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FARM NOTES.

Preparing Land for Wheat.

The good yields of wheat in Michigan this year and the more satisfactory price at which this grain is selling as compared with previous years will doubtless prove an incentive toward the sowing of larger areas to wheat this fall than has been common in recent years. Michigan farmers are not new to the growing of wheat. Time was when this staple cereal was a leading cash crop in our state, and Michigan yields were, and have since continued to be on the smaller areas grown, quite satisfactory as compared with the average for heavier producing states and the country at large. The summer fallow was a common method of preparing the ground for wheat in the old days, and has retained its favor in many wheat producing sections in recent years, but not to the same extent as formerly. More wheat has been sown after oats or corn or beans than formerly, and while the yields have not been as uniformly satisfactory, the crops have proven more profitable because of the less time and expense involved in the preparation of the soil. But this change in the method of preparing the soil for the crop has made the wheat grower more dependent on the fall rains to get the crop properly started than was the case where the fallow land was sown, and in some sections at least the dry weather has again prevented the early plowing of fallow and stubble ground intended for wheat, so that a discussion of the subject at this time may prove helpful to many who have not yet been able to plow and prepare the ground intended for wheat or who will sow it after other crops.

The soil conditions essential for a maximum yield of wheat are well established and quite generally understood, so that under normal conditions the average farmer is not likely to make serious mistakes in preparing his soil for this crop, but experimental data touching the methods which succeed best when conditions of soil and moisture are not such as might be desired may prove helpful to many who are now confronted with this condition. As is well known, the ideal condition for the germination of the seed and the growth of the young plants is a fine, mellow condition of the surface soil and a firm and well settled seed bed below the depth at which the seed is sown. This firm seed bed, being well connected with the sub-

soil below it, insures a supply of moisture for the germination of the seed, while the fine, mellow earth mulch at the surface prevents the evaporation of the moisture brot up from below by capillary attraction from being evaporated from the surface of the soil, and at the same time favors the rapid growth of the young

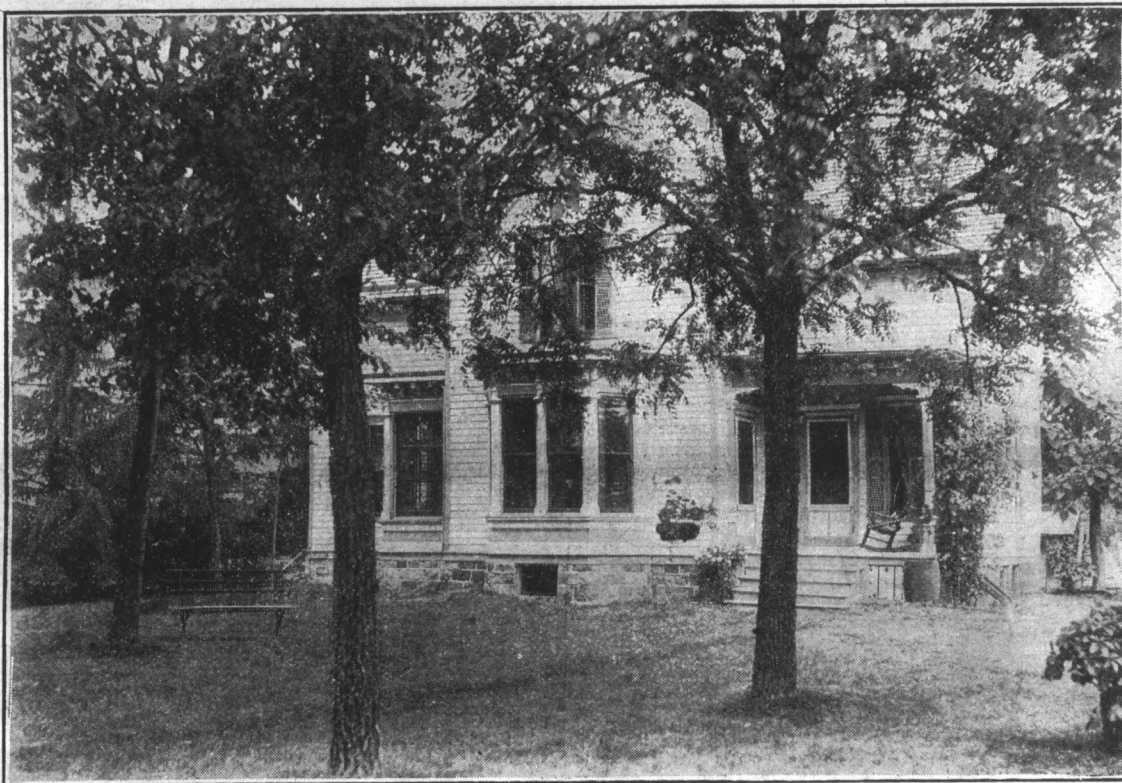
after seeding, the soil is apt to dry out to the depth of the plowing to an extent which will seriously injure the tender plants. This condition has been the frequent cause of poor stands of wheat in Michigan in recent years, and also makes the danger from winter killing much greater than where the ideal seed bed

overcome this handicap may not at first be apparent to the reader, but where the ideal condition cannot be secured it is always well to keep it in mind so as to approach it as nearly as possible, and where the ground must be broken and prepared close to seeding time to use such methods as seem best suited to approach that condition.

Extensive experiments conducted at the Kansas station during the past two seasons have shown that in every case the ground plowed for wheat in September gave a lower yield than where the land was plowed earlier, but the results also show quite a variation in the yield under different methods of late plowing and preparation. For instance, land plowed three inches deep in September gave nearly three bushels per acre better yield with the same preparation than land plowed seven inches deep at the same date. These are, perhaps, extreme examples, but they illustrate clearly that under conditions in which late plowing must be done shallow plowing is more profitable than deep plowing, both in the better prospect for a good yield and the greater economy of horse power required in the operation. And right here it might be well to again emphasize the economy of conserving the moisture which may fall before or during the plowing of stubble ground by disking the land, as was advised in a recent issue, and the philosophy of which an interested reader has asked us to explain more fully. This disking of stubble ground simply prevents the rapid evaporation of moisture from the surface by providing an earth mulch in the same manner that this desirable result is secured in the cultivation of crops. It also fines the surface soil in such a manner that it will form a closer union with the soil below the furrow, and it will make the plowing easier to repay the labor involved. Of course, the earlier this work can be done the better, but there are large sections of the state in which plowing has been delayed until this time in which we believe this preliminary operation would still be profitable, provided the conditions described should prevail.

After the land is plowed thoro harrowing, especially after every rain, will improve the seed bed and conserve moisture. In the

experiments above referred to it was found that two harrowings, at a cost of 50 cents, increased the net profit \$3 and \$1.50 respectively in each of the two years over no harrowing from the time the land was plowed until it was prepared



"Maple Row," Farm Home of J. T. Daniells, Clinton County, Mich.



The Lawn at "Maple Row," an Object Lesson Worthy of Emulation.

shoots to the air and sunlight above. On the other hand, a too mellow, loose and deep seed bed makes the seed almost wholly dependent on rains for the moisture necessary for germination, and in case dry weather succeeds light showers,

can be more nearly approached.

Just how the recting of these well known facts will help the man who has been unable, on account of unfavorable weather conditions, to prepare an ideal seed bed for the sowing of wheat to

for seeding. While early sowing generally gives better results than late seeding, yet a reasonable delay to get the seed bed into good condition is likely to prove profitable.

Another factor which should not be neglected in preparations for the wheat crop is the character of the seed. The best is none too good, and it should be thoroly cleaned and treated for smut before sowing if a maximum yield is desired.

Yellow or Hop Clover.

I find the enclosed specimen in my pasture field. The soil is muck. Kindly advise me thru the Michigan Farmer if the specimen is clover or a pest.

Sanilac Co.

S. J. P.

The specimen enclosed is commonly known as yellow or low hop clover. It does not commonly grow to the height of over six inches but owing to the rich ground and abundant moisture this specimen is somewhat larger. It belongs to the clover family and is commonly designated as "hop clover" owing to the resemblance of its head to the flower of that plant.

The blossoms are yellow in color, turning brown as they ripen. It is common in Europe and frequently met with in this country. While not listed among forage plants of economic value it can hardly be considered as a bad weed. It is a near relative of the ordinary trifolium or black medick, which is grown for forage purposes in Europe because of the cheapness of its seed, for which reason it is also sometimes used as an adulterant in clover and alfalfa seed.

FERTILIZING THE WHEAT GROUND.

In manuring ground to be sown to fall wheat a number of us farmers plow our ground first, then roll it down, after which we apply a light coat of manure. This is then thoroly mixed and worked into the soil by disking and harrowing before the wheat is drilled. The manure is applied, of course, by a manure spreader. Spreading by hand a person never can do as good a job and cannot make the manure go as far. We find it better to cover a field lightly with manure and cover the whole of it, than to put a heavy coat on it, and only have enough to cover half of it. By applying the manure in this way we find that we get a better yield of wheat and also when seeding to clover in spring a better catch of clover. Some also find it to pay well to apply 100 to 200 lbs. of fertilizer when drilling wheat, in addition to the manure.

Plowing under the manure like we used to do, and a great many are still doing, does not give us as good results.

Saginaw Co.

J. S.

HANDLING CLOVER SEED.

Hundreds of dollars are annually lost to the farmers of this country thru careless and improper handling of the clover seed crop. There are few crops which can be lost so quickly thru improper handling as clover seed. A few hours of rough work will often knock out half the seeds and, no matter how careful we are, a great amount will invariably get away from us.

This year's crop of red clover is not likely to be especially heavy, owing in part to the drouth, which until recently has affected a great part of the clover seed belt, and in part to the fact that in some sections the acreage is not as large as usual. Perhaps one thing which accounts for this condition is the fact that last year's crop was so unusually large that many farmers expected the surplus stock of last year to keep the prices down. However, at present it looks as if people will have to pay for their seed next year. The supply on the market at present is not great, and seed for December delivery is now selling at above \$7.00 per bushel. Of course, the sale of futures is not a sure sign, but according to all indications \$10 seed for next spring does not look impossible. Hence it would be well to look twice before cutting second-crop clover for hay.

It is always well to make sure that your crop is ripe before cutting it. Don't misunderstand me, for many cut too green. We want every seed that has a chance of maturing, hence allow it to mature. Cut it when nearly all of the seeds are dead ripe.

Often, during the past season, I have seen inquiries in the various agricultural papers asking for methods of cutting clover seed. One recommended cutting with an ordinary mower, and then raking with an old-fashioned dump rake—that writer had evidently not handled much

clover seed. It would be about as practical in a forty acre field as the use of hay caps. It might be all right with a few acres, but when it is ready cut it and don't fool around. The best thing which we have is a windrow attachment to the mower. It consists of a number of iron strips of various lengths which fasten on the cutter-bar with three bolts and which rolls the clover back into one continuous windrow, where it can cure out and lie until hulling time.

Do not hull the clover until it is ready but, if possible, hull it as soon as it is fit. The value of good clover chaff is too often lost sight of, and for that reason we too often see stacks of it rotting on numbers of farms. Our experience has taught us that we would rather have good clover chaff ton for ton, than the best straw we can secure.

Ohio.

CLYDE A. WAUGH.

SCIENCE BIDS THE DESERT DRINK.

Has any practical agricultural enterprise ever before been more royally heralded by pageants of floats, bands and glorious flutter of decorations such as enthusiastic thousands cheered in Spokane, Washington, August 9 to 14? It may be; but certainly no popular demonstration was ever vibrant with a more profound slogan than that which rang thruout the seventeenth session of the National Irrigation Congress. Six days of serious consideration combined with joyous celebration of a great farm problem is what it amounted to, and the seed-thought that dominated all was, "Science bids the desert drink." This message was emblazoned everywhere, in bold type on shields, banners and advertisements. It was the message of every speaker; it was illustrated in striking single floats and was worked out progressively as the agricultural development of the northwest was shown in each of the several parades which honored irrigation as its crowning triumph. "Science bids the desert drink," becomes the watchword of a new agriculture. Fifteen hundred delegates, representing seventy foreign nations and the far east and south, as well as the west and north, of our own land, met in this congress to study the new-old problem of soil-culture.

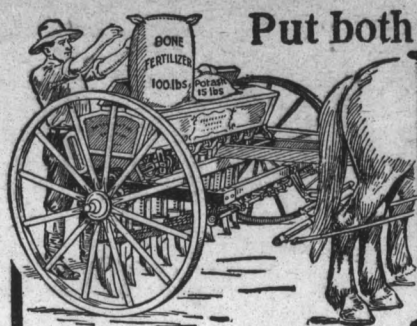
The whole subject of irrigation was given national import by the Reclamation Act of 1902. It is no longer a purely western project. It ramifies all our



Seal of National Irrigation Congress.

efforts toward national progress, therefore, in the week's program of the congress various features were presented by speakers of national reputation who have devoted themselves to a study of legislation, of forestry, of soil survey, of transcontinental railroading, of good roads and of farm home building. From Secretary Ballinger on the first of these in relation to irrigation, to Dean L. H. Bailey on the last, an alert, earnest, high-minded audience gathered to learn. New words were there put into our farm vocabularies—"reclamation," "irrigation projects," "conservation," "dry-farming," "corrugations," "open and closed leads," etc., etc. A feeling of new brother and sisterhood was engendered for the prospective home-makers on our sixty million acres of "arid lands." One felt he was in the presence of seekers after knowledge and must in no wise disturb or distract the wrapt attention of those in attendance. One felt, also, that here was a business-like pursuit of agricultural knowledge. Home seeking and building was the ultimate object, but it must come thru business-like farming which will give comforts, recreations and privilege of culture such as other homes have. All these things were more than in the air; "they were emphasized. One was glad to be alive and permitted to see the oncoming of this wondrous new development of the earth beneath our feet and the waters under the earth.

JENNIE BUELL.



Put both in and mix

POTASH

The Last Call

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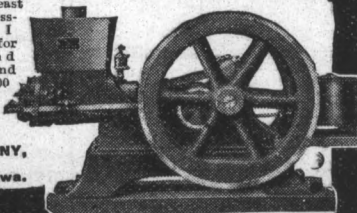
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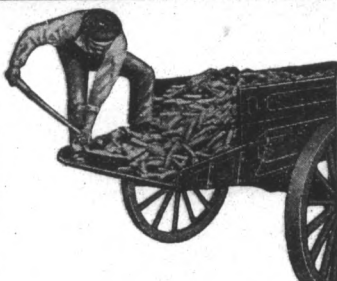
SIZES
16 Disc, 4 ft. cut
20 Disc, 5 ft. cut
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and save one-half the time and expense. A 6- or 7-foot size takes only four horses and once over the field will give you a better seed bed than twice over with an ordinary Disc.

The Imperial Double Disc is a complete (out-throw) Foretruck Disc Harrow with a second pair of disc sections (in-throw) attached by a jointed frame. The front sections cut the ground and throw it out; the rear sections work it again and throw it back. The soil is reduced to a uniform fineness, with a level, even surface over the entire field.

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A FEW TILE DRAIN QUESTIONS.

Is it best to have tile laid down the slope or angling across it? Is 80 rods too long a distance for a drain of 4-inch tile when said drain is expected to carry off only the water which falls on that particular parcel of land? Is it better to have mains with laterals or increase the number of mains and do without laterals as far as possible?

SUBSCRIBER.

Except in deep, porous, aluvial soil, a four-inch tile will take all the water that would naturally come into this tile, for even eighty rods in length. In some of the aluvial soils of the northwest, the water drains much farther into the tile than it does thru the soils in this country, and consequently they find it necessary to use larger tile than we do. Of course, it is a good plan to use tile a little larger than you think necessary, because it gets the water off more quickly; but four-inch tile will drain the water that comes naturally into it for 80 rods, and as a matter of fact, you could just as well have the upper part, or the last forty rods of this drain of three-inch tile and have them run into the four-inch. This would make it a little bit cheaper. Providing the four-inch tile would not carry all this water off, then it would be better to have the lower half of it five-inch tile and the balance four-inch, because it is not necessary to have the upper end of the ditch as large tile as the lower end, as the lower end has to carry off all of the accumulated water from the entire length of the drain.

In draining a natural slope of ground, a drain laid parallel with the slope at the base of it, will carry off the water and drain the land better than it will to have the drain run down the slope, because the water that soaks into the ground from above, at the top of the slope worked down thru some natural drainage layer of soil and seeps into the lower land. Of course, this is the way springs are formed. Now if you lay a tile drain angling across the slope, it will tap this water and prevent it from running, or soaking down the slope. Therefore a ditch laid angling across the slope would cut off all the water from above, while a ditch laid down the slope would only drain two or three rods on either side of it.

It is better to have an open outlet to a tile drain, if possible, because there is always some danger of having the outlet get stopped up. Consequently it would be better to have a main ditch with laterals running into it and only one outlet to the whole system, than it would to have several outlets, where it is possible to do this. If I could drain 40 acres of land and only have one outlet, I would have a large tile for this outlet and then have smaller tile running into it, and have enough laterals to drain the whole forty acres open in one open mouth rather than to have several of them; but usually this could not very well be done. The natural drainage of the field would prevent. But the natural principle would be to have as few systems as possible.

COLON C. LILLIE.

PREPARING FOR THE WHEAT CROP.

The next operation after the oats are hauled, to attract the farmer's attention is the plowing and fitting the ground for the next wheat crop. A large share of this will be oat stubble and if it was plowed in the spring it will not plow hard even if quite dry. However, if it was sowed after corn without plowing, as ours was, it will be apt to plow up hard and lumpy if dry. Our oat stubble was plowed before the last rain and as it was disked in this spring on corn stubble ground it plowed up quite lumpy and required a new plowpoint daily. However, after the soaking rain which came a few days ago we went over it once with the combination spring and spike tooth harrow, and as a neighbor remarked, it "looks like summer fallow." The lumps are nearly all pulverized and the surface quite level. We shall harrow the field after each hard rain has dried off sufficiently and I do not think there will be many lumps by seeding time. The oats which are coming up thickly will also be pretty well sprouted and killed.

I have noticed that when ground is plowed well during dry weather and worked down well after rains, it is likely to produce a good crop if other conditions are fairly favorable. There seems to be a grinding or pulverizing action on the soil when plowed dry that is an advantage to it, tho I can not explain why, and perhaps it is somewhat imaginary. Many farmers believe there is something in it, however, and who can say that there is not?

Another field is nearly plowed also. This was partly corn stubble wheat ground, and partly sod ground plowed for wheat after the second crop of June clover was cut for seed last fall. The latter plows quite well, but the rain did not go to the bottom of the furrow on the corn ground stubble. We are following the plow with the harrow in this case to conserve what moisture there is, and will work this down also after rains to get a firm moist seed bed. Following wheat with wheat may not be the best practice, but the ground is rich and gets a dressing of manure every second year. Where manure is available I believe one can follow an intensive rotation and make the soil produce according to the manner in which it is fed.

Calhoun Co.

S. B. H.

CLOVER EXPERIMENTS BY THE DEPARTMENT OF AGRICULTURE.

The Bureau of Plant Industry of the Department of Agriculture, thru Mr. Charles J. Brand, physiologist in charge of clover and alfalfa investigations, has been making important discoveries in relation to clover culture. Hitherto the work on clovers has been confined largely to a study of the regional varieties of common red clover, including experiments with the new Orel clover. Professor N. E. Hansen, during his last exploring trip, secured seed in Norway of a hardy variety of clover called "Toten" clover, which resembles very strikingly the new Russian "Orel" clover.

In addition about thirty strains of European red clover, including among others the Steiermark, Silesian, Moravian, Bohemian, Italian, Thuringian, Austrian, English, Russian and Polish, are being studied in co-operation with the Minnesota and Ohio experiment stations and also with a private investigator in the humid coast region of northern California.

Experiments are also being made to determine the availability for cultivation of some of our wild native clovers. There are some 75 native clovers in the United States, some of which grow with remarkable vigor and attain large size. Many also seed very freely, an important quality in cultivated plants. The officials of the bureau believe many of these wild species may prove valuable for particular types of soil, climate and methods of cultivation.

Experiments have also been made with shaftal, a very promising annual clover which has long been cultivated in northwestern India, Afghanistan and Persia, but had never been introduced into the United States until seed was recently obtained thru the courtesy of Mr. Philip Parker, of the Indian irrigation service. In the Asiatic regions mentioned, where shaftal is grown almost exclusively under irrigation, three, or even more, cuttings of hay are obtained each year, which is a remarkable showing for an annual hay crop. The plant is a rapid grower, cures readily, makes fine hay and is greedily eaten by cattle and horses. In the Himalayan plateau shaftal grows at an altitude of 8,000 feet; hence the officials of the Department of Agriculture believe that it will have considerable frost resistance, which may greatly improve its usefulness in this country. Experiments made last year in localities as widely separated as Carlton, Ore.; Danville, Va.; Yuma, Ariz.; Stockton, Kas.; and St. Anthony Park, Minn., have been highly satisfactory.

Washington D. C. G. E. M.

Have You Heard About the Improved Stock and Wagon Scale?

The editor is glad to note in this issue an advertisement on Ball Bearing Pitless Scales. This is something we should like to see on every farm in the state. The ball bearing feature is new to stock scale construction, but it has made such wonderful improvements in other mechanical lines that we feel certain it is going to be a phenomenal success applied to scales. We advise looking into the matter and write for descriptions, prices, etc., on ball bearing pitless scales, sold at wholesale prices. Send in your name by post-card today to the Indiana Pitless Scale Co., Box 10-A, Newcastle, Indiana, Dept. 10, Kansas City, Mo., Station A.

The harrowing attachment for use with sulky or gang plow has gained a position of well-earned popularity during the past few years. This implement harrows each furrow as it is turned, and fines and smooths the soil when it is in the best possible condition. The American Plow Co., 2344 Fair Oaks Ave., Madison, Wis., make two styles of attachment, the spike-tooth drag attachment for smoothing and the rotary disc attachment for pulverizing. Each is attachable to the same frame and they are easily interchanged to suit any condition of soil. The savings of labor and time of harrowing in a single season will pay for one of these combination attachments. They are adaptable to any sulky or gang plow.

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There is unquestionably a great advantage in owning your own hay press.

You have ample time to bale your hay during the late fall and early winter months, and

The money you will save by doing your own baling rather than having it done by the contract baler will pay better wages for you and your horses than you can make any other way.

I. H. C. PRESSES FOR INDIVIDUAL FARMERS

I. H. C. hay presses are well adapted to the use of individual farmers. They are run by horse power, the kind of power you always have on the farm.

They do not require a large force to operate them. Usually there are men enough on the farm without hiring extra help.

They are not such expensive machines but that each farmer can afford to have a press of his own so he may bale his hay or straw when ever he is ready.

I. H. C. presses are made almost entirely of steel and iron, very strong and durable. They have the great advantage over many other presses in being made on the pull-power principle, by which the plunger is pulled, not pushed.

The presses are made in two sizes. The one-horse, made with a 14 by 18-inch bale chamber can be operated by two men and a boy. It will bale 6 to 8 tons a day.

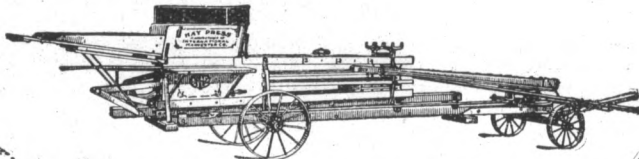
The two-horse press bales 8 to 15 tons a day. It has bale chambers 14 by 18, 16 by 18 and 17 by 22 inches. This press is well adapted to doing not only your own work, but also neighborhood and contract baling, if you have the time.

Both presses are convenient to operate, easy on the horses (no extra pull when pressure is greatest), and are full circle type, avoiding unnecessary stopping, starting and turning of other presses. The stepover is only 4 inches high.

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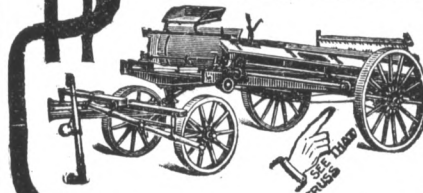
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LIVE STOCK

FEEDERS' PROBLEMS.

Cost of Wintering Calves and Sheep.

What would it cost to winter calves per head, providing one has plenty of rough fodder? What is it worth to winter sheep per head, providing they are let out for the winter, not to fatten but to secure a good growth?

W. H. S.

This question can be given a practical answer only in the abstract. The cost in any given case, which might be made a concrete example, will depend so much upon local conditions such as the breeding and condition of the calves to be wintered, how well it is desired to winter them or how well it would be profitable to winter them in view of their later dispositions as well as the value or cost of the feeds which are used in carrying them thru the winter.

To illustrate the variable nature of these charges the writer will refer to an experiment which he made in baby beef production some years ago. In December, 1904, 20 choice calves, averaging 540 lbs. in weight were purchased at the Chicago yards and shipped to the writer's farm with a view of determining what could be done with them during the ensuing winter. These were selected calves, most of them evidently having followed their dams during the summer, and were in a thrifty, growing condition when purchased. These calves were put into the yard on December 3, and were shipped out on May 10 following, during which time they consumed feed in amount and value as follows:

7,440 lbs. dried beet pulp at \$16.75 per ton	\$ 62.30
28,690 lbs. cracked corn at .9227 per cwt.	264.72
35 bu. oats at 32 cts.	8.00
10 tons clover hay (estimated) at \$7.00 per ton	70.00

Total \$405.02

Thus it will be seen that in this instance it cost a fraction over \$20.00 per head to winter these calves or rather to convert them into a good quality of baby beef. The 15 tops in the lot brot \$5.50 per cwt. on the Detroit market and averaged 840 lbs. in weight. The others having made slightly smaller gains and not being in as prime condition were sold at 5c per lb. Thus it will be seen that good thrifty calves are capable of consuming a large amount of feed where they are crowded to their limit. These calves consumed as high as 16 lbs. of grain each per day when on full feed.

In comparison with this cost for wintering it would be possible to carry calves thru the winter at a very small expense on a good quality of roughage and a small grain ration. Where the object is to carry them thru the winter with a view to making cheap gains on grass the following summer it would probably not pay to feed them as well as the calves were fed in the experiment above mentioned, but it certainly would not pay, on the other hand, to winter them on what would be simply a maintenance ration, for the reason that they would make very little gain in weight and it would take them some weeks when turned to pasture to get started again and they would never recover from the effects of the stoppage of growth and development caused by such scant feeding.

While under ordinary conditions it would not pay to feed calves heavily enough to finish them where it is intended to turn them out to pasture the following season, yet it will pay to feed them liberally enough to get a maximum of growth and muscular development without laying on the finish in flesh necessary for the market. To do this intelligently, one must have a fair knowledge of the principles of animal nutrition as well as be a good practical feeder. The best authorities advise a ration having a nutritive ration of about 1:5 for growing calves of the beef breeds, which ratio might be gradually widened as the feeding period progresses to 1:6; that is on an average these calves would require about 3 lbs. of digestible protein, 13 lbs. of carbohydrates and 1 lb. of fat per 1,000 lbs. of live weight each day for a maximum of economic growth. These factors being known and the cost of available feeds from which the ration can be compounded being fixed, it will be comparatively easy to figure out the approximate cost of keeping calves thru the winter in this desirable thrifty growing condition which will make them capable of making maximum gains upon grass next season.

The cost of such a ration cannot, of course, be determined off-hand. If peas are available as a home-grown factor in

the ration the cost will be reduced very materially. Otherwise, it would be good economy to buy concentrated feeds which are high in their protein content to balance up the ration. Oil meal would be a good source of protein, altho if silage is available some cottonseed meal could be substituted for a portion of the oil meal, and if clover hay is available for roughage less concentrates of this kind would be needed than where other forage must be substituted for it.

While the writer is of the opinion that feeding standards can not profitably be followed to the letter, yet they are of some value when figuring a profitable ratio. Palatability is also a great factor as is the good sense of the feeder. Roughly speaking, the feed for calves wintered for most economic results in beef production should be of about the same nature as that suitable for dairy cows and should be fed with sufficient liberality to produce a maximum growth, and such a ration would cost nearly or quite as much per thousand pounds of live weight for the calves as for the cows.

A certain amount of feed is required to keep the animal body going and there is no profit in simply a maintenance ration in wintering young stock. The gain should be sufficient to pay for the entire cost of the feed, including maintenance, otherwise there must necessarily be a loss which must be made up in the future feeding of the animal or be finally entered on the wrong side of the profit and loss account.

What is true with regard to the cost of wintering calves is equally true with sheep. Some feed liberally while others keep them as cheaply as possible. If the sheep have reached mature age and go into winter quarters in good condition, simply a maintenance ration will be sufficient for them. Otherwise, they should be so fed from the start as to put them in fair condition before the lambing season. Some favor the plan of feeding no grain before mid-winter at least, then feeding a moderate grain ration the balance of the season. The writer believes it to be a better policy to feed them a small grain ration thruout the winter, say about 1/4 lb. per day per cwt. of sheep. With a good quality of roughage this will keep them in fine condition and will repay the extra cost of wintering in the better lamb crop that will be secured.

Rye as a Hog Feed.

Is rye meal a good feed for shotes on pasture? Is there any danger of feeding too much of it?

Washtenaw Co. --- E.-W. MARTIN.

Rye meal is a very satisfactory feed for shotes on pasture. In fact, it compares quite favorably with corn as a food for fattening hogs when fed as a thick mash, soaking each feed from one feeding to the next. Extensive experiments made to determine its relative feeding value indicate that, while it gives a slightly lower gain than corn it makes an even better quality of pork. The writer has fed it quite extensively, and has never found any difficulty to result from a liberal ration where the hogs were on good pasture. However, better results will be secured from a mixed grain ration if it is available.

Where too young pigs are fed on a ration composed exclusively of rye, without any green feed, bad results sometimes follow, as it is too binding and heating, but it can be safely used as a factor in the ration the same as corn.

IS SHOW STOCK EXAGGERATED?

As the season is at hand when the different fairs will be held, and we will hear the various criticisms on the fairs and the exhibits there, I am reminded of the fact that not a few people are ready to criticize and declare that the cuts published in the agricultural press, and the stock shown at the fairs are all in an exaggerated form; they are not true to life as seen on the farms. They forget that the stock is fixed up for show, which is no more than they should be themselves. Farmers dressed up in their best, as they usually appear at the fairs, look as well as the mechanics or professional men. It is a difficult task to sort out the farmers as we see them mingling in any crowd. Some of them are as well dressed, make as good an appearance, and carry as intelligent looks as those from any other calling in life. It is right that it is so, and they ought to consider that stock taken from the farm and shown at the fairs is scrubbed, cleaned, combed and put in the best possible condition for the occasion; and that is no more than the majority of people do, or ought to do, by themselves when they go out at public gatherings, for good appear-

ances will add to the standing of their calling among other people.

Those who are only acquainted with the stock as seen in the everyday farm form, in their more or less soiled condition, are slow to comprehend what good breeding, good feeding, and good education will do for them. When they see the highest type of farm stock that may be comparatively near relations to their own that have been richly fed, bathed, groomed, anointed; and with cattle the hoofs manicured, the horns scraped and polished and the hair curled; with horses the manes and tails braided to crimp and adorned with highly colored ribbons, the change brot about by the skill of the artist who has charge of them is so great that many are ready to declare that it is an exaggerated class of stock, entirely out of the reach of the possibilities of the farmers. Such is a wrong impression and those who have carried it should look the matter over and consider how those great changes are brot about.

In looking at matters of this kind we should bear in mind the fact that breeders and improvers of live stock have been working toward their highest ideals. We should remember that the breeder, as well as the artist, is a creature of growth and the highest ideals of a decade past were not the equal of the highest ideals of today. The breeder has improved on his ideals, and it is his ambition to bring his stock up to them. The fair season is the time to see just how far progress has been made in the breeder's art, and also to see what can be and has been accomplished in the way of fitting, training and showing. The trainer and showman is as proud of his ability to fit and show stock to make it look at its best, as a milliner woman is to trim and show the beauty of the latest style of that crowning female adornment, the lady's hat.

It may be well to consider some of the benefits of following after these high ideals. We are all proud of the advancements made during the last half century in the improvement of our live stock. The change has been so great that it almost seems as tho we were living in a new world. The surface of the ground, the hills, the slopes on the hillsides, the ravines, the plateaus are all the same, but the stock that crops the rich herbage in the green pastures and eats the garnered grain raised to feed for the purpose of making it more serviceable or marketable, has been so transformed and improved that it bears but little resemblance to the half fed, half cared for stock of our forefathers. The old indifferent looking horses, cattle, sheep and hogs that were but the representatives of the primitive races of animals that then abounded are a thing of the past in many places and the new types of the improved breeds have taken their places, as better adapted to our wants as servants to till the soil, or convert the abundant crops that are raised on the farms into a marketable product.

The skill of the breeder, the feeder, the trainer and exhibitor has had much to do in making this improvement. The meeting in competition for prizes offered has stimulated to great effort to match and surpass the competitors. Seeing the animals that are the result of the effort and skill of the breeders, for scores of years, put in fine form by the skill of the feeder and adorned by the art of trainer and showman has done much to stimulate a desire on the part of the farmers to possess some of the same kind. All of the benefits derived from showing stock are not covered by the prizes won. It helps to encourage the adoption of a better class of stock on the farms. To the thoughtful and enterprising class of onlookers and sight beholders at the fairs, the stock is not exaggerated, but is considered to be of the "real stuff," in an improved form, dressed up for show.

Wayne Co.

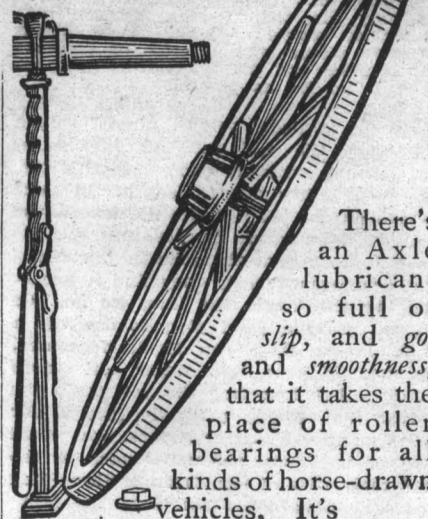
N. A. CLAPP.

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NECREBACILLOSIS—A NEW DISEASE.

The officials of the Bureau of Animal Industry have a new field of activity thru the announcement of a new disease discovered among the sheep of Wyoming known as the lip and leg disease. The complaint is known among scientists as necrobacillosis, but with the advent of the ailment in Wyoming it was nicknamed lip and leg disease, because of the parts of the animal affected. It has no relation with the hoof and mouth disease which raged in a number of the eastern states during the past year. Officials of the Department of Agriculture say they are at a loss to know how the disease became so widespread in Wyoming as, so far as known, it was not brot here from any other country. It is probable, they explain, that a single animal came into contact with other cattle in transportation, and that the others became infected in the cars where slight scratches of the skin are almost unavoidable.

By Secretary Wilson's orders eight counties of Wyoming have been placed under stringent quarantine, which effectively shuts off trade in cattle from the infected counties. The counties under the ban lie in the section where most of the Wyoming sheep are raised.

Washington, D. C.

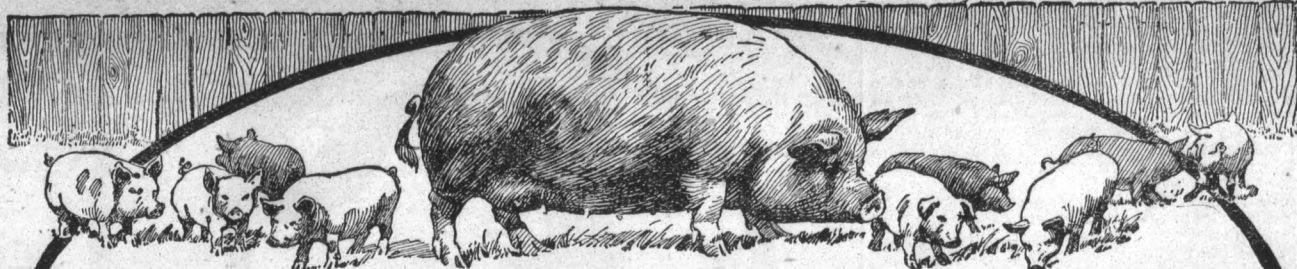
G. E. M.

LIVE STOCK NOTES.

The American Beef Producers' Association, an organization whose sole aim will be to stimulate a larger production of beef cattle in the far west and southwest, was organized in the Saddle and Sirolo Club rooms in Chicago a few days ago. The headquarters will be in Denver, and statistics and good reasons for producing beef cattle will be sent to farmers of Colorado, Wyoming, New Mexico and northern Texas. Thousands of the new settlers are turning to dairying, and efforts are to be made to induce them to produce steers for beef markets, as well as to furnish feeders to be finished by the corn belt farmers. The succulent grasses are adapted for making a good grade of beef, and it is believed that farmers will be able to make good profits by taking up the industry. J. F. Prather, president of the American Short-horn Breeders' Association, is the president of the new organization, and vice presidents are the presidents of the six leading pure-bred cattle breeding associations. W. E. Skinner, of Denver, was elected secretary, and the officers named will constitute the executive committee. The American National Live Stock Association was asked to join in a call for a beef conference in Denver for the second week of next January. William E. Skinner, widely known as the manager for years of the International Live Stock Exposition in Chicago, before his removal to Colorado, has been prominently identified in this new movement, and he is intensely interested in the enterprise. He says the intermountain states are fast being settled by people of the east and southwest, many of whom have never had experience in beef production. There are many of them who are going into dairying because the colleges of the west and business interests are striving to that end, that the production of dairy products in the west may grow and beef production decrease. "Conditions have changed greatly in the west during the past ten years," says Mr. Skinner. "This year, for example, only 110,000 cattle have gone from Texas to the northwestern ranches in comparison to the many thousands more which went over the same route a few years ago, and eventually found a market in the east. Two-thirds of the range has already been broken up and lost to cattle breeding and grazing, and the time is ripe for the founding an organization which will induce the new settlers to raise cattle for the market and eventually profit thereby to a much greater extent than can be done by continuing in the dairy industry. Colorado today is producing hardly enough beef for its own consumption, and with the settlement of the other intermountain states in the next few years the same conditions will exist there. If we can advise the new settlers of the modern methods of beef production and encourage early maturity of cattle we will have advanced the interests of pure-bred breeding associations of the country and also will have performed a work which the settlers of the west will long appreciate."

The promised good corn crop points to a later marketing of hogs than last year and more pounds of products for next winter. In most parts of the corn belt farmers are so confident of full corn cribs that there is a general demand for stock hogs for maturing purposes, but very few are offered for sale by their fortunate owners. This accounts for the extremely small numbers of pigs offered in Chicago and other western markets at the present time. Naturally, farmers with cribs full of corn will realize the advantages to be derived from converting corn into meats, and hence a sharp decline in the marketing of immature stock may be expected for the remainder of the year. Last autumn Illinois, Indiana, Michigan, Wisconsin and other states marketed enormous numbers of little pigs, and now farmers wish they had held on, for the resulting shortage of hogs has made unusually high prices everywhere.

The demand for stocker and feeder cattle in Chicago and other western cattle markets is gradually widening out as farmers realize the splendid corn crop that is now almost assured. As usual, buyers who buy early and thereby avoid



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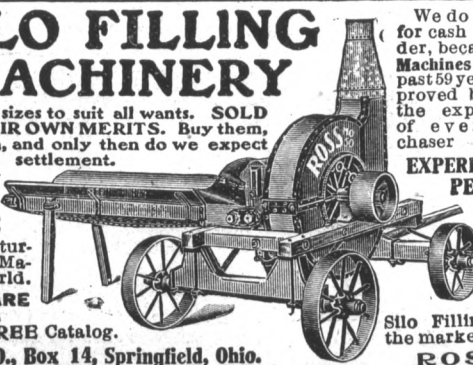
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the rush of later buying orders will be the fortunate ones, and already prices are headed in an upward direction, particularly for the better class of these cattle. The demand now takes in stock cattle for shipment in all directions, as well as good feeders, altho the demand has been checked to some extent by the dry weather in the east. For several months many farmers have avoided refilling their feed lots, owing to the fact that they had found cattle feeding unprofitable at the high prices prevailing for corn, but the importance of maintaining the fertility of the land was ignored, and many former cattle feeders are ready to try their luck again, the outlook for profits being much better, as in all probability corn will sell at much lower prices than for a year past. It is believed that live stock feeding will be much more profitable from now on than it has been for the last six months, and the abundance of forage is an important factor just now.

Idaho range lambs in enormous numbers have been headed for Chicago recently, and while the demand for dressed lambs has not abated in the least, prices for live lambs have undergone sharp declines. These great changes fail to affect retail quotations, and lamb meat sells as high as ever in the markets of the country. The Idaho lambs are being marketed in prime condition this season, and few feeder lambs are seen. But for the Idaho lambs this year, lamb meat in the east would be very scarce. In Kentucky the recent appearance of a bad case of scab has necessitated placing that state under a ban temporarily, stopping shipments of southern lambs where the disease is prevalent. In Wyoming there has been an outbreak in several counties of "lip and leg" disease, and government officials are using strenuous measures to eradicate it as quickly as possible. The feeder problem this year is a serious one, and indications point to a mutton famine, since the ranges appear to be short on lambs on the feeding order. The time has come for farmers to buy breeding rams and ewes of a superior grade and go to work breeding lambs freely for the market. Carried on intelligently, the industry will pay.

A great scarcity of choice corn-fed cattle is shown in recent receipts at Chicago and other markets, resulting in further sharp advances for such offerings. This rise is encouraging farmers to go into cattle feeding once more, and further advances in feeder cattle may be expected as the season advances. Some weeks ago heavy heaves were neglected and sold at a marked discount, with little yearlings that were fat selling much the highest. Now this is changed, and fancy 1,740-lb. steers have sold in the Chicago market for \$7.80 per 100 lbs.

Several days ago the Indiana experiment station at Lafayette marketed at Chicago a car load of prime 930-lb. Angus yearling steers at \$7.75 per 100 lbs. They were fed during the last winter on shelled corn, cottonseed meal and clover hay. They were purchased in Howard county, Missouri, as calves November 17, when they cost \$4.75 per 100 lbs., their weight having been 450 lbs. per head.

The leading seller employed by one of the largest sheep commission firms in the United States, in a recent letter to sheepmen, tells them plainly that the mutton trade calls nearly exclusively this year for spring lambs, and sheep are neglected. In nearly every retail meat market customers insist upon buying lamb meat, and even little yearlings on the lamb order, formerly so popular, now have to be disposed of at a much greater discount than a year ago.

At this time there are many conjectures as to the future of the hog and provision trades, and people are wondering what prices will prevail next winter. There has been a good deal of comment recently on the fact that the next January options on pork, lard and ribs have been practically the same prices as were paid on the Chicago Board of Trade a year ago. Last January the best price paid for hogs was \$6.70 at the Chicago stock yards. It seems reasonable to expect good prices for hogs as those of last winter, but as high prices as have been ruling this summer are hardly probable. On the one hand, there is a scarcity of hogs and short stocks of provisions. On the other hand, prices for both hogs and provisions are extraordinarily high, and the packers show a disposition to restrict their operations largely to cutting up hogs for the fresh meat trade and to wait for lower-priced swine for cutting up into cured meats. Every advance in hogs is contested, and whenever there is a large number marketed prices are sure to decline.

Regarding the prospects for the cattle trade a Chicago live stock commission firm advises its country patrons as follows: "The big rains all over the west have practically assured the growing corn crop. They also insure grass for several weeks and have put a healthier tone to the whole cattle market. Buyers acknowledge that the light receipts of corn-fed cattle seen here the last two weeks mean that the country is absolutely cleaned out of good cattle. Buyers can now afford to bid up prices and they undoubtedly will, if for no other reason but to induce cattle feeders everywhere to put in cattle. We would not be surprised to see \$8 paid for prime steers before September 1. This does not refer to grass cattle. There is little if any hope for them for the remainder of the season, as they will have to compete with the range cattle and buyers prefer the rangers to the natives because of their superior killing qualities.

Farmers will find it a paying policy to give their cattle, in preparation for the future market, rations of corn, even if corn is selling high. The spread in prices between fat corn-fed heaves and grass-fed stock is very wide and is more than likely to extend still further, owing to the greater influx from now on of grass-fed cattle from southern pastures and northern ranges.

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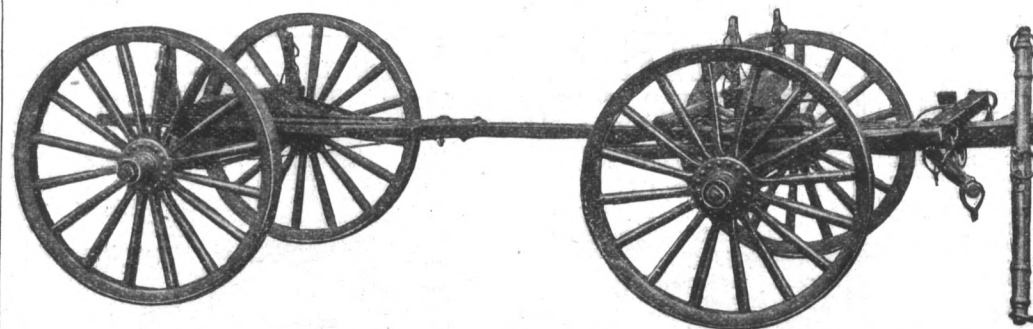
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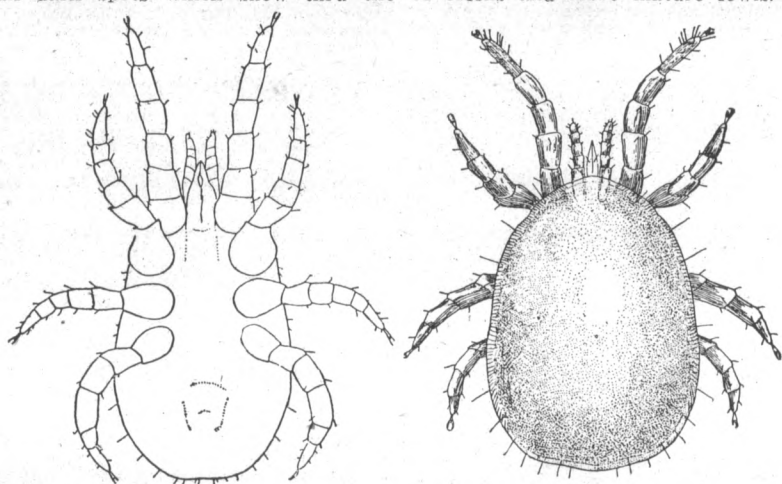
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POULTRY AND BEES

IDENTIFYING THE CHICKEN MITE OR POULTRY TICK.

In an article appearing in this department three weeks ago, the so-called chicken mite, together with methods of combatting it, were described. This week we present a reproduction of a carefully executed pen drawing showing ventral and dorsal views of the little pest by the aid of which it should be easily possible for any reader who possesses a fairly good magnifying glass to identify it. Remember that these drawings are 50 times the size of the adult insect.

Some poultry authorities hold that the term mite should be applied only to the itch mite which causes scaly leg in fowls, designating the pest above referred to as the poultry tick. The illustration shows that this tick has four pairs of legs and these enable it to move quite rapidly from place to place. It should not be confused with the common white louse which frequently infests poultry as it is shorter and differs from it in color. The tick is light gray, having numerous small dark spots which show thru the



Ventral and Dorsal Views of Chicken Mite or Poultry Tick, Enlarged 50 Diameters.

skin on its back. When engorged with the blood of its victims it shows a more or less distinct reddish tinge. The chicken louse, on the other hand, is yellowish-white in color.

FEEDING MEAT TO GROWING FOWLS.

Much has been written and conjured as to the actual results of feeding raw meat to poultry, especially to growing chicks. It is generally understood that it is one of the best feeds that can be given to chicks to make them grow quickly and develop in the most desirable manner. A student at Michigan Agricultural College, who is more or less interested in poultry, performed an experiment last spring to try to decide this much-mooted question, at least to the satisfaction of his own mind. I have been much interested in the results and think that the readers of The Farmer will be likewise, hence will briefly describe Mr. K. D. VanWagenen's experiment.

The object was to determine the metabolism (breaking down) of nitrogen in a ration consisting entirely of grain as compared with that in one consisting of grain and raw meat, and to demonstrate the comparative effects of these two rations on the health, growth and general condition of the fowls.

The fowls selected were White Leghorn cockerels about one month old and as nearly the same size as possible. The experiment was to run ten days, and the cockerels were put in two adjacent 4x6-ft. pens in the incubator house. The floors of the pens were covered with removable tar paper so that the droppings could be caught and weighed. For four days previous to the first measuring of the feed and droppings they were put on a preliminary feed intended to gradually get them off the green outdoor feed to which they had been accustomed and on to the dry indoor feed to which they were about to be subjected. This preliminary feeding began with a small amount of grain mash and large amounts of chopped onions (as a substitute for green feed), and ended with no onions and entire mash. The mash consisted of corn meal and bran in the proportion of 20 lbs. of bran to 30 lbs. of corn meal.

The first feed was made on May 29, when it was weighed and fresh tar papers weighed and put down. Pen A received, during the 24 hours, 550 grams of mash; pen B, 202 grams of raw Hamburger

steak and 250 grams of mash. The next morning samples of the droppings in each pen were taken—as nearly composite samples as possible—and the total weight of the droppings found by reweighing the tar papers. Fresh weighed papers were again put down to catch the droppings for the next 24 hours. A sample of the meat fed the previous day had been saved and preserved by the addition of a few drops of 40 per cent formalin. These three samples were kept in air-tight jars. This process was repeated thruout the ten-day period. The same amount of feed was not given every day, as it was desired that they get enough to clean up nicely and no more, and it seemed that the fowls' appetites varied considerably. Further, the meat supply was irregular, as it came daily from the butcher, who sometimes forgot to send it or the deliveryman forgot to leave it. As no means of keeping a large amount on hand was accessible, this daily supply had to be resorted to, necessitating daily analyses.

The above description of methods will be interesting to the poultryman or farmer only in that it gives him a kind of idea as to the method of procedure. What we, as poultrymen, are after, is the results that will guide us in our feeding of chicks and more mature fowls. The

chemical analyses of the feeds and excreta will not interest us outside of knowing that the work has been properly accomplished.

Conclusions from the Experiment.

We may draw some conclusions from the results of this experiment that will be of practical use to the farmer and poultryman. The first and most striking one is that raw meat, in such quantities as fed here, produces a very beneficial growth. This could be noticed both in the fowl itself, as it was more active, had a better covering of feathers, etc., than the fowls that were not fed meat, and also in the tabulated results which show that they gained much more in weight.

The second fact observed is that the meat stimulates digestion and hence is a valuable addition to a ration because more is gotten out of the grain fed with it. That is, the action is the same as that in the cow when she is fed roots along with her other feed. The mixture seems to be more palatable and there is a resultant stimulation to the excretory glands or veins which produces a larger flow of milk, or a more rapid growth and development.

The third is that the meat ration is more expensive per gram gain, for with bran at \$28 per ton, corn meal at the same price and meat at 10c per lb., the meat-fed lot cost .0539 cents per gram gain as against .0296 cents per gram gain by the grain-fed lot. This price of meat (10c per lb.), is much higher than would be paid if raw meat was fed on a large scale, for it could be procured at from 3c to 5c per lb. This would bring the meat-fed lot on an equal basis so far as the meat was concerned. But it is often possible to obtain meat on the farm at a lower rate even than 3c per lb., especially for feeding to hens in winter. Having made much more rapid gain (48.3 per cent as against 20 per cent) in ten days at practically the same cost per gram gain, the meat ration thus has the advantage over the grain.

The fourth conclusion is that the nitrogen in the ration metabolizes (is broken up) more rapidly when raw meat is present than when not. That the meat proved to be more digestible, either because of its composition, or flavor, or both, is shown by the great quantities of digested nitrogen found in the excreta in the case of the meat-fed fowls. This was also evidenced by the appearance of the

excrement—it was moist and contained much larger white areas than that from the grain-fed poultry. Likely the meat causes a more rapid breaking down not only of the nitrogenous parts of the food, but of all other constituents as well, and hence it seems, from the data at hand, that it was not necessarily the food value of the meat alone, but some other principle contained in the meat that caused the great difference in the growth of the two lots. In other words, the meat not only nourishes but stimulates the digestive organs.

Concerning the Meat Supply.

There is much said about feeding commercial feed stuffs to chicks. I think this policy is one of the best that can be adopted unless the poultryman or farmer can produce satisfactory feed for young chicks himself, and in many instances he cannot. Meat is put on the market in the dry, granulated form, now, so that it is found almost any place where poultry supplies are kept. It is as a rule kept at feed stores and grist mills in many parts of the country. Here in the north, in winter, meat which has been prepared by sending it thru the bone cutter or the meat grinder is one of the best feeds for the stimulation of egg production. Meat, so long as it is meat, that is, fresh meat, is all right, and care should be taken to see that it is fresh. I had a friend who made it a practice to look out for old, broken-down horses as soon as the weather was cold enough for them to keep as meat. He would buy them for the express purpose of feeding them to the hens. It paid him well, too. The revenue from the hide nearly paid for the horse, and the trouble of grinding the feed was amply repaid by the egg production. Of course, we can not all grind up old nags, but we can keep on the lookout for cheap meat feed for the poultry.

Ingham Co.

E. B. REID.

KEEPING A FEW BEES.

Any person living upon a farm, or in the outskirts of a village, will find it a pleasure, and a profit, to keep one or more colonies of bees. Bee culture requires no outlay for land upon which to raise crops, for as yet there has been no plant discovered that it pays to plant for honey alone. The honey bee is a benefactor to our race, roaming the fields at will, gathering honey and pollen, which it pays for in the fertilization of the flowers. It takes nothing from the fertility of the soil, but gives to it one of the greatest fertilizers known—the clovers—which would become extinct if it were not for the bees' work in fertilizing the bloom. No land is required except a spot on which to place the hives.

The fear of stings I think prevents many from liking the work, and yet, when properly protected with a bee veil, working only in the warm part of the day, never when cloudy, rainy, or cold, and with the use of a good smoker, one need rarely be stung. In many cases the sting of a bee is attended with much pain and swelling, while in others there are no ill effects produced. There is no doubt that the system can soon become innured to the poison so that no bad effects are produced.

I know there is a sort of current impression that bees will sting some people more than others. While this is true, it is not because they are able to recognize any peculiar physical condition or difference, nor is it because one person smells to the bees differently from another. It is because they notice a difference in behavior in different persons. Avoid quick motions, do not breathe upon them, and if there are other bees flying about in search of plunder, do not leave the hive open too long. In case of accidents the smoker should be used freely, and it ought to be at hand for any manipulation in the apiary. It is much easier to prevent the anger of bees than to check it after it has begun.

Many people have kept bees but did not succeed on account of the moth-worm; but worms very rarely, if ever, destroy a colony of bees in a normal condition. A colony of bees having a defective queen, or no queen at all, will sooner or later succumb to the awful enemy unless helped by the apiarist. A colony of bees will no more survive without a queen than plants will thrive without sunshine and moisture.

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CURRENT COMMENT.

Does Farming Pay?
 In a recent issue, under the heading, "A Worthy Ambition," we quoted and commented upon a prominent Michigan farmer's views upon this important question. It will be remembered by the reader that this gentleman said that his highest ambition in life was to make farming profitable, and that when his attention was called to the present comparative prosperity of the farmers of this country he explained that his ambition was to make farming profitable as a business investment, and declared that while the average farmer made a good living and a little competence for the proverbial "rainy day," he did it in most cases by overworking himself and his family rather than as a legitimate profit on his investment in agriculture. Those who are familiar with actual conditions will recognize at once that there is a foundation of truth in these statements, and while we may have little to complain of in present conditions, yet owing to the common impression among those who follow other callings that the farmers as a class are reaping more than a fair share of the prosperity of our country, a little further

inquiry along this line may be profitable.

Fortunately we have reliable data at hand directly bearing upon this subject. The Minnesota Experiment Station, in co-operation with the Bureau of Statistics of the Department of Agriculture, has, since 1902, carried on exhaustive investigations relating to the cost of producing farm products in Minnesota. These investigations have been conducted upon a large scale, so that the cost of producing staple products has been determined upon a large number of farms, and the preliminary reports show that when all items of cost, including wages to the farmer, are charged against the product the profits on the average Minnesota crop are practically nothing. As an example, it may be stated that it was found that the average profit on a bushel of wheat during the period of investigation was but 3 4-10 cents per bushel, while a similar computation with regard to the oat crop showed that the net profit on this crop in Minnesota was less than 3 cents per bushel for the period covered by the investigation. The amount of the cash items of expense, the labor of men and horses, the charge for depreciation of machinery and equipment, together with the interest on the capital invested, brings the cost of production surprisingly high, and even with the present era of high prices for farm products leaves a much smaller margin of profit in the business than is generally supposed. If these figures are to be taken at their face, and they are largely substantiated by the experience of careful farmers who keep an accurate account of their business transactions, the 10 per cent margin of profit which men engaged in other lines of business consider indispensable is not realized by the average farmer. Indeed, this report asserts that the average crop raised by the average Minnesota farmer and sold at the average price during the past ten years has often resulted in an actual loss to the farmer. In our state even careful business men have found that the money which they had invested in the business of farming has, for a series of years, paid little more than the average rate of interest commanded by money in the commercial market.

Of course, the reader will understand that this data refers to average results. Fortunately there are brilliant exceptions which may well prove object lessons to the discouraged farmer who believes with these investigators, that "farming don't pay." True, there are not the fortunes made in farming that are amassed in some other lines of business, but great commercial success is the exception in any business, and the low average profit which is undoubtedly derived from farming is doubtless in some measure due to the relatively poorer business methods which are used on the farm in comparison with other successful business enterprises. Yet the fact that notwithstanding this handicap there are comparatively few absolute failures on the farm indicates that farming is a sound and safe business, as it is a wholesome and healthful occupation. With the aid of science and the application of better business methods all along the line the farmers of today are coming into their own, and with a more general enlightenment of that worthy ambition to "make farming profitable," in the sense expressed by the gentleman above referred to, we believe the business of farming will prove as profitable as the average of other business enterprises in which the average man may engage. In any event, it is found to remain, as Washington described it in his day, "The most healthful, most useful and most noble employment of man."

CALL AT THE MICHIGAN FARMER TENT.

As noted in the last issue, the Michigan Farmer will have a tent at the State Fair for the accommodation of its patrons, located between the entrances of the first two cattle barns. Similar accommodations will also be provided at the West Michigan State Fair at Grand Rapids the following week, where all our friends will be made welcome. Make it your headquarters while at the fair.

HAPPENINGS OF THE WEEK.

Foreign.

The Albanians refusing to accept the new Turkish administration, were recently attacked by federal troops and caused to submit to the authorities.

During the fortnight ending Saturday there were 110 deaths from bubonic plague and 33 from cholera at Amoy, China.

The Persian government has dismissed the Russian tutor of the young Shah and

appointed a native, for teaching of political science to the ruler.

Chinese congressmen are at work drafting rules for the regulation of the first assembly of that country. Bids are being asked for the construction of an imperial assembly hall at Peking, where the legislative body of the empire will convene.

Altho cholera is being kept down at St. Petersburg, Russia, it is spreading in the provinces.

It is rumored that Spain has planned a campaign for the occupying of Tetuan with 16,000 troops. The news has put England in an uneasy position since it will require the reinforcement of Gibraltar.

A fire of unknown origin destroyed a building and contents in Winnipeg, Sunday, sustaining a loss of about \$150,000.

The ashes from the body of Gutama Buddha, founder of the Buddha religion, is believed by archeologists to have been unearthed at Peshawar, India. The records indicate that the ashes from the body were divided into eight portions and that one portion was deposited in a large monastery and pagoda on the spot of the discovery in the fourth century B. C.

The matter of a differential tariff on goods shipped to Venezuela from the British West Indies will be placed before the electors of the South American country. The request of England was denied by the officials upon the grounds that it must be submitted to the people.

Announcement of the death of the novelist, George Manville Fenn, comes from London.

The Norwegian government refuses to take a hand in the strike that is threatening the industries of that country. Several propositions for overcoming the very embarrassing situation were submitted for the consideration of the government but all were rejected.

The high price of gasoline and poor roads have restricted the use of the automobile in Spain where it is now estimated less than 3,000 are in use.

The Irish land bill which was reintroduced into the British house of commons last March has passed the committee without much alteration.

At the great air ship meet at Rheims, France, it was demonstrated that the dirigible balloons could not keep pace with the aeroplanes.

Application has been made to the Canadian government by the United States for the improvement of the Ontario side of the Detroit river channel near the Lime Kiln crossing below Detroit. It is estimated that the proposed improvements will cost around \$2,000,000.

National.

One person was killed, three fatally injured and a loss of \$100,000 worth of property was the result of a gasoline explosion in a canning factory at Waverly, Iowa, last Friday.

Many cases of hookworm, a new disease called by doctors pellagra, and resulting from attacks of an animal parasite, were reported to the department of health in Alabama the past week.

A dynamite explosion on the extension of the Florida east coast railroad to Key West, caused the death of ten men and the injuring of 15 others, one fatally. The explosion occurred under water.

Thousands of dollars worth of property, three lives and many personal injuries were the cost of an electrical storm which passed over Chicago last Friday.

Eighteen power companies are said to have been merged by the incorporation of a company at Lansing last week. The Au Sable and Saginaw valleys are concerned in the merger. Local and outside capital is interested in the proposition.

The caving of an old abandoned colliery at East Scranton, Pa., resulted in the destruction of \$200,000 worth of property, including a \$75,000 schoolhouse located above the old mine.

The fiftieth anniversary of the drilling of the first oil well was celebrated at Titusville, Pa., near where the well was sunk.

A charge of peonage has been brought against the pressed steel car company at McKee's Rocks, Pa., but the allegations are denied by the officials of the company.

Glenn H. Curtiss and Louis Beloit have announced their intention of appearing at Indianapolis next month to give an exhibition of the monoplane and biplane flying machines.

Little headway is being made against the fires burning along the boundary line between Washington and Idaho. Immense damage has already been done.

A proclamation has been issued by President Taft opening 2,500,000 acres of land along the Cheyenne river, and in Standing Rock reservation in North and South Dakota for settlement.

The city authorities of Juarez, Mexico, have voted \$20,000 for entertainment of President Diaz and President Taft when they visit that place in October.

The postoffice department is now considering different sites in Chicago for the erection of the largest postoffice building in the country.

State.

The Michigan railroad commission has issued an order forbidding railroads in the state from running trains backward or with cars in front of the engine.

State Treasurer Sleeper, acting for the board of auditors, has made arrangements for borrowing \$250,000 for the state, to provide for running expenses till the treasury can be replenished.

The last monthly report of the northern Michigan asylum shows that that institution now has 1,406 inmates, which is one less than for the month of July. The industrial school at Lansing had 748 boys, or nine less than for the previous month.

The careless use of combination coaches by railroads has led to the issuance of a ruling prohibiting railroads from running such cars with the passenger department between the baggage end of the car and the engine.

Thru the excellent discipline brot about

by systematic drill, 700 children were taken from a burning school room in New York city Monday, without disorder.

A slight earthquake at Panama occurred on Monday, but the disturbance did not damage the canal at any point.

Bay City is to be favored by the erection of a \$2,000,000 charcoal, iron and chemical plant.

CROP AND MARKET NOTES.

Grand Traverse Co.,—We have had no rain of any account for two months and the extreme heat has dried up pastures. Every one is feeding stock. Horses and cattle are haunting barns and stables. The soil is a powder of dust and yet some localities have plenty of rain. Along the Boardman River there was a killing frost. There are no such destructive fires as last year, yet Traverse City was lately panic stricken with many fires about it. We find sweet corn a great producer of milk in such times.

Gratiot Co., Aug. 21.—Gratiot county enjoying ideal weather. Oats are practically all secured, and the threshing machine reveals the fact that about 30 bu. will be the average per acre. Corn is doing well and if only we are spared from an early frost a good crop will be harvested. Beans are promising well, as are potatoes. Butter sells from 18@22c. Apples, of which there seems to be a good crop, bring 80c. per 100 lbs. They are the one crop which seems a present to the farmer.

Calhoun Co., Aug. 20.—Plowing is progressing rapidly, being much improved by the rain of the 14th. Threshing is the order of the day, and much wheat is being sold. The price is better, \$1.03 yesterday. Milling companies have been filling the elevators, which shows that they anticipated a rise. Oats are not turning out as well as anticipated, tho the crop is fair. Potatoes are looking well, and no blight reported as yet. Corn bids fair to be an excellent crop if we can have one more good rain. Very little live stock is being shipped, and this is mostly small. Apples a very light crop.

Washtenaw Co., Aug. 17.—"A poor beginning makes a good ending," and it is certainly making good on the crop proposition this year. Threshing returns make the wheat yield more than a good average, with oats somewhat under. Corn doing fine and potatoes also. A fall such as we have every reason to expect will place the farmer generally in far better than average condition. The prospects are for more than the usual acreage of winter wheat. Prices of live stock dropping a little; also grain prices; butter 25c; eggs, 20c.

Allegan Co., Aug. 15.—We had ideal weather for haying and harvest. Considerable threshing has been done and the yield is good, one man receiving 1,055 bushels of wheat from 28 acres, an average of 34 bushels per acre. Corn is looking fine, also potatoes, tho the blight is doing some damage. The hay crop was not up to the average and oats were short and light on the ground. The recent rains have been a great blessing to us. The cucumber crop bids fair to be a good one. Not many peach trees in this part of the county but some of them hang full. Not so many plums as last year. Apples will be about half a crop. One man in the western part of the county has just sold his crop on the trees, estimated at 1,200 bushels, for \$2,400. Wheat is bringing 98c; oats, 40c; corn, 75c; rye, 60c; hay, \$8@10 per ton; potatoes, 40c; eggs, 20c and butter 18@25c.

Eastern Oceana Co., Aug. 18.—The drouth has struck this part of Michigan and late potatoes and corn is suffering for the want of rain. Up to two weeks ago we have had showers that kept everything booming. Oat harvest is now practically completed and a few have threshed. Wheat is not yielding up to expectations, running from 12 to 20 bu. per acre; the same can be said of oats, but rye is better than either wheat or oats, running from 18 bu. up to 22 bu. per acre. I cut my second crop of alfalfa on Aug. 3, and yesterday (Aug. 17), I measured seven stalks 17 inches in length notwithstanding the dry weather. Prices of grain, wheat, rye and oats are all on the downward scale. Wheat, \$1; oats, 45c; rye, 60c; potatoes, 60c; apples, 75c; butter, 21c; eggs, 21c.

LOCAL FAIR ANNOUNCEMENTS.

The Calhoun County Fair, to be held at Marshall, Mich., Sept. 14-17 inclusive, has a program which should make it a big fair in every sense of the word. Aside from the exhibits, which promise to be large, an excellent series of entertainment features will be offered, including a barbecue and ox roast, airship flights, ball games, good racing and other features worth your while.

The Otsego County Fair will be held at Gaylord, Sept. 14-17, inclusive. The high class of the exhibits to be seen at this fair is attested by the fact that Otsego Co. took first premium on fruits and second on vegetables in the county exhibits at the State Fair last year. The management of this fair is determined to make it the best of the good fairs held at Gaylord, and their slogan is "Meet me at the Otsego County Fair."

The Osceola County Fair, to be held at Evart, Sept. 14-17, promises to be the best ever held in the county. Special prizes to the value of over \$800 have been hung up and will be eagerly competed for. A three days' base ball tournament and a free automobile ride on the race track for all school children are two of the unusual features. Horse races are always good, as the track is one of the best in the state.

Deckerville Fair. It would be to the advantage of every person who can to attend this fair, Sept. 14-16, as the management declares that it promises to be the biggest and best fair held in the Thumb. \$600 in purses are offered in the speed department, and there will be base ball games, athletic sports and special attractions every day.

Magazine Section

LITERATURE
POETRY
HISTORY and
INFORMATION

MICHIGAN FARMER
AND **LIVE STOCK**
PUBLISHED WEEKLY
JOURNAL
ESTABLISHED 1843.

The FARM BOY
and GIRL
SCIENTIFIC and
MECHANICAL

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

TUNNELING DETROIT RIVER

BY JAMES COOKE MILLS.

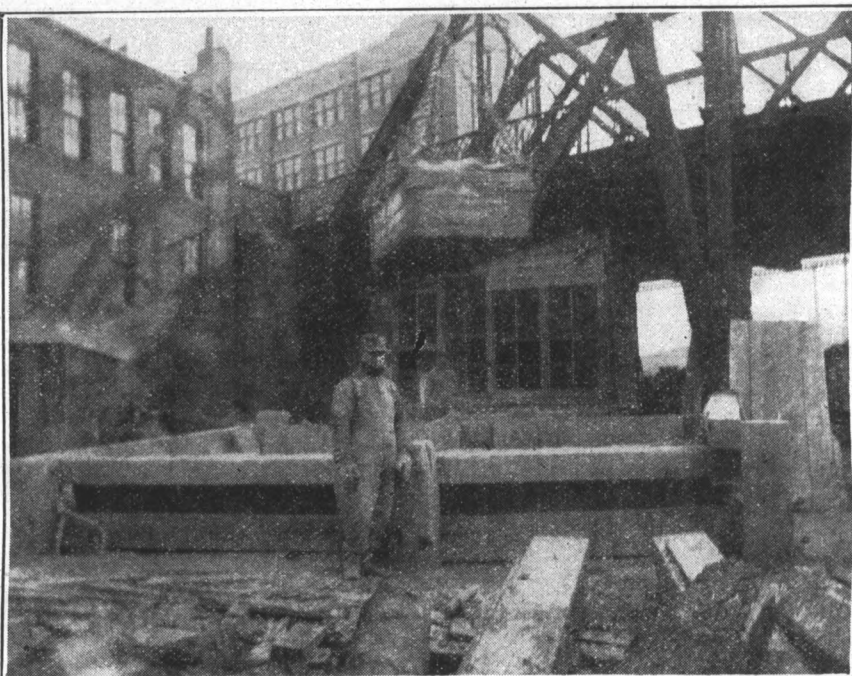
DELVING deep below the slimy bed of the Detroit River with almost a hundred feet of water over them, divers have been laboriously crawling along under the huge steel tubes of the now nearly completed international tunnelway which, in methods of construction, is one of the great engineering feats of today. The divers have been busy way down there securing perfect bearings between the steel diaphragms of the tubes and the rows of supporting piling, and to this end inserting shim plates of proper thickness where needed. A little later they were working on more intricate details of the construction, connecting up the joints of the monster sections and making them water-tight. Then the concrete mixers on the scow above deposited tons upon tons of concrete on the gravel bed below, around and between and above the twin-tubes until they were encased in a solid mass of stone.

This important tunnel project, which is to fuse the railway lines from the east thru the province of Ontario with those extending westward from Detroit, is being built for the Michigan Central railroad, and is financed by the New York Central interests under a bond issue of about \$10,000,000. The double-tracked main line of the Michigan Central extending from Buffalo to Chicago, with its numerous feeding lines, forms the second most important tentacle of the New York Central, west of Buffalo. Its freight tonnage eastward is enormous, the total being a large proportion of the aggregate of the whole system, which amounted to more than fifteen million tons in 1906, while the directness of its route renders it a favorite line for travelers between the east and the northwest.

The hiatus of the Detroit River, that break in the continuity of the thru route, has been a serious handicap for many years, not only to the Central interests, but also to the Grand Trunk, the Wabash, the Pere Marquette and the Canadian Pacific, the other international lines. The ten monster car ferries which transport the thru trains across the peaceful river are a unique and interesting feature of the traffic life of the busy stream. In winter and in summer these powerful steamers have crossed and recrossed the swift current, carrying the transconti-

mental business of five great railroads, and the food supply in the diners exhausted. Sometimes in the dead of winter the river would become so choked with ice, forced down in the narrow channel from Lake St. Clair, that the ferries frequently became fast in the ice floes and for hours at a time were helpless. Altho built as

With the advent of 1910 the ferry system, for so long an important factor in the activities of the borderline between two great nations, will probably have passed forever, and in its stead the twin-



Opening to Shaft No. 2 on Detroit Side, Showing Dump of Blue Clay just raised from pit and ready to be delivered on flat cars to right.

ice crushers to mount the ice at the bow and thus force it down by their sheer weight, they were unable to move either forward or backward more than a few feet, so strong and thick was the accumulated ice, frozen solid beneath. After hours of constant churning of their huge paddle wheels, and thru a channel cut for them by other powerful tug boats, they were finally released from mid-stream. To passengers on thru trains thus held the delay was often uncomfortable, with steam for heating the cars cut off

bored of the great tunnel will care for the entire traffic. The competing lines whose terminals in Detroit, with one exception, are accessible to the tunnel approach, will operate thru it, paying a rental to the Central. On the Canadian side in Windsor a junction will be established with the lines eastward about three miles from the river. Thru passenger traffic will probably be accommodated in a large union station in Detroit near the tunnel mouth, while in Windsor the station will be a mile and a half inland

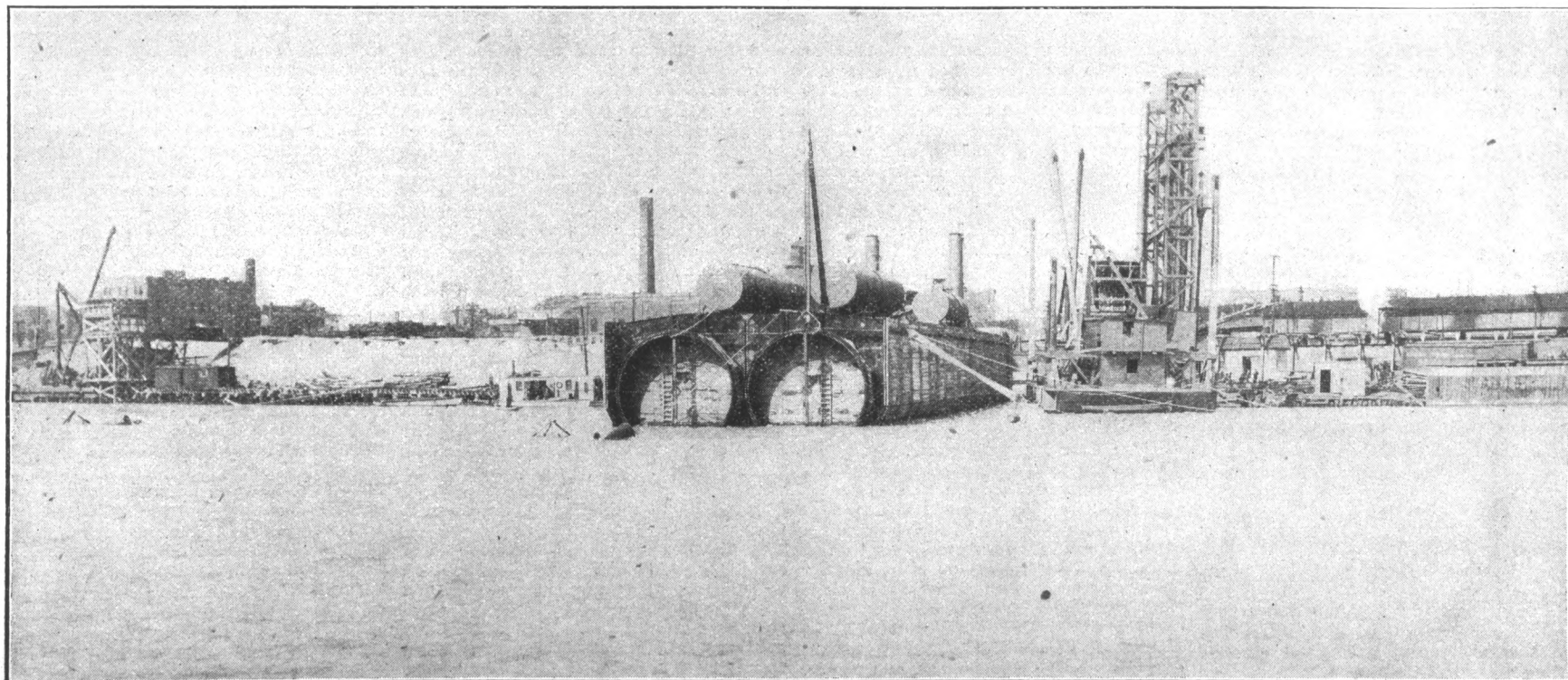
where the freight yards are now located.

The Advisory Board of Engineers was appointed in July, 1905. It is composed of the eminent engineers, W. J. Wilgus, vice-president of the New York Central, Howard A. Carson, consulting engineer, builder of the Boston subways, and W. S. Kinnear, chief engineer, and assistant general manager of the Michigan Central. For the preliminary organization construction companies were created under the laws of the two countries, on either side of the river and, when proper legislation had been enacted, these companies were merged into one construction company under the caption, The Detroit River Tunnel Co. While the organization was being perfected, the scheme of construction was being worked out, plans made, and detailed specifications drawn up based on test holes sunk at short intervals along the route of the tunnel, and down to bed rock, about 160 feet below the surface of the river. In August, 1906, contracts for the construction of the tunnel were let to a New York firm which immediately took up the work with vigor with a view to completing the tunnel in three years.

The construction of this important tunnel was a great undertaking, and was notable from the fact that the methods employed were untried, the experience gained from previous tunnel work being of no avail. The entire engineering scheme of the sub-aqueous section, or the part under the river, was devised by Mr. Wilgus, and, on account of the peculiar formation of the underlying strata, the methods proposed were fully concurred in by the other members of the advisory board.

Instead of forcing great steel shields thru the tough blue clay of the river's lower bed (the method commonly used in such tunnel work), a deep trench was dug across the bed of the river, from bank to bank. The river is about one-half mile wide at the tunnel survey, and the sub-aqueous section is 2,622 feet in length. The depth of the stream varies from twenty-two to fifty feet, and the current is swift. Huge dredges of the clam-shell class dug away the bed of the river, in some places to a depth of forty-five feet, or nearly one hundred feet from the surface. As the trench was com-

(Continued on page 175).



A Twin-tube Section of the Detroit River Tunnel in position for sinking to the bed prepared for it nearly 100 feet below the Surface of the Water.

THE WORM THAT TURNED.

BY MAY HOWELL BEECHER.

"This day is going to be a scorcher," said John Henry Jones as he looked afar off—over the hills. "When you see that air mist hanging low over that red sun at six o'clock in the morning it's safe to say that it will be too warm to mention afore noon. If this weather holds, I suppose we can expect the Smith family before long, eh, mother?"

"Oh, John! for goodness' sake don't mention such a thing. When I think of having that tribe to wait on, and those awful young'uns around here screechin' and going on, my heart jest fails me."

"Wa-al, wa-al, don't fret, mother; I ought not to have said anything about it."

The day was a trying one, and Mrs. Jones had lagged—as she expressed it—all day, but now the house was in order and preparation for supper well under way when Annie, the ten-year-old daughter of the house, came breathless from a run across lots, waving her hand and trying to regain breath enough to enable her to speak.

"Mercy!" said Mrs. Jones, "how many times must I tell you, child, not to run these awful hot days. You'll certainly get heat prostration some of these times. What is the matter, child? If you have anything to say, say it!"

"Well," replied Annie, "I guess you'll know when you see the Smith family coming, bag and baggage; Josiah Atkins has got them all in his farm wagon, and Johnnie Smith is sitting on a trunk."

"Oh, dear!" After that ejaculation Mrs. Jones sat down in the big rocking chair. "Whatever shall I do?" she inquired. And she wiped away the tears that filled her eyes. "I'm worn out working this hot weather, and now I must wait on them and keep going, I suppose, until I drop dead."

The uninvited guests were soon encoined in the best rooms and making themselves comfortable.

One unlucky day Mr. Jones had met Mr. Smith while attending to a business transaction in the city, and in the course of conversation Mr. Smith had inquired whether he knew of a good place in the country where he could send his family for a few weeks. The children were just getting over the whooping cough, and he pictured in a doleful way the emaciated forms of the little ones.

The family physician had said they must have a change of air, and if practicable it would be best to send them to the country where they could live out of doors as much as possible. Mr. Jones loved children and did not consider the city a proper place to bring them up in. So, in his large-hearted way he said, "Bring them up to my house for a few weeks. We have never taken summer boarders, and we won't talk about terms; I've got children of my own. Hang it all, come up and make us a visit."

They came the following week and stayed the season thru. That was three summers ago and they had been coming ever since. The children had grown round and rosy and that made the Jones family feel a little more reconciled to the situation. Mr. Jones said at that time, "It's better than sending money to foreign missions." What he said this day would not look well in print.

He had written Mr. Smith in March that Mrs. Jones had been ill all winter and that it would not be convenient for them to receive company this year. Evidently that had been ignored.

After supper Mr. Jones called Mrs. Jones aside and said: "Shall I go after Susan Adams to help with the work?"

"Oh, dear," was the reply, "we cannot afford hired help in the house."

Susan came, however, and the summer work was gotten thru with, but poor Mrs. Jones had many hours when her nerves nearly gave out and it seemed as if patience and endurance must end.

Mr. Jones did considerable thinking that autumn and, after Thanksgiving Day had been duly celebrated, he said to Mrs. Jones, "I want you to get yourself and Annie fitted out with new clothes, for in a couple of weeks we are going down to the city to see the Smith family and make them a nice long visit."

Mrs. Jones giggled in a nervous way and said: "I wish we could, but only think of the cost. Mrs. Smith invited me to come—sometime—she knew that it was safe to ask me, for I had told her once that we could not afford to go anywhere, and now after paying help all summer we are worse off than ever."

"I don't care a flip," said Mr. Jones; "we are going if I have to mortgage

things." And go they did, but they had reckoned without their host.

After arriving in the city, tired and hungry, John Henry Jones remembered, too late, that he had neglected to procure Mr. Smith's home address, but he knew the way to the bank where Mr. Smith was employed.

Leaving Mrs. Jones and Annie in the waiting room at the station he went forth. It was 2 p. m., for they had gotten an early start from home.

Arriving at the bank he found his way to the little window where Mr. Smith, with a stolid face, looked out at him. If he had been alone he would have retired without comment, but when he thought of the tired faces of his women folks, he rallied his forces, and in a shame-faced manner said: "I am Mr. Jones; your family spent the summer at my house."

"Ah, yes," replied Mr. Smith, squinting at him thru the wired enclosure, "I remember now. So you are in the city. Well, call round at the house if you get time, I'm pretty busy now, so you must excuse me; good-bye."

Back to the railway station walked poor, defeated Jones, and reported to indignant Mrs. Jones.

They procured something to eat and returned home by next train—due in a half hour.

The winter waned and spring merged into summer. They had not spoken of the Smith family since the occasion of the outrageous treatment accorded them in the winter. Now, as the June days grew warmer they often joked about the time when the Smith family would put in an appearance.

July came in on Saturday, and just as the sun was sinking like a big ball of molten gold in the west, Mr. Jones came in from his labor in the field. After washing his hands at the kitchen sink he walked with the towel in his hand to the open door. The towel dropped to the floor as he ejaculated, "Wa-al, I swear, ef there isn't the whole Smith family a-comin', Johnny Smith on a trunk as natural as life!"

Mrs. Jones replied without much animation, "Now, pa, don't try to be funny; hurry up and get ready for supper." As she drew near the door the dish towel in her hand dropped to keep the face towel company on the floor, as she said in a weak voice, "Of all things, I'll be hanged if it isn't so! Well, I never would have believed they could have the face to come. What is to be done?"

"Jest leave it to me," said John Henry Jones. "You go and sit down."

Grabbing the wire broiler from its nail in the cupboard, he stood in the doorway, as the depot conveyance drove up.

No word was spoken for a minute as Mr. Jones squinted his eyes and gazed in a stolid way from between the wires of the broiler, tho' all looked their astonishment at such a performance.

At last Mr. Smith broke the silence by saying cheerfully, "Well, here we are on hand again."

"Yes," said Mr. Jones, without removing the wire screen. "I see ye air; I'm pretty busy just now; supposing you come round some time when we ain't to home. Good-bye." And closing the door with a bang he bolted it noisily, as he and the broiler vanished from view.

From her vantage ground at the window Annie reported that Mr. Smith was inquiring of the driver what time the next train left for the city, and was informed that there would not be another train until after midnight.

Mrs. Jones said, "Dear me, hadn't we ought to give them some supper."

"Not by a jug fud!" said the determined Mr. Jones.

"It'll be just awful waiting this hot night in that little tucked up station."

"Never you mind," said the irate John Henry Jones; "it don't consarn us."

HUMANITY MEASURED BY THE CHIN.

BY AMNAN WRIGHT.

Humanity is the only creature with a chin. May we infer from this, the more chin, the more goodness and intelligence?

Among my pleasant recollections was a man who spent large fortunes, and much time, for the relief of the poor, and for his fellow man. His chin was so large it seemed like a deformity.

I also remember an Irishman who had a very large chin, and his persistent efforts to secure employment, and homes, for his fellow countrymen, was proverbial.

A big, ugly, abnormal chinned negro,

whose laugh could be heard a mile away, would neglect his own work for the good of the church, or his race.

Almost every one of a large class of professional nurses I have met had unusually large chins.

On the other hand, a lady with a receding chin came to my notice, not so long ago, who was so determined in her demonstrations of her particular character, that property around her home depreciated, and adjoining property owners let their property go for the taxes.

This person had the advantage of wealthy parents, who educated her, and spared no expense in giving her an excellent training, so there was apparently no excuse for her conduct.

When smiling, we enlarge the chin, and we compress it when frowning.

The nearest semblance of a chin, in the lower animals, is found among the monkey tribe, whose constant delight is to amuse us at any time we may choose to give them attention. The ox, which has a large under-jaw, works faithfully without bit or bridle. Sheep have the longest under-jaw of all the animals, which illustrates our argument favorably,

for we often hear the expression, "as gentle as a lamb." Horses, when vicious, have invariably a small lower jaw. One I recall very well went by the name of "Parrot Nose," because of an exceedingly small underjaw. He was the most vicious horse I ever saw. Weasels from birth are vicious, and all have receding lower jaws.

Among the destructive birds are eagles, hawks, owls, and others, which possess a large upper and small receding lower jaw. Fish may be classed under the same heading even. Catfish have perhaps the largest under-jaw. The writer has taught them to come at his call, and even believes some of them remember their names, they appeared to be so intelligent. They seemed delighted at being noticed, indicating a kind disposition. A man-eating shark has scarcely the semblance of a chin, which recedes many inches from the protruding upper-jaw.

Perhaps the most affable among the feathered tribe is the duck, and it has the broadest bill. Its truest characteristic is perhaps best understood by the swain who calls his best girl, "My ducky."

THREE CENTURIES AFTER HENRY HUDSON.

BY EMILY L. RUSSEL.

The name of Henry Hudson flashes like a meteor across the pages of history, and the present month will see the deeds of this great navigator vividly recalled by a tri-centenary celebration of his most important discovery. New York city and the entire Hudson river district will pay homage to the name of Hudson and to that other name which, two centuries later, became indissolubly linked with the history of the river and the progress of the science of navigation—Robert Fulton.

Hudson's birthplace and his grave are unknown, but during the four years of his recorded life he made four memorable voyages. How truly "we live in deeds, not years!" He was undoubtedly an Englishman, altho' often called Hendrik, probably from his business connections with Holland. That he was a religious man is shown from the first mention we have of him when, with his crew of eleven men, he took the Holy Communion in St. Ethelburga's church, London, on April 19, 1607, as preparation for embarking on his first voyage. This and his second, undertaken in the employ of the Muscovy Company, brot about the establishment of the Arctic whale fisheries, so profitable to both the English and the Dutch.

But his third—magic number—most interests the United States, and it is this which will be celebrated on the river he discovered and which properly bears his name. He himself called it the River of the Mountains; later, it bore for a time the name of Maurice—Prince of Orange, and was also called the "Noort" river, to distinguish it from the South or Delaware river, a name which still survives for that part opposite New York city.

When the year 1609 opened the Dutch engaged Hudson, now famous as a daring seaman, to undertake a voyage for them, they being on friendly terms at the time with the English. The contract was signed on January 8. The Dutch East India Company was to man and equip a ship for him to seek the much-desired shorter sea-path to India. He was to sail around Nova Zembla, having been as far as this point on a previous voyage, then go east until he could sail southward to the latitude of 60°, after which he was to return and report. For this he was to be paid the equivalent of \$320, and if he did not come back within a year, his wife was to be paid \$80 more. If he should find the northwest passage they would "reward him as they saw fit," and if they should determine to follow up the discovery Hudson pledged himself not to accept employment with any other company. The shrewd Hollanders seem to have secured a rather one-sided contract.

The ship which the company gave him was named "De Halve Maene," familiar to us as the "Half Moon," which in shape it might be imagined to resemble. It would take eleven such vessels ranged end to end to measure the length of a modern ocean liner.

On the 4th day of April—the month of so many historical events—everything was in readiness for the voyage, and there was excitement in Holland's principal city, Amsterdam. Men, women and children were gathered in groups down by the river Amstel, where a small boat, little more than a yacht, was tugging at the ropes that held her to the dock. In

these days of ocean travel we can hardly realize the feelings of the matrons and maidens so bravely keeping back the tears. Only the friends of those starting in a balloon to find the North Pole can truly sympathize with them. The last handshake was given, and fathers, husbands and brothers were off, to buffet with the icy waves in a craft of about eighty tons. A reproduction of this historic vessel has been built and sent by Holland for the great parade on the Hudson river.

The little craft rounded the North Cape on May 5, steering for Nova Zembla, but was obliged to return, baffled by ice, on May 19. Disappointed but not discouraged, Hudson consulted with his crew and they decided to coast along America to latitude 40°. He had received considerable information from Captain John Smith in regard to a river described by the Indians, and he made good use of it. They reached the American coast July 12, where they made a new foremast from a Maine pine tree. They touched Cape Cod, then went southward as far as Chesapeake Bay. Without stopping to visit his Virginia friend at Jamestown, he coasted northward, investigating Delaware Bay by the way, and on September 2 anchored inside of Navesink Highlands on the south side of New York Bay. For a week they remained in the harbor. Juet, the journalist of the expedition, says: "Very good land to fall in with and a pleasant land to see." It was a long six months since that anxious leave-taking in Holland, but their hearts were now made glad by the beauties and promises of this new land.

We can imagine the amazement of the Indians at the sight of this unwonted craft upon their waters, and the white men who occupied it. Did they come from the Great Spirit; or were they messengers of evil? Could they have foreseen how great would have been their wrath! They had at least a premonition of the future, for Hudson sent some men in a small boat to examine the land more closely, and, on returning to the ship, they were followed by a shower of arrows. One poor fellow, John Coleman, was struck in the throat and fell dead in the bottom of the boat. He was buried on a projection of land which Hudson named Coleman's Point.

On September 12 they found a good entrance, between two headlands, probably the Narrows, "and thus entered, on the 12th day of September, into as fine a river as can be found." Wind and tide brot them to the future site of Albany on September 19. A little further prospecting convinced Hudson that they were sailing up a river and were not navigating a strait. The tide ebbs and flows as far as Albany, the river seeming to run both ways, and this was certainly misleading to the strangers, so they returned southward, casting anchor on October 2 off Castle Point, Hoboken.

Hudson found the Indians "in the upper reaches of the river" more friendly than near Manhattan. He pronounced them "a sensible and warlike people," but everywhere "exceedingly adroit in carrying away whatever they took a fancy to." At one point the chief of a small tribe came down to the shore to visit the strangers. He was allowed to come on

(Continued on page 176).

TUNNELING DETROIT RIVER.

(Continued from first magazine page).

pleted, pile drivers followed, driving long piles down thru the firm stratum of clay, and securing cross-beams of heavy timbers to them. Gravel was then deposited on the bottom of the trench to a depth of two feet to form a better and firmer foundation for the concrete.

The twin-tube sections, as illustrated, were built on land at the St. Clair shipyards. They are monster tubes of steel, 260 feet long, 23½ feet in diameter, and strengthened by transverse diaphragms every 11½ feet. They were built up of ¾-inch steel plates, each section weighing about six hundred tons.

To convey these heavy, unwieldy tubes the distance of forty-eight miles to the tunnel site, novel but simple means were resorted to. When completed wooden bulkheads were built in each end of the tubes and caulked tight; then the tubes were launched into the river sidewise, like the steel freighters on the lakes. The sections settled only about six to seven feet, and, as needed, were towed down stream to the tunnel workers. The last of these 260-ft. tubes was sunk on Thurs-

ready in place. The sleeve has a flange bearing against the new tube shoulder between which a rubber gasket is placed. Another flange on the other tube fits snugly against the flange on the sleeve, a gasket also being provided for this joint. The operation of bolting up the flanges is a strenuous one. The bolts and nuts are of great size and the wrenches required of very unusual proportions and operated by power from above the surface. Beside this the divers work under heavy pressure of water and without the aid of sunlight and the circulation of air.

When this work is completed, a space is formed, three by eighteen inches, around the tube at the joint, which is filled with a grout of pure cement. The water in the narrow space is first pumped out and if no more enters the joint is absolutely tight. Two flexible tubes of small size are attached to the upper part of the joint and thru one of these the cement is forced from the scow above and continued until it comes out of the other pipe, which is evidence that the space below is completely filled.

The sunken tubes are provided with supporting walls of three-inch oak plank-

center line. Concrete benches, five feet high and two and a half feet wide on top, extend along each wall, providing runways for the trackmen, and at intervals there are openings thru the center wall to the twin tunnel.

Four sections of the tunnel, or about 1,000 feet, out in the river are on the level. Approximately that distance from the Detroit line the tunnel rises on a 2 per cent grade to the surface, a mile from the river. Near the Canadian side the tunnel takes a 1½ per cent rise to the easterly summit in Windsor, the easier grade being due to the heavier traffic of high-class freight eastward, while many cars come back empty. At one point near the Canadian side the tunnel extends above the river bed about eight feet, leaving a depth of water above the rip-rap of at least forty-one feet and eight inches, the limit set by the government engineers.

The construction of the approach tunnels is rapidly nearing completion on lines well established by the best engineering practice. Modifications of the methods employed in building the New York tunnels were made to better meet the existing conditions. Shafts on each side of the river near the banks were first sunk, and from these drifts were run east and west respectively until they met other drifts run in opposite directions from shafts a half mile or less from the river. Other drifts were bored toward the portals, and they all finally joined together. Meanwhile steam shovels were busy digging out the open cuts.

A solid concrete wall seven feet thick for the center wall now fills these drifts. The bores were cut thru the blue clay from the river shafts. This work was done by the latest approved design of shields, the cutting end forced thru the tough blue clay of the heading by powerful hydraulic jacks which ever slowly but positively pushed the shields onward toward the portals. As the excavating proceeds, concrete gangs build up the solid concrete walls and roof, working under the heavy air pressure of the air locks. Frequently a pressure of three atmospheres, or even fifty pounds, is necessary to counteract the pressure of the earth above.

The portals are being constructed of concrete of ornamental design with copings of pleasing proportions and outline, surmounted by a wrought-iron railing. The retaining walls of the open cuts are carried out nearly to the surface and guarded by iron pipe railings. Concrete steps lead down the walls to the portal benches connecting with the tunnel benches. Pumps of 20,000 gallons capacity, placed at each portal, receive the drains of the open cuts, and from them the water is pumped out by an efficient pumping station of the tunnel.

The tunnel will be equipped with the approved third rail electric system for power to move the trains, and the current will be supplied by a local electrical firm, a small transformer station only being required at the tunnel. Eight of the most powerful electric locomotives are being built for the service, which includes switching in the station yards. Countless electric lamps will make the tunnels two streaks of light from end to end, and, free from gas and smoke, the tunnel walls will be clean and white. Perfect ventilation will be afforded thru the shafts at the river sides, as they are to be permanently constructed of concrete walls. Trains running only in one direction will create a constant current of air thru each tube.

An average speed of about twenty-five

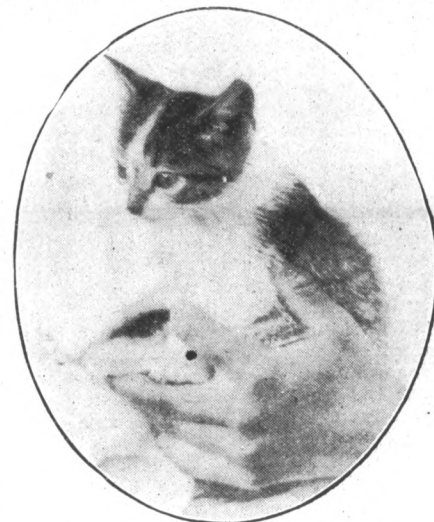
miles an hour will be maintained in the tunnel, and the passage of a limited train will be made in seven to eight minutes. The distance from summit to summit is a trifle less than two and a half miles. Trains will be protected by perfect block signals so that no train or locomotive will enter one tunnel until the train preceding it has passed beyond the summit on the other side. Every other safeguard known to the railroad world will be installed for the safety of travelers and the trainmen.

CHILDREN AND THEIR PETS.—I.

BY HATTIE WASHBURN.

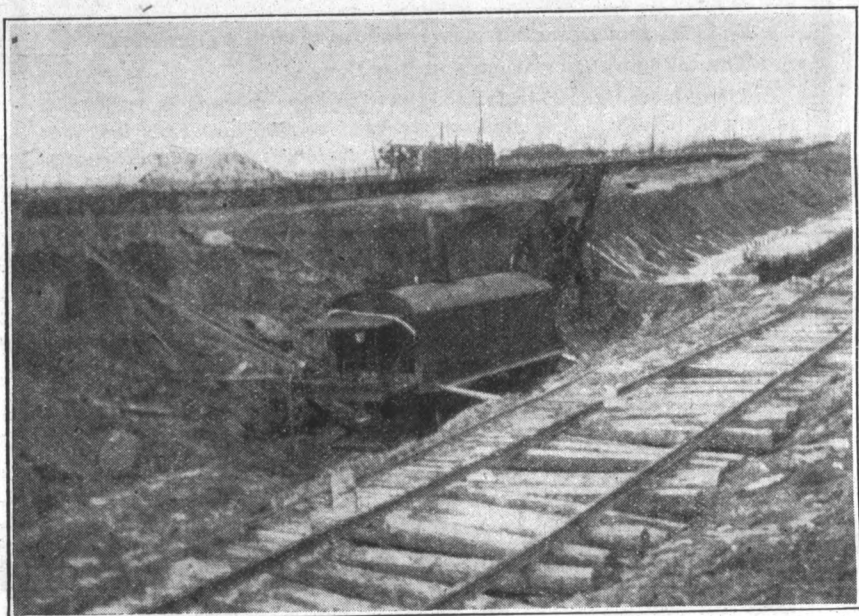
Children, with their pets, ever form pleasing and artistic pictures. When we look upon the living, breathing subjects in close companionship as they are portrayed by the artist's pencil, or limned on canvas by the painter's brush, or when the camera-artist at the supreme instant secures an exposure of an artistic and unconscious pose, there is ever a touch of nature in the picture that makes the whole world kin. The little girl with kittens, the boy and his faithful dog, the human pet of the country household feeding the chickens, or the children with their pony, are hackneyed subjects, yet the pictured stories are told and retold with no diminishing of their popularity. Pictures of children with the lower animals, from that of the tiny chap holding a huge bull or stallion to the wild bird tamed to eat from the hand of a naturalist—one of those favored children whom the universal mother they love and worship ever keeps as children in their relations to her despite the fleeting years—appeal to us all as no pictures of those subjects alone could ever do.

The reasons for the cat holding such an important place among pets are incomprehensible to many. The philosopher may say what he will, people will



Always Keep a Cat on Hand.

continue to fondle that small member of a family characterized by ferociousness and cunning. The physician may point to the dangers threatening children because of the close companionship, yet the cat continues to be a feature in unnumbered households. The child throwing aside inanimate playthings may handle the cat, perhaps unlearned still despite well directed scratches, and perhaps inflict wanton cruelty upon the long-suffering pussy. The naturalist may prove beyond doubt that the cat—as an enemy of our feathered benefactors of the wild, ranks second to none save man, yet the suggestion given by the camera-humorist, "Always keep a cat on hand," is followed, while scientific advice so often fails.



Steam Shovel at Work in the Approach Cut at Windsor End of Tunnel.

day, August 5. A short section which will connect this last large tube with the Windsor entrance to the tunnel still remains to be placed.

The manner in which these monster tubes were put in place and secured is of interest. On top of the twin-tubes and near either end are strapped two steel air cylinders, each ten feet in diameter and sixty feet long, which exert a buoyant force in the operations of sinking the sections to the bottom of the trench. To indicate the exact position of the tubes when under water, a steel upright is securely bolted to each end of the tubes, these extending about ten feet above the surface when the tubes are in place. These uprights serve as important aids to the engineers in the lowering operations to bring the tubes in exact alignment with the tubes previously sunk, and also to maintain the level, or proper grade of the tunnel.

When the engineers have everything ready and have provided for all details of the sinking, the valves in the wooden bulkheads are slowly opened. As the water enters, the mass settles steadily and evenly by the force of gravitation until it is far below the surface and resting temporarily on the rows of piling. The powerful cranes on the scow alongside, as shown in the photographic illustration, aid materially in the lowering and in securing perfect alignment of the tubes.

Two man-hole tubes are provided vertically for each tube near the shoreward end, thru which the concrete is taken for the construction of the tunnel proper. The tubes are but the water-proofing of steel, within which the tunnel itself is formed of solid concrete from two to five feet in thickness and of sufficient strength to sustain all stress and strain of the heaviest trains of 2,000 tons. The steel tubes and the five-foot covering of concrete on the outside are a wide margin of reserve strength.

In joining the sections together there is much more work for the divers to do. The twin-tubes must be securely bolted to the tubes previously sunk and the joints rendered water-tight. When built each tube is provided with a steel sleeve which slips over the end of the tube al-

ing, and backed up with clay and earth filling the trench back of them. The space within is then filled with concrete mixed on the scow above, and continued above the tubes for about five feet. The top is covered with rip-rap, thus protecting the concrete covering of the tubes from the swift current and the anchors of the lake and river craft. By the use of a novel and patented device of the resident engineer, placed in the dumping chutes, the concrete does not saturate until dropped in its intended place, an important feature of the under-water work.

While the concrete work on the outside is being done, other gangs of mixers are busy within the tubes building up the concrete tunnel itself. The water has been pumped out and the outside bulkheads of the previous tubes and the inner bulkheads of the later tubes have been removed, leaving clear and dry passageways to the outer ends. The tunnel bores do not conform to the absolute circles of the tubes, but are slightly elliptical vertically, providing a clear head of eighteen feet from the tops of the rails to the center of the arch, with a diameter of sixteen and a half feet across the



Children's Day on a Shetland Pony Farm in the Southeastern Part of Sanilac County, Mich.

PEEPING THRU' MEMORY'S DOOR.

BY MRS. TAYLOR, HARRIS.

Peeping thru memory's doorway,
What do you think I see?
Two little barefoot youngsters—
They look like you and me.
Have you forgotten, dear Annie,
How you and I used to play
When we were two little tomboys,
Happy the livelong day.

Riding the horses to water,
Guess that was what we liked best.
Snagging our toes in the stubble,
Hunting the turkey hen's nest,
Down in the pleasant old orchard,
Climbing the "sweet apple" tree,
All thru the bright summer weather
Two happy kids were we.

Down to the pond we'd go fishing
With a bent pin and a string,
Trudging back home, oh, so hungry!
Never a fish would we bring.
Many's the time we would wander
Down to the clover field, too,
We knew the very fence corner
Where the wild strawberries grew.

Two little tomboys they called us,
Little we cared tho, for that,
Morning to night we were busy,
Never had time for a spat.
Looking for owls in the daytime,
Tumbles we'd get by the score,
Pleasant the visions I see when
Peeping thru memory's door.

IS THE SECRET SAFE?

BY GLADYS HYATT SINCLAIR.

"A bird's nest. Mark it well, within,
without.
No tool had he that wrought, no knife
to cut,
No nail to fix, no bodkin to insert,
No glue to join; his little beak was all.
And yet how neatly finished! What nice
hand
With every instrument and means of art
And twenty years apprenticeship to boot,
Could make me such another?"
—Hurdie.

Many an old bird's nest have you seen
—did you ever examine one closely? Did
you ever notice how perfectly it is fitted
for its use? See how light it is, the nest
of a sparrow weighing less than two
ounces. Yet it has supported the weight
of four or five babies and the mother
bird for several weeks.

See how smooth its lining. What delicate
beauty of building! Yet strength
was not sacrificed to beauty, for the nest
stood the crowding and nestling about
of the growing youngsters and hard wear
from the constant coming and going of
the old birds. It was so strongly built,
cunningly placed and firmly fastened that
not all the winds of summer could tear
or loosen it.

What human parents could care for
even one tiny baby in so satiny a place
for even the fifteen days of ordinary nest
life and leave the home so daintily clean,
without the first trace of damage or disorder?
Yet three families of birdlings
are often raised in one nest during the
summer; and after the little mid-air
home has been soaked with autumn rain,
filled with snow and buffeted by winter
winds it frequently serves the second
summer. Truly,

"What nice hand,
With every implement and means of art?"
could make from such simple materials a
thing so light, so neat, so symmetrical, so
comfortable, durable and strong? Robt. J.
Burdette says that he tried it. This is
how he tells of the performance: "Yesterday
the Prince found a last year's
bird's nest. There was nothing in it.
And there wasn't much outside of it. I
took it to pieces to show the boy how the
bird might have improved the nest building
had she possessed the wisdom and skill
of the immortal human intellect. The Prince
appeared to be profoundly
interested. His interest deepened when
I began to reconstruct the nest on scientific
and intellectual principles. It continued
to increase. It fairly boomed as
my difficulties developed and multiplied.
But I got the nest together at last and
laid it on a log and looked at it. The
Prince only said: 'Hoh! What a nest!'"

"He was correct. The most destitute,
homeless tramp of a bird that ever hunted
worms would have died without posterity
rather than lay an egg in such a
nest as I had made. It was awful. An
old shoe was beautiful and graceful compared
with my nest. A passing crow
looked down and saw it and with a 'caw'
of derision carried the news to the buzzards."

Now, next time you are fortunate
enough to spy a bird's nest, stop and
think a moment. What a wonderful
secret you hold! In one sense, the future
of this happy little family is in your
hands. The birds have chosen this swaying
bough, this fence corner or this particular
tuft of clover, unconsciously
trusting in God that none but loving
hearts may find them—that the dear
babies may there be safe from harm until
they can be taught to care for them-

selves. Is the secret safe with you? Are
you to be trusted?

Yes? That means that you will not
only never destroy the nest, nor rob it,
but you will not touch the eggs nor go
to see the nest oftener than once in two
days. More frequent visits are apt to
frighten and worry the old birds until
they give up the nest and go away. You
will never scare the mother bird off it
if you can help it, and (this is very important),
you will be most careful who shares
the secret with you. In such matters
our tongues sometimes do mischief that
our hands would scorn to do. The secret
is not yours, but the birds' secret and
you are bound in honor to keep it. Indeed,
such a beautiful, delicate bit of news is
not a thing to be bawled aloud to any
who will listen. It is a thing to be
gloated over and treasured; whispered,
if whispered it must be, only to one
whom you are sure, sure is kind and
careful enough to guard the precious
little home even as you guard it.

THREE CENTURIES AFTER HUDSON.

(Continued from page 174).

board the "Half Moon." He intimidated
by signs his friendliness and an invitation
to return the visit. His hospitality
was so evidently sincere that it was accepted.
Mats were spread upon the ground for
the comfort of the guests. Not only pigeons,
fish and oysters were cooked, and served
in red wooden bowls, but a very special
dish was prepared in their honor. This they
undoubtedly would have enjoyed more had
they not seen it prepared. A fine fat dog
was killed, the skin deftly removed by means
of sharp-pointed stones, after which poor
doggie was roasted.

They were urged to remain over night,
and the old chief was greatly disappointed
at their decision to depart. Fearing his
pale guests distrusted their host after
dark, he ordered his people to bring all
their weapons to him, and in the presence
of the visitors the bows and arrows were
broken and cast into the fire. This was
true hospitality, altho of a savage type.
This is said to have taken place where
the city of Hudson now stands.

The interviews with the Indians were
not always so peaceful, however. At one
time they grew so familiar that, with
their natural love for gay colors and
trinkets, the savages were allowed to
visit the "Half Moon." They indulged
so freely in their "adroitness" at appropriating
various articles that they were driven
from the boat, and a few of them were
shot.

On October 4, Hudson set sail from
New York harbor, arriving at Dartmouth,
England, on November 7. Altho he had not
accomplished the main object of his voyage,
he and his crew were not only warmly
welcomed by relations and friends, but the
Dutch East India Company listened eagerly
to the news of the wonderful river, the fine
land and the great number of furbearing
animals, such as the otter and beaver, the
skins of which were commanding a high
price in Europe. They at once made
arrangements to carry on a fur trade.

In less than a year the Indians again
saw the white man's boat on their waters.
When they learned that the object of
their visit was to secure the skins of the
animals which were so numerous, they
gladly exchanged these pelts for bright-colored
cloth, beads and other trinkets. In 1613
four log huts were built on the lower end
of Manhattan island to shelter the traders.
If Hudson could now come to New York,
after these three transforming centuries,
his astonishment would be greater than
that of the Indians on his first arrival.

In 1610 he made his last voyage. He
discovered a strait westward from Greenland
and, sailing on thru it, came into the bay
that now bears his name. It was a cold,
bleak country, provisions were running low,
and part of the crew mutinied. They forced
Hudson, his son and seven men who bravely
stood by their commander, into a small boat
and set them adrift. Then these miserable
wretches hurried off for home. Altho
search was made, no trace of the castaways
was ever found.

The burial place of Moses, who led the
children of Israel, is unknown—so is the
grave of Hudson, who opened the way for
the settlement of a great country. He
needs no sculptured marble. His name,
tho writ on water, will never be effaced
from the bay, strait and river that will
ever bear it on their ebbing and flowing
tide.

Read the article "Our Free Premiums"
on page 172.



THIS GUARANTEE BOND FULLY PROTECTS YOU

LOTS of manufacturers are keen to tell you what their goods are made of. They give you a beautiful word picture of a marvelous and mysterious "gum" that only they can produce. Others tell you of the real "rubber" that they use—and so on.

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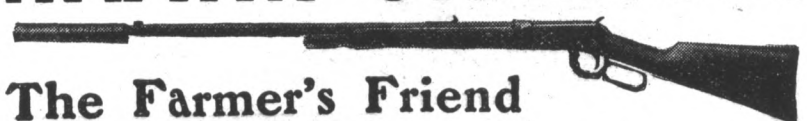
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THE MICHIGAN FARMER.

BOBBY MORNING GLORY.

BY G. H. S.

One day I found a tiny mite
As hard as stone, as black as night;
I guessed his name and guessed it right;
'Twas Bobby Morning Glory.

"What do you want?" I asked; he said,
"I want a bath and then a bed;
I must be sheltered, warmed and fed;
I'm Bobby Morning Glory."

I made a bed all soft and warm,
And tucked away from hurt and harm,
Away from frost and wind and storm,
Wee Bobby Morning Glory.

Up popped his head, which wore a hood;
Next, two clasped hands said, "I'll be good;"

But then he stopped and stood and stood;
Bad Bobby Morning Glory.

"Oh, dear," I questioned, "don't you know
That you are lots and lots too slow?
Why don't you hurry up and grow,
Sir Bobby Morning Glory?"

"Don't fret, my dear; I'm growing stout,
And spreading all my toes about
So Frisky Breeze can't pull me out,"
Said Bobby Morning Glory.

One day in June he tried to climb;
And then such racing, chasing times,
Such robin calls and lily chimes,
For Bobby Morning Glory!

Sure, no one ever grew so quick,
With funny turn and twisty trick
And baby leaves so green and thick
As Bobby Morning Glory.

This morning, under sunny skies,
He opened wide two deep blue eyes
That smiled at me in sweet surprise;
Dear Bobby Morning Glory!

How do I know—yet cannot see—
The thots of butterfly and bee?
They talk to him, and he tells me.
Who? Bobby Morning Glory.

KINKS.

Kink I.—Five-Letter Squares.

First One.—No. 1 means whiter; 2, infatuated with; 3, likes; 4, upright; 5, refreshes.

Second One.—No. 1 means tangles; 2, a place; 3, a body of water; 4, liquifies; 5, judgment.

Kink II.—Recipe.

What is the cook making?



RECIPE.

Take one-fifth of candy, one-fourth of a bouquet, one-fourth of a pig, one-fifth of a fish, one-fourth of corn, one-third of butter and one-fourth of soda.

Prizes for Straightening Kinks.

To the sender of each of the ten neatest correct answers to the above Kinks, we will give choice of a package of 50 post-cards representing a trip around the world, a copy of "Concrete Construction on the Farm," or a fountain pen. Where contestant or some member of his family is not a regular subscriber a year's subscription (75c) must accompany answers. Answers must not reach us later than Sept. 25, as correct solutions will be published in issue of Oct. 2. Address answers to Puzzle Dept., Michigan Farmer.

Answers to Aug. 7.—Hidden Insects.

The letters which indicate the insects are in black face, with the names of the insects in parenthesis after the finished word when the black face letters do not definitely spell the insect name.

The Narrative.—Said Orville Wright to Wilbur Wright as they set out to make a flight the other day: "What'll you bet we don't take a tumble? B'gone (tumble bug) with your fears!" answered Wilbur. "We may fly all right today. Anyhow we'll have to try else folks will be calling our machine a humbug." So they cranked up, and she sailed off like a mighty bird and skated edifyingly (katydid) up and down and around in the sky. Said General Miles to General Miller: "What do you suppose the other birds think of the aeroplane's warble?" Said General Miller to General Miles: "I'm more inquisitive about what they think of that stink bugger's pollutin' atmosphere up there." Just then the aeroplane began to jigger and dip. A Dutchman, when he spied her doing that, remarked: "I pet Orville, he now say to Wilbur, 'It moost pe we vill pooty soon quick shtrike bottom areddy yet!'" And they did. They dove right down into a little crick. Its bed bog (bed bug) was soft, so they didn't get hurt, except when General Miles exclaimed, "That was a damn self fly (damsel fly)!" They reproached him for his impoliteness.

Winners of Aug. 7.—Lucinda S. Guyer, Anna M. Dixon, Nina Hubbard, Ross H. Smith, Florence McLouth and Grace B. Cooper.



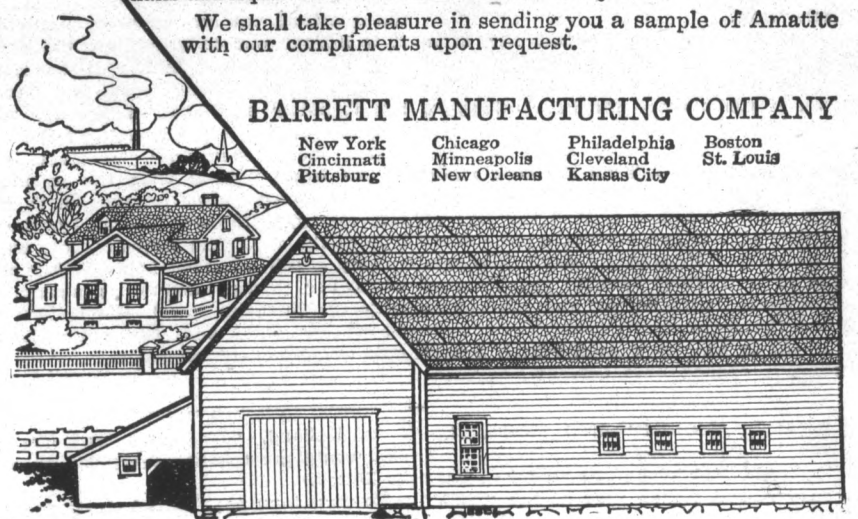
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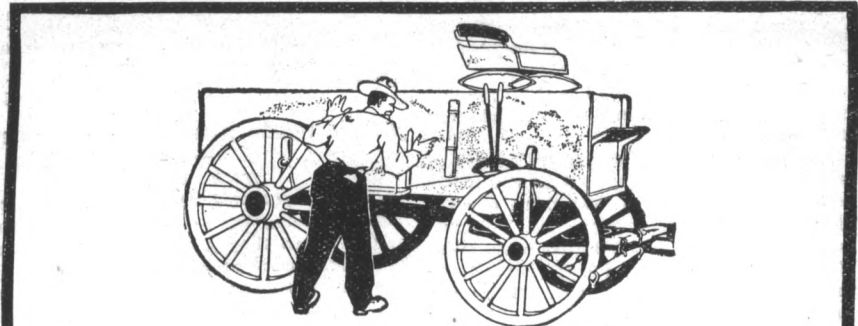
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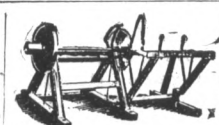
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OF INTEREST TO WOMEN

Shall We Send Our Girls To College?

SHOULD we send our girl to college? That is the question a great many fathers and mothers are now pondering over. Is it essential? Would it really benefit her? Father thinks she should be given the chance, but mother says she never had a college education, and she has made a good wife. She insists that she will not have her daughter going to the city to be a stenographer or clerk, and that is what she will want to do if she is allowed a higher education. She doesn't need it to be a good housewife, so what's the use? Doesn't she need it? Right there, mothers, is where you are making a grave mistake. Do not be afraid of educating your daughter away from the farm. Remember what was considered a fair education for a girl a quarter of a century ago, is insufficient now.

After the girl has finished her little home school and considers herself a young lady, she soon grows tired of the routine work of the house. She has nothing in particular to occupy her thoughts. She has had no training in any particular line, naturally, drudgery is all she sees ahead of her. The same old thing from morning until night. Then it is that the lure of the city calls to her, she reads some story in which the fair stenographer is the heroine in a thrilling episode, she becomes discontented with her lot and resolves to leave the farm.

If she is sent to a good school, a new world is opened unto her. When vaca-

tion days come she is glad to get back to the old home. She has learned its value. She is full of new ideas and theories and anxious to try them. When her course is completed, if the proper conditions are met with at home, she is ready to bring her knowledge of mathematics, chemistry, physics, sociology and ethics gained at college, to bear on the household problems. She can reduce the work by systematizing it. She will reduce the amount of supplies by combining foods properly. She will be willing to take up the work of the home in a scientific and useful manner. She has a broader view of life, plenty of bright thoughts to occupy her leisure moments, and no longer considers the work a drudgery because her education individually is allowed exercise. Then there is the personal side of the question, the real gain to character. It is lifting your daughter into the position of a cultured and well educated woman. It gives her a polish and standing to enter any kind of society, and enables her to do for herself, if the occasion should ever arise. It places her on an equal footing with the scientifically educated young farmer whom she may marry, or the well informed business man of the city. She graduates into matrimony a self-educated home maker and when her young husband is struggling with the financial world, she is able to sit at his elbow and plan with him, a true and practical helpmeet.

ELISABETH.

BEANS, ANCIENT AND MODERN.

Boston baked beans are no joke—more money is spent each year at the "Hub," in buying beans than would buy the largest battleship in our navy. More than a dozen years ago the gross receipts in Boston were more than 68,000 barrels of five bushels each. These, sold by retailers, brot on an average 12 cents a pound, or a grand total running up into millions, for one year.

California has a "Bean Ring," with a ranch of 7,000 acres devoted to the cultivation of beans. It is said there are 138 distinct varieties grown in Ventral county, and one year 1,000 car loads were shipped from there, and 300 car loads from Santa Barbara county. They are harvested by special machinery.

As food for the army the bean has no equal. A noted army officer says they are the soldier's mainstay—he can ride and fight all day on a mere handful of beans, properly prepared. He also says, "your celebrated 'Boston baked' are but a few imitation of the succulent article turned out by a regular army cook. I've been on service when for a week at a time our menu consisted of beans for breakfast, beans for dinner and beans for supper; and did the troopers tire of the monotony? Not a bit of it. They sang for more, and in spite of hard work and lack of variety at mess the fellows actually got fat. That demonstrated to me the nutritive quality of beans."

An old soldier abhors rice, but never refuses beans.

Gen. Grant, altho he probably ate less than any man in the army, and never complained, was a most difficult person to cater to. Fowl and game, considered a treat to others, were his especial aversion, but he always enjoyed pork and beans.

The Great Napoleon's favorite dish was bean salad.

The Mikado of Japan likes bean soup. Among literary men we find Dr. Cyrus Townsend Brady an enthusiastic supporter of beans as an article of food, and in this respect, he is in full accord with Morgan Robertson, for the latter is so fond of beans that he has himself invented a method of cooking them.

The bean was cultivated, to a small extent at least, in ancient times, in Palestine and in Egypt. The Roman family of Fabii are said to have derived their name from the Latin name, (faba), of this plant. It is mentioned twice in the Scriptures—in 2nd Samuel 17:28 and Ezekiel 4:9. But, what is now the common food of all, was, as late as the reign of Henry VIII, a luxury of the upper classes. This much married monarch was very fond of them, and imported a gardener

from Holland, who found that English soil would grow beans every bit as well as Dutch.

To turn from past hard facts to present light fancies, we quote:

"The day of the oyster has passed away, His season was up on the first of May; But let this thot give us comfort and cheer; Beans are in season thruout the year."

—E. L. R.

WHEN FLIES ARE TROUBLESOME.

BY E. E. R.

The late summer and autumn flies are more annoying than earlier in the season. In the house they gather thru every possible avenue of access, and once there it is a task to get them out. Since we are coming to realize what an unmitigated nuisance these pests are, and that their presence is an actual menace to health, housewives are more than ever particular about keeping the home free of them.

Many and varied are the resources adopted in dealing with the house fly. First of all, screens that fit must be in every door and window. Those of the portable style that are placed under the lower sash are not satisfactory for when they are removed in lowering the sash, flies will slip inside. The best ones are full length and fastened in place from the outside. A favorite gathering place for the winged invaders this time of the year is upon the outside of the screen doors, particularly that leading to the kitchen, where they are ready to enter when it opens. A sheet of sticky fly paper tacked to the top of the door will discourage these attempts.

Probably the most effective method of dealing with flies after they gain an entrance into the house is by means of powdered pyrethrum. The fumes of this kills or thoroly stupefies them while it is perfectly harmless to any other than insect life. By closing doors and windows then burning the powder on a hot stove, or on a piece of hot iron, every fly and mosquito in the house can be killed. A stove-lid made quite hot is convenient for this purpose and can easily be carried from room to room. The insects must be collected and burned else some which have been only stupefied from the effects of the drug will come to life again. The powder may be blown into the air by means of a small bellows sold for the purpose, or a baking powder can with holes punched in the cover may be employed, but the room must be closed and the powder freely used in any case.

After a house has been fumigated in this manner there will always be a few strays which have escaped and for these handwork will prove not difficult. At the bazaar one can buy the little wire

fly killers made for this purpose, but those made at home are quite as good. Take a piece of ordinary wire screen the size of the hand, lay a few plaits in one end and fasten with tacks to a wooden handle. With this it is easy to kill a fly without crushing it in the least. A folded newspaper is a fairly good substitute, but not nearly as effective.

A farm house is not easily kept free of flies because of the animals kept in its vicinity, which attract them, and because flies breed in the refuse about stables. But by allowing no uncovered garbage pails near the door and by taking advantage of every known means of extermination in and around the house the number may be greatly reduced. For the few that linger, the wire instrument described will prove a sure means of destruction.

THE SPICES WE USE.

BY IRMA B. MATTHEWS.
Ginger.

[The second in a series of articles on spices].

It is perhaps hard to determine which one of the spices should stand second in importance, so I have chosen ginger, after some consideration, as being the one most used in nearly all families.

Ginger is very unlike pepper, however, instead of the seed as is the case with that spice, the part of the ginger which is used as an article of commerce is the root.

The ginger plant is a native of the East Indies. Altho the plant is perennial, it has an annual growth. The leaves which are long and smooth are produced in pairs, and the stems from which they grow are something like a reed. The flowers are produced on short stems in small clusters and are white marked with purple.

The cultivation of the ginger plant is very simple where the conditions of climate are suitable. It loves a moist situation. When the stems wither the root is dug and prepared for market. First it is immersed in boiling water in order to kill the plant germ, then it is dried in the sun. The process yields what is known to the trade as black ginger. When the roots are carefully scraped a white ginger is the result.

The uses of ginger are manifold. As a remedy it is often employed in the home, in cases of cold or sometimes for stomach trouble. As a spice used for flavoring it is too well known to require any comment. The Chinese employ the root in making a sweetmeat that has begun to be imported into this country in considerable quantities. It is preserved ginger, made from the fresh root and is worth eating, I assure you.

Altho used in such quantities at the present day we were not the discoverers of the ginger plant. It was well known to the Romans, who claimed to obtain it from Arabia. Altho, as before mentioned, it is a native of the East Indies, it is also cultivated now by other countries, the West Indies and China being the principal countries that raise it to any great extent.

There is a plant that grows in North America that is often called Indian or wild ginger, and it is sometimes used as a substitute for the real ginger. It is aromatic and pleasing in taste and is a slight stimulant as well as a tonic. In Java there is a plant known as the broad-leaved ginger, that is sometimes used, but it lacks much of the spicy qualities of the real ginger.

SOME FAVORITE RECIPES.

BY MARY POSTER SNIDER.

Italian Steak.—Put a tablespoon of olive oil in a frying pan. When it is hot put in a pound of round steak, cut into small pieces. Over this slice one large onion very thin add five or six cloves, and salt and pepper to taste. Simmer very slowly for two hours. Then add a large cupful of stewed tomatoes (canned will do), and cook until thoroly blended. Stir in one cupful of cooked macaroni or a cupful of cooked macaroni, grate over the top some stale cream cheese, and serve at once. This is very savory and a useful way to use up left-overs.

Veal Croquettes.—Heat one cup of milk in a double boiler; when it boils stir in two tablespoonfuls of flour mixed smooth in one tablespoon of butter. Cook and stir until thick and smooth, then mix with one pint of cold cooked veal chopped fine, salt and pepper to taste, and two tablespoonfuls each of onion juice and chopped parsley. Form into croquettes, egg and breadcrumb, and fry in deep hot fat

IT WORKS

The Laborer Eats Food That Would Wreck an Office Man.

Men who are actively engaged at hard work can sometimes eat food that would wreck a man who is more closely confined.

This is illustrated in the following story: "I was for 12 years clerk in a store working actively and drank coffee all the time without much trouble until after I entered the telegraph service.

"There I got very little exercise and drinking strong coffee, my nerves grew unsteady and my stomach got weak and I was soon a very sick man. I quit meat and tobacco and in fact I stopped eating everything which I thought might affect me except coffee, but still my condition grew worse and I was all but a wreck.

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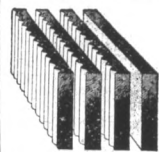
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to a golden brown. Roast veal is better for croquettes.

Cottage Cheese Salad.—Beat the cheese with one-fourth the quantity of chopped walnut meats and a little whipped cream. Put a large spoonful of the mixture on a crisp lettuce leaf and place a spoonful of boiled salad dressing on top. Serve very cold on individual plates.

Water Cress Sandwiches.—Wash, then dry the cress by pressing in a clean cloth, remove the stems, chop fine, season with salt, pepper and a few drops of lemon juice; mix to a paste with the mashed yolks of hardboiled eggs, and spread between thin slices of bread and butter. Cut into dainty shapes and serve for lunch or tea.

Japanese Jelly.—Soak one ounce of gelatine in one pint of cold water for one hour, then add one-quarter pound of loaf sugar, the rind of one lemon and the juice of two. Place over a slow fire and stir until the gelatine is thoroly dissolved. Whisk the whites of two eggs in a little cold water and stir quickly in the gelatine as soon as it is all dissolved. Let settle a few minutes, then strain it thru a jelly bag, pouring it back a few times until quite clear. Pour one-half pint of boiling water over a teaspoon of black tea, let it stand on the back of the range for five minutes, then strain it off. Add the tea to the jelly and stand it in ice water until nearly firm; then stir in gently one-fourth pound of white grapes and two tablespoons of pitted cherries (with the juice drained off), pour into a wetter mould, and set on ice until firm. Serve with whipped cream. This is a pretty and delicious jelly.

Banana Cream.—Peel five large ripe bananas and pound the fruit to a pulp with five teaspoons of powdered sugar. Beat half a pint of good sweet cream to a stiff froth, add the juice of a lemon and the banana pulp. Dissolve half an ounce of gelatine in a little cold water, then add one-half pint of boiling water and strain. Whisk this gently into the banana, put in a mould, and set in a cold place until firm.

Coffee Custards.—Make one-half pint of very strong coffee, cool, and add it to one-half pint of thin sweet cream, four eggs beaten lightly, and four tablespoons of granulated sugar. Strain into small cups and put them in a dripping pan. Put boiling water into the pan until it reaches half way up the cups. Set in a moderate oven and cook very gently until the custard is firm. Serve ice cold, with or without whipped cream on top.

Rice Meringue Custards.—Cook until very soft, four tablespoons of rice in plenty of boiling salted water, drain, add one pint of milk, a pinch of salt, half a cup of sugar and the beaten yolks of four eggs. Cool, add the juice and grated rind of one lemon, pour into buttered custard cups and bake as directed for coffee custards until firm. Make a meringue with the whites of the eggs and four tablespoons of powdered sugar, and return to the oven for a minute or two to brown very lightly.

THE SECRET OF MAKING GOOD BREAD.

BY ISAAC NOTES.

While some housekeepers may not understand the best process of mixing ingredients, failure to make good bread is due more often to improper baking than to improper mixing.

To bake bread properly, whether biscuits, rolls, gems or corn muffins, requires a hot oven at the time the bread is put in, in order to sear over the outside, forming a thin crust or blanket, which keeps the moisture from drying out. Being confined within the loaf by this seared surface, the moisture generates steam and gases from the baking powder or cream of tartar, which raise the bread and make it light. The oven should not be hot enough to harden the outside of the loaf too quickly, but only enough to form this tough, elastic surface. If the crust becomes hard immediately it is put into the oven, the bread cannot rise, as the quickly formed, hard crust on top holds it down. On the other hand, bread which is put into the oven before it is sufficiently heated will be dry, tasteless and chalk-like, since the heat was not sufficient to form the film until a great deal of the moisture had escaped. Yet this is exactly the kind poor people in the city generally bake, because in order to save gas they do not have their ovens hot enough at the beginning of the baking. So neither very quick baking nor very slow baking is proper.

If the oven is excessively hot it may be closed for a half minute after the

bread is put in, until it is seared over, then opened an inch or two and kept open until the bread is a light, golden brown. The oven would better be too hot than not hot enough, as it is easy to regulate the heat by opening the door slightly.

The heat should also be steady and uniform. The best cooking is possible, therefore, where coal or good seasoned hickory wood is used. This accounts for the fact that country people have the name of being better cooks than people in the cities. They use good, old-fashioned stoves or steel ranges, and burn either coal or good seasoned wood. It is a shame to spoil good bread in the baking, after it has been properly mixed, when it is such a simple matter to bake it right.

GRASS STAINS.

It is very annoying to have a pretty, light dress ruined with grass stains. This is the time of year when the children are liable to have their white dresses stained with grass, and if the offending spot is not properly handled at once, it may not wash out, thus ruining an otherwise good garment.

Sometimes, if the stain is a slight one, it will wash out with clear water and ammonia, but not usually. A simple remedy is to spread molasses, or a paste made of soap and baking soda, over the spots, and let it stand for a few hours before washing out. Another way is to keep the stains moist and let it lay in the hot sunshine until the spots turn brown, when they can be washed out with clear water. Grass stains are soluble in alcohol, but it is not always safe to use it on very delicate colors.

CLEANING OLD LACE.

You should never clean old laces with gasoline, and for a very good reason. The gasoline, which is the far-famed and proverbial grease-remover, will take the natural oil out of the lace threads, which, it must be remembered, are a vegetable product, rendering them crisp, stiff and liable to snap.

Lace should first be soaked in cold water, then shaken in a bottle in lukewarm water, to which has been added the merest pinch of borax. This should be thoroly rinsed out, to prevent its rotting the delicate fabric. When lace is very handsome it should first be basted to old linen to keep it from stretching, and it should be speedily taken out of the hottest rays of the sun when thoroly dry. There is no necessity for scorching it indefinitely.

PINEAPPLES AS MEDICINE.

Oranges and lemons are not only valuable by reason of their potash salts, but, especially, for their citric acid. A case of paralysis of the entire right side is known where the juice of oranges, adopted as a regular diet, appeared to perform wonders, together with chicken broth. As an aid to digestion—a really material aid—the pineapple stands alone among all the fruit. Its vegetable pepsin neutralizes or, perhaps, rather, digests albuminous substances in the stomach. Fresh pineapple—or, better still, the fresh juice of one—placed in direct contact with eggs, or gelatine, or milk will prove this fact conclusively by producing a bitter tasting dish. In cases of catarrhal ailments of the throat and in its downward connection, the alimentary canal or tract, pineapple cannot be overestimated and it acts with equal force in malarial affections. Many cases of sore throat have been greatly benefited by eating raw or cooked pineapple. If the throat is too sore to swallow the fruit, take the juice and swallow several mouthfuls of it every little while. It is a good idea to put up several cans of pineapple in the summer, when they are plentiful, to have in case of sickness in the winter.

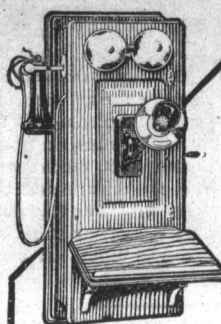
REWARD OF REST.

BY ALONZO RICE.

The golden gates of morning open wide, A million hammers on the anvils beat; A stir down forest depth or city street, Proclaims again the mighty human tide Is pulsing, that all life may be supplied

From purest founts. I hear the rush of feet, The pastoral song of those who stop to eat Their oaten fare along the streamlet's side.

I see the plumes of smoke when day is done, The flaming forges flashing in the night; Then songs of home arise at set of sun, As swallows twitter in the fading light; By these we know reward of rest is won Alone by those who labor with their might.



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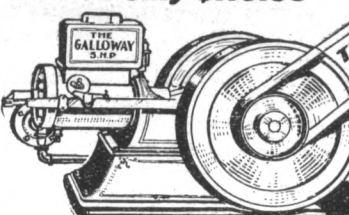
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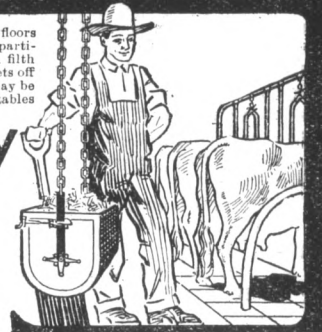
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HOW TO PRESERVE A HUSBAND.

Sounds strange now, doesn't it, but preserving time is upon us and it has lately dawned upon my mind that there are other things to preserve besides fruits and vegetables. One of the most important of perishable things that we wish to preserve is a husband. Now, this preserving a husband is a new departure in the culinary art, and I have no doubt but many of you would like the recipe.

The first thing to do in preserving time is to select the fruit, so likewise must you select your husband. The home-grown ones are the best, I think, altho the foreign ones, like foreign fruit, are sometimes palatable. Husbands grown in the tropics of pleasure may look very fine but are often found exceedingly stale. Select one found on a family tree, grown on the sunny side of a church, one who has been in the habit of sometimes entering, for in the church he will find only that which helps to sweeten, strengthen and enoble home life. Be sure he is sound at heart for unsound husbands, like unsound fruit, often have to be sorrowfully cast away. If he is rotten at the core you might just as well throw him on the dump as no amount of preserving will make him palatable. If he has only a few bad spots you might cut them away and preserve the rest. That is, if he has a few faults, you might with sweetness and forethought, reform him. Still, the risk is great, it might be a waste of sweetness and labor.

Now, in choosing a husband do not expect too much, no man is perfect, remember that, even the sun has spots upon it. Keep a clear, steady fire of love under the preserving kettle, throw in plenty of sweetness, vinegar is never used in sweet preserves, you know. If you think he needs a little spice, use it with caution, too much may have a decidedly bad effect.

Do not keep continually stirring him up, as he might lose his temper. So be sparing of your vinegar and spices, as you can make mistakes far more easily than you can rectify them. "Love in a cottage" does not always demonstrate that there is no room for a difference of opinion, altho such may be the case sometimes. The average woman displays great judgment at a bargain sale, but in choosing a husband, she sometimes gets the worst of it. If every woman was as careful in selecting a husband as she is in choosing a dress to match her complexion, there would be less misery and fewer divorces in the world. Love does not always teach wisdom when a woman's heart is big enough to love without understanding, when a woman's feelings are strong and deep without making her understanding narrow, when her intuitions do not warp her judgment, and that judgment is bounded and broadened by charity, then may that woman be counted as one blessed above all others. For she is the woman who is wise hearted, she is the woman who will know just how to preserve a husband's love and trust, and know just the right amount of sweetness and spices to be used. Don't stand on your dignity with your husband, for it does not pay. Men have many and varied peculiarities which are totally incomprehensible to a woman. You must trust your husband, make him think he is the one man; then the natural good qualities he may possess will help to preserve him.

Keep a watch on your words, for words are wonderful things, they can bless and brighten a life or they can cut like a dagger and prick like a needle. Do we fully realize how much of the happiness and good cheer of home life depends upon us. Husbands have to be managed after a fashion and each wife knows best how to manage her own husband. We all have faults and if trouble comes between us, no human being can aid you. You will have to live your own life. It will rest between yourself, your husband and your God. The faults of your husband cannot be discussed with your friends, if you are a loyal wife.

One of the hardest lessons women are called upon to learn is, not to let the lack of what they most desire make them unhappy, but to cheerfully make the most of what they have. Make the most of your opportunities for making home bright and happy.

So in preserving a husband great care and judgment must be used. It might, with some husbands, be just as well not to use too much sweetness, as a little tart is very acceptable to some palates. You might try preserving him without much sweetness, and if he ferments, boil him

down, throw in a little sweetness of wifely sympathy and a few honeyed words and in that way keep him for a while. Surround him with an atmosphere of good, wholesome home life, use the vinegar and spices sparingly, for marriage teaches both the man and woman tolerance, patience and tenderness. Many women die with an uncrowned life work, but God's benediction, "She has done what she could," is more blessed than the world's applause bestowed upon an aimless life.—C. S., Berlin.

CANNING CORN.

We are told that the reason corn does not keep well when canned is lack of acid. Doctors tell us that any canning compound sold for the purpose of keeping canned vegetables is harmful. I want to tell you of a recipe which I have thoroughly tested and which is far better than any canning compound.

New cans, covers and rubbers must be used. The corn must be in the milk. Do not gather till ready to use. Cut half the kernel from the cob and scrape off the rest. Salt as for table use. Press as tightly as you can into the cans, so the milk fills the space between the kernels. Fill the can within one or two inches of the top; screw on the covers, without rubbers, and put in a boiler or large flat-bottomed kettle, with the husks of the corn beneath and between for packing. Fill the boiler with cold water up to the can covers and bring to a boil which must continue steadily three hours for pints, and four for quarts.

While the cans are boiling prepare some fresh tomato sauce; have it very salty and when the corn is done, remove the cans from the boiling water, one at a time, fill to the very top with the boiling tomato sauce, put on the rubber and screw down the cover at once. The tomato sauce will stay right on top where you put it and supplies the acid which will make the corn keep. When you are ready to use the corn remove the sauce with a spoon and no taste of it will be left on the corn. If you prefer you can use quart cans and fill half with corn and the other half with tomatoes, but in that case you would salt only as for table use. The secret lies in the long boiling and getting them sealed while the corn and tomatoes are hot.

When the cans are cold wrap each one in paper; put them back in the crate in which you got the cans; put some papers over the top, then the cover, set in a dark corner of the cellar until ready for use.—K. T.

PUTTING UP PLUMS.

Stem and wash, and to every pound of plums allow three-quarters of a pound of sugar. Cover the fruit with sugar and stand aside over night. With all small fruit it is best to allow them to stand covered with sugar for several hours before covering as it keeps them whole much better. In the morning, put sufficient to fill two cans at a time in your kettle, bring to a boil, simmer until soft without breaking. Skim and can as directed. You may prick the plums with a needle before putting on the sugar, if desired.

BABY'S PRAYER.

A golden head bowed at my knee,
A little figure clad in white,
Two dimpled hands clasped reverently,
As Dolly kneels to pray, each night.
No hour so quiet, nor so sweet,
No scene of childhood days more fair
Than this, when Faith and Reverence
meet
Together in a baby's prayer.

Not blessings given of men she asks,
Nor favors for herself alone,
Not more new treasures, easier tasks—
Great harvests reaped, with little sown.

For those she loves, my little child
In gentle accents intercedes,
Granting our hearts are reconciled,
Content with all our gifts and needs.

"Bless Mamma, Papa, Santa Claus"—
A blessing on each one of kin,
And then the scroll of love unfurled
Enough to take the world all in.

"Bless all my brovers, sister, too,"
For small companions—boy and girl,
Then with one all-embracing plea—
"Bless ev'rybody in the world!"

Oh loving, guileless, childhood heart,
That throbs with not one selfish thrill,
That sets no human soul apart,
Wishes no living creature ill.

The incense from thy guileless soul
The angels waft to Heaven above;
God tune our hearts to Baby's prayer—
"Bless ev'rybody in the world!"



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- 6 These wire clamp guards hold globe secure when tilted back for trimming wick or cleaning burner.
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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. Many queries are answered that apply to the same ailments. If this column is watched carefully you will probably find the desired information in a reply that has been made to some one else.

Warts on Cow Teats.—Will you tell me how to remove warts from my cow's teats? G. W. E., Carson City, Mich.—Cut off those that have a neck and apply acetic acid to those that are flat, once a day. Apply borax acid and powdered alum equal parts to sores once a day.

Cough.—I have a horse that has a slight discharge from nose and also has a bad cough. A. S., Bryan, Mich.—Give ½ dr. powdered opium, ½ dr. powdered lobelia, ½ dr. ground nux vomica and 1 oz. powdered licorice at a dose in feed three times a day. If the throat is swollen apply some iodine ointment twice a week.

Barren Cows.—I have two cows that came fresh last spring; neither of them have come in heat since. S. S., Northville, Mich.—Giving drugs to such animals produces poor results. Dilate the opening leading into the uterus with finger, this may excite the generative organs into activity. Also give 2 drs. powdered capsicum, 1 oz. ground ginger and 1 dr. ground nux vomica at a dose in feed night and morning.

Paralysis.—I recently lost a fat hog weighing about 175 lbs. He had been lame in hind parts for three or four days, but appeared to have a good appetite. Have fed him corn on ear, also wheat and oats. There are two others of the same bunch that are very lame. E. R., Belleville, Mich.—You had better discontinue feeding corn and give them more oats, wheat bran and a little oil meal, with plenty of green clover or grass. Also give 25 grains carbonate potash at a dose to each pig night and morning.

Asthma—Roarer.—I have a 5-year-old mare that had distemper last spring; since then her wind has been affected. Our local Vet. that she had bronchial trouble. F. Z., Marine City, Mich.—Horses that have trouble in breathing after having had distemper are usually affected in throat. The throat may have changed enough to make it impossible to relieve her. Apply iodine ointment to throat twice a week. Give her 1 dr. powdered lobelia, ½ dr. ground nux vomica, 2 drs. muriate ammonia and 1 dr. lobelia at a dose in feed three times a day.

Clover Poison.—My five-year-old mare with colt by her side eight weeks old, has a white face and nose and appears to suffer from clover poison. Her nose is inflamed and her eyes are also irritated; besides, her tongue is also rough, as if affected by the clover. This appears to be a new disease in this locality, affecting the white-faced horses. J. P. V., Falmouth, Mich.—You understand that animals with a white skin or dark colored animals with either white faces or white legs are always more tender on these white patches. I have no doubt you are right, the clover has set up an inflammation of the skin. Dissolve 1 oz. borax acid in a quart of water and wash out mouth twice a day. Dissolve 2 ozs. sugar lead in a gallon of water and wet face twice a day. Of course, she should be kept away from clover pasture.

Foot Soreness—Brittle Hoofs.—Please tell me what to do for a horse that has tender fore feet. When the foot is tapped it appears to hurt him and when traveling on hard roads he flinches considerably. The farrier put a sole leather pad between hoof and shoe, but little, if any good results. Hoof is quite brittle and he has but little heel to nail shoes to. I have applied fish oil to coronet for some time, which seems to promote hoof growth, but don't help lameness. There was no lameness until dry weather set in. R. G. B., Coloma, Mich.—You will benefit your horse very much by standing him in wet clay not less than three hours a day and apply lanolin to hoofs once a day. Later in the season, or even now, it will do no harm to blister coronet lightly with cerate of cantharides.

Septic Infection—Abscess—Cough.—On June 5 one of my mares gave birth to twin colts. The largest one was weak and crooked. When about three weeks old he began to cough. A country doctor told me to give him oil of tar and kerosene in small doses and to rub chest with kerosene and fresh lard. Another young Veterinary told me not to give the oil of tar, but suggested cod liver oil. Have tried all these remedies and some others without producing any good results. About a month ago I shot the colt would die. His cough grew worse, his appetite failed and he lost flesh rapidly, but finally something broke and he discharged a whole lot of pus, since then he has improved some, but coughs badly. What had I better do for him? H. J., R., Carleton, Mich.—First of all, your colt came weak and shortly after birth suffered from navel infection resulting in abscess of, perhaps, the lung which broke and has now possibly healed. The abscess was perhaps located near the bronchi, causing a bronchial cough, which will, no doubt, in time, come all right. Give 20 drops tincture opium, 10 drops tincture belladonna, 5 drops tincture nux vomica and 30 drops syrup squills at a dose in a little milk or sweetened water three times a day. As soon as your colt begins to thrive I believe the cough will trouble him less.



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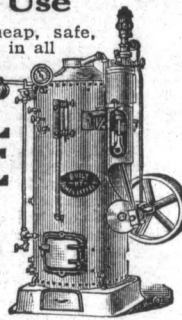
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MARKETS

DETROIT WHOLESALE MARKETS.

September 1, 1909.
Grain and Seeds.

Wheat.—In spite of the recent news that a bumper crop of spring wheat was in the hands of the farmers of the north-west, the market has continued firmer than a week ago. The difficulty in the way of lower prices is that farmers appear to be determined to have the advance if these are one coming and so they are holding the grain. Not being able to get the wheat, buyers are compelled to put values on a better basis. Then, too, the empty bins of the local millers in the wheat growing sections have claimed the first offerings, preventing as much of the first sales going to the central markets. The winter wheat offerings are small—the first bulge in the selling being over. This, with a firm cable from Liverpool, gave the market a good color, as viewed from the standpoint of the farmers who have the grain to sell. One year ago the price for No. 2 red was 96½¢ per bu. Visible supply showed a slight decrease for the week. Quotations are:

	No. 2	No. 1	Red.	White.	Sept.	Dec.
Thursday	1.07	1.07	1.06½	1.05½		
Friday	1.07½	1.07	1.07½	1.07		
Saturday	1.07½	1.06½	1.07½	1.06		
Monday	1.07	1.06	1.07	1.05½		
Tuesday	1.07½	1.06½	1.07½	1.06½		
Wednesday	1.07	1.06	1.07	1.05½		

Corn.—The influences affecting the corn situation have been largely centered in the west where the crop was threatened with dry weather. Reported rains on Monday had a bearish effect upon the market but private estimates that the crop is not as large as the government reports make it seem to be taken seriously by traders and the market has held remarkably strong since harvest time in the southern part of the corn belt is now near at hand. East of the Mississippi the crop appears to be developing normally. Price a year ago for No. 3 corn was 81½¢ per bu. The decrease amounted to nearly a half million bushels. Quotations for the week are:

	No. 3	Yellow.
Thursday	72	73½
Friday	72	73½
Saturday	72	73½
Monday	71½	73½
Tuesday	71	73½
Wednesday	72	73½

Oats.—The offering of oats for the past few days has been liberal, and since the crop is now practically secured and the weather can do little damage save to scattered crops that are stacked in the open, the buyers and sellers have marked prices lower than those ruling a week ago. The local market is only fairly active, although occasionally sessions contribute much interest to the market by the activity in the buying. A year ago the price for No. 3 white oats was 51½¢. Quotations for the week are:

	Standard.	Sept.
Thursday	38½	38
Friday	38½	38
Saturday	38	38
Monday	38½	38
Tuesday	38½	38
Wednesday	39	39

Beans.—Nothing has transpired to disturb the bean trade from its lethargy. Prices are nominal and unchanged from those given a week ago. The weather has not been against securing the growing crop at these points where the beans are matured. Quotations are:

	Cash.	Oct.
Thursday	\$2.20	\$2.00
Friday	2.20	2.00
Saturday	2.20	2.00
Monday	2.20	2.00
Tuesday	2.20	2.00
Wednesday	2.20	2.00

Cloverseed.—A few sales are being made of the early hulled seed. Prices are improved since last week. Prime alsike is selling at about \$7.75 per bu. Quotations for the week are:

	Prime Spot.	Oct.	March.
Thursday	\$7.00	\$7.35	\$7.35
Friday	7.00	7.40	7.40
Saturday	7.00	7.40	7.40
Monday	7.00	7.35	7.35
Tuesday	7.00	7.35	7.35
Wednesday	7.00	7.35	7.35

Rye.—This trade is dull but the values are steady. Cash No. 1 is selling at 68½¢ per bu., which is an advance of ½¢ over last week's price.

Visible Supply of Grain.

	This week.	Last week.
Wheat	8,362,000	8,584,000
Corn	1,774,000	2,243,000
Oats	5,184,000	3,413,000
Rye	202,000	173,000
Barley	217,000	108,000

Flour, Feed, Provisions, Etc.

Flour.—Market active, with prices unchanged. Quotations are as follows:

Clear	\$5.25
Straight	5.40
Patent Michigan	5.85
Ordinary Patent	5.50

Hay and Straw.—Market for both hay and straw is unchanged. Carlot prices on track are: No. 1 timothy, new \$13@14; No. 2 timothy, \$12@13; clover, mixed, \$11@12; rye straw, \$7; wheat and oat straw, \$6 per ton.

Feed.—Market steady at unchanged prices. Bran, \$25 per ton; coarse middlings, \$26; fine middlings, \$30; cracked corn, \$30; coarse corn meal, \$30; corn and oat chop, \$28 per ton.

Potatoes.—This deal is steady with a good demand and fair supply. Michigan goods are quoted at \$6@65¢ per bu.

Provisions.—Family pork, \$21.50@22.50; mess pork, \$21.50; light short clear, \$21; heavy short clear, \$23; pure lard, 18c; bacon, 15½@16½¢; shoulders, 10c; smoked hams, 14c; picnic hams, 11c.

Dairy and Poultry Products.

Butter.—A scarcity of milk has worked to the disadvantage of buyers of butter and prices have again advanced a cent with little probability that there will be any material decline this season. Quotations are: Extra creamery, 29c per lb; first do., 28c; dairy, 21c; packing stock, 20c.

Eggs.—A reduction in the price of eggs took place during the week. The market is steady at the new values with the price for fresh firsts, case count, cases included, at 21½¢ per doz.

Poultry.—Nothing is transpiring in the poultry trade to cause any marked change in values. The supply is small and the demand but large enough to keep the offerings moving. Quotations are: Hens, 14c; roosters, 9@10c; ducks, 10@15c; geese, 8@9c; turkeys, 16@17c; broilers, 16c.

Cheese.—Steady. Michigan full cream, 15@16c; York state, 16½c; limburger, 16½c; schweitzer, 20c; brick cream, 16½c per lb.

Calves.—Choice to fancy, 11c; ordinary, 9@10c per lb.

Fruits and Vegetables.

Cabbage.—Steady. Home-grown, \$1 per bbl.

Tomatoes.—Easy and now selling at 40@45¢ per bu.

Onions.—Domestic offerings, \$2 per bbl; Spanish, \$1.50 per crate.

Pears.—Average stock \$1@1.25 per bu.

Grapes.—Delaware, 35c; Niagara, 30c; Concord, 25c per pony basket.

Apples.—Home growth, 75c@1.25 per bushel.

Peaches.—Michigan grown range in prices from \$2.50@3.50, according to grade.

Blackberries.—Lower at \$2@2.50 per bu.

Huckleberries.—Higher, \$3.50@3.75 per bushel.

Vegetables.—Beets, 75c per bu; carrots, 75c per bu; cauliflower, \$1.25 per doz; cucumbers, 15@20c per doz; eggplant, \$1.25@1.50 per doz; green beans, 75c per bu; green onions, 12½¢ per doz; green peppers, 75c per bu; lettuce, 50c per bu; mint, 25c per doz; parsley, 25@30c per doz; radishes, 8@10c per doz; spinach, 60c per hamper; summer squash, 50c per box; watercress, 25@50c per doz; wax beans, \$1 per bu.

OTHER MARKETS.

Grand Rapids.

Grain prices rule unchanged this week. In dairy products, creamery butter is up ½¢. In meats, dressed hogs are firm at 10½¢. Spring chickens are off a trifle, being quoted now at 14@15c. Tomatoes were in big supply on the city market Tuesday morning, selling around 40c. Sweet corn is also lower. In the fruit line, everything sold well, the demand for good stuff outrunning the supply. Peaches sold up to \$2 for best stock. Early Crawfords, the standard yellow peach, will begin to show up next week. Hay, loose in loads, is selling at \$10@11.

Quotations follow:

Grains.—Wheat, \$1.01; oats, 39c; corn, 73c; buckwheat, 55c per bu; rye, 60c.

Beans.—Machine screened, \$1.90.

Butter.—Buying prices, Dairy, No. 1, 22@23c; creamery in tubs, 23½c; prints, 27½@29c per lb.

Eggs.—Case count, 21@22c.

Potatoes.—50@55c per bu.

Peaches.—\$1.25@2 per bu.

Apples.—50c@1; pears, 75c@1.25;

plums, 90c@1.50 per bu.

Vegetables.—Tomatoes, 40@50c per bu;

sweet corn, 8@10c doz; cabbage, 25@30c dozen.

Cattle.—Cows, \$2.50@4 per cwt; steers

and heifers, best quality, 3@5½c; dressed

mutton, 9@10c; dressed veal, 6@9c;

dressed beef, cows, 5@6½c; steers and

heifers, 7½@9½c.

Hogs.—Dressed, 10½c.

Live Poultry.—Fowls, 10@12c; roosters,

7@8c; turkeys, 14@15c; spring chickens,

14@15c; spring ducks, 11@12c.

Chicago.

Wheat.—No. 2 red, \$1.05@1.05½; Sept. 98½c; December, 94½c; May, 98½c.

Corn.—No. 2, 67½@69½c; Sept., 64½c;

December, 56½c.

Oats.—No. 3 white, 36½@37½c; Sept.,

37c; December, 37c.

Butter.—Firm and higher. Creameries,

24@29c; dairies, 22@26c.

Eggs.—Steady, with fresh firsts, case

count, cases included, 21½c per doz.

Elgin.

Butter.—Market firm at 29c per lb., which is an advance of 1c over last week's price.

Boston.

Wool.—Because of depleted supplies the market could not stand the strenuous buying of the past few weeks and now the volume of trading is about normal for this season of the year. Prices are very firm with a feeling that they may reach higher levels than yet attained. The following are the leading domestic quotations for the week: Ohio and Pennsylvania fleeces: XX, 35@36c; X, 33@34c; No. 1 washed, 40@41c; No. 2 washed, 40@41c; fine unwashed, 27@28c; half-blood combing, 35@36c; ¾ blood combing, 35@36c; ¾ blood combing, 34@35c; delaine washed, 39@40c; delaine unwashed, 33@34c. Michigan, Wisconsin, New York fleeces: Fine unwashed, 25@26c; delaine unwashed, 31@32c; ½-blood unwashed, 34@35c; ¾-blood unwashed, 34@35c; ¾ blood, 33@34c.

THE LIVE STOCK MARKETS.

Buffalo.

August 30, 1909. (Special report by Dunning & Stevens. New York Central Stock Yards, East Buffalo, N. Y.)

Receipts of sale stock here today as follows: Cattle, 155 loads; hogs, 12,800 head; sheep and lambs, 14,000; calves, 1,250 head.

The cattle trade today was slow. The

best sold 10c per hundred lower than last week while all other grades except stockers sold 15@25c lower. Stockers sold steady. A few extra choice cattle sold as high as \$6.90 today. Fresh cows and springers sold at strong last week's prices.

We quote: Best export steers, \$6.50@6.75; best 1,200 to 1,300 lb. shipping steers, \$5.75@6; best 1,100 to 1,200 lb. do., \$5.50@5.75; medium 1,050 to 1,150 lb. steers, \$4.75@5; light butcher steers, \$4.40@4.65; best fat cows, \$4.25@4.75; fair to good cows, \$3.50@3.75; light cows, \$2.75@3; trimmers, \$1.75@2; best fat heifers, \$5@5.25; fair to good, \$4.25@4.50; common, \$3.50@3.75; best feeding steers, 800 to 900 lb. dehorned, \$4.25@4.50; 700 to 750 lb. dehorned stockers, \$3.75@4; little common stockers, \$3.25@3.50; best bulls, \$4@4.50; bologna bulls, \$3.25@3.50; stock bulls, \$2.75@3; best fresh cows and springers, \$4.75@5; fair to good do., \$3@4; common, \$2@2.50.

The hog market opened steady on good choice corn-fed hogs weighing 200 lbs. and up, but slow and draggy on the commoner grades and lighter weights. There is a fair clearance and the prospects are only fair. There is a good demand for good choice corn-fed hogs but the commoner grades and lighter weights are very hard to sell.

We quote: Medium and heavy, \$8.45@8.65; mixed, \$8.25@8.40; best corn yorkers, \$8.25@8.35; Michigan yorkers, grass, \$8@8.20; pigs, \$7.75@7.90; roughs, \$7.10@7.15; stags, \$5.75@6.25.

The lamb market today was fairly active at the prices and we think the prospects a shade better the balance of the week.

We quote: Best lambs, \$7.25@7.35; fair to good, \$6.50@7.15; culls, \$5@5.35; skin culls, \$4@4.50; yearlings, \$5.25@5.50; wethers, \$4.75@5; ewes, \$4.25@4.50; cull sheep, \$2@3; best calves, \$9.50@10; fair to good, \$7@9; heavy, \$4@5.

Chicago.

August 30, 1909. Cattle. Hogs. Sheep. Received today 22,000 23,000 25,000 Same day last year... 23,531 23,039 36,311 Received last week... 57,482 94,239 101,333 Same week last year... 62,706 84,234 100,059

Cattle were in much larger supply last week than usual, increasing marketing of western rangers swelling the offerings a good deal, and while a few fancy fed heaves made new high records, the general range of prices for natives closed 15@40c lower than a week earlier. Steers sold at an extreme range of \$4@7.85, with fancy yearlings at \$7.75, a good share of the sales taking place at \$5.50@7.30. Exporters operated sparingly at \$6@6.80, and cattle of a commoner grade were neglected, buyers taking rangers in preference, as usual. Grassy steers sold at the lowest figures of the season, and so did grass-fed butchering cows and heifers, although corn-fed lots of the better class were firm under moderate offerings. Female stock went at \$3.30@6.50, while canners and cutters had a fair outlet at \$2@3.25, with bulls going at \$2.50@4.85. Calves were active at \$3@9 per 100 lbs. for inferior heavy to prime light, and milkers and springers were in active eastern demand at \$30@60 per head. Animation has characterized the stocker and feeder trade as a result of promise of a good corn crop, notwithstanding less flattering reports from some corn sections, stockers selling at \$2.75@4.40 and feeders at \$4@5.20. Western range cattle were in good demand, but prices broke 15@25c under larger supplies, steers being salable at \$3.85@6.40 and cows and heifers at \$2.50@5.35. The outlook is encouraging for choice beefs, whether from farm or range, but ruling prices look good, and it seems bad policy to hold fat cattle back. Others are going lower.

The cattle market today, Monday, was active for fat lots, with the best grade bringing \$8 in a few instances, a new high record, thus reaching a figure long predicted. That price was paid for both heavy beefs and yearlings. Other kinds were unchanged. Only about 3,000 western range cattle arrived. The stocker and feeder trade is slower than a few days ago, owing to dry weather in various sections, and to a great extent they are 10@25c lower than a week ago.

Hogs came in rather freely during several days last week, as ruling prices were satisfactory to stockmen, there having been advances for the first three days in succession that put the best grade at \$8.30, within 15c of the best time of the year. Thursday saw the first reaction, although prior to the decline on that day the Chicago packers were inclined to hold back and let a good many hogs accumulate in sellers' hands. Eastern shippers continued to purchase a good percentage of the offerings, the better class being wanted, and a good premium was paid, while grassy and coarse, heavy lots were slow at a good discount. Heavy hogs were the slowest sellers invariably, and the demand ran largely on choice light and medium weights, with pigs relatively good sellers, as no great number came on the market. Matured hogs are fetching such extraordinarily high prices that it seems foolish to send in healthy pigs. Provisions are active at the unusually high prices prevailing, with steadily decreasing stocks everywhere, and current receipts of hogs are utilized largely for the fresh meat trade. Recent hog receipts have averaged in weight 230 lbs., compared with 224 lbs. a year ago and 250 lbs. two years ago. Hogs were fairly active today at \$7.20@8.12½.

Sheep and lambs came forward last week rather freely, although there was no unusual rush to market range stock. Fat lambs, as usual, claimed the principal attention of buyers, and there was no urgent demand for the poorly fattened lambs, while yearlings and sheep were only fairly active. At times the quality of the range lambs was not as good as it had been, but range feeding lambs were in good demand at \$6@6.75, while range feeding wethers sold at \$4@4.60.

and feeding yearlings at \$5@5.35. These prices look high when it is stated that fair to choice mutton wethers were selling at \$4.50@5 and mutton yearlings at \$5.25@5.50. Ewes brot \$2@4.50, and breeding ewes had a smaller sale than a few weeks earlier at \$4.25@5.50. Receipts were composed largely of grass-fed stock from the range. Today's market was active, with lambs selling at \$4.50@7.90, most sales showing an advance of 25c within a week. Sheep have advanced largely 15c in the same time. A big lot of Washington range breeding yearling ewes went for southern shipment at \$6.35.

Horses are being marketed more freely, but recent offerings proved insufficient to meet the growing demand, and numerous sales showed advances of \$5@10 per head. Small southern chunks are conspicuous in the advance, with sales at \$60@125, and there is a better call for heavy drafters at \$175@225, with better ones going at \$250@375 and even higher a times. Ohio and Pennsylvania dealers compete for feeders at \$175@225, and drivers are wanted at \$150@325. A buyer from the City of Mexico has been in the market buying a load of light harness horses, mainly matched pairs costing \$600@1,000. He reports that automobiles are largely supplanting carriage horses in Mexico.

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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.

September 2, 1909.

Cattle.

Receipts, 1,195. Good grades and stockers and feeders steady; common stuff 5@10c lower.

We quote: Dry-fed steers, \$5@5.25; steers and heifers, 1,000 to 1,200, \$4.50@5; steers and heifers, 800 to 1,000, \$3.75@4.25; grass steers and heifers that are fat, 800 to 1,000, \$3.75@4.25; grass steers and heifers that are fat, 500 to 700, \$3.25@3.50; choice fat cows, \$3.75@4.50; good fat cows, \$3.25@3.50; common cows, \$2.50@3; canners, \$1.75@2; choice heavy bulls, \$3.50@3.75; fair to good bolognas, bulls, \$3@3.25; stock bulls, \$2.50@3; choice feeding steers, 800 to 1,000, \$4@4.30; fair feeding steers, 800 to 1,000, \$3.50@3.75; choice stockers, 500 to 700, \$3.25@3.50; fair stockers, 500 to 700, \$2.75@3; stock heifers, \$2.50@3; milkers, large, young, medium age, \$4@60; common milkers, \$25@35.

Roe Com. Co. sold Bresnahan 11 butchers av 509 at \$3.25; to Goose 9 do av 805 at \$3.65; to Mich. B. Co. 22 do av 876 at \$4.25, 26 do av 787 at \$4.25, 2 steers av 1,025 at \$4; to Hammond, S. & Co. 1 bull weighing 1,000 at \$3.50, 1 cow weighing 860 at \$2, 1 do weighing 820 at \$2, 1 canner weighing 610 at \$3, 1 cow weighing 860 at \$3.50, 1 do weighing 740 at \$2.50, 1 do weighing 880 at \$3, 1 do weighing 770 at \$2.50, 2 bulls av 690 at \$3.25, 1 do weighing 1,310 at \$3.50, 1 do weighing 850 at \$3.25, 3 do av 810 at \$3.25, 1 do weighing 530 at \$3, 2 cows av 1,095 at \$3.50, 1 do weighing 780 at \$3, 2 do av 1,100 at \$3.60; to Rattkowsky 1 do weighing 840 at \$3.75, 11 butchers av 752 at \$3.50, 3 do av 577 at \$3, 2 heifers av 870 at \$4.15; to Caplis 8 do av 690 at \$3.60; to Regan 2 do av 630 at \$3.50, 2 do av 450 at \$3.10; to Austin 9 stockers av 472 at \$3.40; to Rattkowsky 2 butchers av 810 at \$3.50, 1 do weighing 330 at \$3; to Regan 8 do av 460 at \$3.25; to Cartwright 23 feeders av 731 at \$3.75; to Austin 6 stockers av 453 at \$3, 13 do av 525 at \$3.40, 9 do av 691 at \$3.60; to Caplis 8 butchers av 675 at \$3.60; to Newton B. Co. 4 do av 655 at \$3.

Bishop, B. & H. sold Greene 7 feeders av 700 at \$3.75; to Bresnahan 8 heifers av 500 at \$3.40; to Johnson 7 feeders av 841 at \$3.85; to Goose 3 cows av 777 at \$3; to Kamman 4 bulls av 610 at \$2.75; to Kull 2 steers av 850 at \$4.50, 2 do av 820 at \$4; to Goose 1 cow weighing 1,210 at \$3.85, 4 do av 922 at \$3; to Kamman 7 butchers av 571 at \$3.50; to Marx 4 do av 802 at \$4.15; to Hobart 6 feeders av 720 at \$4; to Mich. B. Co. 8 butchers av 930 at \$3.75; to Bresnahan 3 cows av 843 at \$2.25; to Hammond, S. & Co. 2 bulls 625 at \$3, 2 do av 480 at \$2.75, 2 cows av 1,015 at \$3.75, 2 do av 885 at \$3.50; to Negro 5 stockers av 630 at \$3.50, 3 do av 576 at \$3.50; to Cooke 2 steers av 805 at \$4.25, 3 do av 893 at \$4.75; to Schroder 1 bull weighing 1,320 at \$3.75.

Spicer, M. & R. sold Mich. B. Co. 20 steers av 932 at \$4.40; to Johnson 2 cows av 940 at \$3.50, 5 stockers av 564 at \$3.50, 6 feeders av 800 at \$4.10; to Goose 1 cow weighing 1,050 at \$3.50, 6 bulls av 400 at \$3, 4 do av 375 at \$3; to Kull 2 do av 705 at \$2.90, 2 cows av 785 at \$2.50, 5 heifers av 646 at \$3.65; to Hammond, S. & Co. 5 cows av 983 at \$3.50, 1 do weighing 650 at \$2, 1 do weighing 420 at \$2.50, 1 do weighing 750 at \$3.50, 1 do weighing 1,000 at \$3.25, 2 av 935 at \$3, 1 weighing 1,030 at \$3.25, 2 bulls av 670 at \$3, 4 do av 537 at \$2.90, 3 do av 1,033 at \$3.50, 1 cow weighing 930 at \$3.25, 2 do av 890 at \$2.75; to Bresnahan 2 heifers av 500 at \$3.50; to Caplis 7 butchers av 740 at \$3.75, 6 do av 750 at \$3.75, 4 do av 645 at \$3.50; to McDonald 11 stockers av 516 at \$3.50; to Cooke 15 steers av 850 at \$4.50, 1 heifer weighing 590 at \$3.50, 1 bull weighing 1,120 at \$3.75, 3 butchers av 650 at \$3.75; to Schroder 4 bulls av 1,000 at \$3.65; to Dombitky 3 butchers av 618 at \$3.50, 2 do av 465 at \$3.25, 2 cows av 915 at \$3, 2 do av 885 at \$2.50; to Kull 8 steers av 891 at \$4.40, 2 do av 975 at \$4; to Sullivan 8 butchers av 1,034 at \$3.25, 2 do av 1,050 at \$4.

Kalahar sold Mich. B. Co. 3 cows av 1,050 at \$3.75.

Sandall & T. sold same 29 butchers av 766 at \$4.

Stephens sold Schroder 5 steers av 916 at \$4.50.

Terhune sold Thompson 4 cows av 1,057 at \$3.30.

Sandall & T. sold Austin 5 stockers av 564 at \$3.50.

Bohm sold same 5 do av 524 at \$3.50.

Wagner & A. sold same 2 do av 550 at \$3.50.

Haley sold Rattkowsky 4 cows av 980 at \$3.50.

Downing sold Bresnahan 11 heifers av 563 at \$3.35.

Fish & Ward sold Marx 6 steers av 643 at \$3.75.

Kalahar sold same 6 butchers av 591 at \$3.25.

Downing sold Markowitz 5 cows av 978 at \$3.40.

Haley sold Erban 1 steer weighing 690 at \$3.50.

Groff sold same 6 heifers av 626 at \$3.50.

Robb sold same 7 butchers av 575 at \$2.60, 5 do av 580 at \$3.40.

Haley sold Goose 11 heifers av 400 at \$3.20.

Haley sold Lingeman 1 steer weighing 1,340 at \$5.25, 2 do av 875 at \$4.40.

Johnson sold McDonald 15 stockers av 535 at \$3.50.

Haley sold Schlischer 14 steers av

957 at \$4.40, 11 butchers av 541 at \$3.40, 16 do av 847 at \$4.25, 3 cows av 1,040 at \$3.50, 3 bulls av 600 at \$3.

Johnson sold Regan 6 heifers av 550 at \$3.40.

Haley sold same 2 do av 440 at \$3.25, 4 steers av 707 at \$3.70.

Haley sold Sullivan P. Co. 3 heifers av 580 at \$3.50, 3 cows av 966 at \$3.30.

Fish & Ward sold same 9 butchers av 578 at \$3.40.

Sandall & T. sold same 5 bulls av 950 at \$3.30.

Haley sold same 16 heifers av 601 at \$3.40, 5 butchers av 740 at \$3.90, 18 do av 580 at \$3.50, 7 do av 640 at \$3.25, 4 bulls av 1,117 at \$3.50.

Wagner & A. sold same 4 cows av 1,050 at \$4, 2 do av 1,000 at \$3.25.

Veal Calves.

Receipts, 576. Market steady at last Thursday's prices. Best, \$9@9.50; others, \$5@8.50; milch cows and springers steady.

Bishop, B. & H. sold Parker, W. & Co. 7 av 150 at \$9; to Thompson Bros. 6 av 150 at \$8.50, 2 av 340 at \$4.50; to Mich. B. Co. 12 av 140 at \$8.75; to Hammond, S. & Co. 11 av 145 at \$9.50, 8 av 150 at \$9; to Fitzpatrick Bros. 11 av 160 at \$9.50, 1 weighing 230 at \$7, 4 av 150 at \$9.50, 1 weighing 170 at \$9; to Parker, W. & Co. 5 av 150 at \$9.50; to Fitzpatrick Bros. 7 av 190 at \$8.

Roe Com. Co. sold Goose 7 av 225 at \$5; to Parker, W. & Co. 1 weighing 120 at \$8; to Sullivan P. Co. 1 weighing 206 at \$5, 5 av 160 at \$9; to Kamman 1 weighing 120 at \$9, 1 weighing 100 at \$7; to Parker, W. & Co. 2 av 180 at \$8, 11 av 150 at \$9.

Merritt sold Fitzpatrick Bros. 6 av 155 at \$9.

Fish & Ward sold Bray 3 av 140 at \$9.

Hauser sold Burnside 3 av 175 at \$9.50.

Duelle sold same 13 av 145 at \$8.50.

Glenn sold same 3 av 155 at \$7, 8 av 150 at \$9.

Stephens sold same 3 av 175 at \$7.25.

Haley sold Goose 8 av 200 at \$4.25.

Same sold Markowitz 4 av 200 at \$4.50.

Haley sold Sullivan P. Co. 1 weighing 170 at \$5.50, 7 av 175 at \$8.50, 3 av 140 at \$9, 3 av 135 at \$9, 5 av 200 at \$4.

Clark & McK. sold same 6 av 150 at \$9.

H. A. Wagner sold Caplis 12 av 170 at \$9.25.

Haley sold same 1 weighing 140 at \$8.50.

Allen sold same 5 av 125 at \$8.50, 2 av 250 at \$5.50, 1 weighing 230 at \$6.

Haley sold Newton B. Co. 5 av 160 at \$8, 1 weighing 100 at \$5.

McLachlin sold same 4 av 125 at \$7.75.

Sheep and Lambs.

Receipts, 3,878. Good grades steady; common 10@15c lower.

Best lambs, \$6.75@7; fair to good lambs \$6.50; light to common lambs, \$5@5.25; yearlings, \$5; fair to good sheep, \$4@4.25; culs and common, \$2.50@3.

Bishop, B. & H. sold Eischrich 65 lambs av 50 at \$5; to Thompson 30 sheep av 95 at \$4.10; to Stoker 23 lambs av 55 at \$5; to Mich. B. Co. 34 do av 77 at \$6.75; to Parker, W. & Co. 71 do av 73 at \$6.80; to Thompson 9 sheep av 100 at \$3.50; to Haise 40 lambs av 65 at \$5.60; to Hammond, S. & Co. 15 sheep av 55 at \$3.50, 19 do av 75 at \$4.50; to Fitzpatrick Bros. 23 do av 85 at \$4.50, 85 lambs av 65 at \$5.25, 14 yearlings av 80 at \$5.50; to Hall 122 lambs av 65 at \$6.50.

Spicer, M. & R. sold Mich. B. Co. 49 lambs av 70 at \$6.50, 17 sheep av 85 at \$3.50, 4 do av 135 at \$4, 1 do weighing 140 at \$3, 83 lambs av 75 at \$6.35, 15 sheep av 90 at \$4, 34 lambs av 75 at \$6.75; to Youngs 62 do av 73 at \$6.25; to Bray 53 do av 72 at \$6.35; to Eischrich 10 lambs av 54 at \$5.25; to Hammond, S. & Co. 16 lambs av 77 at \$6.50; to Mich. B. Co. 29 sheep av 90 at \$3.50, 2 do av 150 at \$4, 61 lambs av 70 at \$6.60, 14 sheep av 90 at \$3.50.

Roe Com. Co. sold Sullivan P. Co. 10 lambs av 63 at \$5, 79 do av 75 at \$6.50; to Mich. B. Co. 28 do av 75 at \$6.50, 10 sheep av 83 at \$3.50, 30 do av 120 at \$4.25; to Kamman 32 lambs av 55 at \$5; to Thompson 22 sheep av 77 at \$4; to Mich. B. Co. 17 do av 70 at \$4.25; to Thompson 20 do av 95 at \$5.25; to Eischrich 38 lambs av 60 at \$5.25; to Hammond, S. & Co. 19 sheep av 70 at \$4.

Wagner & A. sold Kamman 60 lambs av 70 at \$6.25, 27 sheep av 55 at \$4.

Downing sold Thompson 25 sheep av 90 at \$3.50, 50 lambs av 60 at \$6.

McLachlin sold Newton B. Co. 21 lambs av 73 at \$6, 3 do av 120 at \$2.50.

Haley sold same 10 lambs av 60 at \$5, 76 do av 70 at \$6.25, 15 sheep av 80 at \$4.25, 67 lambs av 70 at \$6, 6 sheep av 100 at \$4.

Fish & Ward sold Bray 3 sheep av 95 at \$2.50, 26 do av 80 at \$4, 34 lambs av 70 at \$6.50, 27 do av 75 at \$6.25.

Allen sold same 93 do av 75 at \$6.35.

Duelle sold Fitzpatrick 5 sheep av 70 at \$2.50.

Merritt sold same 4 do av 50 at \$4, 46 lambs av 65 at \$6.50.

Clark & McK. sold Sullivan P. Co. 8 sheep av 100 at \$3, 44 lambs av 72 at \$6.50.

Haley sold Eischrich 21 lambs av 50 at \$4.85, 10 do av 49 at \$4.50.

Hogs.

Receipts, 3,784. Good grades steady; grass hogs 10@15c lower.

Range of prices: Light to good butchers, \$7.90@8.15; pigs, \$7.25@7.50; light yorkers, \$7.60@8; stags, 1/2 off.

Bishop, B. & H. sold Hammond, S. & Co. 65 av 150 at \$7.65, 44 av 140 at \$7.40, 524 av 180 at \$8, 394 av 190 at \$8.10, 502 av 170 at \$7.90, 77 av 170 at \$7.80, 42 av 160 at \$7.85, 127 av 160 at \$7.75, 73 av 150 at \$7.60, 57 av 155 at \$7.70.

Sundry shippers sold same 131 av 165 at \$7.90.

Roe Com. Co. sold Parker, W. & Co. 130 av 162 at \$7.60, 162 av 190 at \$8, 70 av 170 at \$7.90, 26 av 145 at \$7.50.

Spicer, M. & R. sold same 45 av 175 at \$8.10, 333 av 182 at \$8, 37 av 187 at \$7.90, 94 av 162 at \$7.70, 70 av 171 at \$7.65, 102 av 165 at \$7.60.

Roe Com. Co. sold Sullivan P. Co. 28 av 145 at \$7.25.

Sundry shippers sold same 73 av 185 at \$8.10, 83 av 175 at \$7.90, 30 av 185 at \$8.10.

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THE DAIRY

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DAIRYING AND FERTILITY.

Dr. Hopkins, of the Illinois Experiment Station, in a recent bulletin, entitled "Are Commercial Fertilizers Necessary," maintained that to permanently maintain the fertility of the soil, the farmer must purchase the mineral elements, phosphoric acid and potash; and by growing legumes which have the power of getting nitrogen from the atmosphere, he can maintain the proper amount of nitrogen, and will therefore, not be compelled to purchase it, all of which is undoubtedly true. In discussing the question of live stock husbandry, Prof. Hopkins maintains that no system of live stock husbandry will permanently maintain the fertility of the soil, because live stock husbandry does not add the mineral elements.

We grow the crops for our live stock on the soil, harvest and feed them. These crops take nitrogen, phosphoric acid and potash from the soil. The nitrogen we can put back by growing leguminous crops, but the phosphoric acid and potash we cannot put back unless we purchase from outside concerns. Now, if in feeding these crops to the animals there was no loss of phosphoric acid and potash, and we put everything back into the soil, we would gain nothing, the land would not increase in fertility. But we cannot do this; there are mechanical losses. We cannot save all the manure. We cannot put all the phosphoric acid and potash back upon the soil, even if there was no loss in feeding to the animal. But there is a loss in feeding the food to the animal because part of the phosphoric acid and potash is retained by the animal body itself. When an animal is sold from the farm, or when an animal product is sold from the farm, some of the mineral elements are removed from the land, and consequently there is a slow but constant drainage of phosphoric acid and potash. To be sure, by proper tillage, and by weathering, more phosphoric acid and potash in the soil becomes available, and the deeper down we go by actually lowering the surface of the soil thru cropping the more phosphoric acid and potash we find; and, by husbanding the mineral elements thru a scheme of animal husbandry, the process of deterioration of fertilizing properties of plant food in our soils is reduced to a minimum. Yet Dr. Hopkins is undoubtedly correct when he says that live stock husbandry does not permanently maintain the fertility of the soil. But it certainly does husband the fertility of the soil.

Dr. Hopkins goes on further and states that no farm has increased in crop producing power to any great amount by live stock husbandry, unless the farmer purchases feed from outside, from other farms instead of growing it all upon his land. This, of course, is adding plant food to the soil, just as much as it would be to buy commercial fertilizer, and this is a good way of improving a run down farm. Keep more live stock upon it than the farm will support and then go outside and buy feed, cottonseed meal, gluten feed, wheat bran, corn meal, anything of that sort and feed it to live stock. Here the good business farmer has a chance of making two profits. He has a chance of making a profit upon the feed when he feeds this feed to his animals, then he makes another profit by increasing the fertility of the soil, building up its crop producing power. We all admit that this is a good way to improve a run down farm, providing you can purchase the food. But the idea is not practical for maintaining the permanent fertility of the soil of a nation because everybody couldn't buy feed. If everybody practiced this, no one would have feed to sell.

However, Dr. Hopkins has overstated himself when he says that no farm has been increased in crop producing power to any great extent unless they purchased outside feed, by this system of live stock husbandry. I am positive that Dr. Hopkins is mistaken in this. He has overlooked that many a farm in this state, and in other states also, is run down, or has low crop producing power from the fact that the vegetable matter, or humus in the soil, has been removed by unskillful processes of farming. The land hasn't the high productive power simply because it is in poor mechanical condition, rather than from the fact that it has been greatly depleted in available plant food.

Now live stock husbandry, and especially dairying, will greatly increase the crop producing power of this land without buying feed from the outside. When you grow crops upon land and feed them to animals and return the manure to the soil, you return from 80 to 90 per cent of the plant food which the crops took out of the soil, back to the land; but more than this, you return all of the organic matter of the plants to the soil. The plant gets its organic matter, carbon, from the atmosphere and when we sell the crops from the farm, this carbon, which is taken from the atmosphere, is removed from the farm. Thus by this system of cultivation the vegetable matter is removed from the soil, which soon exhausts it of humus; while, a system of farming which feeds the plants upon the farm and puts the manure back upon the land, removes no organic matter from the farm, but adds a large amount instead. Adding to the soil, this organic matter which the plant gets from the atmosphere, improves the mechanical condition of the soil and consequently increases the crop producing power. One function of humus, or organic matter in the soil, is to render available the mineral elements, to put them in condition that plants can use them. Of course this doesn't add these elements to the soil, but it makes available inert elements and most soils contain plenty of inert phosphoric acid and potash if they could only be made available. Tillage will accomplish the same end but tillage is too costly a method to make them available. When, however, we add this carbonaceous, or organic matter, which the plant takes from the atmosphere, to the soil it causes changes therein which set free a certain amount of phosphoric acid and potash.

Then again, Dr. Hopkins, in the discussion of this question makes no difference between different kinds of live stock husbandry. There is a vast difference in the effect upon the soil fertility where a man raises beef cattle and sells these cattle from the farm, whether he is engaged in dairying and does not sell animals. Then again, it makes a difference what kind of dairying he is engaged in. Whether he sells milk, or cheese, or butter. When you sell milk from the farm, you are removing all the animal product, consequently a large amount of plant food. When you sell cheese you are removing all the nitrogenous part, and considerable of the mineral element of plant food which the plant takes from the soil; but when you sell only butter, you sell practically none of the plant food which the plant took from the soil. Butter fat is not a plant food. Like sugar it is crystallized sunshine. You can spread butterfat over the land, a good layer of it, and plow it under and it would not add a particle of food to the soil. It has been estimated that selling a ton of butter from the farm only removes 50 cents worth of fertility and if the butter was absolutely clean, there would not be any plant food removed. Dr. Hopkins does not give dairying a fair show in his bulletin. In dairying, especially when we sell butter from the farm, practically no fertility is removed, and the vegetable matter is saved to increase the crop producing power.

DAIRYING AND PORK PRODUCTION.

One of the most profitable side lines for the dairy farmer to follow, is that of producing fancy pork. The hog is capable of utilizing a greater variety of food than any other kind of farm stock. He will eat and thrive upon almost any of the products or by-products of the farm, from hay to house slops and it is to this ability to convert into money many of these products, such as skim-milk, whey, butter and damaged milk, etc., that otherwise would be wasted, that makes the hog valuable to the dairy farmer. Many dairymen who have made a success of the business of growing hogs on a small scale have concluded that hog growing on a large scale would prove equally profitable. But very few have made a success. The hog is a very profitable animal in the middle and eastern states if the number is limited to what may be necessary to consume the by-products, but I do not believe that the business can be made profitable on a large scale outside of the corn belt. Good judgment should be used in the number of hogs that are to be kept, and this must be determined by the amount of food produced and the amount of grain food that may be profitably utilized in the rations, using the waste and by-products as a basis.

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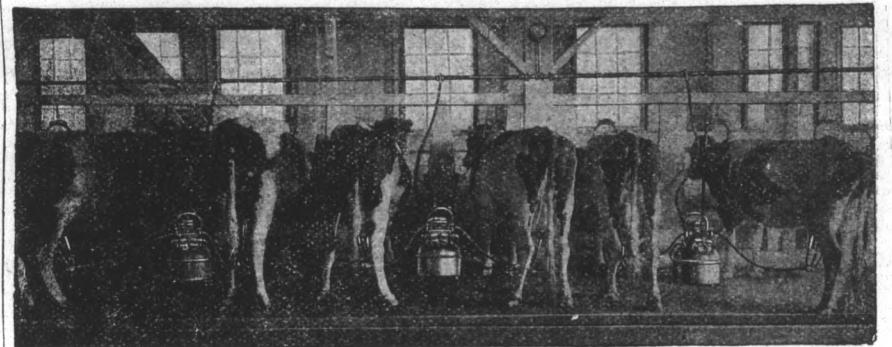
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Allegan, March 29, '09—I tried a Dairy Queen beside a De Laval, Sharples, and Omega, and bought it because it is simpler, runs lighter, skims closer and in three years use cost nothing for repairs and is as good as new.

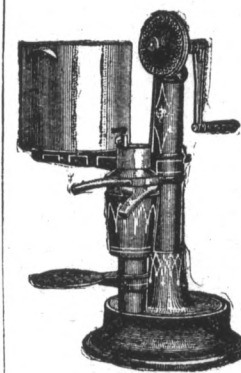
GEO. H. JEWETT.

Litchfield, May 24, '09—I have used a Dairy Queen for 4 years, it is very easy to operate and take care of, runs light and skims close and we have not been to one cent of expense for repairs.

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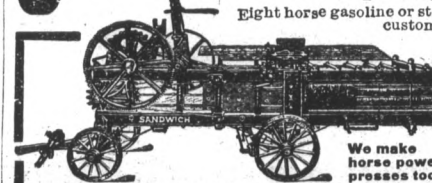
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A COVER FOR ENSILAGE, AND
OTHER QUESTIONS.

I am about to build a silo and need some facts. I wish to build it 8 to 10 ft. below the surface on the upper side of the basement barn and as much above as I will need for a small amount of stock. Does silage do well or keep well below the ground in concrete? How should the top be covered while it is curing? Would an oiled canvas be serviceable as a cover while feeding? When should the crop be gathered and what is the best length to cut it? What is the average weight per bushel? Is a silo better built frost proof?

W. H. DAVIS.

Ensilage will keep just as well below the ground as it will above the ground, if the compartment in which it is kept is air tight. When the wall below the ground is well cemented with rich cement mortar there is no trouble about keeping ensilage. I know of silos that are fifteen feet and more below the ground and the ensilage keeps perfectly. The great difficulty with having a silo below the ground is that if the ground is naturally wet, water will seep into the silo when it is not full of ensilage and then it will have to be baled out every year before the silo is filled; and again, it is very difficult to get the ensilage out when you feed. Ensilage is heavy stuff and if you go down into the ground with the silo this ensilage all has to be brot to the surface. If I was going down more than three feet (one can pitch it out to the depth of three feet without very much trouble), I would go down deeper yet and warrant the further expenditure of installing a good big bucket and windlass to elevate the ensilage. In fact, this is the only practical way of getting ensilage out of a silo that extends down into the ground for any considerable depth.

All manner of coverings have been suggested for the top of the silo after it is full. Finely cut straw, or marsh hay, or green sorghum, or anything of that sort, makes an excellent covering for the corn and you can save the corn clear to the very top if you will cover it with some such material. When I first built my silo, I thot it would be a good plan to raise a piece of sorghum to be used for this purpose. It worked all right, but when you come to think about it, corn is just as cheap a thing as you can grow on the farm. Whatever you put on top is going to spoil anyway and it might just as well be a layer of corn three or four or five inches deep, as anything else. So now we do not cover with anything. We simply fill the silo, tramp it down for about three days in succession after the silo is filled and wet it on top. The water on top not only acts as a weight to press the top of the ensilage down and exclude the air, but it also prevents the escape of moisture and helps to hermetically seal the top. Then it will hasten the formation of mold, or layer of decomposed ensilage on top, which prevents not only the evaporation of moisture, but also the admission of air. When this is accomplished, you have your ensilage so that no farther decomposition will take place. Consequently it is not necessary to cover the silo with anything. Let the ensilage furnish its own covering.

Now with the length of cutting the corn for ensilage. The shorter, or finer it is cut, the better. If you hire some one to fill your silo, the man will want to cut it in inch lengths. He will argue that it is just as well to cut in inch lengths as half inch lengths, but this is not so. He argues it because he can cut it cheaper. But you want a machine that will cut just as fast as you can get the ensilage to it and still cut it in half inch lengths, because the finer it is cut, the better it will pack in the silo and the more it will exclude the air, consequently the better ensilage you will get.

A bushel basket full of ensilage will vary in weight from 25 to 40 lbs. When taken from the top of the silo the ensilage is not so well pressed down and contains less moisture. Here a bushel of ensilage will be lighter than a bushel from the bottom of the silo which is practically saturated with the juice of the ensilage from above and has been firmly packed. Of course, when you fork it over and pitch it out for the cows, it lightens up, but never to its original bulk.

I do not think it would pay to attempt to build a silo that will be frost proof. As I have explained many times in The Farmer, frost does not seem to hurt ensilage very much, providing you leave it until it thaws out before you feed it. During a long cold period in the winter time, it is a very common thing to have the ensilage freeze so that it will stick to the outside of the silo. You simply get your ensilage from the middle of the silo

until the weather moderates. It always does in a few days and then the ensilage that is frozen onto the side of the silo is available. We simply throw this into the feeding alley in the barn where it is warm and let it thaw out before it is fed to the cows. The freezing does not seem to injure its quality, the cows eat it just as well, and without apparent injury. Where a silo is filled in the fall for the following summer's feeding, the contents freeze around the outside during the coldest weather, but if this is not disturbed and finally thaws out, the next summer when you feed the ensilage you would not know that it had been frozen. Consequently I do not believe it would pay to attempt to build a silo that would be frost proof.

WINTER DAIRYING.

A farmer said to me the other day that since butter has been such a good price during the summer time, these last few years, winter dairying does not pay so much better than summer dairying, as it did when there was a high price in winter and a low price in summer. Under certain conditions this is true. But generally speaking, the idea is wrong. Winter dairying always pays best and always will pay best. Where a man has an abundance of wild or rough land that he cannot till and use only for pasture, it may pay him to have his cows dry during the winter time and feed them upon hay and coarse fodder without any grain, and then have them freshen in the spring and utilize this pasture. Then, of course he is very much interested in good summer prices for butter. But for a great majority of farmers that have too little pasture, and they cannot afford to have very much pasture where their land is all tillable, winter dairying is the best proposition.

Take the same cow, have her freshen in October, feed her a good liberal ration with corn silage and clover hay as the bulky food and then a grain food rich enough in protein to balance up these two rough foods, keep her in a good warm place and milk her regularly, and she will give a good flow of milk all winter and when the spring comes and the grass grows luxuriantly, you can give her pasture during the flush of the season, she will flush up on her mess of milk almost like a new milch cow, and prolong the period of lactation. Now a cow kept in this way and coming fresh in the fall will give more pounds of milk in a year, than if she came fresh in the spring. When she comes fresh in the spring and is on luxuriant pasture, she gives a wonderful flow of milk. There is nothing in the world that will stimulate a large flow of milk like a good June pasture. But this pasture lasts but a short time and there is very little to take the place of it. Of course, you can have a summer silo, you can have soiling crops and that sort of thing, but hot weather comes, flies come on, etc., and the consequence is that, do your best, the spring milker will fall off in her flow of milk sooner than the cow that comes fresh in the fall, if the fall fresh cow is properly cared for. The farmer can easily care for her as she ought to be, while in the summer time it is impossible. You cannot overcome the heat in July and August. The consequence is that the spring milker drops off in her milk when the hot dry summer days and the pesky fly come. Then again, she falls off in her milk when winter approaches and she will not give as much milk in a year.

With a good silo and a good crop of corn, and clover hay, you can feed a cow just as cheaply in the barn as you can in a pasture, even if they have rough, untillable land for pasture. Consequently, your winter milk costs no more practically than your summer milk and the farmer has time to care for his cows properly in the winter time while in the summer time he is busy with the work upon the farm.

Then again, the calf that is dropped in the fall is worth more to the farmer than the one dropped in the spring. He keeps it in the barn during the winter time, feeds it regularly and it thrives and when spring comes it is large enough so that he can put it out to pasture and is relieved from caring for it, while the spring calf must be taken care of all summer long. That, too, is pestered by the flies and is affected by the hot weather and does not do as well as the fall calf.

A conclusion reached by the experiment station of Connecticut after thoroly investigating the dairy situation of the commonwealth was that dairymen were receiving too little for their dairy products.

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De Laval Cream Separators were the original and have led in every step of cream separator development. Constantly improved, they have been fully remodelled every five or ten years, the last time from top to bottom in 1908, with the finishing touches of perfected refinement added in 1909.

Other cream separators have always been merely the product of those following in the wake of De Laval success, utilizing variations of the ten to twenty year old De Laval features which expiring patents have so laid open to them.

De Laval Cream Separators skim closer, particularly at low temperature and running heavy cream; have greater actual, if not claimed capacity; run easier and at much less necessary speed; are much more sanitary and easily cleanable; are far easier handled, assembled and unassembled, and are so much better made as to design, materials and workmanship that they last from two to ten times longer than other separators.

They produce cream so much superior to other systems and separators that butter made from De Laval cream scores highest in all representative contests, which together with their other advantages, has brought about their exclusive use by more than 98% of the world's creamery and butter factories, with their thirty years practical separator experience.

De Laval Cream Separators cost no more than other separators, considering actual capacity. They save an average \$50 per year over other farm sizes of separators and an average \$100 per year over other creaming systems, and they last twenty years as against two to five years for other machines. They are sold for cash or on terms that enable their paying for themselves, and there is no payment of any kind in advance that practically binds the buyer to his bargain.

De Laval Cream Separators are the highest type of farm implement made and invariably prove the most profitable of farm investments. They are guaranteed to be in every way as represented and to fulfill every claim made as a condition of their acceptance by the purchaser. They are sold on as sound a basis as a government bond and their prestige is as solid as the Rock of Gibraltar.

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HORTICULTURE

SECURING THE ONION CROP.

The time for securing the onion crop will soon be at hand, varying from earlier to later, of course, according to soil, location, and varieties grown. Much as to the profit or loss in the crop depends upon the gathering and storing, especially the latter, as it requires no little amount of care to safely carry the crop thru the winter. With storage houses built especially for the purpose, the matter is comparatively easy; but with only ordinary shed or cellar facilities it is problematical whether autumn selling is not the safer plan. Much depends upon the prices obtainable at harvest time; and while storing has its difficulties wise precautions will insure reasonable safety in carrying over to the usually higher spring prices.

Gathering and Curing.

When the tops turn brown and wither the onions are ready for gathering. If they are well matured and the ground is clean and in good condition, they may be raked into windrows much more rapidly than thrown in by hand. Wooden rakes are best as iron or steel ones will bruise the bulbs and this will cause them to rot. In good weather they will require very little care while curing out; but in wet, cloudy times they will require stemming along the rows to hasten the curing. When the tops are well dried down and bulbs are free from moisture, cut off half an inch or more from the bulbs and gather them. Store in level piles, not to exceed two feet in depth, but never put them in conical heaps. With free air circulation they will keep nicely until cold weather. Now they will require protection and may be placed on a layer of straw, not less than two feet in depth, with a like amount over them. This will not prevent freezing but will protect against the sudden changes and prevent thawing. If they freeze they will keep without any loss whatever, so long as they are kept thus and not allowed to thaw. If required for sale, they can be removed to warmer quarters for the frost to gradually draw out before placing upon the market.

The above applies to ordinary storage places where special buildings are not accessible. A few points well borne in mind will pretty surely carry the crop safely thru the winter: Store nothing but dry, perfectly sound bulbs, do not heap them but leave level surface, use covering sufficient to prevent fluctuations in temperature.

Wayne Co.

J. E. MORSE.

EARLY FALL WORK IN THE BERRIES.

It is something of a relief to think that the harvest season for small fruits is over. Blackberries came last and they were also least, as the drought caught them and pinched the last half of the crop up so thin that we couldn't see any profits in it. We haven't many blackberries in bearing so it doesn't make so much difference, but we are thinking of planting them along a side street where there is a water main from the village waterworks. The necessary piping for irrigation would not cost much, and our lawn hose could be used to run the water to furrows between the rows, as the land is level. The water would cost about one-third cent per barrel. I should like to hear from those who have tried irrigating fruit whether this would be a paying proposition for either blackberries or strawberries.

We have gone thru the bearing raspberries and blackberries once since picking, with an Economy cultivator to loosen up the soil tramped by the pickers and kill the small weeds that are starting. We will now leave them to harden up the new canes for winter. In the younger plantations we have usually sown oats as soon as picking was over, but in the older ones the canes cover the ground and absorb so much moisture that the oats would make little growth in a dry season. We will continue to cultivate a patch of young blackberries for some time yet.

Strawberries Are Layered.

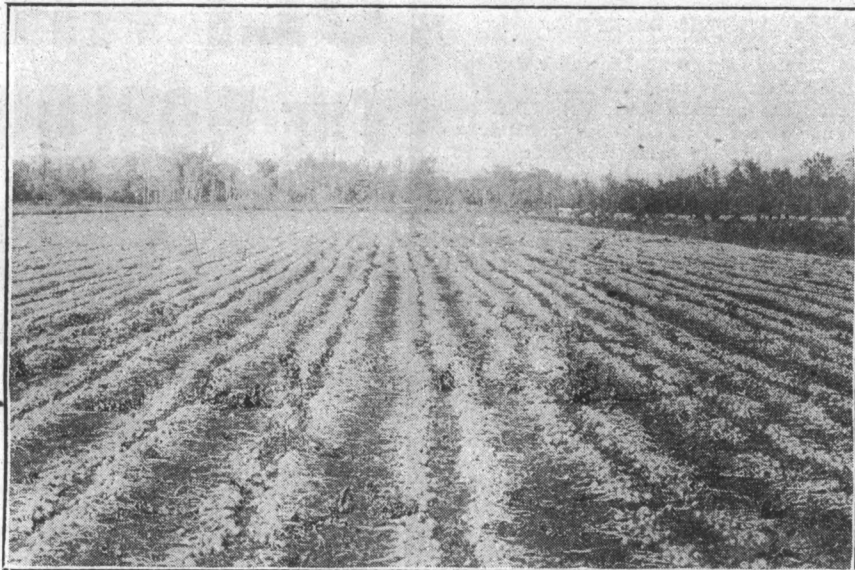
The strawberries intended for fruiting have all been layered in double hedge rows, that is, the plants which were set three feet apart each way have had two runners laid down in each direction so as to make double rows of plants about nine inches apart, which leaves

the space between the double rows about two and one-fourth feet. This method seems best adapted to our situation, which is a young orchard. It allows us four double rows of plants between the rows of trees, and we set the plants intended for a propagating bed for plants to sell and set, between the trees in the row. These latter are encouraged to spread so the plants will set over a space about three feet wide. In the spring those not taken up for plants are allowed to fruit. Next season we expect to set a patch in the open and I think shall follow Mr. Cook's method of double hedge row, viz. setting the plants in the spring so that every other space is a narrow one, the alternate rows being 16 and 32

effectually control the trouble. The disease puts in its appearance generally in August and shows a purplish or black discoloration which extends sometimes over half way round the stem. It is generally agreed that the trouble is of a bacterial origin. Cutting out and burning diseased canes would, no doubt, aid in controlling the trouble.

BLACK-ROT OF GRAPES CAN BE CONTROLLED.

A series of experiments extending over two years and carried on in four different states, including Michigan, has proven that the black-rot of grapes can be controlled by spraying. This work was con-



Field of Onions that Yielded 1,000 Bushels per acre.

inches, and layering the plants in single hedge rows. The narrow row is cultivated with an attachment to the cultivator, the horse and man walking in the wide row. This method allows of more rows to the acre and less hand work, as the narrow rows can be cultivated all the season, while the space between the double hedge rows we now have must be worked by hand after the plants are layered.

We are now working out the rows of layered plants with mint hoes as most of the sets are well enough rooted to stand this operation without being pulled out. These hoes have a narrow blade, about three inches, but we use the back almost entirely, which consists of two narrow prongs. These can be worked close to the plants without cutting roots. We would not know how to grow straw-

ducted by the department of agriculture under the supervision of able experimenters, and the conclusions reached will be of wide interest to growers of this fruit in the grape region of the state where the disease has given much concern. The following statement is a brief review of the experiments:

Several fungicides were tried, but none was found to be as satisfactory as Bordeaux mixture. It was demonstrated, however, that a 4-3-50 mixture (4 pounds of bluestone, 3 pounds of lime, and 50 gallons of water) gives fully as good results as stronger mixtures. It was found to be unwise to use more lime than is absolutely necessary, as, when used to excess, it tends to hinder the action of the copper sulphate. It was also found that five sprayings will usually produce as good results as a greater number.



Gathering the Bulbs in Crates without Removing the Tops.

berries now without these tools. The plants will probably need about one more hoeing this fall, and if there is abundant moisture a couple of cuttings of the runners.

Calhoun Co.

S. B. HARTMAN.

CANE BLIGHT.

The canes of my black raspberries turn black and die. Can you tell me what is the trouble, and if there is a remedy, what it is?

Barry Co.

CORA E. FORD.

It is evident that Mrs. Ford's raspberries are troubled with cane blight. The nature of this blight is not understood, and growers as well as scientific men have found no remedy that will

Among other mixtures tried, that known as the "neutral copper acetate" solution promises to be very satisfactory for the last application because of its nonstaining effect.

On the whole, the experiments have been quite successful. In 1907, where unsprayed grapes were a total loss, spraying reduced the loss to 28 per cent. The next season, when the rot was almost as bad on unsprayed vineyards, on the same sprayed plots the loss was reduced to less than 1 per cent. The good effect appears to be cumulative. The greatly increased spraying activity of growers, especially in Michigan, shows that these demonstrations have produced a good effect.



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Here is the most convenient and profitable fork you can own.

It is made with flat, blunt ends so that it handles vegetables and fruits without bruising them. It handles corn without the points sticking into the cob.

When it picks up a load it screens out all dirt or snow—think of this convenience especially in handling corn that has a fall of snow on top of it.

The scoop shape of this Fork holds a large load and carries it safely and easily. You can handle a large load with less labor and backache in the Vegetable Scoop Fork than you can a small load in a shovel, wooden scoop, wire scoop or any other fork made. The "hang" is responsible for this—the "hang" that balances the fork just right for its load, that makes it unnecessary for you to stoop over as far as you would with other tools, that gives you just the right angle for shoveling under the load and the right leverage in lifting it.

Besides its profitable use for handling vegetables and fruits, you will find it the most useful fork on your farm for dozens of purposes such as handling lime and coal, gathering stone in the fields, cleaning up the barn yard, etc., etc.

The True Temper Vegetable Scoop Fork

comes in eight time size for scooping into barrels or sacks and in ten time size for general use; also in twelve times for special work.

It is highest quality throughout—a tool that will last a life time—one you can be proud of. It bears the True Temper trade mark—the sign of tested and approved quality, placed there by the largest makers of farm and garden hand tools in the world.

If you don't find the True Temper Vegetable Scoop Fork at any of your dealers, write us direct.

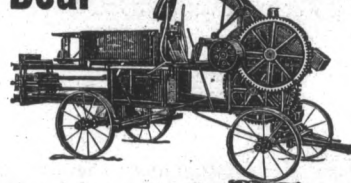
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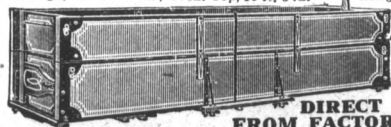
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Our Motto—"The Farmer is of more consequence than the farm, and should be first improved."

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State Lecturer's Suggestions for First Meeting.

Power on the farm and in the home, water, horse, windmill and engine. Presented by a man, discussion led by a woman.

Live stock as a factor of successful agriculture.

Reading of a favorite poem, by the chaplain.

Preparation for the fall fairs.—1. Definite details to be looked after by exhibitors.

2. Definite items to be looked for and studied by spectators.

Entertainment features furnished by boys and girls who are going away to school this fall.

A TRIBUTE TO THE FAITHFUL.

There are a few in every Grange who take the brunt of hard work; who fall into every breach; whom rain or shine do not deter from attendance; and who, tho they may not be notably gifted, are in reality the pillars upon which the Grange cause rests in their community.

Such as these deserve bouquets while they live. There is no question but that we shall lay flowers on their biers. They are entitled to our words of appreciation now; we shall be profuse in praises when their ears cannot hear. Such as these are but human and, no doubt, are sometimes assailed by discouragement and misgivings. We shall tell how we should have failed but for them, when they are gone. It is a thousand times better to tell them now. It will please and renew



Patron E. Smith and his two Children.

Bro. Smith is a very active member of Plainfield Grange, Livingston Co., and so faithfully has he allied himself to the work of this organization that in seven years he has missed but one meeting.

the courage of the worker; but even far better than that, it is good for Granges, as organizations, to cultivate the spirit of appreciation and gratitude. It is a sorry sight to see a society accepting the volunteer services of an officer or member year after year and neglecting to gratefully recognize such faithfulness, or withholding it because of petty or personal reasons.

On the other hand, to the faithful, duty brings its own sure return. President Taft once said of this fact: "There are rewards which are unknown to him who seeks only what he regards as the substantial ones. The best of all is the pure joy of service. To do things that are worth doing, to be in the thick of it, ah, that is to live."

Someone else has commented on this sort of dogged faithfulness that arouses our keenest admiration, "The reward of work well done is work and more work." But it is left to the poet, Walt Whitman, to give this that the choicest setting in these words:

"The song is to the singer and comes back most to him;
The love is to the lover and comes back most to him;
The gift is to the giver and comes back most to him—it cannot fail."

JENNIE BUELL.

IONIA POMONA'S ANNUAL PICNIC.

Seven Granges—Berlin, South Boston, Sunfield, Sebawa, Ronald, Carlton and Smyrna—were represented at the annual picnic conducted by Ionia Pomona Grange in Bosworth's grove, near Lake Odessa, last month. The excellent accommodations which the place affords, and perfect weather, contributed to the success of the meeting.

The speaking program, which consumed a large part of the afternoon, was opened by Hon. H. E. Powell, of Ionia, who addressed his remarks to the question of keeping the boys and girls on the farm. He said: "We speak in terms of loudest praise of the boy who goes to the city and, after much study and great expense, succeeds in getting a salary of one hundred dollars a month, or the girl who marries a doctor or lawyer or commercial man; but the boy who stays on the farm receives little attention, and the girl who marries a farmer boy is hardly worth noticing. This is all wrong. We must put our calling on a higher plane, we must demand and then we will get a hearing. Society has far more good things for men and women on the farm than in other vocations."

Bro. Ernest Powell, of South Boston Grange, had been assigned the topic, "What can the Grangers of Ionia county do to better the political condition of the farmers?" He said in part that the Grange must be an educational institution, building up in the minds of the farmer folks the great need of co-operation along political lines if we would be heard in the political world. Hustle for new members, then educate those members to stand as a unit in their demands for those things which are for the farmers' best good.

State Master Hull then delivered a strong and pleasing address in which he reviewed the work accomplished by the Grange in the interest of the farmers of this country and emphasized the importance of organization as a means of securing financial, educational and social advantages to the individual farmer.

Lenawee Granges Prepare for County Fair.—Lenawee County Fair has the best plan for securing an interesting and representative Grange display that has yet been devised. While this plan was described in detail several years ago it may be said that a separate building is placed in charge of Lenawee County Grange, committees appointed by that organization working out the general decorative plan. The building is divided into seven booths of equal size, these booths being assigned to seven subordinate Granges of the county which compete for substantial cash prizes offered by the fair association. The premium list is so arranged that each Grange receives an award. This year the booths have been assigned to Ogden, Britton, Rollin, Raisin, Rome, Onsted and Bean Creek Valley Granges. The prizes offered are as follows: First, \$50; second, \$47; third, \$45; fourth, \$42; fifth, \$40; sixth, \$37; seventh, \$35.

COMING EVENTS.

Pomona Meetings.

Emmet Co., with Pickrel Lake Grange, Friday, Sept. 24.
Kent Co., with Paris Grange, Wednesday, Oct. 27. Miss Ida Chittenden, state speaker.

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. H. 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.

THE RELATION OF THE PARENT TO THE SCHOOL.

Paper read by Mrs. Mae E. Hill before the Starville Farmers' Club at Fair Haven.

Since we are governed by a republican form of government, wherein the people are the rulers in reality, the government can not rise above the intellectual level of the governed. The present status of our government is the result of yesterday's schools.

I say again, that the foundation of our national existence is the public schools; and it therefore behooves us to give to the school our close and careful attention for no other subject can be of greater interest to us whether parents or not, for the schools of today will furnish the government of tomorrow.

We can not become too familiar with this subject, or study it too closely, or become too much interested in its operations or results. Therefore, a careful analysis of it today should be both pleasurable and profitable.

The public school is very like a three-legged stool, which, if by accident or wear, one leg becomes loose or useless, its usefulness is impaired.

These three supports each have a like responsibility and labor to perform. The

pupil, the parent, the teacher, are these supports. Now, if the pupils are there understanding their duty and responsibility, and the teacher is both capable and discerning, the school may yet fail of its full measure of usefulness, because the parent fails to perform that part which logically belongs to him.

Now, what is the relation of the parent to the school? I hold that these relations and responsibilities are likewise three-fold: First, to the district, second, to the pupil and third, which is fully as important, to the teacher.

The parent fulfils his responsibility to the district by paying his taxes and attending such meetings as are held in the interest of the school and using his influence for the advancement of the school as a whole.

Every child in the United States has a right to a public school education and to obtain full value must needs be given full opportunity to attend school and be equipped with such books and accessories as the case may demand. The parent's duty to the child is not fulfilled unless these privileges are granted to the full. While we have a truant officer, a compulsory law and wideawake teachers to report delinquents, I advocate the parent's duty to the child to be, that he not only be allowed, but encouraged to attend every day, when health will possibly allow.

It is possible that I see this the more clearly from the fact of my long association with the school room; but pupils, who attend irregularly, do not, can not, hold the same interest or acquire the same amount of knowledge, to say nothing whatever of habits of regularity and punctuality.

Pupils not properly supplied with books, etc., are a nuisance to themselves and the whole school. It is not only a duty to the pupil himself, but to the school as a whole to see it that the children are properly supplied.

You will say, now I've paid my taxes, sent my children regularly and properly equipped, so have done my duty. Well, have you? Let us see. Here is a teacher, a perfect stranger, a capable instructor, having 40 or 50 pupils of as many different dispositions, habits, training, ability and peculiarity. Perhaps, if conscientious and hardworking, in the course of two years he may come to know them in a way; but he can never know them as the parent does or should.

Now, is it not your duty to him, to acquaint him with any peculiar trait or characteristic, or fault, or mental or physical weakness, which your child may have, which would enable him, better and more quickly to obtain the object sought, namely, the advancement of the child's education?

His aim and yours are identical altho you direct your efforts from entirely different standpoints. You should become acquainted with him, both in and out of the schoolroom, and sympathize with, and second his efforts in every possible way—and above all do not criticise him in the presence of the pupils.

Then you owe it to yourself to know, by personal observation, what he is doing, how he is conducting his school, what influence he is wielding over your boys and girls. Then if you have any fault to find or advice to give, let it be done in a spirit of kindness, face to face, and not second hand.

How many of us, parents, have visited our respective schools, except on some special occasion, during the past year? I for one, must plead guilty. Nevertheless, I know my duty and I sincerely believe if we each, fathers as well as mothers, would get into the habit of dropping in, occasionally, at the schoolhouse, getting better acquainted with pupils and teacher, we would have less fault to find and soon see a material uplift in the tone of the school and the quality of the work done there.

Let us resolve, as members of this club, to fulfil our obligations to the public school more fully in the year so soon to begin.

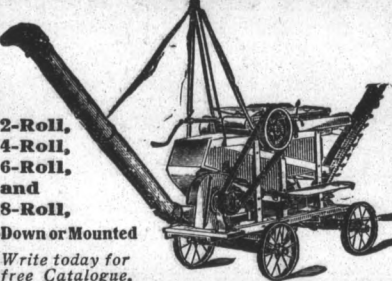
FARMERS' CLUB FAIR.

The fourth annual fair of the Grosse Ile Farmers' Club will be held on their grounds near the railroad station on Grosse Ile on Labor Day, Monday, September 6. As usual, elaborate arrangements have been made for this event, and a large number of classes have been provided with a committee in charge of each class. A regatta will be held on Saturday afternoon, September 4. Athletic sports are also scheduled and music will be provided by the local orchestra and Koon's Brass Band. Altogether this fair promises to be the premier event of the kind for the season, since previous successes have demonstrated the ability of this Farmers' Club to put on a first-class fair.

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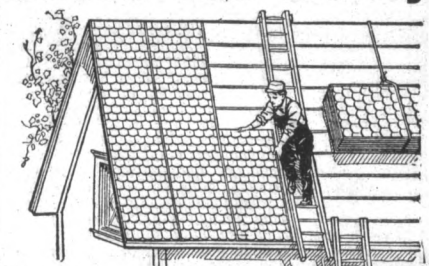
that under the same conditions as to power and speed applied, condition of corn, etc.,

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will do more and better work than any other machine of like character and corresponding size on the market; that it is simpler in construction; easier in every way to operate; easier and safer to feed and requires less power for successful operation. The proof of these claims is sent for the asking.

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Saves You Money



Fire Proof. Easy to Put On

A steel shingle roof costs half as much as best cut wood shingles, and about the same as high-grade 3-ply prepared roofing. But it wears four times as long as wood shingles and six times as long as composition roofing.

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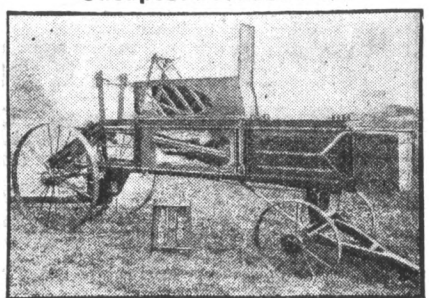
are stamped in sheets of finest Bessemer steel, 5 to 10 feet long, covering width 24 inches, either painted or galvanized. Can be laid with hammer and nails. No soldering. No tarring. A boy can do it.

\$10,000 Guarantee Bond Against Lightning. We will refund amount paid for our steel shingles if your roof is damaged by lightning. Cheapest kind of fire insurance.

Buy at Factory Prices. We are largest makers of iron and steel roofing and pay the freight on all Steel Shingles; Plain, Corrugated, V. Crimp Roofing; Imitation Brick Siding, etc. Send size of roof and we will quote our lowest factory prices delivered, and mail free catalog No. 53. Write today.

THE EDWARDS MANUFACTURING CO.
913-933 Lock Street, CINCINNATI, OHIO

\$300.00 THE FAMOUS EMPIRE All Steel Hay Press. Cheapest because Best



Leverage 18 to 1. Feed Opening 60-in. Standard Bales. Best for Straw. Ready to work in 10 minutes, simplest and strongest Press made. Absolutely guaranteed. Write for circular to BLUE MFG. CO., Fostoria, O.



Elkhart Buggies
have been sold to the consumer
For Thirty-Six Years
May We Send You Our Large Catalogue?
Elkhart Carriage & Harness Mfg. Co.
Elkhart, Indiana

Greatest BUILDING MATERIAL OFFER Ever Published!

\$650 BUYS THE MATERIAL TO BUILD THIS HOUSE

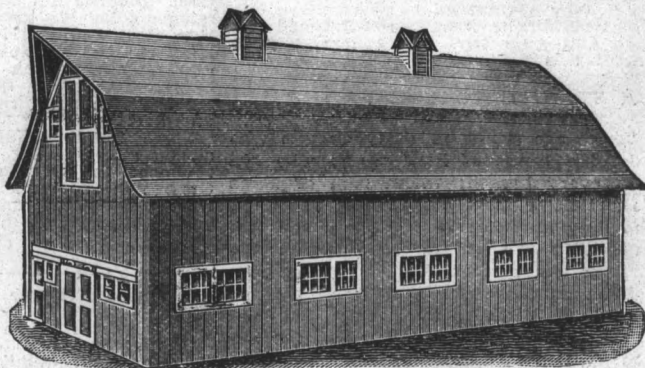


¶ This is our leader, the best seller of any house ever designed anywhere, by anybody, at any price. Why? Because it comes nearer to filling the requirements of a home than any house of its size ever built. It is 23 ft. wide and 33 ft. 6 in. long, not including the porch. It has seven rooms, bath, pantry and a large front porch. It is of handsome appearance and symmetrical proportions. It is magnificently lighted and perfectly ventilated. Embodies every modern comfort and convenience. Our extremely low price makes it the best bargain proposition on the market. We cannot recommend this design too highly. Even if you don't need a home, build this home for an investment. You can sell it 10 times over before it's finished. This is our house design No. 6; refer to it by number when you write.

\$498 BUYS THE MATERIAL TO BUILD THIS BARN

¶ The above is an illustration of our famous Joist Frame Barn. It is the most practical and serviceable barn ever designed. It may be built at a price very much cheaper, and has more available space, than any other style. We can supply this barn in six different sizes, all of the uniform width of 36 ft. The above quotation covers a barn 36 ft. wide by 48 ft. long and 18 ft. high. The roof is of the self-supporting type, there being no posts in the hay loft. There are 6 windows on each side, 3 in each end, and 2 in each gable, so the barn is thoroughly ventilated. Our price covers all the lumber, mill work, hardware and nails required to complete this building from the ground up. We can also furnish this design in larger sizes.

Refer to this Barn as Design No. 221



We Have Houses Ranging from \$290 to \$1300, Barns from \$200 up

¶ Of all wonderful offers advertised, this unquestionably is the greatest. The Chicago House Wrecking Company offers to sell you a saving of from 25 to 50 per cent all the building material needed to construct the house and barn shown above. This means we are absolutely leaving out all middlemen's profits and are dealing direct with the consumer. Our ideas are absolutely original, and no other firm in the world has ever before advertised to completely supply the material such as is offered herewith. We are the largest concern in the world selling lumber and building material direct to the consumer. We propose to furnish you everything for the construction of these buildings as outlined in our offer. It will be in accordance with specifications which are so clear that there can be no possible misunderstanding. Our prices as given above means for the material all correctly laid out in accordance with our plans and specifications.

¶ We will furnish you an itemized material list. We will also supply blue prints, architect's specifications and full information needed to properly and economically erect these buildings.

This is not an experiment with us. During the past year, we have sold upwards of five hundred complete houses and barns. All the material is stored right in our main warehouse and yards at Chicago, ready to ship promptly upon receipt of your order. We guarantee every stick furnished to be absolutely brand new. Don't pay any attention to what jealous lumber dealers or unscrupulous merchants may tell you to the contrary. We would not dare to advertise any false statement. If you buy a building and receive any material that is in any way, shape or manner to the contrary of our general and specific representation, we guarantee to take back such material at our expense and replace it with material strictly in accordance with our description, or to refund you the full purchase price of same, or make such adjustment as meets your entire approval.

¶ As to our terms: They are as liberal as any one can ask for. If you do not want to send money in advance, we will make shipment, to be paid for after it reaches destination, provided you furnish us with absolutely satisfactory bank references.

¶ Our literature explains, fully, our operations. On application

we will furnish you the names of hundreds of satisfied customers in all parts of the country. On request we will quote a price delivered, freight prepaid, at your railroad shipping point, thus there will be no question as to the ultimate cost of the material. You will know all the facts before you buy. We are not asking you to buy a "cat in the bag." You will see what you buy with open eyes, and we will prove our terms as liberal as you can possibly ask for.

¶ We secure many standard stocks of lumber, building material and merchandise at various forced sales, besides controlling large quantities of the lumber secured direct from mills in the North, South and Pacific Coast.

¶ Our yards cover over forty acres of land. Our institution is known everywhere. When you deal with us you are saving big money. Thousands have saved in the past and are now our steady patrons. It stands to reason that we are bound to give you a square, honorable deal. We are business men and recognize the meaning of a satisfied customer. If you deal once, you will buy from us often. Write for detailed information.

BLUE PRINTS FOR ANY OF OUR DESIGNS FREE TO PURCHASERS

¶ We will furnish you blue prints for either of these designs or for any of the designs shown in our "Book of Plans" without one cent of cost to you, provided you place the order for the bill of material with us. It will be accompanied by working plans and material list. The itemized material list accompanying same is complete, both in the description of the material used and also in describing the purpose for which each item is intended. If purchased in the usual way from the architect, these plans would cost from \$25.00 to \$75.00. With the aid of our plans, specifications and material list, anyone reasonably familiar with building construction can superintend the erection of his own house or barn at a great saving.

¶ Our Plan Book, a description of which is given below, illustrates many other designs in houses and barns. You will find that our houses can be built for such purposes as will bring you in good returns for your money, even if you have no intention of living in the house yourself.

¶ If you buy the building material from us, at our specified prices, we will furnish you the plans, specifications and material list without charge. If, however, you prefer first to receive the plans and study the possibility of applying same for your own particular use, then we make you the following proposition:

¶ We will furnish you with a set complete for either of the buildings above or for any of the buildings shown in our "Book of Plans" referred to elsewhere in this advertisement for the sum of \$2.00, which amount you can remit to us and the complete set will be sent to you, all carrying charges prepaid by us. Upon receipt of them, if you decide to make the purchase of the full bill from us, then we will allow you \$2.00 to apply towards our price. If for any reason you decide not to use the plans and prefer to return them to us within thirty days after receipt, then we will refund you \$1.50; thus making the information cost you only 50 cents. We assure you this does not pay for the expense involved.

Hot Water Heating Plants, Steam Heating Plants, Plumbing Material



¶ We will furnish a complete Hot Water Heating Plant for the design No. 6, shown above, consisting of Sectional Hot Water Heater, handsome Cast Iron Radiators, all necessary pipe, valves and fittings, including a complete set of blue prints, working drawings and complete specifications, so simple that any ordinary mechanic handy with the use of tools can easily install plant. We will also loan the necessary tools needed in putting in such a plant. At the same time we will furnish you with a written, binding guarantee, covering 365 days, making you perfectly safe as to the quality of our material.

¶ We will supply all the above for the sum of \$216.50; or we will furnish you a Steam Heating Plant, similar description as above, for the sum of \$180.80. Every bit of material used in these plants is guaranteed brand new and first-class in every particular. We furnish all needed Plumbing Fixtures for House No. 6, shown in this advertisement, and consisting of Bath Tub, Closet, Washstand, Kitchen Sink, and including all necessary pipe and trimmings complete to install everything needed above the ground, for the sum of \$97.50. Bathroom Outfit like illustration is \$37.50.

¶ Any mechanic handy with the use of tools can install both the plumbing and the heating material in this house. - We can also quote you prices for the installation of Plumbing and Heating for any of the designs shown in our "Book of Plans."

¶ We will furnish you the paint needed for House Design No. 6, shown above, including hard oil finish for interior, two coat work, and including porch floor paint, for \$26.50.

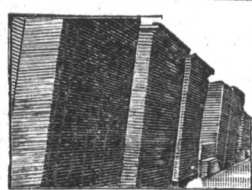
¶ We will furnish a Hot Air Furnace outfit for design No. 6, full specifications of which will be furnished you, for \$99.30.

¶ Our special Heating Catalog explains fully just what we include on all heating jobs. We can supply Heating Apparatus and Plumbing material for any house, new or old. Write for our descriptive matter and handsomely illustrated booklet.



LUMBER and BUILDING MATERIAL at 25 to 50 Per Cent SAVING

We say to you positively that no matter what your wants in the line of building material, we can supply it, and always at a saving. This statement is backed by any number of unsolicited testimonials from those who have taken advantage of our liberal offers of the past. Especially do we urge you to act now. Never in years has lumber been offered at such low prices as we are offering it for at the present time, and it is good lumber, too, first-class, right up to grade, and as good or better than that carried by any local dealer anywhere. Every stick of lumber that



we sell is new. Nothing "wrecked" about it. It is as good as can be bought. We haven't a piece of second-hand lumber in our stock, and if we did have it we would not sell it by mail. We are selling only new, clean stock, no shop-worn material, and all our grades are guaranteed.

Then, our MILL-WORK. You cannot improve its quality. It's as good as anyone wants. It's better than 90 per cent of the dealers have for sale. We can furnish you every single thing you may need in the line of Doors, Sash, Mouldings, Sideboards, Mantels, Interior Trim, or anything else. In other words, each and every article that comes into the construction of a building of any kind, and that includes also Structural Iron, Iron Beams, Iron Columns, or anything else in the iron line.

We have a complete stock of ROOFING MATERIAL, both tin, steel, iron and ready-roofing. We can furnish you shingles in all grades,

everything in the way of plumbing and heating material. We can supply your wants in Builders' Hardware at a saving of 25 per cent or more. We mean your Nails, your Builders' Hardware and your Tools. And so it goes all the way down the line of material you need. We save you money everywhere, and the way to convince you of this fact is to have you submit to us a list of building material that you are in the market for. Let your carpenter or contractor, or whoever has charge of your building operations, hand us a list of the material you need, and we will give you a prompt estimate. We will, on application, name you prices, freight prepaid.

We will show you by actual proof that we can do everything we say in this advertisement. There isn't a single overdrawn statement in this advertisement. Send us today your list of lumber and building material. Give us an opportunity to figure with you.

OUT OUT THIS COUPON!

CHICAGO HOUSE WRECKING COMPANY, Chicago

Send me free of all charges:

Your complete General Catalog No. 28

Your Special Book of House and Barn Plans

Your Book on Heating and Plumbing

If you desire to send for plans at once, fill in this space.

Enclosed find \$2.00 in _____ for which send me your

complete set of blue prints, plans and specifications for design No. _____

I am interested in the following items: _____

Name _____

Town _____

County _____ State _____

P. O. Box _____ R. F. D. _____

OUR FREE BOOK OF PLANS

¶ Our Book of Plans is unquestionably the finest publication of its kind. It shows, true to life, about fifty houses and barns, describes them in a general way, and shows the first and second floor designs of all houses and interior suggestions for all barns; gives price complete and at the same time shows the additional cost of plumbing, heating and painting. Even if you have no immediate intention of building, you must send for this book. Fill in the coupon to the left and we will send it to you at once.

¶ Complete Blue Prints of any of the designs are furnished at \$2.00 each with privilege of returning same and receiving a credit of \$1.50, so the net cost would be but 50 cents. Or keep the Blue Print, and when you purchase your building material from us for the complete construction, we will give you credit in full for the \$2.00 charged you for the plans.

CHICAGO HOUSE WRECKING CO., CHICAGO

FREE Mammoth Catalog No. 28

¶ Our mammoth General Catalog containing 10,000 bargains of merchandise for the home, the field, the factory and the office. Represents our complete stock bought at various Sheriffs', receivers' and Manufacturers' Sales. Gives illustrations and explains our quotations. Tells all about our wonderful stock. It is a price maker in every sense of the word. You will find that in every instance we undersell regular merchandise houses. Goods are described for just what they are. There are some 450 pages of interesting quotations and reading matter. You will also find that we show our RUGS, CARPETS and FLOOR COVERINGS in their natural colors, so that you can see just what they look like after you receive them. You must write us for this book at once. It cost about \$1.00 to place a catalog in your hands, but we mail it free of all charge if you fill in the coupon to the left.

