had wisdom been used in selecting the kind of fruit adapted to the conditions and the particular varieties that were known to do well there, what proved failures would have been striking successes. Many times by accident such kinds and varieties are planted and the result gives a momentum to the business that many failures cannot down. An occasional success in an attempt to grow commercial quantities of fruit, has led to much study in those localities not generally designated as fruit territory. The important thing this study is teaching the farmers of Michigan and of other states is that, while foreign knowledge is invaluable in accomplishing work of this nature as competition



A 4-year-old Peach Tree in a Leelanau Co. Orchard.

commands that new methods and operations and machinery be installed, results are more directly dependable upon meeting the local conditions. A day spent in taking an inventory of the trees in the neighborhood will furnish the best basis for planning the orchard and for eliminating varieties not fitted to the climate, exposures, and soils. More or less unconsciously this scheme has been at work and the possibilities of Michigan today were never brighter. The illustration on this page is indicative of what may be done in Leelanau county, seventy miles north of Oceana county. From Alpena county comes word that the fever is rising irresistibly because of success by a number of venturesome growers. Otsego and a number of other counties outside of the Grand Traverse district where much has been done to justify the claim that northern Michigan fruit is unsurpassed in quality, tip the information that intelligent planting there offers alluring financial reward. What another decade will bring forward cannot be foretold but the man who now decides wisely in his selection of location and acts consistent with this decision in choosing varieties will a few years hence feel like a capitalist on the "ground floor" of an insurance organization.

SPRAYING FOR 1909.

The farmer who intends to spray his orchard next season should begin to plan and secure apparatus and spray materials soon, as the spraying season will be on almost before we are aware. I believe there are many farmers who have never sprayed but are seriously considering the matter for perhaps the first time, at least this is true of a number in this vicinity. The almost entire failure of unsprayed orchards, while sprayed ones yielded good crops the past season has set a number of farmers, who have hitherto that little

of spraying, to studying the question, and I believe a goodly number of them will conclude to purchase a pump and aid the trees to produce such fruit as they used to when we were boys.

It will not be such a job after all. The first thing to do is probably some pruning, tho in old orchards it may be well to begin by hauling out some manure during the winter and scattering it beneath the outer branches of the trees. If the trunks of old trees are neglected and moss grown or rough, scraping lightly with an old hoe up as far on the main limbs as one can reach with the hoe will remove many insects and their lodging places, and enable the spray to get to all parts of the trunk and be more effective.

The pruning may be done during warm days in winter and the brush burned so all will be ready for the early spraying for San Jose scale, or apple scab, or both.

If one is sure of having time to get the work done the spraying may be left until early spring, but the trouble is that at this time the other things crowd this work out of the program of the general farmer and it is neglected altogether. The farmer then reasons that his trees are too thick to spray and this is neglected also.

The apparatus for spraying will depend upon the number and size of the trees. If there are a very few small trees a bucket outfit with a brass pump with ordinary handle set firmly in a large bucket will answer very well. A brass pump is desirable as the copper sulfate used in spraying for the scab corrodes and rapidly wears an iron cylinder. For quite small trees a short hose with a good nozzle will answer, but for higher trees an extension rod is desirable. Such an outfit will cost from \$5 to \$8.

Most farmers have trees enough to afford a barrel pump. This is the most practical for large apple trees. A good brass pump set in a 50 gallon cask which may be mounted on a hand cart or made to set on a wagon, is the most practical for the average farmer. In getting such a pump it is well to get one of sufficient capacity to attach two leads of hose if necessary. The hose should be from 15 to 25 feet long for convenience in reaching all parts of the tree and save moving the barrel so often, and for large orchards I should advise 25 to 35 feet. An extension rod of bamboo, brass or aluminum lined 8 or 10 feet long, and an approved nozzle such as a double or tripple vermorel will complete the pump outfit. The price of such an outfit will be from \$15 to \$25 depending upon the capacity of the pump, brass work, length of hose, style of extension rod and kind of nozzles. In getting such an outfit one should get one of ample capacity for his work for some time to come, as a good outfit will last many years. Only the best hose will answer as cheap garden hose will not last

Nitrate of Soda



Nitrate of Soda applied as a top dressing, produces not only more tons to the acre, but cleaner and higher grade

TIMOTHY

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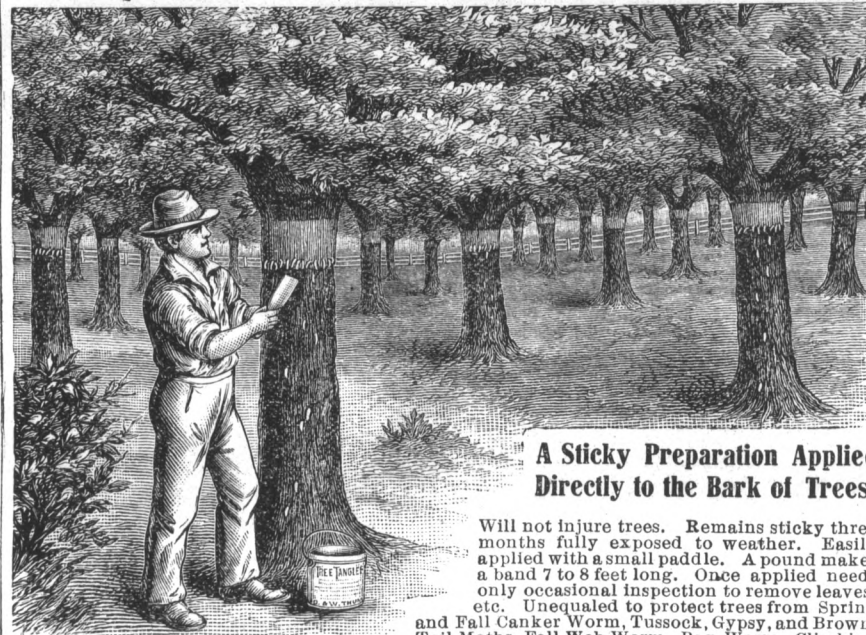
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more than a couple of seasons. A nozzle that will throw a fine spray is essential in order to reach all parts of the tree and to economize material. Iron extension rods are too heavy. Bamboo aluminum lined rods are the lightest and are replacing the brass lined rods to quite an extent.

One should provide himself with extra coupling clamps as these are likely to corrode or come loose and bother. He should also become familiar with the working of the pump, and tighten the plunger nut as the packing wears, or be able to repack the plunger when necessary. A supply of rubber or leather washers will also be needed for the connections and for the valves in the extension rods. None of these things may be needed for several years with a limited amount of spraying, but it is well to have them on hand and save time should any give out or be lost while spraying. A brass strainer with fine mesh will be convenient for straining the material into the barrel and keep out all particles too large to go thru the nozzle. A barrel, a half barrel, and a couple of tobacco pails will be convenient for mixing the lime and copper sulphate in making Bordeaux.

If the San Jose scale is present one should plan to apply lime and sulphur before the buds open in the spring. If this preparation is made at home an iron kettle that will hold a half barrel is desirable for the cooking, and the mixture must be boiled from a half hour to an hour and applied warm. I believe it will be more economical for the farmer with but a dozen or two trees to purchase some of the lime-sulphur commercial preparations now put upon the market by responsible parties. They are all ready to apply by adding water, and will save the trouble of cooking and applying warm, which for a small orchard will more than offset the additional cost. The commercial lime-sulphur preparations for 50 gallons of spray will cost from 75 cents to \$1.00, according to quantity purchased. The lime and sulphur to make 50 gallons of home-made wash will cost about half as much. The large apple grower can afford to cook the material for this difference, but it is doubtful if the farmer who uses but a few barrels of the spray can afford to do so if he can get the commercial material conveniently.

If the scale is not present, copper sulfate solution will be the first spray for the apple scab and peach leaf curl, and later lime and an arsenate like Paris green or arsenate of lead will be added. The sulfate will cost from five cents to eight cents per pound, according to amount used and 3 to 4 pounds will make 50 gallons of spray. The lime will cost but a few cents per barrel of spray, and the Paris green from 10 to 15 cents. Arsenate of lead is preferable to Paris green but will cost from 25 cents to 35 cents per barrel of spray.

Calhoun Co. S. B. HARTMAN.

SOMETHING AS TO BEANS, THEIR CULTURE AND VARIETIES.

Generally speaking, there is no crop that responds more readily to good soil conditions, thoro culture and liberal feeding than do beans. By the latter we do not mean that fertilizing should be excessive—indeed, it is better not to be for the tendency in such cases is to grow abnormal vines at the expense of the yield, and especially is this true in the use of green or rank manure. By far the better plan is to use a liberal supply on the crops grown the previous year as then there is little danger of over-feeding. A light, rich, well-drained loam treated as above will give best results, but as all do not possess such soil we must select the best available land and make the most of it. The culture should be frequent up to the blossoming time, but after this it should be shallow, as otherwise injury to the roots is liable to occur and blasting of the beans will follow. Neither should they be worked when wet with rain or dew as the same results are liable to follow. They are not hardy as to cold and wet and no advantage can be gained by planting until soil and weather conditions are right. Generally, the best results will be obtained by planting in drills two to three feet apart, with plants two to four inches apart in the drills.

Dwarf Beans.

Under this title are classed all the low growing sorts, and in different localities they are known as bush, bunch, snap, string or dwarf. These are subdivided into wax and green podded sorts, of which we shall speak first. So many

varieties are named and under cultivation that the entire list would take too much space, and so we must confine the matter to what experience has proved to be the best as to season, cropping and market qualities.

Burpee's Brittle Wax is one of the earliest of all the wax-podded sorts and its high table qualities, together with its heavy cropping tendencies combine to make it one of the most desirable under cultivation, both for the home and market garden. Another desirable point is that, being white in color, they are in general favor as a dry or winter bean.

The Challenge Black Wax is said to take off its hat to no living wax bean for earliness; and the yielding and table qualities leave little to be desired. As the name indicates, the seeds are black and so, for shell or dry beans are not so desirable as the white seeded sorts.

The Golden Wax, introduced, we believe, in 1876, has gained a justly wide reputation in all that goes to make up a really desirable snap or shell bean. They are early, very productive, with long, meaty pods, golden yellow and wax-like. When dry, seeds are medium in size, oval in form and white in color, more or less colored with two shades of purplish red.

The Michigan White Wax fills a long felt desire for a white seeded wax bean. It is really a white seeded strain of the Golden Wax. The Davis Wax is conceded by many to be the most hardy and productive of all wax beans under cultivation. The vines are vigorous and nearly rust proof, with kidney-shaped seeds, clear, white, and excellent for baking. Our own experience with it is that it is the best we have ever grown, and the home or market gardener will be perfectly safe to make it a leader. The clear white seeds also make it much sought after by the canners. Currie's Rust Proof Wax is claimed by many seedmen to be absolutely free from rust, and while this is a broad statement, it is doubtless more nearly true of this variety than any other under cultivation. Burpee's Saddleback Wax. This is really a fine variety and worthy a place in any garden. It is marked by the introducers with a bull's eye, which means one of the very best. The pods are long, nearly straight and so meaty as to be saddle-backed, or creased in the center. It is better as a snap than a shelled or dry bean. The Hudson Bay is doubtless the best late wax in cultivation, and ought to be in evidence in every commercial garden as the demand for a late pickling bean is always brisk. It is remarkably vigorous as to habit of growth and the heavy foliage safeguards it very effectually from rust.

Green Podded Sorts.

These varieties, for some reason, seem to be less popular as market sorts than the wax beans. We are unable to say why this is so, for in our own experience, we have found some of them fully equal to, or even better as a table bean, than any of the other that we have grown. Our own experience has been that customers seem to fight shy of them until once they can be induced to try them and afterwards they need no farther pushing. They are worthy of more general culture than they now receive and it is well to note some, at least, of the leading sorts. Extra Early Refugee is an extremely early bean with oval, fleshy pods of fine flavor. The vines are somewhat smaller, and more upright, with foliage larger than the late Refugee. Altogether it is one of the best green podded sorts and on account of its extreme earliness is worthy a place in any garden.

Early Mohawk is perhaps the most hardy bean in cultivation, and on this account will bear earlier planting than any other, and thus will produce the earliest crop of all. The vines are hardy, stout and bear coarse, heavy foliage, resistant to most fungus diseases. Stringless Green Pod is considered by seedsmen in general to be a valuable addition to the green pod family. The pods are large, of high table quality and remain in crisp, tender condition longer than most of the other sorts. The Red Valentine, for a snap, has no equal perhaps, in the green pod sorts, and by many it is considered superior to any of the wax varieties. It should have a place in every home and market garden, as it is doubtful if it has an equal in all the snap family, either wax or green pod. The Dwarf Horticultural is a compact, upright growing sort, hardy and very productive. It is more especially suited for a shell than snap bean. In this condition the beans are very large, easily shelled, and by many are considered nearly equal to the Lima beans.

J. E. MOORE.

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It is very doubtful whether there has ever been given so much thought and scientific, practical research to any known cereal crop as there has been to corn. Such eminent men as Prof. Holden have made corn their life work and with what great benefit to the farmers in the corn-growing states. Marvelous results have been achieved in increasing both quality and crop. Hand in hand with these men the manufacturers of corn planting machinery have been keeping pace, and to them some measure of praise is justly due. The Hoosier Corn Planter is one of the results of this painstaking work. Hoosier Corn planters can be had in many styles with and without fertilizer attachments. They can be had with shoe or runner, single disc or twin disc furrow openers. Also in round-hole, flat drop and edge drop plates. No matter what style of corn planter the user wishes to purchase, he can find it in the Hoosier Corn Planter line. The Hoosier Corn Planter has many exclusive features. Every Hoosier Planter is sold under the most liberal of guarantees. The Hoosier must and will do all that the manufacturers claim. They are accurate, very simple, easily adjusted, strong and of light draft. Before purchasing a Corn Planter the farmer should write to the manufacturers, The American Seeding-Machine Co., Incorporated, Richmond, Indiana, for a Hoosier Corn Planter catalog, and any special information they may want. Then go to the retail implement dealer and insist on seeing the Hoosier Corn Planter before buying any other make.

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and mode of applying.
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THE WOODVILLE WHITE LIME CO., Toledo, Ohio.

MARKETS

DETROIT WHOLESALE MARKETS.

January 27, 1909.

Grain and Seeds.

Wheat.—The high prices reported in last week's issue were maintained till Tuesday of this week when the heavy selling by big houses caused a decline of $\frac{3}{4}$ of a cent. The receipts for the past few days are considerably below those for the same days last year and the visible supply showed a decrease of about as many bushels last week as it increased during the corresponding week of 1908. Speculators are believed to be having more than a natural influence upon the market. Some of the smaller ones appear afraid to venture far from the shore as they are of the opinion that later the trade will be manipulated to the advantage of a few large holders. This condition, however, is more than likely to work to the benefit of those farmers who have wheat in their bins. The news is generally favorable for a steady trade. One year ago the price for No. 2 red wheat was 99 $\frac{1}{2}$ c. Quotations for the week are:

	No. 2	No. 1	No. 3	Red.	White.	Red.	May.	July.
Thurs.	1.08	1.07	1.05	1.09 $\frac{1}{2}$	1.01 $\frac{1}{2}$			
Fri.	1.08	1.07	1.05	1.09 $\frac{1}{2}$	1.01 $\frac{1}{2}$			
Sat.	1.08	1.07	1.05	1.09 $\frac{1}{2}$	1.01 $\frac{1}{2}$			
Mon.	1.08	1.07	1.05	1.09 $\frac{1}{2}$	1.01			
Tues.	1.07 $\frac{1}{2}$	1.06 $\frac{1}{2}$	1.04 $\frac{1}{2}$	1.08 $\frac{1}{2}$	1.00 $\frac{1}{2}$			
Wed.	1.08	1.07	1.05	1.09 $\frac{1}{2}$	1.01			

Corn.—Prices rule with those of last week. Heavy buying by shorts has given the market a firm tone and afforded strength when the wheat trading was on the decline. The poor condition of the roads thruout the corn belt due to the recent rains has prevented the delivery of the grain at primary points and has resulted in an improved market. The demand is urgent and steady. One year ago the price paid for No. 3 corn was 55c. Quotations for the week are:

	No. 3	White.	Yellow.
Thursday	61 $\frac{3}{4}$	62 $\frac{3}{4}$	
Friday	61 $\frac{3}{4}$	62 $\frac{3}{4}$	
Saturday	61 $\frac{3}{4}$	62 $\frac{3}{4}$	
Monday	61 $\frac{3}{4}$	62 $\frac{3}{4}$	
Tuesday	61 $\frac{3}{4}$	62 $\frac{3}{4}$	
Wednesday	62	63	

Oats.—Prices are ruling on the same basis as a week ago. The local market is steady and quiet and the general trade is good. The business is largely confined to cash deals. One year ago the quotation for No. 3 oats was 54c. Prices for the past week are:

	No. 3	White.
Thursday	53	
Friday	53 $\frac{1}{4}$	
Saturday	53	
Monday	53	
Tuesday	53	
Wednesday	53 $\frac{1}{4}$	

Beans.—While there has been no trading the demand for beans is improving and the nominal prices have advanced accordingly. The offerings are small. Quotations are:

	Cash.	May.
Thursday	\$2.20	\$2.25
Friday	2.20	2.27
Saturday	2.20	2.27
Monday	2.20	2.27
Tuesday	2.21	2.27
Wednesday	2.25	2.30

Clover Seed.—Prices are on about the same basis as last week. Activity is the characteristic feature of the trade. The supply continues steady enough to care for the demand. The movement is large. Quotations are as follows:

	Prime Spot.	Mar.	Alsike.
Thursday	\$5.55	\$5.62 $\frac{1}{2}$	\$8.00
Friday	5.55	5.60	7.75
Saturday	5.52 $\frac{1}{2}$	5.60	7.50
Monday	5.50	5.55	7.50
Tuesday	5.50	5.55	8.00
Wednesday	5.50	5.55	8.00

Rye.—Market steady but dull with no change in price. Quotation for cash No. 2 is 78c.

Visible Supply of Grain.

	This week.	Last week.
Wheat	46,875,000	48,704,000
Corn	6,549,000	7,210,000
Oats	10,099,000	10,353,000
Rye	817,000	928,000
Barley	4,266,000	4,445,000

Flour, Feed, Provisions, Etc.

Flour.—Unchanged. Demand is good. Receipts of flour on Tuesday were 600 bbls., and shipments 200 bbls. Quotations are as follows:

Clear	\$5.00
Straight	5.15
Patent Michigan	5.75
Ordinary Patent	5.35

Hay and Straw.—Prices unchanged. Carlot prices on track are: No. 1 timothy, new, \$10.50@11; No. 2 timothy, \$9.50@10; clover, mixed, \$9@10; rye straw, \$7@7.50; wheat and oat straw, \$6@6.50 per ton.

Feed.—Prices are unchanged. Bran, \$24 per ton; coarse middlings, \$25; fine middlings, \$26; cracked corn and coarse corn meal, \$25.50.

Potatoes.—There is a strong demand for potatoes. The market is firm and supplies only in moderate amount. Good stock is quoted at 75@80c per bu.

Oils.—Lard in barrels, 56c per gal; boiled, 57c; lard oil, extra winter strained, 80c; extra No. 1, 66c; No. 1, 50c; No. 2, 45c; headlight kerosene, 9 $\frac{1}{2}$ c; turpentine by the bbl., 48c per gal.

Provisions.—Family pork, \$17.25@17.75; mess pork, \$16; light short clear, \$18.50; heavy short clear, \$19; pure lard in tierces, 10 $\frac{1}{2}$ c; kettle rendered lard, 11 $\frac{1}{2}$ c; bacon, 12c; shoulders, 7 $\frac{1}{2}$ c; smoked hams, 11c; picnic hams, 7c.

Hides.—No. 1 green, 9 $\frac{1}{2}$ c; No. 2 green, 8 $\frac{1}{2}$ c; No. 1 cured, 12c; No. 2 cured, 11c; No. 1 green kip, 14c; No. 2 green kip, 12 $\frac{1}{2}$ c; No. 1 cured calf, 15 $\frac{1}{2}$ c; No. 2 cured calf, 14c; No. 1 horsehide, \$3.40;

No. 2, \$2.40; sheepskins, as to wool, lambs, 50c@1.50.

Dairy and Food Products.

Butter.—This market has suffered a big drop the past week in all the leading markets, Elgin showing a quotation three cents below that of a week ago. The change in values is sure to bring an increase in the movement. Quotations: Extra creamery, 29c; firsts, 27c; packing stock, 19c; dairy, 21c.

Eggs.—Market is lower than a week ago by 1 $\frac{1}{2}$ c. The supply has increased and a freer movement is apparent. Fresh stock is quoted at 29c per dozen.

Poultry.—Prices are practically the same as last week. The offerings this week are about able to satisfy the demand of consumers. There was a shortage in supply last week which gave the trade a firm tone at the opening Monday. Quotations: Dressed chickens, 14c; fowls, 13c; ducks, 14@15c; geese, 12@13c; turkeys, 18@22c per lb. Live—Spring chickens, 13c; fowls, 12c; ducks, 13@14c; geese, 12c; turkeys, 15@18c per lb.

Fruits and Vegetables.

Apples.—Market strong. Best grades are quoted at \$3.75@5 per bbl. Western apples in bushel boxes, \$2.25@3.50.

Onions.—Spanish, \$1.90 per bu; home-grown at 70@75c per bu.

Cabbage.—Home-grown selling at 2 $\frac{1}{2}$ c per lb.

Vegetables.—Green onions, 15c per doz; radishes, 30c per doz; cucumbers, \$1.75 @2 per bu; lettuce, 15c per lb; head lettuce, \$3.25 per hamper; beets, 45c; turnips, 40c; carrots, 45c; watercress, 40c per doz; celery, 35@40c; spinach, \$1 per bu; parsnips, 60c per bu.

OTHER MARKETS.

Grand Rapids.

While dairy butter is unchanged, creamery is off 2c. The egg market has also dropped 2c, with prospects of still farther declines before the week is over. The mild weather has stimulated country offerings and it is not that probable that prices will be as high again this season. The potato market is showing some strength, the prices paid for stock at loading stations being around 55c. Poultry is in good demand at a little better figure.

Quotations follow:

Grains.—Wheat, \$1; corn, 62c; oats, 52c; buckwheat, 75c per bu; rye, 70c. Beans.—Handpicked, \$1.90 per bu. Butter.—Buying prices, Dairy, No. 1, 24c; No. 2, 17c; creamery in tubs, 29 $\frac{1}{2}$ c. Cheese.—Michigan full cream is selling at 13@14c per lb; brick, 15c; Swiss, 16c; limburger, 15c. Eggs.—Case count, 25c; candled, 28 @30c. Apples.—75c@1.25. Potatoes.—65@70c per bu. Cattle.—Cows, \$2.50@3 per cwt; steers and heifers, best quality, \$3@4; dressed mutton, 7@8c; dressed veal, 6 $\frac{1}{2}$ @8 $\frac{1}{2}$ c; dressed beef, cows, 4 $\frac{1}{2}$ @5 $\frac{1}{2}$ c; steers and heifers, 5 $\frac{1}{2}$ @7. Hogs.—Dressed, 7 $\frac{1}{2}$ @7 $\frac{3}{4}$ c. Live Poultry.—Fowls, 10 $\frac{1}{2}$ @11c; spring chickens, 10 $\frac{1}{2}$ @11 $\frac{1}{2}$ c; roosters, 8@9c; turkeys, 16@18c; young ducks, 11@12c; geese, 9@10c.

Cincinnati.

Potatoes.—Market lower. Bulk on track, 76@78c per bu. Butter.—Creamery prints, 34 $\frac{1}{2}$ c per lb; extra, 34c; firsts, 32 $\frac{1}{2}$ @33 $\frac{1}{2}$ c. Eggs.—Extra, 27c per doz; firsts, 24c. Apples.—King, \$5.00 per bbl; Snow, \$3.50; Baldwins, \$4@4.25; Spy, \$4.25@4.75; Greenings, \$3.75@4.25. Poultry.—Live—Springers, 12@13 $\frac{1}{2}$ c per lb; hens, 10@11c; cocks, 7c; ducks, 11@13c; turkeys, 10@18c.

Chicago.

Wheat.—No. 2 red, \$1.05 $\frac{1}{2}$ @1.06 $\frac{1}{2}$; May, \$1.06 $\frac{1}{4}$; July, 96 $\frac{1}{2}$ c. Corn.—No. 2, 59 $\frac{1}{2}$ @59 $\frac{3}{4}$ c; No. 2 yellow, 59 $\frac{1}{2}$ @60 $\frac{1}{4}$ c; May, 62 $\frac{1}{2}$ c; July, 62 $\frac{1}{2}$ c. Oats.—No. 3 white, 48 $\frac{1}{2}$ @50 $\frac{1}{2}$ c; May, 51 $\frac{1}{2}$ c; July, 46 $\frac{1}{2}$ c. Barley.—Good feeding, 59c; fair to choice malting, 60 $\frac{1}{2}$ @64c. Butter.—Lower; creameries, 22@28c; dairies, 21 $\frac{1}{2}$ @25c. Eggs.—Easy. At mark, cases included, 26@29c; firsts, 29c; prime firsts, 30c. Potatoes.—Car lots in bulk. Fancy, 73 @75c per bu; ordinary to good, 65@68c.

Pittsburg.

Potatoes.—Michigan, 78@80c; in small lots, 80@83c. Eggs.—Lower. Fresh candled, 31@32c; current receipts, 27@31c. Apples.—King, \$5@5.50 per bbl; Spy, \$5; Spitzenburg, \$5. Poultry.—Dressed. Turkeys, 20c; spring chickens, 13 $\frac{1}{2}$ @14c; hens, 13 $\frac{1}{2}$ @14c; ducks, 14@15c.

New York.

Grain.—Wheat, No. 2 red, \$1.07 $\frac{1}{2}$ @1.08 $\frac{1}{2}$ c; corn, No. 2, 70c; oats, mixed, 54 $\frac{1}{2}$ @54 $\frac{1}{4}$ c. Eggs.—Lower and unsettled; western firsts, 29c; seconds, 28@28 $\frac{1}{2}$ c. Butter.—Lower. Creamery specials, 30 @30 $\frac{1}{2}$ c; western factory firsts, 21@22c. Potatoes.—Western, in bulk, per 180 lbs., \$2.25@2.50; per bu, 78@80c. Poultry.—Dressed, weak; western spring chickens, 14@21c; turkeys, 15@23c; fowls, 14@21c.

Hay.—Choice timothy, \$17; No. 1, \$16.50; No. 2, \$15; No. 3, \$13@14; shipping, \$12@13; little clover mixed, \$14@15; No. 1 clover, \$13; No. 2, \$12; No. 1 rye straw, \$22@23; No. 2 do, \$18@19; No. 1 tangled rye, \$12@13; oat straw, \$9; wheat, \$9.

Boston.

Wool.—The strong tone of the London market has given the trade here a firm feeling. In all of the lines offered at the auction sales there competition is holding prices at the recent level while in many lines of the better grades advances are reported. There is a scarcity of desirable grades on the Boston market and the selling has been slow on that

account. Domestic kinds are selling at firm prices and many contracts are completed at advances over recent quotations. The shipments of wool to Boston for January till the 21st amounted to 12,784,480 pounds, compared with 6,934,288 pounds for the same period in 1908. The exports amounted to 15,472,047 pounds against 9,711,471 pounds for the same period the year before.

Elgin.

Butter.—Market firm at 29c, which is 3c below last week's quotation. Sales for the week amounted to 504,600 lbs., compared with 547,700 lbs. for the previous week.

THE LIVE STOCK MARKETS.

Buffalo.

(Special report by Dunning & Stevens, New York Central Stock Yards, East Buffalo, N. Y.)

January 25, 1909.

Receipts of sale stock here today as follows: Cattle, 100 cars; hogs, 13,760 head; sheep and lambs, 13,400; calves, 800.

With light runs of cattle in the west and also a light run here our market opened this morning about steady with last week's close on all desirable butcher cattle. There were but few heavy cattle on the market and they sold about steady, but had there been any number of them here, the prices would undoubtedly have been lower from the fact that the demand is very slack on heavy weight cattle. There were a good many bulls here and they sold lower. Medium cows were also lower.

We quote: Best steers, \$6@6.50; best 1,200 to 1,300 lb. shipping steers, \$5.75@6.25; best 1,000 to 1,100 lb. shipping steers, \$5@5.50; best fat cows, \$4.50@4.75; fair to good cows, \$3.50@4; trimmers, \$2; best fat heifers, \$5.25@5.50; butcher heifers 800 to 900 lbs., \$4@4.25; light fat heifers, \$3@3.25; best bulls, \$4.50@4.75; bologna bulls, \$3.50@4.

With colder weather and light receipts our hog market opened this morning strong 5@10c higher than Saturday and closed steady at the opening with a good clearance. We quote: Best medium and heavy, \$6.65@6.75; mixed, \$6.65@6.70; best yorkers, \$6.55@6.65; light yorkers, \$6.25@6.40; pigs, \$5.70@5.75; roughs, \$5.65@5.75; stags, \$4.25@4.75.

The lamb market today was active and 40c a hundred higher than Saturday. Everything is sold and the prospects look favorable for the balance of the week. We quote: Top lambs, \$7.65@7.75; fair to good, \$7@7.60; cull lambs, \$5.50@6.75; skin culls, \$4.50@5; yearlings, \$6@6.65; wethers, \$5.25@5.50; ewes, \$4.75@5; cull sheep, \$2.50@3.50; best veals, \$9.75@10; medium to good, \$7.50@9; heavy, \$4@5.

Chicago.

January 25, 1909.

Cattle.

Received today 17,000 38,000 14,000
Same day last year 19,789 35,009 15,900
Received last week 76,640 209,944 58,259
Same week last year 74,037 259,326 58,243

Cattle were marketed last week in greatly excessive numbers, following too generous receipts in recent weeks, and prices suffered further declines for all descriptions, the average reductions for the week being 25@35c. Beef steers sold largely at \$4.75@6.50, the commoner light-weight killers going at \$4@5 and the best cattle at \$6@7 for eastern shipment. A pretty good kind sold around \$5.75, and heavy losses were suffered by many country shippers, the appearance of mild weather checking the consumption of beef, while the packers were carrying large stocks of beef in their coolers. As has been the case for a long period, the principal demand was for light and handy little cattle that could be bot comparatively cheap, and the few fat heavy beeves that were offered sufficed to meet every want. Butcher stock also retained its popularity with the trade and declined less than steers, there being a steady call for cows and heifers at \$3@6, altho very few sold near the top figure. Canners and cutters had a restricted sale at \$1.50@2.95, bulls selling at \$2.75@5. Calves sold freely at \$3@9 per 100 lbs, being lower, with a few early sales at \$9.25@9.50. Stockers and feeders were fairly active at \$2.75@5.25, the market being considerably lower except for the best under larger offerings. Milkers and springers had a fair sale most of the time at \$25 @60 per head, the call being mainly for the better class of cows. Cattlemen have the future in their own control, and how prices will rule will depend on whether stock is rushed to market in excessive numbers or not. If marketed conservatively, the cattle now being fed will bring good prices.

The receipts of cattle today were meager in the extreme, but the supply was helped out by the large number carried over from last week. The accumulations failed as a rule to sell much, if any, better, but fresh lots were largely 10c higher, and some lots sold 15@20c higher. The best beeves failed to go above \$6.90.

Hogs are still in good demand by the large and small Chicago packers, but they succeeded last week in bringing about some sharp declines in prices, as the eastern shipping orders were not always up to the recent average in volume. Local packers were larger buyers of prime heavy hogs than heretofore, while several eastern shippers bought medium weights averaging 210 lbs. and upward to a considerable extent. The offerings have been running largely to light hogs, and the average weight of the receipts was only 202 lbs. compared with 214 lbs. a month ago, 216 lbs. a year ago and 223 lbs. two years ago. There have been some large runs of hogs recently, as well as of cattle, and everything indicates that stockmen are still anxious to save feed bills and market their corn. The spread in prices between the commoner light and the well matured hogs is still extremely wide and

is far greater than in recent years. Hogs were unusually scarce today for a Monday, and prices averaged a dime higher, some lots going at advances of 15c. Hogs sold at \$5.65@6.60, the best light going at \$6.40.

Sheep and lamb receipts last week were on an unusually moderate scale, as sheepmen realized fully that existing conditions were very unfavorable for having stock on the market. Small as were the supplies, prices suffered several sharp declines, for the general demand was apt to be extremely poor. The market was depressed a good deal by the poor eastern shipping demand, the Buffalo market being weakened materially by the large shipments there from Michigan, for Illinois maintained its quarantine against Michigan that was instituted on the outbreak of foot and mouth disease several weeks ago. A good many Montana thin wethers were sold for feeders, but otherwise feeder stock was extremely scarce. The remarkably small receipts today caused advances of 10@15c, lambs selling at \$5@7.75, ewes at \$2.50@5.35, wethers at \$5@6.65, yearlings at \$5@6.85, and rams at \$3@4.50. Feeders wanted wethers at \$4.80@4.95, yearlings at \$5.50 and lambs at \$6.75@7.15.

Horses have been marketed since the beginning of 1909 with greatly increased liberality, and as the supplies have been excessive most of the time, it has been no easy matter for sellers to maintain prices at their former level. Last week saw a rather moderate demand most of the time for heavy drafters at \$165@215 per head, not many going higher than \$200, altho there were limited sales of extra heavy well-finished animals at \$225 @260. Farm horses had a fair sale at \$135@160, a few bringing a higher figure. Orders for small chunks for southern shipment were fair at \$60@110. Light drivers sold pretty well at \$140@350, and feeders brot \$165@215.

LIVE STOCK NOTES.

Our foreign cattle demand has fallen off a good deal, Argentine having undersold us in British markets. Only 254,251 cattle, valued at \$23,413,000, were exported by the United States last year, compared with 357,662, valued at \$32,610,000, the previous year. Owing to Argentine competition, exports of dressed beef were only 155,905,000 pounds, compared with 269,136,000 pounds in 1907. Total exports of cattle, hogs and sheep from this country in 1908 were valued at only \$24,204,452, compared with \$33,520,621 the previous year and \$40,338,000 in 1905. Lard exports last year were \$2,300,000 less than in 1907. Packers see how things are going and are making plans for developing the beef production of Canada and Argentina with the object of supplying the European markets.

This is a time when farmers who are fattening droves of healthy growing hogs should consider carefully before marketing them prematurely. The average farmer simply looks at the price of corn, which is admittedly high, and decides to let the hogs go to market while of extremely light weight, and obtains a low price, whereas the stockman who hangs on to his hogs until they are good and fat sells at a handsome premium, for it is the heavy lard hogs that are the favorites with buyers these times. Of late the average weight of the hogs received at the Chicago stockyards has been running almost down to 200 pounds, being the lightest average weight seen since the first week of March, 1904, when the average dropped to 199 pounds.

The sheep feeding industry, where conducted properly, is paying extremely well this winter, and had it not been for the outbreak of foot and mouth disease in several states, there would have been no obstacles in the path of sheepmen engaged in preparing mutton for the market, taking it for granted that feeders did not pay exorbitant prices for their stock at the start. Even poorly fattened flocks have been sold in recent weeks at figures that meant snug profits, while the men who have marketed prime lambs and sheep have been richly rewarded. Michigan sheepmen have good reason to regret that the Illinois quarantine against their state has been maintained so long, as it has shut them from the Chicago market and forced them to send their flocks to Buffalo and other eastern markets. Thus, the Buffalo market has received more than its quota of sheep, and this accounts for the recent frequent declines in prices there.

This has been an unusually mild and dry winter thruout cattle feeding districts, and much less corn and other feed than in most former years has been required, making quite a saving. The dearth of corn has led to the use of more hay and roughage than usual, and widespread distrust of the future market has been responsible for early marketing of stock, owners thinking it best to secure a profit whenever it was possible to do so. As a rule, larger profits by far have been made on short-fed than on the long-fed cattle, and the former have advanced at times when the latter declined in price. The course of the market is indicated by the fact that last week saw fed steers selling in the Chicago market at \$4 to \$7 per 100 pounds, while a month earlier sales were made at \$3.50 to \$7.75. Heavy beeves seem to have had their day, and handy little cattle are the winners now. In recent weeks cattle weighing from 1,200 to 1,300 pounds that were fed from thirty to forty bushels per steer have been sold in the Chicago market for \$5.75 to \$6.25 per 100 pounds, and these cattle have paid their owners at the rate of \$1 a bushel and more for the corn used. In Montana it is now the custom to fatten a good many cattle on hay during the winter months, and the first shipment of the season arrived in Chicago a few days ago. These cattle were pretty good in the flesh and sold at \$5.10 to \$5.30 for 950 to 1,100-pound steers and at \$4.10 for 990-pound cows.

THIS IS THE LAST 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.

DETROIT LIVE STOCK MARKETS.

Thursday's Market.

January 28, 1909.

Cattle.

Receipts, 816. Market steady at Wednesday's prices. Common cows very dull and hard to sell.

We quote: extra dry-fed steers and heifers, \$5.25; steers and heifers, 1,000 to 1,200, \$4.50@5; steers and heifers, 800 to 1,000, \$4.25@5; steers and heifers that are fat, 500 to 700, \$4.40@4.60; choice fat cows, \$4; good fat cows, \$3.50; common cows, \$2@3; canners, \$1.50@2; choice heavy bulls, \$4; fair to good bolognas, bulls, \$3.75; light bulls, \$3.25@3.50; milkers, large, young, medium age, \$4@5; common milkers, \$2@3.

Weeks sold Sullivan P. Co. 3 bulls av 1,113 at \$4, 1 do weighing 920 at \$3.50, 7 cows av 957 at \$3.10.

Wanted sold same 7 butchers av 721 at \$4.30, 2 cows av 980 at \$2, 4 do av 1,100 at \$3.30.

Weeks sold Rattkowsky 3 butchers av 883 at \$4.

Henry sold Armstrong 8 steers av 875 at \$4.75.

Downing sold Marx 1 cow weighing 960 at \$3.40, 2 cow and bull av 850 at \$4.

Reason & M. sold Newton B. Co. 5 butchers av 846 at \$4.35, 3 cows av 1,073 at \$2.50; to Ratner 1 bull weighing 1,240, at \$3.65, 1 do weighing 1,110 at \$3.75; to Newton B. Co. 2 steers av 825 at \$4.25, 1 heifer weighing 600 at \$3.50.

Spicer & M. sold Sullivan P. Co. 12 cows av 1,018 at \$3.50, 11 butchers av 826 at \$4.15; to Kull 2 bulls av 935 at \$4, 1 steer weighing 1,000 at \$5; to Sullivan P. Co. 1 cow weighing 770 at \$1.50; to Rattkowsky, 2 butchers av 820 at \$3.50, 2 do av 940 at \$3, 1 cow weighing 1,070 at \$3; to Sullivan P. Co. 1 cow weighing 1,260 at \$4, 2 do av 1,220 at \$3.75; to Goose 3 do av 820 at \$2.75, 2 canners av 820 at \$2; to Thompson Bros. 1 bull weighing 1,360 at \$3.75, 7 cows av 1,030 at \$3.35, 2 canners av 855 at \$2; to Goose 3 cows av 1,066 at \$2.50; to Schlischer 8 butchers av 823 at \$4.20, 4 cows av 1,062 at \$3.15.

Bishop, B. & H. sold Kamman B. Co. 16 butchers av 692 at \$4, 7 do av 806 at \$4, 10 do av 883 at \$5; to Sullivan P. Co. 2 bulls av 1,100 at \$3.65, 2 do av 845 at \$3.50, 1 cow weighing 1,080 at \$3, 6 do av 1,040 at \$3.15, 2 do av 1,070 at \$3.40, 1 bull weighing 1,110 at \$3.70; to Newton B. Co. 5 butchers av 760 at \$3, 2 cows av 790 at \$2, 1 bull weighing 560 at \$3, 9 butchers av 883 at \$3.90, 15 do av 800 at \$4.50, 6 do av 796 at \$3, 4 do av 840 at \$4.25; to Sullivan P. Co. 1 bull weighing 1,270 at \$3.75, 3 cows av 1,026 at \$3, 2 heifers av 785 at \$4, 2 cows av 1,035 at \$2; to Thompson Bros. 1 heifer weighing 870 at \$5, 1 cow weighing 830 at \$2.75, 3 do av 1,000 at \$2.75; to Newton B. Co. 11 butchers av 780 at \$4.35, 7 do av 946 at \$3.25, 4 cows av 960 at \$3, 6 heifers av 770 at \$4, 2 steers av 1,130 at \$3.25.

Roe Com. Co. sold Newton B. Co. 31 butchers av 680 at \$4.25, 2 do av 765 at \$3, 2 cows av 1,190 at \$3.50, 3 do av 1,033 at \$2.65, 4 steers av 980 at \$4.50; to Mich. B. Co. 3 butchers av 786 at \$4.15, 3 do av 656 at \$4.15, 4 do av 712 at \$4.15, 3 do av 500 at \$3.25, 4 do av 940 at \$3.25; to Sullivan P. Co. 1 bull weighing 1,700 at \$4.25; to Mich. B. Co. 11 butchers av 647 at \$3.25.

Long sold Mich. B. Co. 1 bull weighing 1,230 at \$3.75, 1 steer weighing 950 at \$5, 2 cows av 915 at \$2, 6 do av 1,060 at \$3.50, 6 butchers av 790 at \$4.

Dancer sold same 1 heifer av 1,020 at \$5, 3 cows av 800 at \$4.

Weeks sold same 3 steers av 1,050 at \$5, Downing sold same 4 butchers av 692 at \$3.50, 2 steers av 1,100 at \$5.

Vaughan Bros. sold Newton B. Co. 1, cow weighing 1,170 at \$3.50, 4 steers av 837 at \$4.40, 4 do av 1,112 at \$5.15.

Waterman sold Fitzpatrick 7 cows av 806 at \$3.50, 13 butchers av 762 at \$4.35, 3 do av 1,207 at \$4.50, 3 steers av 1,136 at \$5.

Veal Calves.

Receipts, 414. Market strong at Wednesday's prices. Best, \$7.50@8; others, \$4@7; milk cows and springers, steady.

Bishop, B. & H. sold Sullivan P. Co. 15 av 150 at \$6.75; to Caplis 6 av 125 at \$7.25; to Nagle 12 av 145 at \$7.50; to Parker, W. & Co. 4 av 150 at \$8, 5 av 130 at \$7.75, 2 av 160 at \$7.75; to Hammond, S. & Co. 5 av 120 at \$7.50, 2 av 125 at \$7.50; to Rattkowsky 3 av 140 at \$7.75; to Gose 3 av 125 at \$7.25, 1 weighing 240 at \$3.50; to Nagle 4 av 145 at \$7.75, 7 av 135 at \$7.75, 7 av 150 at \$7.50, 1 weighing 210 at \$8.

Roe Com. Co. sold Newton B. Co. 4 av 160 at \$7.50, 9 av 145 at \$7.50, 11 av 135 at \$7.50.

Spicer & M. sold Sullivan P. Co. 2 av 130 at \$7; to Mich. B. Co. 1 weighing 120 at \$7.50, 1 weighing 160 at \$8; to Burnstine 2 av 170 at \$7.50.

Long sold Hammond, S. & Co. 4 av 150 at \$8, 2 av 115 at \$7, 4 av 140 at \$7.50.

Henry sold Nagle 4 av 150 at \$7.75.

Stephens sold same 6 av 150 at \$7.50.

Torrey sold Burnstine 1 weighing 150 at \$7.50.

Rice sold same 2 av 125 at \$7.

Cheney sold Rattkowsky 8 av 125 at \$7.

Reason & M. sold McGuire 5 av 140 at \$8, 10 av 131 at \$7.50, 2 av 155 at \$8; to Newton B. Co. 2 av 135 at \$7.50.

Sheep and Lambs.

Receipts, 5,911. Market steady at Wednesday's prices. Best lambs, \$6.50; fair to good lambs, \$6.25; light to common lambs, \$4.50@5.50; fair to good butcher sheep, \$3.50@4; culls and common, \$2.50@3.

Roe Com. Co. sold Newton B. Co. 2 bucks av 185 at \$3.50, 40 lambs av 75 at \$6.50, 3 do av 70 at \$6.50, 40 do av 77 at \$6.50, 1 buck weighing 160 at \$3.50; to Barlage 7 sheep av 105 at \$4, 15 lambs av 77 at \$6; to Mich. B. Co. 57 sheep av 80 at \$3.65.

Henry sold Nagle 27 lambs av 85 at \$6.25, 54 do av 90 at \$6.50, 66 do av 70 at \$6.25, 5 sheep av 75 at \$3.50, 7 do av 80 at \$3.50.

Weeks sold same 10 lambs av 67 at \$5, 91 do av 90 at \$6.50.

Fillingham sold same 69 lambs av 75 at \$5.75.

Burnes sold same 97 do av 90 at \$6.25, 10 sheep av 111 at \$3.50.

Stephens sold same 168 lambs av 90 at \$6.40.

Reason & M. sold Nagle 30 lambs av 70 at \$6.10, 1 buck weighing 170 at \$3.

Carmody sold Mich. B. Co. 1 buck weighing 190 at \$3.25, 3 lambs av 80 at \$5.50.

Groff sold Barlage 5 sheep av 135 at \$4, 21 lambs av 70 at \$5.

Spicer & M. sold Sullivan P. Co. 42 lambs av 75 at \$5; to Mich. B. Co. 29 do av 70 at \$5.75; to Nagle 86 do av 90 at \$6.35, 7 sheep av 120 at \$3.50.

Haley sold Sullivan P. Co. 4 lambs av 80 at \$5.50, 8 sheep av 115 at \$3, 64 do av \$5 at \$3.25.

Bishop, B. & H. sold Sullivan P. Co. 7 sheep and lambs av 50 at \$4, 4 sheep av 125 at \$3; to Nagle 201 lambs av 105 at \$6.50, 17 do av 65 at \$5.50, 255 sheep av 90 at \$3, 20 do av 110 at \$3, 3 do av 90 at \$3.50, 6 do av 130 at \$3.50, 72 lambs av 85 at \$6.25, 46 do av 90 at \$6.50, 45 do av 75 at \$6.25, 1 buck weighing 190 do av \$3, 5 lambs av 150 at \$5, 65 do av 85 at \$6.65, 108 mixed av 87 at \$4.50, 89 lambs av 80 at \$6.25, 94 do av 85 at \$6.50, 6 sheep av 125 at \$3.50; to Caplis 22 lambs av 70 at \$6; to Hammond, S. & Co. 14 sheep av 90 at \$3.50, 16 do av 95 at \$3.40, 1 buck weighing 170 at \$2.50; to Parker, W. & Co. 24 lambs av 90 at \$6.50, 23 do av 90 at \$6.25; to Fitzpatrick Bros. 24 do av 70 at \$6.25, 55 sheep av 65 at \$3, 47 do av 60 at \$2.30.

Bishop, B. & H. sold Nagle 1,260 lambs av 90 at \$6.50.

Hogs.

Receipts, 5,163. Market, packers bidding 5@10c lower than on Wednesday. Closed steady with last week.

Range of prices: Light to good butchers, \$6.20@6.30; pigs, \$5; light yorkers, \$5.50@6.

Sundry shippers sold Hammond, S. & Co. 139 av 192 at \$6.20, 151 av 196 at \$6.15, 60 av 160 at \$6, 151 av 230 at \$6.25, 42 av 154 at \$5.70, 51 av 180 at \$5.75.

Sundry shippers sold Parker, W. & Co. 115 av 162 at \$6.15, 172 av 192 at \$6.25, 170 av 191 at \$6.20.

Reason & M. sold Parker, W. & Co. 41 av 120 at \$6, 83 av 160 at \$6.25, 138 av 205 at \$6.30.

Spicer & M. sold same 240 av 175 at \$6.25, 130 av 170 at \$6.15, 140 av 166 at \$6.10, 130 av 174 at \$6.

Bishop, B. & H. sold same 271 av 175 at \$6, 216 av 190 at \$6.25, 382 av 200 at \$6.30, 71 av 180 at \$6.15, 71 av 170 at \$6.10, 367 av 210 at \$6.35.

Roe Com. Co. sold Sullivan P. Co. 145 av 201 at \$6.25, 10 pigs av 110 at \$5.25.

Sundry shippers sold same 48 av 199 at \$6.20, 73 av 202 at \$6.25.

Friday's Market.

January 22, 1909.

Cattle.

Receipts, 36. Market steady at Thursday's prices.

We quote: Extra dry-fed steers and heifers, \$5.25; steers and heifers, 1,000 to 1,200, \$4.50@5; steers and heifers, 800 to 1,000, \$4.25@4.50; steers and heifers that are fat, 500 to 700, \$4.40@4.60; choice fat cows, \$4; good fat cows, \$3.50@3.75; common cows, \$2@2.50; canners, \$1.50@2; choice heavy bulls, \$4; fair to good bolognas, bulls, \$3.50@3.75; light bulls, \$3@3.50.

Bishop, B. & H. sold Sullivan P. Co. 2 cows av 950 at \$2.75, 2 do av 1,160 at \$3.75, 7 steers av 1,064 at \$4.90.

Giles sold same 1 steer weighing 1,140 at \$5, 4 cows av 1,152 at \$3.75, 2 do av 1,150 at \$3.

Bishop, B. & H. sold Bresnahan 3 cows av 966 at \$2.75, 4 do av 1,025 at \$3.50, 3 steers av 963 at \$4.60, 1 bull weighing 1,500 at \$3.75.

Bohm sold Kamman 22 butchers av 752 at \$4, 1 cow weighing 1,070 at \$3, 2 bulls av 1,030 at \$3.75.

Veal Calves.

Receipts, 20. Market steady at Thursday's prices. Best, \$7@7.75; others, \$1@6.50; milk cows and springers—ship no common cows.

Sheep and Lambs.

Receipts, 361. Market steady at Thursday's prices. Best lambs, \$6.50; fair to good lambs, \$6@6.40; light to common lambs, \$5@6; fair to good butcher sheep, \$3@4; culls and common, \$2@3.

Johnson sold Sullivan P. Co. 5 sheep av 125 at \$3, 23 lambs av 70 at \$6.

Bishop, B. & H. sold Hammond, S. & Co. 105 lambs av 95 at \$6.50, 192 do av 90 at \$6.50.

Bohm sold same 14 lambs av 80 at \$6.50, 8 sheep av 120 at \$4.

Hogs.

Receipts, 596. Market strong and 5@10c higher.

Range of prices: Light to good butchers, \$6.25@6.45; pigs, \$5@5.25; light yorkers, \$5.50@6; stags, 1/2 off.

Roe Com. Co. sold Parker, W. & Co. 129 av 225 at \$6.45.

Hauser sold same 71 av 250 at \$6.40.

Bishop, B. & H. sold Hammond, S. & Co. 73 av 165 at \$6.20, 287 av 180 at \$6.35, 79 av 185 at \$6.30, 381 av 170 at \$6.15.

Bishop, B. & H. sold Sullivan 29 pigs av 110 at \$5.25.

A. E. Wayne, who carries on the flour mills at Smithland, Iowa, was at the Chicago stockyards a few days ago with two car loads of ewes of his own feeding, purchased in Omaha on the fifteenth day of last November at \$2 per 100 lbs. They were fed for a period of sixty days on a ration of two-thirds cracked corn and one-third wheat bran, with hay furnished

as roughage. The flock made a gain of 23 1/2 pounds per head in sixty days, and brot in the market \$5 per 100 pounds. This shows what can be done by a man who understands the business of fattening sheep and uses the proper kinds and the right quantities of feed.

VETERINARY.

(Continued from page 99).

feed of chopped beets. They have dry beds and are kept clean. I give them a small amount of charcoal and ashes once a week. They seem to have fits, will come up to a trot, perhaps get a mouthful and fall over with a squeal, kick and gasp for two or three minutes, gradually becoming quiet, after which they slowly regain consciousness, breathing very fast, remain in a sort of stupor, soon going back to the feed trot and eat all right. This ailment does not affect all of the pigs at a time; it affects the thrifty pigs as well as those that are not so thrifty. I opened one that died, a September pig, and could find nothing unusual except the liver was spotted. F. A. V., Paris, Mich.—The cold food and water produces a spasm of larynx, causing the pig to choke and have spasms. By feeding them warm feed and water you will have few such cases. If they had liver disease they would show symptoms of disease; your pigs seem to be healthy.

Torpid Kidneys.—I have a colt 4 1/2 months old that is not weaned, travels quite stiff in hind quarters. Our local Vet. gave me medicine, but it is not doing the colt much good. H. A. H., White Cloud, Mich.—Give your colt a teaspoonful fluid extract buchu and 20 grs. carbonate potash at a dose three times a day.

Loss of Appetite.—I have a mare six years old that seems to have lost her appetite and has a habit of biting her sides when she eats. C. N., Laingsburg, Mich.—Give 1/2 oz. fluid extract gentian, 1/2 oz. fluid extract cinchona, 1 dr. tincture nux vomica at a dose in feed three times a day. Feed her some vegetables twice a day and exercise her daily.

Enlarged Knee.—My mare has an enlarged knee, the bunch being about the size of a hen egg and gradually increasing, making the joint a little stiff. J. H., Saginaw, W. S., Mich.—Apply iodine ointment once a day and give 1 dr. iodide potassium at a dose twice daily.

Weak Calf.—I have a calf about three weeks old that has seemingly lost strength ever since I took him from cow and fed him myself. His appetite is poor and he is very weak. J. P., Hartwick, Mich.—Give calf 20 drops fluid extract cinchona, 20 drops fluid extract gentian at a dose two or three times a day.

Surfeit Buds.—I have a mare that is covered with little bunches the size of match heads; when removed the hair sloughs out. J. C. H., Blissfield, Mich.—Give 1 oz. fluid extract sarsaparilla and 2 drs. Fowler's solution at a dose in feed two or three times a day. Apply a two per cent solution of coal tar disinfectant three times a week.

Influenza.—I have a brood sow three years old that has been sick for some time, hair is coming off and she is also going blind. When walking she staggers some. S. E. T., Allegan, Mich.—Give 10 grs. quinine, 5 drops Fowler's solution and 2 drs. hypo-sulfite soda at a dose in feed twice a day. Blow some calomel into eyes once a day.

Rickets.—I have some pigs three months old that are not thriving and appear to be stiff in their hind legs—how shall I treat them? A. H. S., Allegan, Mich.—Change their feed. Instead of giving them corn, feed some oats, linseed meal and vegetables; also put a little air slacked lime in their feed two or three times a day.

Heart Disease—Nodular Disease in Sheep.—My grade Guernsey cow died suddenly when in apparently good health. I examined her after death, could find no disease, except her heart was very much larger than it should be. What caused her death? I also lost a few sheep lately and I thought they were pretty healthy. I have opened a dead one and found no disease, except the bowels are covered with little nubs; therefore, I concluded they must have died of bowel trouble. A. A., Holton, Mich.—Your cow died of hypertrophy of the heart, and your sheep died as the result of nodular disease, a parasitic ailment of the bowels. Give your sheep a teaspoonful gasoline in 2 ozs. sweet milk once a week for three weeks. In drenching them do not raise the nose too high for fear of a portion of the medicine going down the windpipe and setting up irritation in lungs.

Retention of Placenta.—What can I do for a cow that does not clean after calving? J. L. H., Mt. Pleasant, Mich.—I know of no better plan than to remove the afterbirth, 24 hours after calving if it does not come away before, and after doing so the cow should be treated for 10 days or two weeks; or else she may continue to have a nasty discharge that she may never get well of. The most common cause of barrenness is neglect of cows after calving. Flush out vagina with 1 part coal tar disinfectant, 40 parts water or a two per cent solution of carbolic acid, or a 1 to 1,000 solution bichloride mercury, using not less than three or four quarts at a time. These applications are best made with a rubber hose and funnel.

Weakness—Indigestion.—Once more I ask for advice thru your veterinary department. My 4-year-old gelding is apparently healthy, has good life and not very fleshy, but when driven three or four miles he appears to tire out. Will perspire freely, tremble and lie down, roll over and after being uneasy for 15 or 20 minutes will get up and appear perfectly well. B. W. C., Haslett, Mich.—Your horse suffers from acute indigestion, has mild attacks and is perhaps not digesting his food properly. Give 1 oz. ground ginger, 1 oz. powdered charcoal and 1 dr. ground nux vomica at a dose in feed two or three times a day.

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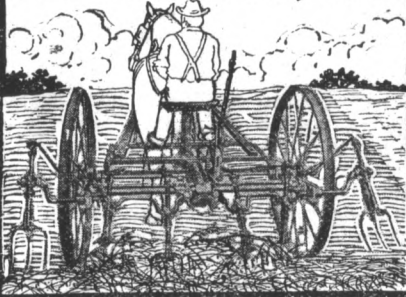
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HOME AND YOUTH

GRANDMOTHER.

BY LEE X. STOCKMAN.

Grandmother sits in her rocking-chair,
And the firelight falls on her thin grey hair.
On the coals she lays an extra stick,
Then her knitting-needles go click, clack, click.

She wears a lace cap and checked gray dress;
On the foot-stool near sits baby Bess;
From the bright blue eyes you would never dream
Of the sixty years there were between.

From that magical corner come mittens and socks,
While her needles keep time to the old-fashioned clock.
The small boys bring their torn trousers to mend
And the pile in her basket seems never to end.

She teaches Mary to knit and to sew,
Helps Harry make kites that will surely go.
Our house and home would be truly bare
Without "Grandma" here in her old arm-chair.

BATTLE OF THE RUSSET AND RED BACKS.

BY CHARLES A. HARTLEY.

The court-house bell at Radnor clanged shrilly. At its first peal the groups standing about on the sidewalks started slightly, showing the tensely of public feeling, and before the ringing had ceased the court-room was half filled. Those walking up the aisles bore solemn expressions and tight-set lips. There was the same determination depicted on each face and the very air seemed electrified with the approaching battle. It was as calm as before a summer storm.

By pre-arrangement, or by common impulse, the five members of the board of education of the town filed solemnly to the front, the president taking the chair on the judge's rostrum and the four other members dropping into seats in the jury box. A stranger would have concluded at once that these five worthies were accused of some crime and were to be tried for the offense.

In the background two well-dressed city gentlemen watched the gathering and each other with the deepest interest.

When the room would not accommodate another person and the crowd trailed out on the landing and part of the way down the stairs, President Andrews reached out, grasped the court's gavel and rapped once for order. The audience was already so still that the blow, slight and hesitating as it was, sounded loud and defiant. After a moment's hesitation and a vigorous mopping of his brow, he looked down over the sea of stern faces, cleared his throat a second time and said:

"Gentlemen of the board of education, and ladies and gentlemen of the good town of Radnor: We have met here this evening under rather peculiar circumstances. At a meeting of this board a week ago the matter of changing the text books in the schools was taken up for consideration. We are urged by certain elements of the town to discard the old Russet Backs of our fathers, and grandfathers, I might say, and adopt the more modern and up-to-date Red Backs. As yet we have not acted in the matter, and as we have with us this evening representatives of each of the houses handling these books, and a goodly representation of the people, we feel that we can arrive at a satisfactory solution of the problem. As I understand from the press notices and the handbills in circulation today this is to be an informal meeting."

Judge Brown arose and asked: "Mr. President, do I understand that this matter is up for discussion without the formality of a motion to adopt the new books or not to adopt them?"

"As I understand the matter," answered Mr. Andrews, "this meeting is to give the public an opportunity to express itself."

"Very well," and the judge bowed. "Perhaps the gentleman offering us this innovation in the form of new books will be kind enough to enlighten us on what he has to offer and why the offer is proffered," with a tinge of sarcasm.

"Mr. Foley will come forward," said the president, motioning to one of the well-dressed gentlemen in the rear who stood resting one arm on a window-sill.

That gentleman walked slowly to the front, fencing for time. He felt like a general going into battle when he does

not know exactly the strength of the foe or its location.

"Mr. Foley is from New York," explained the president, "and represents a large publishing house. He will explain his proposition and give the reasons why he thinks the new books should be adopted."

Foley turned his face toward the audience, which was composed of men, women and children apparently of every station in life. Somehow he felt that he was being drawn into an ambush. He did not like the expressions on the faces of his hearers, and could not understand the spontaneous outpouring of the people in a matter which had apparently been so little agitated. He saw, however, that he was into the battle and might as well take the aggressive as to wait for the batteries of the opposition to open up.

"Well, I hardly know what to say," he began mildly. "I presume that we all understand that this is a matter of business and progression. You must all admit that there is such a thing as progress, even in school books. In order to keep up with the rapid strides of the world we must be on the alert for teachings which apply to the new order of things."

"I might say that a ton of these new books, progressive and up-to-date in every particular," he went on, warming to his subject, "are in the hands of your local agent. These books are to be exchanged free for your old ones, and when the time comes for you to buy, the price will be right."

Judge Brown interrupted: "By the way, Mr. Foley, what length of time does the contract cover?"

"Five years," with a quick glance at the judge, who was country born and bred and understood to be the general to marshal the forces for the defeat of the usurping Red Backs.

"Hm," smiled the judge, dryly.

"Is that all you wish to say, Mr. Foley?" asked the president.

"All at present, I think, unless someone desires to ask me further in regard to the matter," was the reply.

Judge Brown arose to his feet and looked back over the audience until he caught sight of the representative of the Russet Backs. He motioned the Russet Back man to come forward. When he had done so the two conferred a moment in whispers, then the representative went back and took a seat, with a smile which he attempted to conceal.

At that moment Judge Brown turned to the audience and said: "Ladies, gentlemen and children—permit me to change that—children, ladies and gentlemen: That is the way I desire to address you. Mr. Stalder, who is the accredited agent of the Russet Backs, the standbys of ourselves and our children, has kindly permitted me to address you in his stead. I am for the Russet Backs. They have been as meat and drink to me since boyhood—since the days when I read and studied them by firelight and the candle dip."

The judge stopped to wipe his spectacles and nodded slightly toward a tow-headed urchin of ten, who arose, threw back his shoulders and began:

"Under a spreading chestnut tree,
The village smithy stands;
The smith a mighty man is he,
With large and sinewy hands;
And the muscles of his brawny arms
Are strong as iron bands."

Mr. Foley began to scent danger and sprang to his feet. "I did not understand this to be a school entertainment," he exclaimed, angrily.

At another nod from the judge a half-grown girl back in the audience got up and said, with a pretty bow:

"Lives of great men all remind us
We can make our lives sublime,
And, departing, leave behind us
Footprints on the sands of time—"

"Mr. President," exclaimed Mr. Foley, springing to his feet again, "this is preposterous—a farce—a deliberate attempt on the part of someone to create a false sentiment."

The judge raised his hands and said in a low tone:

"O, proper stuff!
This is the very painting of your fear."

The audience began to catch the drift of things and burst out in a roar of applause, hand clappings and stamping.

Foley attempted to make himself heard, while the president, who was believed to be secretly in favor of the cause of the Red Backs, pounded for order. When there was a semblance of silence a middle-aged woman away back in the audience arose and exclaimed:

"Quick, man the lifeboat! see yon bark
That drives before the blast!
There's a rock ahead, the fog is dark
And the storm comes thick and fast!"

At that the audience roared loud and long.

One of the members of the school board in the jury box bounded to his feet. He had been closeted with Mr. Foley that day and his fidelity to the Russet Backs was in doubt. He began: "Good people, this is not treating Mr. Foley fairly," but he got no further, for Judge Brown sprang to his feet and in a fine imitation of a school-boy declaimed:

"Even in thy pitch of pride,
Here, in thy hold, thy vassals near,
I tell thee, thou art defied—"

The roof-raising roar of the audience drowned the rest, and the judge took his seat, flushed and excited. He had hardly touched his chair when the local agent for Mr. Foley's book company, seeing a long list of fat commissions slipping thru his fingers, succeeded in getting the attention of the chair. He expostulated in a see-saw tone. He had hardly got started when a man in overalls sprang to the railing and hurled forth in a shrill voice:

"When desperate heroes grieve with tedious moan,
And whine their sorrows in a see-saw tone,
The same soft sounds of unimpassioned woes,
Can only make the yawning hearers doze."

That nearly brot on a riot. The president turned purple in the face and attempted to adjourn the meeting, when he was met by Judge Brown with:

"All this! aye, more: fret till your proud heart breaks;
Go, show your slaves how choleric you are,
And make your bondsmen tremble. Must I budge?
Must I observe you? Must I stand and crouch

Under your testy humor? By the gods,
You shall digest the venom of your spleen
Tho' it do split you; for, from this day forth,
I'll use you for my mirth, yea for my laughter,
When you are waspish."

The walls fairly trembled from the tumult following this sally. Away back in one corner a boy waved his hat and shouted: "Twinkle, twinkle, little star." Another chimed in with: "Mary had a little lamb—" This was drowned by a third: "Friends, Romans, countrymen, lend me your ears."

Just then Judge Brown arose with a twinkle in his eye and nodded to a youth of ten. He was a son of President Andrews and, at the signal from the judge, walked up to the rostrum and stood by the side of his father, who regarded the boy with open-mouthed astonishment. Folding his arms in school-boy style, he recited:

"Strike, till the last armed foe expires;
Strike, for your altars and your fires;
Strike, for the green graves of your sires;
God and your native land."

Foley saw that the battle was lost. He sprang to his feet, held aloft his arms for silence, and said: "Children, ladies and gentlemen (laughter), the Red Backs capitulate, surrender, and evacuate the town of Radnor. This town belongs to the Russet Backs. The victory is yours. Mr. President," turning to Mr. Andrews, "a motion is in order to reaffirm your allegiance to the Russet Backs forever," with a light laugh.

His suggestion was adopted with a will by the board and confirmed by a prolonged roar from the audience.

"Just one thing more," said Mr. Foley, turning to Judge Brown. "Why did you do it—and how?"

"The answer to your first question is: Sentiment and the love of our old books," answered the old judge, arising and bowing politely. "The 'how' of it you saw yourself. I might add, however, that it took hard work and much practice to erect the poetic breastworks against your invading army. About a hundred of us had to stay up nights for a week to prepare the ammunition for the battle, and I will say for your benefit that we did not use all of it."

A MISANTHROPE.

BY CORA A. MATSON DOLSON.

I'm not at all like other folk,
I love not either smile or joke;
Yet would one lass but smile on me,
And I like other folk might be,
To crack my joke and sing my song,
And house with mirth the whole day long.

Book Notice.

Choruses and Part Songs for High Schools. By Edward Bailey Birge, Mus. B., Supervisor of Music, Indianapolis. The selections included in this book demand a somewhat artistic and sustained effort on the part of the singers to give them adequate interpretation. Square 8vo., cloth, 184 pages. Price, 65 cents. American Book Company, New York, Cincinnati, and Chicago.

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Granulated Sugar Syrup ..13½ oz.
Pinex 2½ oz.

Put the Pinex (50 cents' worth) in a pint bottle and fill up with the syrup, made as follows: To a pint of Granulated Sugar add ½ cup of water, stir and let boil just a moment. Take a teaspoonful every one, two or three hours as required.

A few doses of this simple mixture will usually conquer a stubborn, deep-seated cough. The effect in colds, whooping cough, pains in the chest and similar troubles is surprisingly prompt.

The Granulated Sugar Syrup is a very simple but effective sedative. The Pinex is the most valuable concentrated compound of Norway White Pine Extract. It is rich in gualacal and other elements which give the air of the pine forests its curative power in tuberculosis and membrane diseases. There are many pine oil and pine tar preparations, but the real Pinex itself is far better in this recipe. All druggists have it or will gladly get it for you if requested.

The recipe makes a full pint of cough syrup—enough to last a family a long time. It is a very handy thing to have around the house. If taken when the first symptoms appear it would wipe out nine-tenths of the trouble caused by coughs and colds.

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M. V. McInnes, 6 Ave. Theatre Block, Detroit, Mich.; O. A. Laurier, Marquette, Mich.

WHAT MRS. BUTLER ACCOMPLISHED.

BY HILDA RICHMOND.

"Next week I shall turn over a new leaf," said Mrs. Butler decisively to the pretty matron in the mirror as she hurried to do her hair. "Fred will be gone and so will Herbert, and I can easily dispose of Amy, so nothing will interfere."

"Ready?" called a masculine voice from the hall below. "What agent has been detaining Mrs. Easy Mark this time?"

Forgetting her sudden declaration, Mrs. Butler ran to the head of the stairs and called, "I'll be down in just a minute, Fred. The new boy from the grocery brot pickles instead of lemons and I had to take them back. I didn't like to report him, for his mother is a widow and—" With a sudden effort she closed her lips firmly and hurried back to her dressing. Perhaps the laugh that rang out below helped her remember, but certain it is that she set out with her husband a few minutes later determined to allow him to do all the talking.

From time to time the rest of that week Mrs. Butler made notes in a small blank book and, tho she always disliked being alone in the house, could scarcely wait until her husband, son and daughter took their departure. They had laughingly dubbed her "Mrs. Easy Mark" because of her good disposition, and were always making fun of her household management and inability to take her own part, and now she had determined to take a firm stand and show them that even a worm will turn. She felt sure that with three people to laugh at her she could not make a start, but with them all gone she would settle a lot of old grudges and start anew. She knew as well as anyone her weakness, at least she felt it as a weakness, and she intended to reform.

"Mary, this toast isn't fit to eat!" The family had, scarcely departed before she began her campaign. "It is burnt on one side and white on the other. Never let it happen again."

Mary stood with mouth and eyes wide open in amazement. The stove wouldn't—" she began, hardly knowing what she was saying, but Mrs. Butler interrupted her coldly.

"That will do," she said, leaving the room with dignity. "See that the next you serve is all right."

She walked to the sitting room window just in time to see the little paper boy throw the paper on the porch instead of putting it in the box. "Robert," she called sharply, and the lad stopped short. Often Mrs. Butler remembered that he had had no breakfast, and brot out a cup of milk and a cookie for him. "Robert! The box is the place for this paper! Last week the puppy chewed up two you threw on the porch. If it happens again I will report you to headquarters."

Everything seemed favorable to Mrs. Butler's plan that day and she really enjoyed the troublesome things that happened. The girl at "Central," the meat boy, the milkman and the new boy from the grocery came in for lectures for past or present sins, and they were all too astonished to "talk back" to the determined little woman. Tho the meals when Mr. Butler and the children were away from home were usually of a makeshift character, today Mary served a dainty lunch and an appetizing dinner, which the mistress of the house ate leisurely and complacently.

"Why in the world didn't I do this long ago?" she said to herself the next day after dinner. "Mary has been quite angelic since I scolded her about the toast and everything has improved. It is the easiest thing in the world to turn away agents and I have been a goose all these years. And to think of the money I've wasted on mistakes and buying things of agents, because I tho I couldn't get rid of them any other way. I've been a goose for years but I never will be again."

The next day Mr. Butler appeared quite suddenly. "Called home by business," he told his wife, but after a hasty trip down town he came back and enjoyed a leisurely two hours with her. In the midst of some story he was telling her, Mary appeared, to say that the boy from the meat market had brot chops instead of steak. Mrs. Butler went immediately to the telephone. "That stupid boy of yours has brot the wrong meat again," she said to the butcher, rejoicing to think her back was toward her husband. "If this happens again I shall find another place to deal. Last week I was overcharged and the week before that the meat didn't come at all. Hello! Hello! Central? I was talking to Mr. Gray and you cut me off. I shall report you to the manager."

Hello! Mr. Gray? I am going to send this meat back at once and shall expect the steak in time for lunch." She rang off with a virtuous air, expecting to hear her husband laugh or make some comment, but instead he immediately resumed his story.

Twice before Mr. Butler went to his office did Mrs. Butler have a chance to show her newly acquired "firmness," and she was astonished at herself for being so successful. Not a word of comment did her husband utter, and when at last he started he mentioned that he might be back very soon. Just as he was leaving, Amy Butler jumped out of a hack and kissed her parents, saying that it was too lonesome entirely at her grandmother's so she decided not to stay a week. Mr. Butler appeared much surprised, but after mildly telling his daughter that it was a shame to desert her grandmother so soon, he went down town for a few hours.

"I just wish something would happen to see if I could hold out before Amy," said Mrs. Butler to herself. "I'm afraid I've reformed everybody so completely that my daughter will never discover the new leaf I have turned."

As good luck would have it, that afternoon a woman came soliciting aid for a poor family, and Mrs. Butler had her opportunity. "I think it is all foolishness, Mrs. Blake, to help those shiftless Nelsons. I have been imposed upon time after time, and I have made up my mind never to be again. Yes, I know Mrs. Nelson can't help it, and if she would have them put her no-account husband in the workhouse I'd be willing to do something for her, but as it is, you must not count on me."

That evening Dr. Marker called very informally and spent the evening with the Butlers. He was an exceedingly busy man, with little time for social duties, but this evening he seemed particularly to have leisure and devoted himself to Mrs. Butler. He brot with him a friend whom he introduced as Mr. Simpkins, and this gentleman also seemed interested in all Mrs. Butler said and did. While not so talkative as the doctor he listened well, and Mrs. Butler remarked when they both went home, at rather a late hour, that she liked Mr. Simpkins very much.

Two days later the substitute letter carrier who was serving the route while the regular man had his vacation, brot a letter for Mr. Butler that had been opened by mistake and meekly endured the sarcasm heaped upon him by Mrs. Butler. Amy Butler, who had been scarcely out of her mother's sight since she came home, looked as if about to faint when she caught a glimpse of the letter, but she could not ask her mother for it. She did hurry to the telephone the instant her mother went into the sitting room and implore her father to come home as soon as he could, but long before Mr. Butler could dash breathlessly into the house his wife had read the letter a number of times. Amy Butler could not bear to venture into the sitting room, but her father lost no time in seeking his wife.

"That blasted carrier!" burst out Mr. Butler, and then he was relieved to hear his wife laugh merrily. "You see it was this way, dear. Mother and Mary and Mr. Snow and the minister and your sister Mary wrote me that you were acting—well, different—and so—"

"So you concluded that you had better have Dr. Albert Edward Simpkins come and see if there was anything the matter with my brains," interrupted Mrs. Butler. "I am glad he says I am normal. You needn't be afraid to come in, Amy. I'm not angry. I tho I would reform myself in order to save twenty or thirty cents a week, and I find that a few days under the new regime will cost Mr. Easy Mark one hundred dollars. My dear, the next time people tell you I am acting 'queer' just ask me about it before you send for a nerve specialist."

WHEN NELLIE RIDES.

BY CORA A. MATSON DOLSON.

With bonnet lost and hair a-blow,
With eyes that shine and cheeks aglow,
With head upheld and smiling face,
She sits her wheel in careless grace;
And up and down, all aimlessly,
The little stretch of road rides she.

My Madam Prude may frown and chide,
And thotless, idling ways deride;
But well if she the grace might steal
Of this sweet lass who rides the wheel!

Having used a Michigan Farmer machine for 12 or 14 years, No. 59,278 does good work yet, and lots of it, having never paid out anything for repairs, only needles. Wishing a drop head I tho I would try a new one.—Mrs. J. J. Howrigan, Plainwell, Mich.

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Have You Rheumatism, Kidney, Liver or Bladder Trouble?

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Lame back is only one of many symptoms of kidney trouble. Other symptoms showing that you need Swamp-Root are, being obliged to pass water often during the day and to get up many times during the night.

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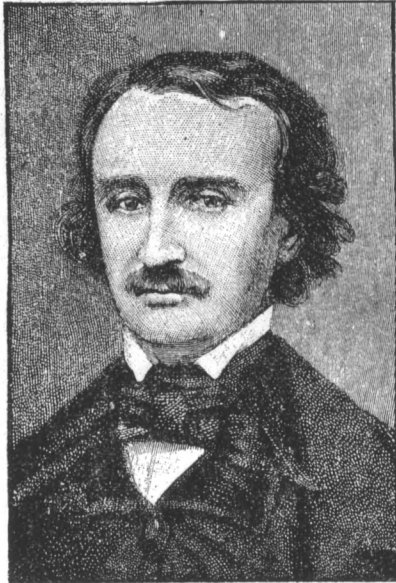
THE EARLY AMERICAN AUTHORS.

BY CARL S. LOWDEN.

Edgar Allen Poe.

Edgar Allan Poe, born January 19, 1809, in Boston, was descended from a prominent family. Unfortunately at three years of age, he became an orphan, but was adopted by the Allans, of Virginia. His school life was varied. He studied in England, entered an American academy, and later was admitted to the University of Virginia; however, before finishing the course, he set out for Greece. Returning in 1828, he published a few poems, and spent nine months at West Point.

Now began his rise to fame as an author. He wrote his "Manuscript Found in a Bottle," and it met with almost immediate acceptance. Then he became an editor; but, after marrying in 1837, he severed his connection with the publication. Two years later appeared his "Tales of the Grotesque and



Arabesque," which contains his best work. In 1843 was issued "The Gold Bug," perhaps his most famous short story. After contributing to various magazines, he purchased "The Broadway Journal." In 1845 he wrote and caused to be published "The Raven," the poem on which, it may be said, his fame as a poet rests. Poe lectured frequently; failed in various attempts; his wife died; and he himself followed in 1849.

Poe was a great genius; but still he had his faults. He possessed a boundless imagination that led him to attempt the rashest project. Nothing daunted him. He failed as a humorist, and as a writer of fables. He succeeded only in the weird short story, and the elusive, witch-like poem, but in these he showed himself master. Poe's intellect was marvelous, but he himself was cold and unemotional. The warmth of feeling is missing from his work; he knew technique, perhaps, as very few writers have known it, and altho he could have done nothing without it, he would have attained greater renown had he possessed a warm heart. He was analytical, a dissector, a mechanic, endowed with imagination, without judgment—in short, he was unbalanced and abnormal. But these very qualities fitted him for the writing of the short stories which he did write, and Poe holds the title of the "Greatest of American Short-Story Writers."

The following paragraph is taken from the introductory portion of Poe's famous horror tale, "Ligeia."

"I cannot, for my soul, remember how, when, or even precisely where, I first became acquainted with the Lady Ligeia. Long years have since elapsed, and my memory is feeble thru much suffering. Or perhaps, I cannot now bring these points to mind, because in truth the character of my beloved, her rare learning, her singular yet placid cast of beauty, and the thrilling and enthralling eloquence of her low musical language, made their way into my heart by paces so steady and stealthily progressive that they have been unnoticed and unknown. Yet I believe that I met her first and most frequently in some large, old, decaying city near the Rhine. Of her family I have surely heard her speak. That it is of a remotely ancient date cannot be doubted. Buried in studies of a nature more than all else adapted to deaden impressions of the outward world, it is by that sweet word alone—by Ligeia—that I bring before my eyes in fancy the image of her who is no more. And now, while I write, a recollection flashes upon me that I have never known the paternal

name of her who was my friend and my betrothed, and who became the partner of my studies, and finally the wife of my bosom. Was it a playful charge on the part of my Ligeia? Or was it a test of my strength of affection, that I should institute no inquiries upon this point? Or was it rather a caprice of my own—a wildly romantic offering on the shrine of the most passionate devotion? I but indistinctly recall the fact itself—what wonder that I have forgotten the circumstances which originated or attended it? And, indeed, if ever that spirit which is entitled Romance—if ever she presided, as they tell, over marriages ill-omened, then most surely she presided over mine."

"A Descent into the Maelstrom," is very, very vivid. That given below is the conclusion of the tale:

"It might have been an hour or thereabout, after my quitting the smack, when, having descended to a great distance beneath me, it made three or four wild gyrations in rapid succession, and, bearing my beloved brother with it, plunged headlong into the chaos of foam below. The barrel to which I was attached sank very little farther than half the distance between the bottom of the gulf and the spot at which I leaped overboard, before a great change took place in the character of the whirlpool. The slope of the sides of the vast funnel became less and less steep. The gyrations of the whirl grew gradually less and less violent. By degrees the froth and the rainbow disappeared, and the bottom of the gulf seemed slowly to uprise. The sky was clear, the winds had gone down, and the full moon was setting radiantly in the west, when I found myself on the surface of the ocean, in full view of the shores of Lofoden, and above the spot where the pool of the maelstrom had been. It was the hour of the slack, but the sea still heaved in mountainous waves from the effects of the hurricane. I was borne violently into the channel of the stream, and in a few minutes was hurried down the coast into the 'grounds' of the fishermen. A boat picked me up—exhausted from fatigue. I told them my story—they did not believe it. I tell it to you—and I can scarcely expect you to put more faith in it than did the merry fishermen of Lofoden."

OUR DISTRICT SCHOOLS.

BY ALLA HOYT BROWN.

In this country of ours, in fact, we might say in this world, the remedy for all ills must lie in education. Not merely book-learning, but learning to live true to God and nature. Such education must include everything with which man has to do, but this article will deal with but one phase—the school system, and in particular that in which the readers of this paper are most intimately concerned.

Years of experience as a teacher in the country schools of Michigan have made me well acquainted with its merits and deficiencies. I wonder how many of the parents who read this have been inside the schoolhouse where their children are being taught, during the past year? Mayhap, if the teacher has made extraordinary efforts to prepare a last-day or special-day program, they have been to hear the speaking and singing. This is well, for these amateur efforts in oratory and music are quite as educational as other branches; but of the every-day work (or idleness) of the schoolroom the average parent knows only what Johnny or Nellie chooses to tell, and these youngsters sometimes are prejudiced in their views. The teacher is a "good teacher" if the children like her, or vice versa.

How many ask and insist on knowing what the lessons of the day have been? Does your child understand those lessons or do they mean nothing to him? Do you know the branches he studies and what text books are used? Do you consider them superior or inferior to other text books? Does the teacher merely put in her time and draw her salary, or does she teach to the best of her training and ability?

A class was reciting in physiology in a school which I recently visited; a young boy was asked the temperature of the breath as it comes from the nostrils; he answered that the book said 98° F., but that he didn't know what the F. meant. A classmate raised her hand and said that it meant Fahrenheit; the teacher added, "Yes, it means Fahrenheit," and the boy sat down not much the wiser. A really interested teacher would have explained or asked some of the class to do so, that Fahrenheit is a scale, so-called because used by Daniel Gabriel Fahrenheit in thermometers; and she would go

further and explain the Fahrenheit thermometer more fully.

One teacher did not like the spelling-book then in use; I remembered another teacher who wrote on the board words from the reading, geography, grammar or other lessons, or the newspapers, for spelling lessons and suggested that plan, but the teacher said: "That's a good idea, but so much work." It would have taken about ten minutes. Perhaps she thought she earned her money as it was. Well, why not pay better wages and secure better teachers.

Of course, a teacher, like any other employe, should do her best without fear of earning more than she gets. If this teacher doesn't, don't hire her again. But if you are not in touch with school-life you won't know whether she does her duty or not.

No teacher can do her best work without a good dictionary. Don't think a cheap one from a mail-order house good enough; the cheap editions are reprints of the old forms and new words are omitted; worst of all the words are not pronounced intelligently. One of the standard dictionaries in general use in our best schools, thoroughly up-to-date, costs about \$10 and is worth—why it's invaluable. A dictionary holder costs perhaps \$3.50, but it is a necessary adjunct. Well do I remember finding the dictionary on a wardrobe shelf, a pupil's or the teacher's desk in many schools when I entered; they were battered and torn and obscenely marked. Has your school a good dictionary, and does the teacher see that it is kept in good condition, or does she let the infant class thumb its pages to look at the pictures? That is what my teachers used to do.

In one school my pupils were very angry because I would not allow them to drum on the organ at noon and recess; that had been their habit, even if they did not know a note.

Has your school a library? If so, how are the books faring? It is all right for teacher and pupils to give entertainments to raise money for books, but that should not be the only source of library money.

Does the stove smoke? I know a pupil whose eyes were permanently injured by studying day after day in a smoky schoolroom and others were temporarily affected. In one district the bell-rope was constantly breaking and was finally replaced by wire; this kept coming down and at least once a week the teacher had to borrow a ladder to remedy the difficulty; the trouble was never adjusted while I knew the school.

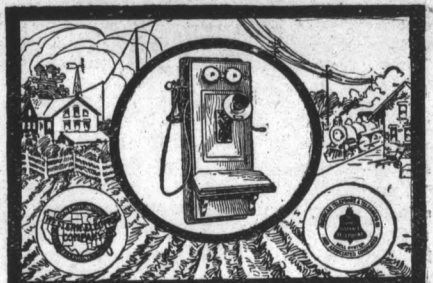
The walls of one schoolroom were ceiled and painted a lead color; to this was added the smoke of many winters and the dust of as many summers, until, for dingy dreariness it was unsurpassed; its effect upon teacher and pupils was most depressing. Too little attention is given to color effects in the schoolroom. Then, too, instead of cheap, gaudy pictures of impossible things cut from advertising catalogues, why not substitute copies of famous pictures, that the child's artistic sense may develop.

Is there a well on the school ground? There would be if you had seen the filthy treatment given the microbe-lined water pail which the children carry back and forth from the nearest house for water. The teacher should see that the pump is not misused. Is the wood under cover? Do you think the teacher should spend her time digging water-soaked wood out of a snowbank? Not far away is a schoolhouse with a wood-shed attached but no connecting door. Instead, one must go out of the front door of the schoolroom and around the building to reach the door on the side of the shed. I wonder the door was not put at the rear of the shed; that would have given the teacher still more exercise.

Then the out-buildings! As schools of vice, as examples of dirt, go to the district-school water-closet for your model. And yet your innocent child enters such a building many times a day.

Have you been indignant because the teacher asks your children to help with the janitor work? Perhaps you are unaware that the teacher is no more obliged to do janitor work than her pupils unless her contract so stipulates.

Do you realize that your child spends seven hours a day, five days in the week (or should), nine months in the year, in the schoolroom? Why, then, will you become so engrossed with things trivial in comparison that you have no time to investigate the place where he spends his time and the influences surrounding him? And this supervision of your child's schooling is as much the father's duty as the mother's. Cultivate the teacher's



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PARAGRAPHS.

"That isn't your fault," quietly observed one of her auditors.

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CONTESTS FOR LINCOLN CELEBRATIONS.

BY MAE Y. MAHAFFY.

One simple contest is that so frequently used in connection with other subjects, the forming of words from certain phrases. In this case use merely the name "Abraham Lincoln," and see who can write down the largest number of words, the letters of which are contained in same, allowing a certain length of time.

Another pleasing contest is to require each contestant to write a story, the words of which shall begin with "A" or "L," the initials of the immortal Lincoln. Such common and needful words as "of," "in," "he," "she," "the," "with," etc., are admissible, but the remainder must begin with one or the other initial. When all are ready the stories are read in turn, and votes collected to decide which is best. The reading of the stories will prove a source of much merriment. In lieu of this plan the contestants might be required to produce a poem, the first letter of each line spelling out the name "Lincoln."

A contest in which some of Lincoln's most noted sayings are brot out could scarcely be overlooked. It may be arranged by writing different sayings on a sufficient number of slips to provide the guests with one each, omitting a word or two, here and there, as: "All that I —, or — to be, I — to my —." ("All that I am, or hope to be, I owe to my sainted mother.") Provide a separate sheet of paper for each, with space for the number of sayings used. After allowing a limited time for solving one, give a signal for each guest to pass their slip to the one at his right hand, and so on, until all have had opportunity to solve each quotation. The papers are then collected having been previously marked by the solver's names. Judges are chosen and the papers graded, a prize being awarded to the one having the largest number correctly worded, and a consolation prize to the one having the smallest number of correct sayings.

Other sentences which may be used are these:

"Government of the people, by the people, and for the people, shall not perish from the earth."

"In essentials, unity; in non-essentials, liberty; in all things, charity."

"I have not willingly planted a thorn in the breast of any man."

"No man is good enough to govern another man without the other's consent."

"With public sentiment nothing can fail; without public sentiment nothing can succeed."

One need not necessarily limit this contest to the sayings of Lincoln. Others may be included. In this event it will be well to add the author's name to each quotation, thus providing a slight clew, and make the solution thereof less difficult.

A historical contest consists of answering questions pertaining to the Civil War. Such questions as the following will answer nicely:

"What fort was the scene of the first hostilities?" (Answer. Fort Sumpter). "When did the battle of Gettysburg occur?" (July 1, 2 and 3, 1863).

"When was the Emancipation Proclamation issued?" (Jan. 1, 1863).

"What two iron-clad ships battled for supremacy?" (Merrimac and Monitor).

"What General said, 'I propose to fight it out on this line if it takes all summer?'" (Grant).

"Who was the third 'accidental President?'" (Johnson).

Songs which were popular during the war may also be used as the basis for a contest. One of the number present may play a measure or so of various songs, allowing time between for the guests to write down what they surmise each to be. Or, articles may be arranged about the rooms to represent these songs, and the guests move about until all are discovered. Numbers over each should correspond to the numbered blanks on the slips of paper provided. For example, a chair without an occupant may represent "The Vacant Chair." A picture of a camp, or a group of toy tents and soldiers will answer for "Tenting on the old camp ground," while a picture of an old couple in their room will suggest "Old folks at home." A flag quickly reminds one of "The Star Spangled Banner." Three pictures or clippings of tramps will serve for "Tramp! Tramp! Tramp!"

Still another diversion brings up some of the well known incidents of Lincoln's life. Select a few of the guests in ad-

vance for this amusement, so that they may be prepared to carry out their parts. The incidents are acted out in pantomime behind a sheet stretched in a doorway, the lights lowered in the room wherein the guests are seated, and so arranged in the other room as to clearly throw the shadows on the sheet. Some one in the act of splitting rails will be quickly appreciated. A young pig, or a stuffed cloth representative, may be carried awkwardly past the curtain, reminding the watchers of the time when Lincoln, nothing daunted, thus loaded pigs onto a flatboat after their persistent refusal to be driven aboard. Situations, full of comedy or tragedy, are readily carried out in this manner.

Mosaic, jigsaw or picture puzzles are so very popular at present that a portion of the evening might be devoted to them. These puzzles are cut up pictures to be properly united, and resemble the dissected maps and animals of childhood's days. For this occasion pictures of Lincoln, Grant, Lee, etc., could be used. The puzzles for sale in the shops have the pictures mounted on wood, but for a special occasion of this kind they could be mounted on heavy cardboard and cut into irregular pieces at home. The game may be made progressive by placing four guests at a table. Tally is kept showing the number of parts of the puzzle each correctly joins within a specified time, the party having the highest standing at each table progressing at the expiration of the time limit.

Suitable prizes for celebrations of this character consist of flags, busts or portraits of Lincoln, copies of the old songs of the war period, dolls dressed to represent Topsy, toy soldiers or tiny guns. The tally cards and slips of paper used in the contests may be made interesting as souvenirs by having the dates, "1809-1909," printed in gold at the top, with small cuts of Lincoln or his birthplace, in an upper corner.

CLASSES OF GLADIOLUS AND DAHLIAS.

Would you explain the difference between the several classes of gladiolus, also the show dahlia, the pompon, the cactus and decorative dahlias? What is the nature of the rhododendron, or rose-bay? Is it an evergreen and what are the color of its flowers?

Saginaw Co.

READER.

With regard to your correspondent's inquiries concerning the several classes of gladiolus, etc., will say that nearly all of the cultivated gladiolus are what is known as hybrids, the results of crosses between two or more related species.

Gladiolus are better known as early and late; large and small flowered varieties; mixed and natural colors. Named collections are quite expensive, and are seldom grown unless by specialists for exhibition purposes.

Seedlings are very good, if obtained from a reliable source, and answer for purposes of decoration equally as named kinds. The varieties Brencleyensis and gandavensis are the two from which nearly all of the named kinds have descended, and those two older types are still well worth cultivation.

The "Show Pompon," "cactus" and "decorative" dahlias constitute four of the nine groups in which dahlias are now divided. The show group grow from 3½ to 4 or 5 feet high with perfectly double flowers, in fact, spherical in shape with a single color.

The Pompons do not grow so tall and the rays are cup shaped.

The cactus dahlias are not cupped, but have long and flat florets and are called cactus from the resemblance of the flowers to the brilliant crimson night-blooming cereus speciosissimus.

Decorative dahlias do not grow so tall as some of the other groups and the flowers have various colors.

The rhododendron is one of our best ornamental flowering shrubs but in Michigan it requires protection from the cold cutting winds of March. The hot, dry weather of August and September is alike trying to it, but if planted so as to avoid these trying conditions, and given good fibrous peat to grow in, it will live for years, furnishing an abundance of pale, pinkish flowers in May.

The rose-bay, as it is sometimes called, is closely related to the high-bush cranberry. The mountain laurel and the showy greenhouse azalea. There are many varieties of rhododendrons, but the variety known as catawbiense is the hardiest and the one best suited to our climate. It grows freely in Pennsylvania and the New England states and profusely south of Washington, D. C.

Agrill. College.

THOS. GUNSON.

Charcoal Purifies Any Breath

And in its Purest Form Has Long Been Known As the Greatest Gas Absorber.

Pure willow charcoal will oxidize almost any odor and render it sweet and pure. A painful in a foul cellar will absorb deadly fumes, for charcoal absorbs one hundred times its volume in gas.

The ancients knew the value of charcoal and administered it in cases of illness, especially pertaining to the stomach. In England today charcoal poultices are used for ulcers, boils, etc., while some physicians in Europe claim to cure many skin diseases by covering the afflicted skin with charcoal powder.

Stuart's Charcoal Lozenges go into the mouth and transfer foul odors at once into oxygen, absorb noxious gases and acids, and when swallowed mix with the digestive juices and stop gas making, fermentation and decay.

By their gentle qualities they control beneficially bowel action and stop diarrhoea and constipation.

Bad breath simply can not exist when charcoal is used. There are no ifs or ands about this statement. Don't take our word for it, but look into the matter yourself. Ask your druggist or physician, or better still, look up charcoal in your encyclopedia. The beauty of Stuart's Charcoal Lozenges is that the highest pharmaceutical expert knowledge obtainable has been used to prepare a lozenge that will give to man the best form of charcoal for use.

Pure willow and honey is the result. Two or three after meals and at bedtime sweeten the breath, stop decay of teeth, aid the digestive apparatus and promote perfect bowel action. They enrich the supply of oxygen to the system and thereby revivify the blood and nerves.

Stuart's Charcoal Lozenges are sold everywhere in vast quantities, thus they must have merit. Every druggist carries them, price, twenty-five cents per box, or send us your name and address and we will send you a trial package by mail, free. Address F. A. Stuart Co., 200 Stuart Bldg., Marshall, Mich.

"Maple" Evaporators

Our "Maple Evaporator" is the most durable and most economical on the market, only selected materials being used in its construction. Heavy cast-iron frame, reinforced steel jacket, extra heavy specially rolled tin or galvanized iron pans.

Easily erected, uses very little fuel either wood or coal, works smoothly and evaporates quickly, producing very fine sugar and syrup. Hundreds in use giving splendid service. Moderate in cost. We carry a full line of sugar camp supplies.

McLane-Schank Hardware Co. Lanesville, Pa.

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Three Daily Papers

For those who would like to have three daily papers a week, we have arranged with the New York Thrice-a-Week World so that we can offer it with the Michigan Farmer a year for only \$1.40; that is, both papers a year each for that price. Send orders to us or thru our agents.

THE MICHIGAN FARMER, Detroit, Mich.

Michigan Farmer's Club List.

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

EXPLANATION—The first column is the regular subscription price of the other papers. The second column gives our price for a year's subscription to both the other paper and Michigan Farmer. The third column gives the price at which the other paper may be added when three or more are ordered. Example: We will send the Michigan Farmer and Detroit Semi-Weekly Journal for \$1.35. If McCall's Magazine also is wanted add it at 40c making total \$1.75. Any number of papers may be added at third column price if they are for a subscriber to the Michigan Farmer.

It will be useless to send us subscriptions for any daily—except the Times—at Rural Route prices. If you do not give number of your route publishers will only accept them at first column prices. If you want the MICHIGAN FARMER TWO YEARS and the other papers one year add 45c to the second column price. For the Michigan Farmer 3 years add 75c. We do not send samples of other papers. Address the publishers direct.

Send all orders to the Michigan Farmer or through our agents.

ABOUT PRICE OF DAILIES—Those having rural mail delivery pay 2d column price, all others pay 1st column price.

NOTE—So long as a subscriber is on our list for one or more years he may order at any time any publication at third column price. So that a two or three-year subscriber does not lose the advantage of the reduced price if he wants any other paper next year or the year after.

Subscriptions ordered to Canada require postage. Write for rates unless postage is known, in that case include with order. Postage on Michigan Farmer alone to Canada is 1 cent per week.

NAME OF PUBLICATION.	See Explanation above.
Daily, (6 a Week.)	
Journal, Detroit, Mich.....	5 00 3 35 2 80
Times, Detroit.....	2 00 2 50 2 00
News-Grant Rapids, Mich.....	3 00 2 50 1 75
Courier-Herald, Saginaw, Mich., (inc. Sunday) on R. R.....	2 50 2 30 1 60
News, Cleveland, Ohio.....	2 50 2 52 2 10
Tribune, Bay City, Mich.....	3 00 2 35 1 65
Tri-Weekly, (3 a Week.)	
World, New York, (3 a week).....	1 00 1 40 90
Semi-Weekly, (2 a Week.)	
Journal, Detroit, Mich.....	1 00 1 35 75
Weekly Newspapers and Current Comment.	
Blade, Toledo, Ohio.....	1 00 1 05 85
Commoner, N. Y. Bryan, Editor, Lincoln, Neb.....	1 00 1 35 75
Harper's Weekly, N. Y.....	4 00 4 00 3 30
Cattle, Sheep, Swine, Poultry, etc.	
American Poultry Journal, Chicago (m).....	50 1 05 35
American Poultry Advocate, Syracuse, N. Y. (m).....	50 1 15 35
American Sheep Breeder, Chicago (m).....	1 00 1 50 80
American Swineherd, Chicago, (m).....	50 1 05 35
Breeders' Gazette, Chicago, Ill., (w).....	2 00 1 65 1 10
Farm Poultry Boston, Mass., (s-m).....	50 1 05 35
Gleanings in Bee Culture, Medina, O. (s-m).....	1 00 1 40 75
Hoard's Dairyman, Fort Atkinson, Wis. (w).....	1 00 1 40 75
Horse World, Buffalo, N. Y. (w).....	2 00 1 90 1 30
Horseman, Chicago, (m).....	3 00 2 25 2 00
Jersey Bulletin, Indianapolis, Ind. (w).....	1 00 1 80 1 00
Nat. Fruit Grower, St. Joseph, Mich. (s-m).....	1 00 1 00 1 00
Kimball's Dairy Farmer, Waterloo, Ia., (s-m).....	1 00 1 00 1 00
Poultry Keeper, Quincy, Ill. (m).....	50 1 05 35
Poultry Success, Springfield, O. (m).....	50 1 05 35
Reliable Poultry Journal, Quincy, Ill. (m).....	50 1 05 35
Shepherd's Critteron, Chicago, Ill. (s-m).....	50 1 05 35
Swine Breeder's Journal, Indianapolis, Ind., (s-m).....	50 1 05 35
Popular Magazines.	
American Magazine (m).....	1 00 1 50 75
Cosmopolitan, N. Y. (m).....	1 00 1 50 1 00
Century Magazine, N. Y. (m).....	4 00 4 30 3 75
Harper's Magazine, N. Y. (m).....	4 00 4 00 3 35
Harper's Bazar, N. Y. (m).....	1 00 1 50 1 00
Lippincott's Magazine, Philadelphia, Pa. (m).....	2 50 3 00 2 50
Metropolitan Mag., N. Y. (m).....	1 50 1 50 1 50
Pearson's Magazine, New York (m).....	1 50 2 00 1 50
Review of Reviews, N. Y. (m).....	4 00 3 00 4 00
McClures, N. Y. (m).....	1 50 1 50 1 50
Ladies' or Household.	
Housewife, N. Y. (m).....	35 1 05 30
Housekeeper, Minneapolis, Minn. (m).....	1 00 1 45 60
Home Magazine, Atlanta, Ga. (m).....	1 00 1 40 80
Ladies' World, N. Y. (m).....	50 1 10 40
McCall's Magazine, N. Y. (m).....	50 1 10 40
Mother's Mag., Elgin, Ill. (m).....	50 1 10 40
Vick's Family Mag. (m).....	50 95 35
Woman's Home Companion, Springfield, O. (m).....	1 25 1 40 1 25
Religious and Juvenile.	
American Boy, Detroit, Mich. (m).....	1 00 1 25 75
Little Folks, Salem, Mass. (m).....	1 00 1 65 1 00
Sunday School Times, Philadelphia, Pa. (w).....	1 00 1 55 85
St. Nicholas, N. Y. (m).....	3 00 3 30 2 65
Young People's Weekly, Elgin, Ill. (w).....	75 1 15 75
Youth's Companion, Boston Mass. (m).....	1 75 2 50 1 75
(new or old).....	1 75 2 50 1 75

(w—weekly; m—monthly; s-m—semi-monthly.)

CLUB PREMIUMS. Those subscribing for the Michigan Farmer in combination with other papers are allowed premiums just the same as if the order was for the Michigan Farmer alone. One premium only for every Michigan Farmer order. Orders for other papers alone will receive no premium under any circumstances.

I like the Magazine Section. Would say that we are well pleased with it, but will say it has no weight in causing me to renew my subscription for I am a farmer and don't see how I could get along without The Farmer. Every week there seems to be something in it that is just what I am looking for, and it gives me some light on the subject.—Edwin Gill, East Jordan, Mich.

DR. WHITEHALL'S RHEUMATIC CURE

FOR ALL FORMS OF Rheumatism and Gout

Write for a liberal FREE Trial Box. Sold by Druggists. Price 50c per box. The Dr. Whitehall Megrimine Co. 136 Main St., South Bend, Ind.

ESTAB. 1889.

MICHIGAN SCHOOL OF MILLINERY

Spring course now open. Day and Night classes. Terms reasonable. Payment easy. Write for particulars. Suite 412 Healy Bldg., 92 Broadway, Detroit.

FARMERS' CLUBS

OFFICERS OF THE STATE ASSOCIATION OF FARMERS CLUBS.

President—A. L. Chandler, Owosso.
Vice-President—Mrs. Clara L. French, Pompeii.
Secretary—Mrs. W. L. Cheney, Mason.
Treasurer—D. K. Hanna, Caro.
Corresponding Secretary—Clayton Cook, Owosso.

Directors—D. M. Beckwith, Howell; D. M. Garner, Davisburg; T. B. Halladay, Norvell; E. C. Hallock, Almont; B. A. Holden, Wixom; Wm. A. Marks, Fair Haven.

Address all correspondence relative to the organization of new Clubs to Mrs. W. L. Cheney, Mason, Mich.

Associational Motto.—

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

Associational Sentiment.—

The farmer; he garners from the soil the primal wealth of nations.

ATTENTION SECRETARIES.

The annual meetings of the local clubs will practically all be over this month. The associational secretary has received a few lists of 1909 officers and addresses, but only a few, and is delighted to give these credit for being prompt. Will not all the secretaries remember how important a matter this is. The report of the annual meeting is going to be published and every president and secretary is entitled to a copy, but unless the associational secretary knows their name and address how are the reports to be sent out? With greetings to every club in the state.

MRS. W. L. CHENEY, Sec.

ASSESSMENT OF FARM LANDS.

Address of Jas. N. McBride before the State Association of Farmers' Clubs, published by request of the convention.

I was called upon at one time to examine a mine that had been depleted of its ore reserves, and following that a piece of land that in the local term used, had "gone to seepage." That is, alkali water had come from the irrigation ditches and escaping from the higher to the lower level had carried the alkali from a stratum of soil, in solution, and the caustic element in the life-giving water destroyed every vestige of valuable plant life. For purposes of taxation the word "Amortization" was used to express loss or depreciation in each case.

Amortization.

I know of no better word to use to express depreciation of resources and will hope the idea, if not the word, may be written into common use and expression in reference to valuations in assessments of farm lands.

In the case of the mine where the ore reserves were depleted it was silver and lead that had been removed. In the case of the Alkali land it was sodium elements that had entered to destroy productivity. In cropping farm lands the available elements of nitrogen, potassium and phosphoric acid are removed just as the silver and lead were from the mine and quite possibly plant growth leaves a toxic condition, according to Prof. Whitney, that is detrimental to succeeding crops in a measure like the Alkalies mentioned in the lands "gone to seepage." The bountiful harvests and plentiful crops which cause us to be thankful, and are a reason for our national Thanksgiving day, take from the soil these elements.

For example, a forty bushel corn crop removes from the soil 89 lbs. of nitrogen, 30 lbs. of phosphoric acid and 63 lbs. of potash. A twenty bushel wheat crop takes from the soil 44 lbs. of nitrogen, 13 lbs. of phosphoric acid and 22 lbs. of potash. The average hay crop removes 37.8 lbs. of nitrogen, 15.9 lbs. of phosphoric acid and 27 lbs. of potash. A portion of this fertility is restored or returned, but at a cost of labor. Jas. J. Hill describes the fact in another way by showing that New York has had an average decrease in wheat yield of 1 bu. per acre in each half decade. In Kansas the yield of wheat per acre for the first five years of statistical knowledge was 15.14 bus. and 13.18 for the succeeding period. In Minnesota the yields have been for the same period respectively 13.12 and 12.18 bus. per acre. The abandoned farms in New England and the lessened value of farms in New York at not near the cost of buildings bears testimony to the word amortization.

The output of fertilizer factories in the U. S. was \$5,816,118 in 1876, \$23,650,795 in 1880, \$39,180,844 in 1890 and \$44,657,385 in

1900, and last year estimated at approximately \$65,000,000. So positive testimony as to the necessity of establishing the word amortization in relation to farm assessments could scarcely be adduced as in the rise of the commercial fertilizer industry. In most towns in Michigan fertilizers are a standard article of sale, and farmers are accustomed to the terms and percentages of elements which are simply the measures of amortization of their land which they are seeking to restore. The farmer feeder who purchases feeds and rebuilds his acres simply transfers the fertility of the cotton fields of the south or the flax fields of the northwest and does not change the nature of the problem. If one wishes to see the element of potash extracted in plant growth, he should go to an alcohol factory where alcohol is made from the sugar beet molasses. The "sludge" or refuse after distillation is burned and the potash is returned to use by way of the fertilizer factory. So convincing has become the need of restoration and so certain of amortization that a trust has taken over the largest of the fertilizer plants. A necessity exists for this supply quite as much as supplying feed, fuel or shelter, and the shrewd organizers of the trust of the fertilizer factories recognize farm amortization. Darwin relates how a man used to purchase monkeys of the Zoological society in London. His business was to train monkeys to act in plays and in selecting one out of several he was asked why he made the selection. His answer was "that it all depends on the degree of attention that the animal gave to what was being done in its presence." Now here is being enacted before our eyes a continued condition of taxation of farm property under continual conditions of loss of fertility, or at expense if repaired. There was noted in one week's reading in eight different agricultural journals that amortization is expressed in such terms as "run down farms," "depleted fertility," "abandoned farms," etc., etc. It would seem unnecessary to add further testimony to the fact of amortization.

(Continued in the next issue.)

CLUB DISCUSSIONS.

Three Good Meetings.—Three lively and profitable meetings of the Looking Glass Valley Farmers' Club have been held since last report. The first one was held at the pleasant home of Mr. and Mrs. Henry Boss. The main part of the program was given by Mr. Oppenlander, who gave a full report of his oat crop. The talk brot out a lively discussion. A holiday meeting was held with Mr. and Mrs. Fred Howe with about 90 present and an interesting program was carried out. Jan. 14th this club met with Mr. and Mrs. Chester Miller, nearly 100 being present. The program consisted of a re-election of all the old officers, yearly reports which showed good progress, roll call, etc. Some of the members had attended the State Breeders' Association at M. A. C. and gave interesting accounts of that event. A. B. Tullis talked about tuberculosis in cattle and cholera in hogs, and Fred Howe talked on nodular disease in sheep. Mrs. H. S. Bliss told about an experiment station for good housekeeping. Prof. C. A. Anderson, of M. A. C., will be with us Jan. 28th, at the home of Mr. and Mrs. H. S. Bliss.—Mrs. Effie E. Bush, Reporter.

The Young Men Are Interested.—The Washington Center Farmers' Club held the first meeting of the new year at Elmwood, with Mr. and Mrs. French, with an attendance of 82. The president, in his farewell address, recommended club extension. He also spoke of the hearty support given him by the members and of the hearty goodfellowship existing in the club, and, as Mr. Brattin succeeds himself in the office of president, he combined this with the president's address of acceptance and outlined the work for the coming year. "How can one improve one's education late in life," was the topic for general discussion, and was led by Will C. Long, and F. Cook, who spoke of the ease with which one could inform himself, if he so desired. Special courses of study, correspondence schools, abundance of literature on all subjects, general or special, were some of the ways mentioned. "Has the world grown wiser or better in the last 50 years?" was the topic of a paper by Mr. Ackley, which called out a lively discussion. Some spoke of the increase of crime and the gigantic evils prevalent today, but the majority were more optimistic and declared that the world was more wise and much better than it was 50 years ago. A paper by William Long on "The benefits to be derived from a Farmers' Club in a Community," was listened to with much interest. Music by Mr. and Mrs. Brattin followed, and the constitution and by-laws were read by the secretary. Roll call was responded to by proverbs from the Bible, and the farm inspection committee reported favorably. This club is fortunate in having a number of young men as members and the boys are always willing to help with music, as well as in other ways. At this meeting the male quartet furnished especially fine music, which was much enjoyed. The question box finished the program, and the club adjourned to meet at Shadelands, Feb. 11.—Mrs. O. J. Campbell, Cor. Sec.

GRANGE

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

TEACHING AGRICULTURE IN RURAL SCHOOLS.

When you and I were a boy and girl we saw the foamy pails of milk brot into the house before we left every morning to go to the district school—if, indeed, we did not milk it! We filled the woodbox from the big pile that was replenished every winter from father's woodlot. We pumped water for the stock or house. In summer vacation, we hoed in the garden, flower beds, or followed the cultivator up hill and down between rows of corn, or beans, or potatoes. The boys and girls of those days—when we were youngsters—learned the art of doing things on the farm and about their homes in the country with their independent systems of water supply, fuel supply, sewerage, lighting and heating.

"Theirs not to reason why,
Theirs but to do and die."

The "reason why" had to come to us in later years, often by devious ways and sad experience. The relation of feeds and breeding to butter-fat and quantity of milk has been obtained from the schoolrooms of the stable, the agricultural press, farmers' institutes and like courses of study that must needs be for people past school age who were never taught these things elsewhere. We scratched the dirt to out-root weeds—we learned years later that the hoe and harrow do far more than that and how. But we did not learn it in the "little red school-house." We recited glibly there about the tea of Ceylon, the spices of Arabia, and the silks of China; but what rank our own township had as a shipper of sheep and producer of wheat or oats we did not even guess at. We could describe a boa-constrictor of South American jungles with vividness but, for the life of us, we could not tell what really spoiled the cabbages in our mother's garden. How many bushels of corn might be raised per acre, and how many were raised were subjects unbroached by our teachers. Perchance, the big boys and girls dug out some Latin roots but they never, by any chance, examined the roots of clover or beans under their tutor's direction. They may have memorized perfectly the fable of Cadmus sowing the dragon's teeth, but whoever heard of teaching a boy at school at what angle to set the teeth in a drag?

Not many years ago—four or five—I had occasion to visit a school in the real, inland country. The boys and girls were as bright and attractive as one finds anywhere. It struck me as an ideal opportunity to influence and mold those young lives at first hand into stanch men and women, helpful in the places where they stood. Everything seemed provided to make it easy to put them into vital, delighted relationship with things all around them, on their way to school, at home, in the neighborhood—wherever they looked or listened. On the way home I walked beside the dapper little lady who was the teacher of this school and listened while she explained to me, in a half apologetic way, of how she came to be teaching "in the country"—as if it needed explanation or apology! My heart fell to the zero point. Such an opportunity and such blindness!

Two years later I returned to the same county and assisted in judging the district school exhibits at their county farmers' institute. In every exhibit, among the specimens of written language lessons, arithmetic papers, maps, and spelling lessons, there appeared something that showed a new trend to education in the country schools. There were charts showing the weather record for the month; there were collections of the woods t'at grew in the district, specimens of stones, of wool, of plants, seeds, and 'so on, all based on the products of the district or state where the child who made the exhibit lived. Here was a change worth investigating. They did not do such things when the judges of that exhibit were school children. It was not a far search to find the source of this change, for we were even then guests in the schoolhouse of the "County Normal Training Class." This class consisted of those preparing to be rural teachers and they themselves were studying these self-same common things in order to teach something about them to the boys and girls who lived among them

but had never had their eyes really opened to them as fit objects of study.

We may well count that a red-letter day that grafted the county normal into our Michigan educational system. Among other things, rural teachers are here taught how to teach a few simple facts about the environments of their pupils. It is putting them in partial touch with that occupation which supports all others. It is beginning where a beginning must needs be made, namely, in teaching the teachers. For how shall the blind lead the blind?

The past year has seen a still further advance in this same direction, since the State Board of Agriculture has inaugurated an extension department of the Agricultural College. The first aim of the new department will be to introduce courses into high schools that will begin to train teachers of agriculture and of the sciences from an agricultural standpoint.

Michigan, with nearly every other state of the Union, is thus groping for a solution of how to teach agriculture in the rural schools. This latest step is one of the attempts. The particular methods employed today to solve this problem may fail, but others will be tried and yet others, until success results. For the question is no longer, "Shall agriculture be taught?" but "How shall agriculture be taught?" Creditable history shows that the National Grange first took action favoring the introduction of the study of the elementary principles of agriculture into the common schools on Nov. 9, 1878, thirty years ago. Since that time, the National, State and local Granges have persistently discussed and endorsed this step and moved steadily toward its accomplishment. As an organized body, therefore, the Grange has long stood in the forefront of this movement. We have seen the teaching of agriculture brot into agricultural colleges and something of it into other higher institutions of learning, but it must come down still lower to wholly affect the root of the farm problems.

The old theory that an early education in books alone fits the mind to grapple with any proposition it runs up against later in life, has been exploded by experiences galore. A professor of the old type once argued this point by saying: "The study of the language and mathematics trains the mind and with this training a farmer is qualified to go out and investigate any problem that faces him." To make his point clear he used this illustration: "Take a farmer who sharpens his axe or scythe on a grindstone; does he carry a piece of the grindstone away with him? In the same way a boy at college should sharpen his wits on his classics and on mathematics and then use them to cut his way in the world." An old farmer who heard the speech made this reply: "It is true that the farmer sharpens his scythe on the grindstone, but he always carries a whetstone in his pocket!"

We want a whetstone put into the pocket of every boy in the rural school. Then, give them as much grindstone sharpening as you can afford, or please.

JENNIE BUELL.

NEARLY 100 NEW GRANGES DURING LAST QUARTER.

The number of Granges organized and reorganized from Oct. 1, 1908, to Dec. 31, 1908, both inclusive, is as follows:

Organized.

Colorado	1	New Jersey	1
Idaho	14	New York	11
Illinois	1	Ohio	3
Kansas	2	Oregon	1
Kentucky	1	Pennsylvania	7
Maine	2	Vermont	6
Maryland	7	Washington	21
Massachusetts	1	Wisconsin	2
Michigan	15		
		Total	96

Re-organized.

Illinois	3	Vermont	1
Michigan	1	Washington	2
New York	1	West Virginia	11
Ohio	2	Wisconsin	1
Pennsylvania	1		
		Total	23

Bronson Grange, of Branch Co., has elected the following officers for the ensuing year: Master, Fannie Martin; overseer, Milo Moore; lecturer, Alma Burgdoff; steward, Fred Burgdoff; ass't steward, Fred Locke; chaplain, George Shaffmaster; treasurer, Frank Martin; secretary, Nora Coward; gatekeeper, H. J. Shaw; Ceres, Maude Fowler; Pomona, Helen Judd; Flora, Ardilla Shaffmaster; L. A. S., Lou Locke.

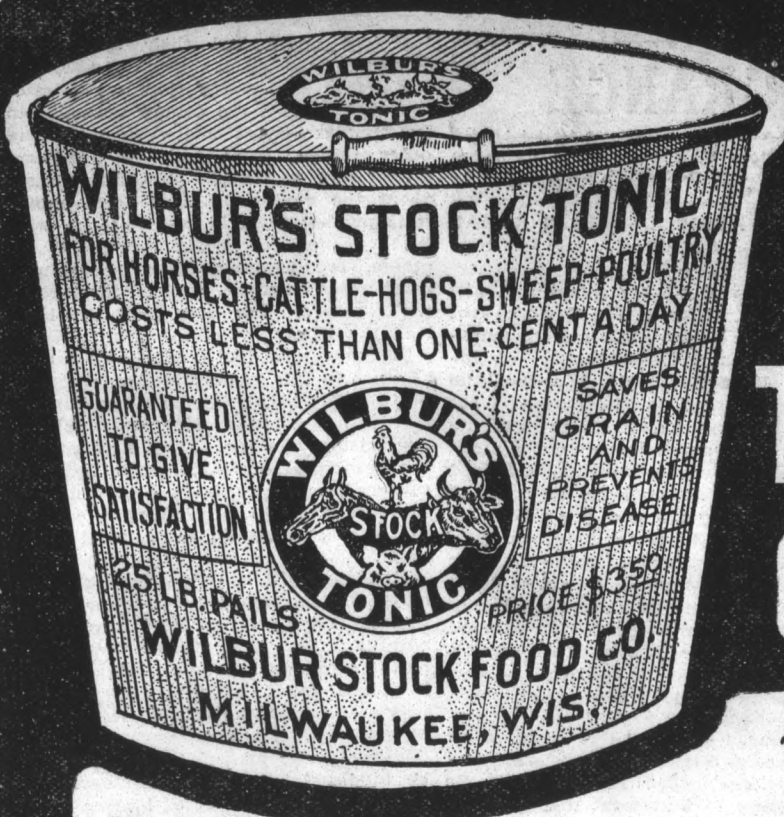
COMING EVENTS.

Pomona Meetings.

Ingham Co., with Mason Grange, Friday evening, Jan. 29 and Saturday, Jan. 30. Open meeting Saturday afternoon, with address by State Master N. P. Hull. Lapeer Co., with Almont Grange, Wednesday, Feb. 3, E. A. Holden, State Speaker.

Gratiot Co., with Ithaca Grange, Saturday, Feb. 6, Mrs. E. J. Creyts, State Speaker.

Charlevoix Co., with Wilson Grange, Thursday, Feb. 11.



FREE THIS \$3.50 PAIL

We will also give away 10,000 beautiful N. Y. Standard R. R. Watches

TO PROVE BEYOND ALL DOUBT TO EVERY INTELLIGENT STOCK RAISER THAT

WILBUR'S STOCK TONIC

is the World's Greatest Conditioner and Feed Saver we will Actually give this 25-lb. Pail Free, where we have no Agent, to Every Reader of this Paper who fills out and mails to us the Coupon shown below. (You can also get free a N.Y. Standard Railroad Watch)

WHAT WILBUR'S STOCK TONIC IS

Nearly a quarter of a century's actual experience has proven beyond all doubt that Wilbur's Tonic is a money-maker for feeders. WE KNOW THIS. It has been PROVEN to us thousands upon thousands of times in the most forceful manner. We want to convince YOU and are willing to do it AT OUR OWN RISK.

You know the value of the pasture for any kind of stock: how it keeps the animal in good condition—nature's own way of doing it. There is no argument about the value of the pasture, but it does not last the year 'round. We prepare a tonic which, mixed with grain and fed to stock, furnishes in stall or feed box, in the proper proportion, the ingredients of pasture diet, invigorates and fattens stock at small enough cost to make the tonic a money-making investment for the owner of one cow, horse, hog or sheep, and a proportionately larger one for the owner of thousands of head.

FOR COWS

You know when the pasturage goes down in the fall, the milk goes, the butter goes, the flavor goes until all are shortest when the price is highest. Wilbur's Tonic invigorates cows; it supplies the needed roots, barks and leaves of the pasture, sustains the flow of milk, and color, quantity and flavor of the butter. Take a cow right off the pasture, feed her Wilbur's Tonic in the stall and she will show very little loss of milk, and one cent's worth of Tonic per day saves one dollar's worth of grain per month.

FOR HORSES

Wilbur's Tonic builds up run-down horses, prevents colic and keeps them in good appetite. It keeps the bowels loose, water clear, blood cool and in a healthy condition. They are always ready for work. Wilbur's Tonic makes them relish their food, keeps the hair smooth and sleek and prevents that rough looking coat. It is a pure vegetable food, positively prevents disease, and makes horses strong, large and full of life. Wilbur's Tonic should be fed mares while they are suckling the colt and mixed with the colt's grain while weaning. It will prevent scour and keep them healthy and growing. Stallions should be fed Wilbur's Stock Tonic during

the standing season every day. When out of the standing season, feed Wilbur's Tonic two or three times a week, to keep them regular and healthy.

FOR HOGS

Hogs, you know, are the most susceptible animals to contagious disease. But you know, too, if they escape contagion, they are kept cheaper than any other kind of stock. If you keep your hogs healthy they can resist contagion, will fatten quickly and cheaply. If they get sick and refuse to eat you know how quickly they will die. Nothing will save them; medicine is useless. To keep them healthy you must feed them something they will eat, and something that will satisfy the demands of their systems. We believe that there is only one thing in the world that will do this, and that is Wilbur's Tonic.

FOR STEERS AND CALVES

One ounce of food fed with grain to the steers when fattening for market will put flesh on them and save you money on grain. A healthy animal wastes no food. It is all transformed into flesh. For calves you are raising or ones you are fattening for veal, you can obtain the most wonderful results by using one-half measure of Wilbur's Tonic with one pint of ground oats or corn meal.

FOR POULTRY

Wilbur's Stock Tonic is an egg maker and a fat maker which will not only force more profit from the poultry yard but will also prevent disease and save birds. It is a sure preventive for cholera, gapes, pip, roup, indigestion, diarrhoea, apoplexy, and all other poultry diseases. For little chicks it has no equal and produces large, heavy birds.

PREVENTS ABORTION

By counteracting colds, and soothing the nerves while the mother is in a delicate condition, Wilbur's Stock Tonic PREVENTS ABORTION and saves for the breeder at least one-half more of his increase. Wilbur's Stock Tonic fed in small quantities to young animals, will make them grow large, strong and fat.

REFERENCE: 25 years of success in business. Any Bank in America. Any Mercantile Agency in America. Any Agric. Paper in America.

FULL DESCRIPTION OF THE GUARANTEED N. Y. STANDARD WATCH

We will give away 10,000 of these railroad watches at once—fill out free pail coupon and mail it today—we will also send you full particulars of great N.Y. Standard Watch Offer.

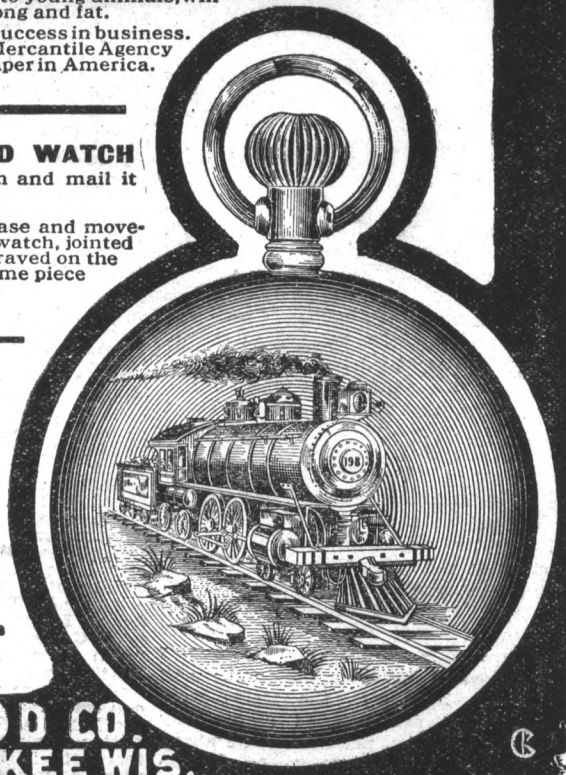
The word "Standard" on the face of the Watch is a positive guarantee that both case and movement are perfect in every detail. It is a large 3 oz. stem-wind and set open face watch, jointed screw back and heavy beveled crystal. Note the beautiful "Engine" design engraved on the back. The watch contains seven fine jewels and is a handsomely finished time piece in every particular.

READ WHAT OTHERS SAY

Nauvoo, Alta.
Wilbur Stock Food Co., Milwaukee, Wis.
Dear Sirs:—I received the watch in perfect condition. I find it to keep correct time. I think it a grand present. Please accept my warmest appreciation of same. Many thanks to you. With kindest regards.
C. M. D. WILSON

Paris, Ark.
Wilbur Stock Food Co., Milwaukee, Wis.
Kind Sirs: I am well pleased with watch received from you. I am still feeding your Stock Tonic and think it O.K. I will be pleased to speak a good word for you and your tonic. You have dealt honestly with me, done just exactly as you agreed to in every way. Very truly your friend,
S. B. SHIRLEY

Wilbur Stock Food Co., Milwaukee, Wis.
Gentlemen:—I received the Stock Tonic O.K., and wish to thank you for your promptness in filling my order. I can say for Wilbur's Stock Tonic that it is the greatest tonic for stock I have ever used, and am very proud of it. I will never be without Wilbur's Tonic. I also want to thank you very kindly for the watch you sent me as a premium. I find it to be all O.K. Yours very truly,
Iva, S. C., R.F.D. No. 3
W. W. RICE



Free Pail Coupon

Wilbur Stock Food Company, Milwaukee, Wis. Department 497
Gentlemen: Please send me the 25-lb. pail of Wilbur's Stock Tonic Free—also explain just how I get the guaranteed N.Y. Standard Watch free of charge.

I own.....horses.....Cattle
.....Hogs.....Sheep.....Poultry.

My name is.....

P.O.....R.F.D.....

Freight Sta.....State.....

WILBUR STOCK FOOD CO.
497 HURON ST. MILWAUKEE WIS.

PUBLISHERS' NOTE.—As publishers we have known the Wilbur Stock Food Co. for over a quarter of a century, and

take pleasure in recommending them to our subscribers. Thousands of our readers have used Wilbur Stock Food Tonic with great success. In fact, many of

them have testified to the success which they have met in letters of recommendation. We have absolutely no hesitation in recommending the Wilbur Stock Food Co.

in every way and know positively that our readers will find their foods not only what they are advertised but even more than they claim.