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WHAT purports to be a rather serious peach disease, particularly in neglected orchards, was found in Indiana for the first time during the summer of 1915. The damage was confined to a rather limited locality in the southern part of the state.

The disease appeared first on the foliage where it might easily be mistaken for spray burn or shot-hole fungus. The infection being equally severe on sprayed and unsprayed trees led to the conclusion that the cause of the trouble was bacterium pruni, which proved to be the case.

The foliage infection began to manifest itself about mid-June, causing the leaves to become riddled as if by buckshot, although the holes were seldom round and regular of outline but quite angular. Infected leaves soon dropped

A New Peach Disease

By JOSEPH OSKAMP

leaving the trees almost defoliated, except for the very youngest growth. Some fruit began to drop also, but this was plainly the result of defoliation.

It was not until the latter part of July that the disease appeared to any extent on the fruit. Here the early infection was quite similar to that on the leaves. Small, depressed, brown, angular lesions were found about the size of scab spots and larger. These often coalesced, forming considerable depressions and unsightly cracks.

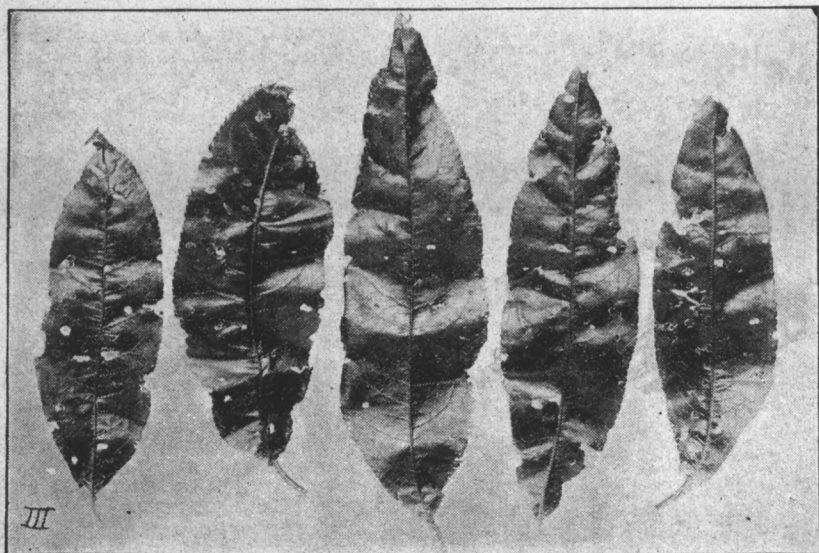
The crop prospects in infected orchards looked very dark at this time and probably would have continued so but for the timely interference of un-

seasonably cool weather which seemed to check the development of the advanced stages of the disease. The summer was one of the wettest on record and no doubt the humidity materially aided its early virulence. The disease, however, continued to spread, mildly infecting about 70 per cent of the fruit at harvest time, but the infection was not sufficiently concentrated on single specimens to render the crop unsalable.

Although the disease being of bacterial origin does not readily yield to spraying, observations made in infected orchards show that it is not beyond control. It was found that trees situ-

ated on the higher and thinner land were the first to succumb, while trees on the most favored soil locations were almost free of infection. Trees weakened from any causes as borer injury or winter injury were very susceptible.

Here we have the key to control—keep up the vigor of the trees by spraying, pruning, cultivation and fertilization. Leguminous cover crops could be introduced into the scheme of orchard soil management to advantage. Manure applied to the poorer portions of the orchard would do much to stimulate the weaker trees. Heading back will promote thrift and vigor. The timely worming for borers and needed spray applications, particularly the winter spray, will subdue insects and fungous diseases which sap the vitality of the tree.



Manifestations of the New Peach Disease.

Fig. 1.—Peaches showing the early stages of infection on the fruit. The small dark, angular spots might be mistaken for scab by the casual observer but for the fact that they are generally depressed. Fig. 2.—Bacterium Pruni on the peach in its later stages. The angular spots often coalesce and form unsightly cracks. Fig. 3.—Peach leaves infected by Bacterium Pruni. The small angular spots and holes are characteristic. The spots being brown there were many more that the camera did not get. Fig. 4.—Elberta peach tree defoliated as a result of infection by Bacterium Pruni. Note that nothing but the youngest foliage persists.

PROBABLY nineteen out of every twenty acres of new ground is broken in the spring and for a hoed crop—corn, potatoes, beans, etc.

The idea is very prevalent that the best way to kill out the brakes, briars, sprouts, etc., is to cultivate the land the first year. It is also true that the average farmer leaves the patch of new ground until just before plowing time in April or May before he clears it—puts it off as long as he can then hustles the clearing, most frequently by burning every possible bit of trash, leaves, etc. It is plowed just in time to stir up the roots and cause them to put forth redoubled energy to repro-

Breaking New Ground

duce their kind. As a result the farmer has a hard fight all summer and if he fails to keep them down very little headway toward their extermination has been made. To paraphrase a Biblical expression: "The second stage of that field is worse than the first."

Time and time again I have seen fields of beans and potatoes on new ground so infested with brakes and briars that the slow, expensive operation of chopping them out with hand hoes had to be resorted to some two

or three times during the season in addition to lots of plowing. The thoughtful farmer realizes that such work makes the crop cost more in most cases than it is worth.

There is a better and a cheaper way. It is simply this: Break the land in late July or August, disc and harrow down to as good a seed bed as possible and sow a thick seeding of rye and sand vetch—a bushel of rye and 15 to 25 pounds of vetch per acre. Always inoculate the vetch seed. Then turn

that under the following May for corn or other hoed crop.

Do you ask "Why?"

The reasons are simple. Everyone knows that vegetation plowed up and roughly treated in late July or August rarely fails to die easily. By the time the roots have been turned up and cut and dragged out to more or less exposed positions and left exposed in hot dry weather, there is little danger of their doing any more growing. Hence there is no expensive hand-work necessary to kill them.

Another reason for this method is that a fine crop of green vegetation is (Continued on page 67).

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DETROIT, JULY 22, 1916

CURRENT COMMENT.

Federal Aid for Good Roads.

The Bankhead Bill providing for the extension of federal aid to road building has passed both Houses of Congress and received executive approval. This bill appropriates \$75,000,000 to aid the several states in improving their public roads used in the postal service, and an additional \$10,000,000 for use in the survey, construction and maintenance of roads within the national forests when necessary for the use and development of resources upon which adjacent communities are dependent. Of the \$75,000,000 appropriated for the construction of rural post roads, \$5,000,000 will be available for the fiscal year ending June 30, 1917, \$10,000,000 for 1918, \$15,000,000 for 1919, \$20,000,000 for 1920 and \$25,000,000 for 1921.

The allotment of this federal fund to the several states will, under the terms of the bill be made by the Department of Agriculture in the following manner: One-third in the ratio which the area of each state bears to the total area of the country, one-third in the ratio which the population of each state bears to the total population of the country as shown by the latest available federal census, and one-third in the ratio which the mileage of rural delivery routes and star routes in each state bears to the total of such mileage in the country at the close of the preceding fiscal year.

The bill includes provision for the maintenance and repair of roads built with federal aid after they have been constructed, the penalty for the non-enforcement of this provision being the withholding of further federal funds where the work of maintenance and repair of roads already built has not been done to the satisfaction of the Secretary of Agriculture. Under the bill the several states receiving federal aid will be obliged to appropriate a like sum for a similar purpose. The work of construction and supervision will remain in the hands of the state highway departments, but provisions are made for adequate federal inspection.

One of the great benefits of the realization of this dream of good roads enthusiasts for many years will be the making available of experienced gained in any part of the country to the road officials of every other section. Another benefit will be the standardization of engineering and construction methods, thus eliminating a large proportion of the enormous waste of money on poor work done by local highway officials. The essential spirit of this law is co-operation of federal and state departments, and naturally a similar co-operation will be brought about in the lesser municipalities of counties and towns in which road officials di-

rect the actual work of road construction and maintenance.

The monthly report of co-operative extension County Agent Work. work in agriculture and home economics compiled by the state leader, Dr. Mumford, gives a detailed account of the activities of county agents during May in the twenty-two counties of the state now having county agricultural bureaus.

This report indicates that during the month, or from May 6 to June 3, 1150 calls were made on these county agents in their offices, while they received a total of 1421 telephone calls for information from farmers within their territory. During this period the county agents wrote 2519 letters in response to inquiries, mailed 1793 copies of circular letters, wrote 48 articles for the local press and distributed 1429 bulletins. In addition the county agents spent a total of 493 days in the field during the period above mentioned, made 1465 farm visits, visited 68 demonstrations at which 65 meetings were held with a total of 515 farmers present; 161 other meetings were attended, at which there was a total of 7583 farmers in attendance.

The state leader visited three county agents and a total of 11 counties, addressing seven meetings with an attendance of 1180 during the period covered by the report. The assistant state leader visited seven county agents during the month, and extended aid to several new agents in outlining their projects. He also visited thirty farms, thirteen demonstration farms, and addressed eleven meetings at which there was a total attendance of 550. In accomplishing this work Mr. Cook traveled a total of 1915 miles by rail and 500 miles by automobile.

Space will not suffice for a detailed report of the activities of the county agents; in a general way much of this work has had to do with outlining the proper methods of growing potatoes and alfalfa in localities covered. Soil problems and demonstrations in the use of fertilizers on soils is being taken up in a number of southern counties. Much progress in the organization of live stock interests was made during the month, particularly in the organization of cow-testing associations.

The reader will at a glance be impressed with the fact that the county agents are finding plenty to do in the various counties in the state where they are located. Other counties should get in line to participate in the benefits derived from this work at the earliest practical date.

The Strenuous Harvest Season.

Owing to the late spring which delayed getting in the spring crops, and the subsequent warm weather, which made it almost imperative to secure the hay while the spring crops were suffering for cultivation, most farmers have found the past few weeks a very strenuous period. This situation has been aggravated by a shortage of day labor in most sections of the state so that the average farmer has been obliged to choose between the tasks confronting him, as it was impossible to accomplish all the work which needed doing just at this time.

It is interesting to take a drive through the country and note the choice in this respect made by different farmers. The general tendency has been to delay the haying past the time when it should be done in order to get the growing crops cultivated. Some few farmers rushed the haying to completion and let the cultivating go until the hay crop was secured. Where the soil had been properly prepared before planting the spring crops, present appearances indicate that these farmers made the best choice, since the thorough fitting of the ground and surface working with harrow and weeder kept the crops growing in good shape, and the subsequent culti-

vation has freed them fairly well of weeds.

This brings up a question in farm management which is most important. In planning the crop rotation, it is the part of wisdom to select crops as far as possible which will not interfere with each other at the critical time and all of which can be fairly well cared for with the regular supply of farm labor. Of course, it is impossible to guard against every emergency of this kind, but a careful study of this matter of crop rotation will do much to lessen the harvest season rush upon the average farm.

In this connection it would be a wise move for every farmer to carefully study the proper relation of live stock to cash crops upon his farm. By increasing the live stock kept upon the farm to its maximum carrying capacity the area of cash crops could be somewhat reduced, and with the increase in soil fertility which would result from the increase in live stock, the source of revenue from cash crops need not be greatly reduced, especially if supplementary fertilization is practiced. With the increase in the cost of labor, maximum yields are essential to a good profit, and it is better to reduce the acreage of cultivated crops and increase the yield, at the same time carrying more live stock, which has become increasingly profitable in recent years.

It is impossible to lay down a general rule which will apply in all cases; every farm is an individual problem, and in planning for its efficient operation there is a broad field for the demonstration of efficiency in farm management which is, when all is said, the basis of agricultural success.

Efficiency in Organization.

Wherever organization has been attempted among farmers, its success has depended not a little upon the efficiency with which the organization was built up. From present appearances it would seem that the organization of Michigan milk producers is being built on an efficient plan. The employment of a well-known dairyman and competent executive as field secretary under a scheme of financing which when fully worked out will insure funds for conducting a three-years' campaign promises much for the success of that organization.

Strong central organization properly financed is most essential in the conduct of a campaign embodying as in this case several important objects, most notable of which is educational work to be conducted among dairymen and consumers, a legislative campaign looking toward the proper protection and fostering of the dairy industry and last, but not least, general co-operation of dairymen in the marketing of their product on an equitable basis. The success of this central organization now seems assured, provided it has the right sort of support from the dairymen of the state.

The first essential in such support is the organization of local milk producers' associations in every community where dairying is a prominent industry. In our last issue mention was made of a bulletin recently issued by the State Office of Markets at East Lansing, Mich., which will be of material aid to the leading dairymen of any community who will take the initiative in effecting such an organization. Interested dairymen in every community should write for this bulletin at once, and also to the field secretary of the Michigan Milk Producers' Association, who will be glad to extend personal aid in the building up of local milk producers' organizations throughout the state.

HAPPENINGS OF THE WEEK.

National.

The Mexican Situation.—It has been officially announced at Mexico City that the differences between the United States and Mexico have been satis-

factorily settled. Bandit Villa continues to add to his forces and is advancing toward Chihuahua. All communication south of this city has been cut off and Villa has divided his force numbering 8,000 men for attacks on Torreon and Parral. It is reported that Villa is friendly toward the Americans and is devoting all his efforts to overcoming the de facto government. The activity of the bandits along the border is becoming more general, and the American troops are fully prepared for bandit raids. The Thirty-first Michigan regiment is in camp at El Paso, Texas, where Villa may make a border attack.

The House and the Senate have agreed on disputed points in the pending postal bill. The long standing row over the manner of paying the railroads for carrying mail was settled by referring it to the Inter-state Commerce Commission to determine the method of payment. It is also agreed that more than \$1,000,000 of disputed back pay will go to rural route carriers.

Boys belonging to agricultural clubs in Michigan are in camp on the M. A. C. College field. Under the direction of their leaders the boys carry out a full program of instruction and athletics each day. The morning is occupied in the study of agriculture on the College farm while the afternoon hours are devoted to sports which include swimming lessons.

Paul Smith, 33 years old, vice-president of the Chalmers Motor Co., was killed by falling from the window of his room in the tenth floor of the Hotel Biltmore, New York City. Nervous breakdown and vertigo are supposed to be responsible for his death.

The Rockefeller Foundation has offered the city of New York \$50,000 to be used in an effort to stay the progress of the infantile paralysis epidemic. The government physicians have opened offices and a staff of fifty, including twelve surgeons, will be active in the control of this plague. Since the epidemic started June 16 there have been 1,853 cases reported of which 369 have been fatal.

The German submarine Deutschland has been inspected by United States naval authorities who found no evidences of guns or torpedo tubes, and have therefore passed it as a merchant ship. It has been tied at a specially prepared dock in Baltimore harbor and has unloaded its cargo of dye-stuffs and re-loaded with nickel and rubber.

The United States collier Hector was wrecked near Cape Romaine, South Carolina, in a gale which blew from 110 to 120 miles an hour. All on board numbering 102 men were rescued by the tug Wellington after six hours of hazardous work.

Thomas Mott Osborne returned to Sing Sing as warden amid the cheers and celebration of sixteen hundred convicts. Mr. Osborne relinquished the wardenship six months ago to defend himself against charges with reference to his management of the prison.

Gen. Cipriano Castro, former president of Venezuela, has been ordered deported from the United States. The charge against him involves moral turpitude. This is the second time that Gen. Castro has been ordered deported from this country.

Sharks continue to be a menace along the New Jersey coast. At Mat-tawan a man and a boy were killed and another boy so wounded that he may die. The United States government has established a patrol along the coast and will work out means of getting rid of this menace.

Foreign.

The European War.—The Allies continue their advances on the eastern and western fronts. The British have overthrown Germany's second line of defense in France, but on the Somme the Germans are still strongly entrenched. It is reported that these advances are causing great anxiety in Germany as the German officers felt sure that the second line would hold. The Russians have made some gains in the Riga district and also have pushed the Turks back in Caucasus. London reports nine more British vessels sunk by German U-boats. Along the Suez canal the British columns have been successful in subduing Turkish and Arabian bands which have been making raids in that vicinity.

The Irish situation is growing worse, the Sinn Fein becoming active again. This movement is endeavoring to prevent the compromise bill for Irish government from being a success. This armed uprising may however, alienate British opinion and bring the entire Irish negotiations to ruin.

Prof. Elie Mitchnikoff, the famous bacteriologist, died of heart failure at Paris, July 15.

Wasted Energy

WE all have to admit that anything used unnecessarily is wasted. Therefore a person using up energy unnecessarily is wasting it.

Farmers, in great numbers, fall into the habit of doing this very thing. Perhaps they have a very good excuse considering the nature of their business. It sometimes seems more than necessary to rush things upon the farm.

Aware of the fact that if we are to get profitable yields from our acres, we must have them sown to their respective seeds at a certain date, it is only natural for us to try and accomplish the task. Let a farmer be handicapped by unfavorable weather at this time and he hardly can be blamed for becoming somewhat frantic in his efforts.

Again, he may have large fields ready for the seeder when signs of an approaching storm period seems to necessitate unusual haste. The farmer doesn't relish the idea of having his dry hay or dry grain get drenched if hurrying will prevent it. We would prefer to plow when the land is full of moisture rather than wait until dry and baked and will hasten to perform other tasks and make the plowing of such land possible. The seeming necessity for haste keeps a farmer in hot water during the whole season.

How far should the farmer go in yielding to the need of hastening in these cases is the question? No doubt haste is more absolutely necessary in some cases than it is in others. However, he who will hold himself to the sensible pace in each case is wise. Considering from any angle this is advisable. Were a man to let himself become frantic every time the necessity seemed apparent it will soon become a fixed habit and the necessity seem ever apparent.

It is quite possible he is only imagining he is working at top speed and a man taking the sensible pace would have performed the work in less time and enjoyed the work meanwhile.

It is well worth while, then, to compel ourselves to take the sensible pace always. Then in time we will take it without compulsion or naturally. It will become a habit.

The farmer should enjoy his work. This is impossible if working under the strain of hurry. We can hurry and work at a sensible clip and we should not allow the speed to increase until we lose our poise and become flustered and excited. Allow ourselves to work up to the flustered point and we at once begin wasting energy.

The farmer addicted to the habit of hurrying himself off his feet can easily use up more energy in a forenoon, than a non-waster will in a day. In other words, he has cause to be as tired at noon as will the non-waster at night. And both turn out the same amount of work.

The man who craves to perform faster and faster and then faster still, invariably does the task ahead of him two or three times in his mind before he has the opportunity to do so with his hands.

Naturally he makes mental estimations of what is ahead because what is ahead has to be performed and upon such performance depends his speed.

Now the man who works at a merry pace looking neither ahead nor behind is usually surprised and elated over the amount of work he has done when night comes, while the man working toward a mark he hopes to reach is

generally disappointed as he usually hopes to do so much that it becomes an impossibility. It certainly is impossible for the latter to enjoy his work. All the hoping is wasted energy whether the hoped for amount of work is performed or not.

Let the boxer lose his head for a moment and he is immediately floored by his cool-headed opponent; let the baseball pitcher lose his poise for a moment and the game is lost; let the man at the steering wheel of an automobile become excited and there is an accident. The fact that they all seem to be working harder than they were formerly does not affect the result.

So much, then, for proof that a man "falling all over himself" in his haste to perform a piece of work is not liable to benefit so much as he imagines by allowing eagerness to tempt him to the frustration point.

A man may work to the exhaustion point to get the load of hay loaded and to shelter before it rains, but if he drops his fork, falls down every time the team starts or stops and gets all tangled up in the reins at every opportunity, it will probably be B who is meanwhile working swiftly yet unconcerned, apparently and in reality, who will succeed in his endeavor to save a load of hay a drenching.

Besides failing to accomplish the desired object A is throwing away energy, all being a waste over and above the amount actually needed to have loaded the load under the conditions.

Why not observe the saying of the Irishman to a hurrying companion: "If you can't go slow, Pat, why not go as slow as you can?"

If we cannot do as much by extreme hurrying then why not educate our-

ple. Most of these weeds have a strong tap root growing deep into the soil. During the first year the plant stores up large quantities of starch in this root, which is utilized the second year in producing seed. Being productive from the seed only any cultivation that will prevent maturity will be effective. This, however, is not so easy as these weeds often take possession of fence corners and places where ordinary implements of tillage do not reach. The only satisfactory way to deal with them is to cut the tap root off below the crown, say three inches, with a sharp spade or spud.

Perennials live and produce seed for an indefinite number of years. They are of two classes. The ordinary perennial has a simple root and reproduces itself only from the seed, as the ox-eye daisy. The creeping perennial not only reproduces itself from seed but multiplies by means of its creeping rootstocks which run along beneath the surface of the ground in various directions from the parent plant. Canada thistle and quack grass are examples of this class of weeds. These roots contain a large number of latent buds, and whenever the soil is stirred in moist weather they spring into life. If a root is broken or cut during a warm moist time, each of those roots will send out a new plant, hence it follows that during such times land infested with those weeds should not be worked. Hoe crops and summer-fallowing that is improperly done is more likely to increase than destroy the weeds. The cultivation should be done when the weather is dry and warm. Work the land so as to bring the roots of these plants to the sun or keep them under the ground by means of

during the rotation, if properly done, is the best crop for cleaning the land of all classes of weeds.

A good crop to destroy Canada thistles is red clover cut about the middle of June when the thistles are coming in blossom; then cut again for seed about September 1. If this is followed by a crop of timothy hay the next year the thistles will be pretty well subdued.

Sheep destroy many weeds that are not touched by other stock. Shallow cultivation soon after harvest will start many of the seeds growing which will be destroyed by late plowing. See that the threshing machine is thoroughly cleaned before it comes on the farm. Grind all grain fed to the stock. Do not let the land lie idle but keep it constantly at work or in grass.

Canada. J. H. McKENNEY.

BREAKING NEW GROUND.

(Continued from first page).

turned under to rot along with the roots, trash, etc.

But the greatest reason of all for this practice is one, the importance of which is not well understood or appreciated by the average farmer. I shall endeavor to explain it very briefly. Ground which is well supplied with humus or decayed vegetable matter, and particularly when it is plowed and aerated frequently, teems with untold numbers of soil bacteria whose purpose in life is to convert the elements of plant food—nitrogen, phosphorus and potassium—into soluble form so that the root hairs of the growing plants may absorb this food as the rain water brings it to them. In the average new soil, and especially if it is sandy or has been rather water logged, the soil bacteria live, almost wholly, right at the surface or within the first two or three inches. As a consequence when much of our soils, and especially the sandy soils, are plowed five to eight inches deep one gets a raw, lifeless (bacterialess) soil which will not grow a shallow rooting crop the first season with any success, although it will usually produce if a deep rooting crop like corn or potatoes is planted.

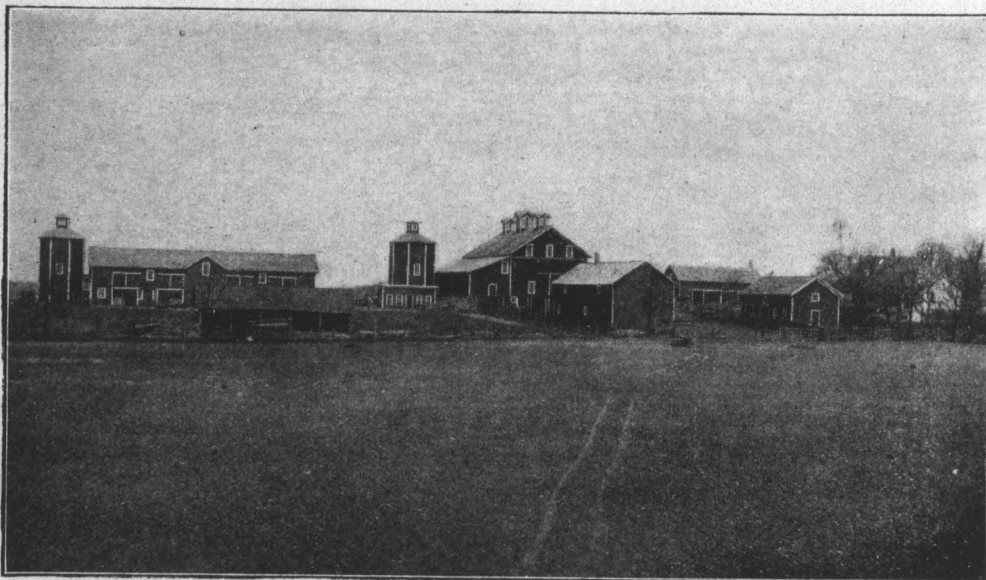
The real problem is to get the soil bacteria and the humus in which they live distributed through the soil down to the plow line so that all rootlets of the corn or other plant will come in contact with the humus, thus making the plant food most available.

In the height of the growing season—July and August—there is a maximum number of bacteria working in the surface soil. If this surface soil is turned under and with it a lot of green vegetable matter these bacteria will multiply, and work toward the surface during the balance of the growing season.

When the rye and vetch which have been sowed as soon as the ground was prepared in late July or August, is plowed under next May the hosts of bacteria already in the soil attack it and convert it into plant food most rapidly. Not only that but you turn the humus, which was the original top soil, increased by the decayed matter, to the top and thereby give much quicker, better aid to any crop which you may wish to plant. You will produce a very much larger crop and at a much lower expense for cultivation by this method.

If the field you wish to break after this method is very light soil you will get very large interest on the money and time invested if, after the ground is plowed you will give it a fairly good coating of stable manure. Then disc and harrow it in before sowing the rye and vetch. The manure aids in filling the raw, lifeless soil with bacteria and thus aids in putting life as well as plant food into the soil.

A field handled as above outlined this summer will yield twice as much net returns as the same kind of ground broken up new next spring. It will also be much better the following year. Mason Co. I. B. McMURTRY.



Buildings on the Farm of James Edgar, of Montcalm County, Typical of the "Steadings" on Fertile Michigan Farms.

selves to hurry moderately? Macomb Co. R. SMITH.

THE WAR WITH WEEDS.

To combat weeds successfully, with the least amount of labor, it is necessary that a careful study be made of their habits, growth and mode of distribution. As different weeds often require different methods of eradication a better understanding of the subject may be had by dividing them into classes, viz., annuals, biennials and perennials.

Annuals are those which spring up and mature their seed in one season, such as wild mustard. If from year to year care be taken not to allow them to ripen, they will become extinct. However, the seeds of many weeds are encased in an oily covering which enables them to resist decay. Thus they may remain in the ground for years and still retain their vitality and when brought sufficiently near the surface to be influenced by the sun and air will grow readily.

Biennials require two years to complete their growth and produce seed. Of this class the burdock is an exam-

ple. Most of these weeds have a strong tap root growing deep into the soil. During the first year the plant stores up large quantities of starch in this root, which is utilized the second year in producing seed. Being productive from the seed only any cultivation that will prevent maturity will be effective. This, however, is not so easy as these weeds often take possession of fence corners and places where ordinary implements of tillage do not reach. The only satisfactory way to deal with them is to cut the tap root off below the crown, say three inches, with a sharp spade or spud.

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Nu-Life Fertilizer

DURING the month of December, 1915, The Mineral Fertilizer Co., Chicago, Illinois, applied to the State Board of Agriculture for a license to sell a product under the name of Nu-Life Fertilizer. The application and certificate of analysis was filed in the regular order and upon the payment of the license fee and receipt of the sample required by law the license was issued. The fertilizer was guaranteed to contain 15 per cent phosphoric acid. No claim was made for available phosphoric acid although in a letter addressed to the writer under date of December 11, 1915, the material was stated to be basic slag.

So far as we know none of the material was sent into the state until early spring when several cars were shipped to various points and a campaign was started to sell the product to the farmers at the rate of \$30 per ton, a price which we believe to be greatly in excess of its agricultural value.

The advertising matter distributed by the agents contains attractive pictures showing wonderful gains in the growth of corn and onions by the use of the remarkable "fertilizer." The following statements copied from one of the circulars put out by the company are typically characteristic of the methods employed by the company in selling the material:

"The basis of Nu-Life Fertilizer is Slag Meal."

"Nu-Life Fertilizer is slag meal and additional available phosphoric acid."

"Every ounce of Nu-Life is either a fertilizer or a recreator in your soil."

"Nu-Life Fertilizer puts new life in your soil—brings back to your soil what the years of use have taken from it—wholly reinvigorates your soil."

Several samples of the material were collected by our inspectors and these have been analyzed both for total and available phosphoric acid with the following results:

No. of Sample	Total Phosphoric Acid %	Available Phosphoric Acid %
A 273	14.70	1.40
A 379	13.05	1.80
A 832	12.00	1.74
A 384	12.50	1.64
A 530	15.50	1.22
A 883	16.10	1.76
A 235	15.15	1.80
6167	13.60	1.91

Five of the eight samples analyzed contain less phosphoric acid than is guaranteed and in every case the available phosphoric acid is less than two per cent. At first we were unable to determine the source of the material but, by putting it through a series of sieves ranging from No. 40 to No. 200 and by analyzing the different portions and examining them under the microscope we have been able to prove it to be a mixture of raw rock phosphate and a material that resembles, in appearance and chemical composition, the slag from an open hearth iron furnace. Although open hearth slag is, strictly speaking, basic slag it should not be confused with the product which, under the same name, is used so extensively by the farmers of Europe as a source of phosphoric acid. True basic slag contains approximately 16 per cent total and 14 per cent available phosphoric acid. The slag used in Nu-Life contains about four per cent phosphoric acid, consequently, 85 per cent of the phosphoric acid in Nu-Life Fertilizer is derived from raw rock phosphate.

A comparison of the cost of Nu-Life with that of other well-known sources of phosphoric acid together with the price per pound of available phosphoric acid in the various materials is given in the following table:

Material.	Total Phos. Acid %	Avail. Phos. Acid %	Average Selling Price Per Ton.	Average Cost of Avail. Phos. Per Lb.
Acid phosphate	17.00	16.00	\$20.00	6.3 cts
Basic slag	16.42*	14.21*	18.00	6.3 cts
Raw rock phosphate.....	28.00	2.00	8.00	20.0 cts
Nu-Life Fertilizer	14.07\$	1.66\$	30.00	90.0 cts

*Average of 7 samples.

In view of the facts as outlined above the question may be asked, why was a license to sell this material granted? In reply it may be said that the fertilizer law allows the State Board of Agriculture no discretion in the issuance of licenses. Any person who complies with the requirements of the law in filing the application and certificate of analysis, together with a sample of the material to be sold is entitled to a license upon payment of the fee.

ANDREW J. PATTEN,
Chemist, Mich. Ex. Sta.

LILLIE FARMSTEAD NOTES.

In planning a rotation of crops it is very important to select crops that will not need the attention of the farmer at the same time. The proper distribution of labor is of prime importance. Usually clover haying is neglected until too late for best quality of hay, because the corn crop or potato crop was not planted in time to be cultivated before haying. During favorable years these crops do not interfere. When we used to get our corn planted by May 15 it was large enough to be cultivated before clover hay was fit to cut. Then it could be left for a time at least without serious injury, while the hay was seceded. But late years, with cold backward springs, the corn could not be planted early, and the result is that corn cultivating and haying come at the same time, with the result of one crop or both being neglected. In this respect timothy or mammoth clover works better, because it gives more time in a late season for the corn crop. Yet I would not advocate the substitution of either timothy or mammoth clover for common June clover. We want the June clover and we must try and take care of it along with the corn crop. Usually we can, provided we do not have too much of each.

Alfalfa is even worse than June clover in this respect. We must hurry the corn crop in shape so we can cut the alfalfa on time. One reason why oats, corn, timothy and wheat is a very popular rotation is because the distribution of labor is well night ideal, one crop not interfering with the other in the least. By having part of the hay timothy and part clover helps out some in bad years, and this is not a bad idea if some hay is to be sold. However, where all the hay is to feed the live stock on the farm it is better to grow all clover or alfalfa and then do the very best one can at harvesting time.

One of the most perplexing things we find about growing early peas for the canning factory is that they come just at the time when alfalfa or June clover should be cut and the peas must be harvested when they are ready or the crop is too ripe for canning. This year, and last year also, was very unfavorable for us in this respect. The seasons were late, necessitating the late planting of corn, and we have corn cultivating, alfalfa, and peas all on our hands at once. The old saying is that when two evils confront you, choose the lesser evil first. Well, there is only one thing to do in our case, as I see it. The peas must be harvested on time; the alfalfa must wait for the peas and the corn must be neglected until the last. The pea crop is the only one that does not suffer under this plan.

This year we were in hopes to get the alfalfa out of the way before the peas were ready, but the weather came off hot and we only got the alfalfa cut and in the cock before the peas must be harvested. The alfalfa had to remain out for more than a week before

it could be hauled. At this date, July 8, it is not all hauled, but if we can put off another planting of peas until Tuesday, July 11, we can get the hay all in—provided it does not rain. By the way, it did not rain in this vicinity this week, the week of the Fourth of July, and something was doing the whole week.

But we are "up against it," as the saying is, on our June clover, which ought to be cut the first of the week—it is usually ready in June but this spring is away behind—and a planting of peas must be harvested before we can cut the clover. Again, the corn needs cultivating the worst way, and we can only do that at odd times instead of making a thorough business of it as we should. "Well," I tell the men, "we can only do the best we can and abide by the results." That is one of the things the farmer is up against and something that many times he is unable to prevent. Some years things like this work out like clock-work but the past few seasons have caught us good and plenty. I have been studying the question to see if I can not devise some plan whereby we can grow early peas and still not allow the alfalfa and corn to suffer. I confess I have not been able as yet to work this problem out satisfactorily. I wish to grow all these crops. We need them. They are all good, but we can't handle them satisfactorily because the work all comes at the same time.

If we could drop out the alfalfa we could handle the rest. If we could drop out the red clover and cut down the alfalfa it would be better. The corn, of course, must be grown, too, for we need the silage. I don't wish to drop out the peas, for the vines are fine silage and they are a by-product. They make cheap feed if we don't lose on the alfalfa and corn.

Perhaps a few years' experience will enable us to handle this problem to better advantage.

COLON C. LILLIE.

FARM NOTES.

Seeding Alfalfa in August.

I have a piece of sand loam soil which has been run quite hard which I would like to seed to alfalfa. I plowed under a crop of sand vetch and rye last year; have the same on it this year. Would it be advisable to seed to alfalfa in August or plow under another crop? Would 200 lbs. of acid phosphate per acre be any advantage?

Oceana Co. G. B. F.

It is the consensus of opinion among successful Michigan alfalfa growers that the first of August is about as late as alfalfa can be seeded in Michigan with a fair prospect of its getting sufficient growth to survive the winter, and in this event it is best seeded on land which has been plowed and thoroughly fitted so as to prepare a good firm seed bed.

Land now in rye and vetch might be successfully fitted if plowed at once, although unless the ground is fairly moist, there would be a likelihood of the failure of the stand from a lack of sufficient moisture to insure the early germination of the seed and the rapid growth of the young plants. The plowing under of a heavy green manure crop when the ground is comparatively dry breaks the capillarity of the soil at the furrow slice, and unless there is a fair distribution of moisture thereafter the surface soil is likely to become too dry for best results with a summer-sown crop.

Any sandy soil which has been farmed for a considerable period is likely to need lime before alfalfa can be successfully established on it, and unless alfalfa has been successfully grown on similar soil in adjacent fields, it would be a profitable investment to apply a liberal coating of ground limestone or hydrated lime before seeding to alfalfa. If the alfalfa is to be sown at once after the lime is applied, it is better to use hydrated lime, as this will have a more immediate effect in correcting soil acidity than will ground limestone, which does not give a maximum of

beneficial results the first year. An application of 200 pounds of acid phosphate per acre would be helpful in getting a good vigorous stand of alfalfa.

Clipping Weeds on New Seeding.

I have 20 acres in oats. About half of them are drowned out. I sowed grass seed and have got a good catch, if it were not for the weeds. Would it be all right to take a mower and clip this after the oats are cut, so as to kill the weeds,

Muskegon Co.

T. C. B.

It would be an excellent plan to cut the weeds on these bare spots in the oat field, as this would give the seeding a much better chance. If these are irregular spots in the field, a good way would be to cut them with the binder at the time of harvesting the oats, although if the weeds are especially thick and vigorous and the area on which they are growing is so situated as to make this practical, it would be a still better proposition to cut them even before the oats are ripe, tilting the mower bar rather high. Very many farmers make a regular practice of clipping their new seeding after harvest to rid the ground of weeds by preventing them from maturing seed.

Eradicating Quack Grass.

I have a few acres badly infested with quack grass. I tried last summer to subdue it. Went over it 12 or 15 times with disc and spring-tooth, during the dry spell, but the quack grass was as tough as rawhide and the disc would not cut it up so the spring-tooth could get hold of it. It is just sandy land; now the field is shoulder high with some vetch, rye, weeds and quack. I know that such a piece if plowed in the fall early and not allowed any growth will be half rotten in spring, when it would be easily exterminated if gotten after persistently, but I do not dare to fall plow such a piece, as where there is little quack the sand would drift. I was thinking of turning under the present growth with mould-board, plow and smooth it down a few times, then again cross plow with disc plow and get as good a seedbed as may be and sow to buckwheat. I have never raised buckwheat. Will buckwheat come off soon enough to get a sufficient stand of rye to prevent drifting or would buckwheat stubble prevent drifting? If you can advise me of a good way to handle this problem kindly do so.

Oceana Co.

S. E. R.

If this growth of vetch and rye is plowed down as deeply as is practical, then after the quack grass begins to show above the ground is given a shallow plowing to again turn the grass down and then the land is sown to buckwheat as suggested, we believe that it would discourage the quack grass considerably if it did not entirely eradicate it, making it much easier to finish the job the succeeding year. The buckwheat should be ready to harvest by the time the frost comes, else a good crop cannot be expected. As it fills better in cool weather, a better crop will be secured if sowing is delayed until there is just time for it to ripen before the average date of killing frost. The buckwheat stubble would of course, afford some protection against the wind, and as buckwheat leaves the ground very loose, rye could be sown without any preparation of the soil, and under favorable conditions ought to make sufficient growth to prevent serious blowing.

VERTICAL DRAINAGE.

I read with interest the article on Tile Drainage, by L. S. Brumm. This will do very well where there is enough grade. But suppose the lay of the land is such that this cannot be done? For instance, I have a parcel of muck land of about five acres which can be drained only through high land with mostly quicksand bottom and very little grade. I am in correspondence with an advocate of vertical tile drainage by using a drain head and letting the water down to the water table, by going through the subsoils. Is any reader of the Michigan Farmer using this system? Is it successful? If so, I would be pleased to hear through the columns of the Michigan Farmer as it will lessen the cost of drainage considerable and not apt to clog up.

Ban Buren Co.

M. N.

Trouble Department

Spray for Curl Leaf.

What should we use as a spray for the curl leaf on peach trees, also when to spray?

Genesee Co.

J. B. F.

The only satisfactory way of controlling the curl leaf on the peach is to spray with concentrated lime-sulphur at the strength of one gallon to eight of water before the middle of March. If desired, copper sulphate, two pounds to fifty gallons, can be used instead of the lime-sulphur, but as lime-sulphur is the common remedy for scale, it would be advisable to use it, thus accomplishing two things at the same time.

The curl leaf fungus becomes active as soon as the leaf buds begin to swell, and after it gets into the tissues of the leaves, there is no method of keeping it in check.

Insect Troubles.

I have been troubled with little white lice on my rose bush and with wireworms eating my radishes. Something also eats my eggplant leaves as fast as they come out of the ground. Would like to know what to do to destroy them.

H. H.

The white lice on your rose bushes can be controlled by dusting the bushes in the morning when the dew is on them, with pyrethrum powder, commonly called Persian insect powder. If you prefer to use the powder for spraying, add one ounce of it to three gallons of water. It should be mixed with the water at least twenty-four hours before using.

The insect attacking your radishes is undoubtedly the maggot, commonly called the cabbage maggot. This insect is very hard to control, but fair success has resulted from the use of carbolic acid emulsion, which is made of one pound of soap, one gallon crude carbolic acid and one gallon of water. The soap should be dissolved in hot water, the carbolic acid added, and the mixture thoroughly stirred until it is emulsified. This stock solution should be diluted with thirty parts of water for spraying purposes.

We have had reports from farmers who have had success in controlling this pest by using soot. Just at seeding time a fair quantity of soot should be sprinkled in the small trench made for the seed. Aside from being a repellent for insects, the soot has some value as a fertilizer. Some of our readers report that excellent large crisp radishes have been grown by its use.

The insect which has been attacking your eggplant is undoubtedly the common potato bug. The method of controlling this insect on the eggplant is the same as that for controlling it on potatoes. Five ounces of Paris green to a pound of lime, or three pounds of arsenate of lead to 50 gallons of water will give good results.

Cracked Bark.

There is a good deal of the bark of young fruit trees in this vicinity split each spring. What is the cause and the remedy?

G. M.

There are several things which will cause the bark of fruit trees to crack. Probably the most common cause for the bark of young trees cracking is a very vigorous growth, which continued too late into the season and did not harden up before the cold weather sets in. This insufficiently hardened wood becomes very susceptible to cold, and winter injury results.

When this condition prevails, the trees have a great abundance of sap, but frequently the bark of trees will also crack when the scale is quite serious, the scale sapping the trees so that the bark becomes dry and cracks open.

If the cause of the trouble is the over-growth of the tree, it might be well to leave the trees in sod and to prune them very little. Also no fertilizer should be used in the young orchard.

If the scale is causing the cracking of the bark, it should be controlled by spraying during the dormant season,

preferably in spring with concentrated lime-sulphur at the strength of one to eight. The best method of caring for the injured trees is to cut away all the loose bark and paint the wounds with pure white lead and raw oil.

Chewing Insect Attacking Peach and Cherry Trees.

We have a little brown bug that eats the leaves on my peach trees and cherry trees. I have sprayed the trees with strong tobacco water, but still the bugs remain. What can I do to get rid of them?

B. E. C.

From your description, I cannot determine what bug is attacking the leaves of your peach and cherry trees, but as it is a chewing insect, the tobacco water you used will have little or no effect, as the tobacco spray is a contact insecticide only.

For any chewing insect, some arsenical should be used, and for the spraying of these fruits, arsenate of lead at the rate of two pounds to fifty gallons of water with a pound of lime added should be used.

WITH THE MICHIGAN FRUIT GROWERS.

A species of peach has been developed at Marquette, known as the "Marquette Peach," and is thought to be the best fruit of its kind ever raised north of the straits. The parent tree is now dead but 200 budded trees raised at a Michigan nursery have been distributed over the upper peninsula.

Some nice fruit farms are being developed in Delta county, around Escanaba. W. E. Wickett has set 300 apple trees and 3,000 red raspberry bushes on his farm near Wells. He has 16 acres of cherry orchard two years old and it is one of the finest in the state. M. Perron is also setting out a large cherry orchard near the Danforth hill.

The Grand Traverse Fruit Exchange met recently at Traverse City, with over 100 growers in attendance, and discussed prospects for the coming season. The speakers included F. A. Mitchell, traffic manager of the M. & N. E. Railroad, Mr. Carmody of the M. A. C., and Manager F. Kern of the fruit exchange. An important change was made relative to the grading of all fruit except apples. Instead of having three grades marked X, XX and XXX, they will be marked "A," "B" and "unclassified." The growers are looking forward to a successful year. The ironclad five-year contracts under which many farmers chafed have been canceled and the new working agreement puts growers upon their honor.

The Fennville Fruit Exchange of western Allegan county is building a new packing house 48x110 feet on the lot west of its main packing house at Fennville. This new building will be used for packing apples and pears, while plums and peaches will be taken care of in the main building as usual. There will be room for 50 packers in the new structure, with daily capacity of 800 barrels. It is a one-story building, with skylights over the packing tables. The Fennville Exchange handled about 23,000 barrels of apples and pears last season, and will be much better equipped for the work this year.

The Norton Fruit Growers' Association is operating successfully in Muskegon county. There are 110 members, most of them living in Norton township, but with others in North Muskegon, Dalton and Fruitport. The association acts as a general purchasing agent through its manager, Edward S. Upton, in getting fruit packages and other supplies, as well as coal, oats, straw, etc., for its members. Work began with strawberries and with only half the berries picked the association had sold over 26,000 berry crates, indicating that the members will do a berry business in excess of \$50,000 this year. It is conservatively estimated that the crop of small and tree fruits this season will yield the members very close to \$150,000.—A. GRIFFEN.



Patrick Henry Addressing the First Continental Congress, Philadelphia, 1774

One Nation; One People

WHEN Patrick Henry declared that oppression had effaced the boundaries of the several colonies, he voiced the spirit of the First Continental Congress.

In the crisis, the colonies were willing to unite for their common safety, but at that time the people could not immediately act as a whole because it took so long for news to travel from colony to colony.

The early handicaps of distance and delay were greatly reduced and direct communication was established between communities with the coming of the railroads and the telegraph. They connected places. The telephone connects persons irrespective of place. The telephone system has provided

the means of individual communication which brings into one national family, so to speak, the whole people.

Country wide in its scope, the Bell system carries the spoken word from person to person anywhere, annihilating both time and distance.

The people have become so absolutely unified by means of the facilities for transportation and communication that in any crisis they can decide as a united people and act simultaneously, wherever the location of the seat of government.

In the early days, the capital was moved from place to place because of sectional rivalry, but today Independence Hall is a symbol of union, revered alike in Philadelphia and the most distant American city.

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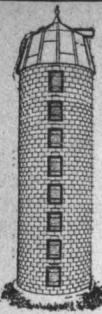
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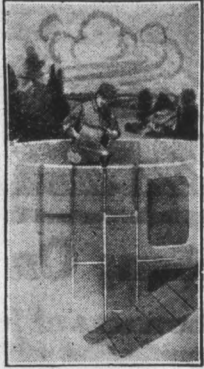
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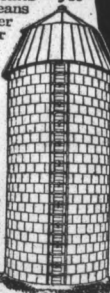
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WANTED A MAN with some means or a herd of cattle to go onto a large farm, either stock for Beef, or a Dairy, on shares, or he can rent at his option. One half mile from village on Grand Trunk R. R. in Saginaw Co., pleasant surroundings and a good chance for the right man, twenty head of good grade Shorthorns now on the place.
JOHN McAVOY, Saginaw, West Side, Mich.

When Writing to Advertisers Please Mention The Michigan Farmer.

Judging Stock at the Fairs

I note in a recent issue that different counties in the state are planning the details for the 1916 fairs. I was also pleased with the way our worthy editor spoke of the showing. He said that often the officers of local fair associations do not give the matter of selecting judges the careful attention which this detail merits. The editor well said: "When the awards are placed by competent judges the showing becomes of great educational value to the public, as well as to the breeders of the different classes of live stock." Please allow me to thank the editor for expressing himself along this line.

What is the object of holding our state and county fairs? Is it not a place prepared by the county or state to show the different classes of live stock, together with all grain crops, fruits and vegetables which Mother Earth can produce in that section? When we have got the best of all the different class of live stock, grain, fruit, etc., together, then comes the judging of the different classes.

The man or men who act as judges in a state or county fair should have the same experience and schooling as the exhibitors in the different classes of live stock, let it be horses, cattle, sheep or swine. An experienced breeder is always more competent to judge any breed with which he is familiar than a man who never practically engaged in the business. The exhibitor, if he is a man who wants to stand up as a man among men, wants to see fair play in the show ring.

But we have crooks on both sides of the question. I am going to give the judges a nice clean shave, and then I wish to shave the exhibitor a week under the skin. A judge should not have any special pets or family relationship or old acquaintance in the show ring. How often we have seen the judge hang around the hog pens for 24 hours before show day with some particular friend, perhaps "roosting" with him over night, sleeping in the same bunk with him. Mr. Exhibitor will hug right up to him and whisper in his ear and tell him he gave \$75 for that six-month-old male pig and then tell him all about the great ancestors of his herd and their world records, till the own clock strikes 12. Then they fall asleep until the morning of show day, when they arise quite early and go down town together. All this is fine for the exhibitor, if he leans that way.

An honorable and competent judge will not make such mistakes. They will award the premiums to the stock that is worthy of same and not to the man. To the judges I would say, do your work honorably, be honest in your decisions and do not have at least a dozen axes to be ground between the exhibitor and the officers of the association after the fair is over. This many times causes hard feelings and in some cases has been the ruination of a good and prosperous fair for years after.

Now, honorable judges, just a word in regards to Mr. Exhibitor. If it is in the live stock department, have the exhibitors show their stock where you can see them, and take no exhibitor's word for anything. And if some bystander says, "That is Mr. Jones' hog, he is surely a dandy," give him a crack over the head with your cane and say, "Nobody is at home."

If an exhibitor in the beef class, for instance, is showing a cow with best calf by her side under six months old, be sure that this calf did not have a stepmother. Many times Old Brindle deserves the credit, instead of 14th Bell Duchess of Liberty, and Old Brindle is left at home. The great object of the exhibitor is to win the prize and honor. Too often he will deceive the judge in any way he possibly can to accomplish his desire. Pedigrees should cut no ice in the showing. I believe in a three-judge system. Why?

Three men's judgment is better than one man's judgment any time. One judge has everything his own way, and he is prejudiced nine times out of ten.

Just a word to those who go to see the live stock. A great many times the exhibitor of sheep or swine finds after he gets back home that he has a cross buck or male hog on hand, and very often he has to dispose of same. What made the animal cross? It seems as though every man and boy on the fair ground has a cane, an umbrella or a stick of some kind with which they strike and punch the animals on exhibit and this is what makes them cross and crazy.

I would suggest that every superintendent over the above classes would stretch a chicken netting two feet wide around the outside of the hog and sheep pens, to stop this annoyance. The exhibitors will greatly appreciate the favor.

Gd. Traverse Co. C. L. PORTER.

TREATING WOUNDS OF STOCK.

There should be in every barn a quantity of disinfectant that may be readily mixed with water and used in the cases of wounds sustained by any of the stock. Potassium permanganate is excellent, and can be purchased at any drug store in powder form and used in water in amounts such as will color the water a light red. It has the advantage over many antiseptics of not irritating a wound. But any of the commercial antiseptics will keep a wound free from infection if used early, and the formation of large running sores will thus be prevented. A scratch or wound, small as it may be at first, may quickly become infected and then it will not heal until the infection has been freed from the germs that are causing the trouble. But if treatment is begun at once the trouble can usually be prevented by bathing two or three times a day with an antiseptic solution which will keep the wound clean so that it will rapidly heal.

The best home treatment of old sores is to bathe them two or three times a day with hydrogen peroxide and syringe them out with warm water followed by a small quantity of the same antiseptic.

Indiana. W. F. PURDUE.

EXPERIMENTS IN PIG FEEDING.

At the Wyoming Experiment Station two lots of 437-pound pigs each were fed for 168 days a grain mixture of corn meal and middlings, 1:1, the grain being mixed with water for lot one and with alfalfa tea for lot two. These lots made average daily gains per head of 0.58 and 0.68 pounds, requiring 5.57 and 4.78 pounds of grain for a pound of gain for the respective lots. It is suggested that a small amount of the alfalfa meal itself might have proven equally satisfactory. These pigs were then redivided into two lots of four pigs each and fed 56 days, lot one, receiving corn meal and alfalfa meal, 4:1, and lot two, barley meal and alfalfa meal, 4:1. These lots made average daily gains per head of 1.02 and 0.98 pounds, requiring 4.86 and five pounds of grain per pound of gain for the respective lots.

Two lots of three brood sows each were fed 91 days, lot one receiving grain and alfalfa hay, and lot two, grain and pea hay. These lots made average daily gains per head of 0.54 and 0.43 pounds. Both lots made satisfactory gains and kept in good breeding condition. Five of these sows were then divided into two lots of two and three each and fed 42 days, lot one receiving corn meal alone, and lot two, corn meal and alfalfa hay, 4:1. These lots made average daily gains of 2.9 and 2.1 pounds respectively, lot one requiring 4.1 pounds and lot two 4.86 pounds of grain per pound of gain.



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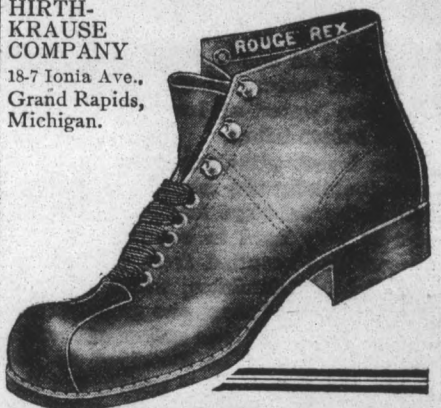
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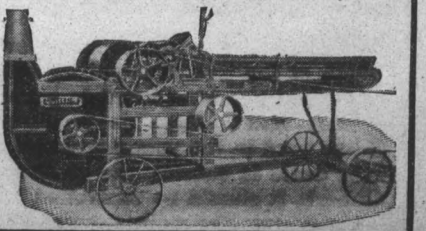
Absolutely free from adulterants and fillers, just like the feed you would mix for yourself, is a special combination of choice cottonseed meal, dried beet pulp, gluten feed, corn distillers' grains, wheat bran, wheat middlings and a little salt, that's all; each ingredient weighed by automatic scales and all thoroughly mixed in huge power driven mixers, so that it is always absolutely uniform, and always good. An extra quart or two of milk daily from each cow may turn a loss into a profit. Try LARRO-FEED for more profits. Sold on "money back if not satisfied" plan, the decision being entirely up to you. LARRO dealers almost everywhere; write if none near you.

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Summer Feeding Dairy Cows

MOST farmers look forward to the spring and summer time as that part of the year when feeding will be unnecessary. They seem to think that plenty of good green pasture will take the place of the winter rations. To a limited extent this holds true. Because green food causes an increase in the milk yield, the conclusion is that it is the ideal food. As a matter of fact, whether the food is green or cured as hay no one food constitutes an ideal ration. As a rule a variety of food will give better results than any single thing. To get the very best results, it is necessary to put into a cow the elements of which milk is composed. The correct balance for milk production is only approximated in any one food. While clovers run close to the standard yet they vary considerable in their elemental content. The average standard for producing a normal flow of milk calls for about one pound of protein to every five-pound combination of carbohydrates and fat. The nutritive ratio reads 1:5. Let us compare a few foods with this standard: Green alfalfa, 1:3.1; rape, 1:4.3; crimson clover, 1:4.7; soy bean, 1:4.7. It will be seen that these feeds fall below the standard. There should be something wider fed to balance any one of these foods. Let us examine a few more: Green timothy, 1:11.2; blue grass, 1:7.2; Hungarian, 1:8.5; rye, 1:7.3; oats, 1:8.2; corn, 1:11.7; kafir corn, 1:16.9. These are considerably wider than is necessary for best results. These wide foods need something much narrower than the standard to balance them.

It is generally conceded that the right proportion of the elements mentioned will keep a cow in the pink of condition and any one of these elements used in excess will prove to be an irritant and burden to the system. Taking the last list of foods, it will be observed that there is not sufficient protein, while in the first list there is too much of this element for the amount of the other elements used. It is the popular belief that blue grass makes the ideal pasture. While this is true, yet it can be improved by the addition of alfalfa. In the absence of this some wheat bran and gluten feed will balance it satisfactory.

I have given one reason for supplementing any given pasture. I shall give another reason for spring and summer feeding. There will come a time when pastures run so short that cows find it difficult to secure enough food for maintenance, let alone milk production. This condition often obtains in autumn also. It is well for farmers to be prepared for any emergency. To make a cow the most profitable it is highly necessary to work her to capacity at all times. Farmers will do well to follow the example of regular dairymen. These men are prepared to feed cows at any time. They find it necessary to keep up the regular flow of milk. They have found it unprofitable to disappoint their customers. From dear experience it has been found that you cannot depend entirely upon pasture, no matter how good it appears.

I shall give another reason why the feeding should be continued throughout the year. Many a good cow has been foundered and rendered useless on the one food diet. Let her get good and hungry and break into a clover field and see what happens so often. The main reason for bloating and other troubles lies in the fact that the cow is forced to eat much green food to get the necessary energy to accomplish her work. She simply gets too much of a good thing. Supplement the clovers mentioned with ground oats and corn meal, and the grasses with bran and gluten feed and end your troubles. I shall close by submitting a few combinations of a definite character.

Take 232 lbs. of wheat bran, 120 lbs.

of gluten feed and thoroughly mix them. Give your cows two parts of ground feed to five parts of blue grass. Through a little experimenting you will be able to determine about how much grass your cows obtain on the range. By slopping them twice daily, they will need less pasture. If you can approximate the above proportions, the results will be entirely satisfactory.

Take 206 lbs. of corn meal and mix with 192 lbs. of ground oats. Feed two parts of this to nine parts of alfalfa pasture.

One more, take 320 lbs. of bran, 460 lbs. of pea meal, 210 lbs. of cottonseed meal. Give five parts of this to 11 parts of timothy pasture. This makes a good ration for fall feeding. All the above combinations are based upon the standard of one pound of protein to 4.4 pounds of carbohydrates and fat. This is calculated for maximum milk flow. The quantity of ground food will necessarily have to vary with the condition of pasture. Watch your cow's appetite, flow of milk, state of pasture, and be governed accordingly.

Wayne Co. E. W. Good.

DAIRY PROBLEMS.

Mammoth Clover for Silage.

As we do not expect any corn this year for silage, would it be all right to fill the silo with Mammoth clover?

Tuscola Co. W. P.

Mammoth clover will make splendid silage. It must be cut while yet green and put into the silo before it dries out. You can't leave it in the swath until it begins to dry. The rake should follow the mower immediately and the loader follow the rake at once. It must be got to the ensilage cutter green and juicy, then it will pack well in silo and make good silage. You can cut it in one-inch lengths if you prefer. It would be better in half-inch lengths, but one-inch lengths will do. It is pretty slow cutting clover in half-inch lengths.

If from any cause the clover dries out any, water should be added when filling. If you get dry clover in the silo it will simply mold and spoil.

Clover silage is a more valuable feed than corn silage. It is richer in protein. Corn, however, is the great universal silage plant because it is difficult to cure and store in a dry state.

Clover can usually be made into hay at less expense than silage, while the corn can be harvested cheaper as silage.

Cow Milks Hard.—How to Overcome. I have a fine cow coming three years old, that has had her second calf; her udder and teats are perfectly normal, but she milks too hard, cannot get a stream larger than about the size of a knitting needle. Would it be safe to insert teat dilators and would it require a veterinary to do it? I have asked a number of farmers and they advise me not to use them, saying it might spoil the cow. G. K.

To overcome the difficulty of a cow milking too hard, the circular muscles that surround the opening to the teat must be permanently stretched. This has been accomplished in some cases where the difficulty was not too pronounced by having a milker with very strong hands milk when she first came fresh, and milk for all he is worth. If the cow objects the work must not stop. In a few days or weeks the muscles do not contract as much as at first and the difficulty is overcome to a great extent.

Another way is, as suggested, by using teat dilators. This will not injure the cow if they are properly disinfected and used carefully. Hard rubber plugs are used for this purpose. After the cow is milked, and the stronger the milker and the faster he milks, the better. These plugs are inserted in the ends of the teats and left there until the next milking, and again inserted after milking. Keep this up until the difficulty is overcome. In case the teat ducts become inflamed discontinue until they are normal again.

COLON C. LILLIE.

John Deere Implements

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BEATER drive works on the principle of a horse power. No clutches, no chains, no trouble. Mounting the beater on the axle (a patented feature) does away with half the types of castings.

Only hip-high to the top—but has big drive wheels. Wheels out of way when loading.

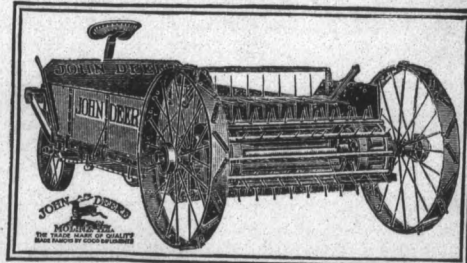
Here are three exclusive John Deere Spreader features—read them over and then be sure to see them on the spreader itself:

1. Beater on the axle—nothing else like it.

2. Revolving Rake—load moving back to beater revolves the rake. Draft actually less. Even spread certain—no bunching.

3. Ball Bearing Eccentric Apron Drive—requires no attention.

If you want to distribute manure seven feet wide, use the John Deere Wide Spread Attachment. Write for free booklet.



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One Horse, Five Disc Fertilizer Drills

ESPECIALLY suitable for seeding between corn rows or in limited space. They do not destroy hills of corn planted out of line. When discs come in contact with corn hills they spring in, dodge them and return to their place.

Plant any small seed, alfalfa to bearded oats, peas and beans in rows 6, 7 or 8 inches apart, and distribute any standard fertilizer. Plant seed only, distribute fertilizer only, or handle both at the same time.

Amount per acre regulated merely by shifting feed gauge levers.

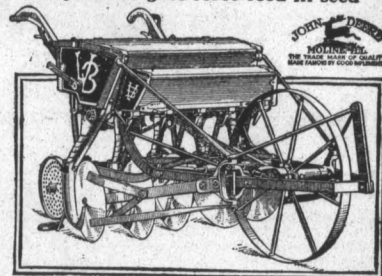
No choking of seed or fertilizer in the hoppers. Adjustable gate force-feed in seed hopper, finger type plates in fertilizer hopper prevent it. All the ground sown.

An even stand of grain certain because pressure springs compel discs to cut furrows of uniform depth and seed is protected until it reaches bottom of furrows.

Van Brunt Drills do not clog up—scrapers keep discs absolutely clean.

Fenders and braces are so constructed as to prevent cornstalks or trash from lodging in the machine, clogging it or dragging along.

Grass seeder attachment can be furnished which will drill or sow broadcast, as desired.



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Glucose as a Food Product

By FLOYD W. ROBISON.

ONE of the great food questions brought to light by the passage of food and drug laws has been the question of the status of glucose in food products. Around the manufacture and marketing of glucose has been built an enormous manufacturing industry.

American People Have a Well-developed Sweet Tooth.

The demand for syrups and sugars has been such that it has produced an enormous stimulus to chemists and manufacturers, particularly in this country. It is well known that among the people of the earth the American people have perhaps the highest per capita consumption of sugar, and with this being the case it is not strange that this product, glucose, should have reached perhaps its highest degree of perfection and development in this country. Attempt has been made for a long time by scientists to simulate in the laboratory and in the factory the various processes in nature and reduce the crude raw materials of commerce to palatable nutritious foods. Long before the advent of the breakfast foods this was accomplished in the case of glucose.

What is Glucose?

The term glucose is an adaptation of the scientific name for glucose which covers a certain type of sugars scientifically known as glucose which have a chemical formula corresponding to six parts carbon, 12 parts hydrogen and six parts oxygen, commonly written $C_6H_{12}O_6$. It has been found in the laboratory that this glucose produced in the human body is produced from starchy foods. That is, when starch is taken into the human system one of the first acts of nature is to change it in part at least, into glucose. So, inasmuch as this can be done, likewise, by an acid hydrolysis, using hydrochloric acid for this purpose and producing as far as analytical results are concerned, a product in part at least identical with that produced by nature in the body, the commercial product gradually took on the name of the natural product and the manufactured article became known as glucose. To distinguish it from the natural glucose formed in the body it has been the custom to call the manufactured article commercial glucose.

Commercial glucose is sold on the markets of the country is a viscous body of a consistency somewhat like glycerine, and with a varied composition. It contains from 15 to 20 per cent of water and consequently from 80 to 85 per cent of solid matters. These solid constituents consist of dextrose sugar, maltose sugar, and dextrine, a product which is always produced when starch undergoes hydrolysis.

Glucose Got a Poor Start.

Glucose as a food product has had a peculiar career. The history of its use commercially is somewhat similar in certain of its phases to the history of the use of oleomargarine. Very few have been willing to claim that oleomargarine is unwholesome; in the same way few indeed have been willing to claim that glucose is unwholesome, although the early manufacture of glucose did not attain the degree of perfection which it has in later years.

We can remember distinctly that the attempt to feed honey-bees on glucose years ago resulted quite disastrously to the bees, without doubt due to the imperfection of the manufacture of the glucose. The glucose as manufactured at the present time, however, we believe cannot be criticised from the standpoint of imperfect manufacture. It is a clean, apparently wholesome product and we see no reason why it should not have a fair entry into its own market.

The Short-sighted Policy has Hurt Glucose.

One of the difficulties which arose

over the early sale of glucose came about through the desire apparently of the producers or salesmen of glucose to insist that it shall take the place of sugar. It is a sugar in a sense, but as placed upon the market it is a manufactured article; manufactured in an entirely different sense than is the case with the manufacture of sugar. The manufacture of sugar is simply a question of purification; evaporation of the sap and purification of the resultant sugar. The manufacture of glucose is attendant upon the conversion of a natural product by a mineral acid into a sugar, and consequently it may be seen that the manufacture of the two articles occupies an entirely different position in the field.

Glucose was used to adulterate sugar syrups. It was used to adulterate maple syrup and instead of being put out exclusively in its own field under its own true and distinctive name it was pushed into the field of another article and in our judgment on this account built up against itself an enormous antagonism. The same thing has applied to oleomargarine and we do not understand why manufacturers of these products should be so short-sighted as not to see that the marketing of their product when handled in such condition will forever be up-hill work.

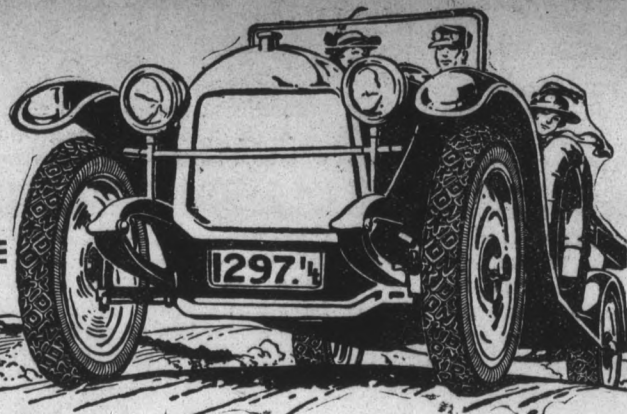
How Glucose Became Corn Syrup.

Some time ago the glucose company became absorbed by, or changed its name to, the Corn Products Refining Company, and inasmuch as they manufactured all or practically all of their glucose from corn starch, they selected the name corn syrup and corn sugar, to properly designate their product. We believed at the time, and believe still, that corn syrup is not a proper name for glucose. At the same time we do realize that the selection of the name glucose as the commercial name was an unfortunate selection because of its very name. The public in general have a very vague understanding indeed of what glucose really is.

It has been the custom of late years to build into the name of a new product the names of the ingredients which go to make it up, and therefore it is not at all strange that the public should think on that account that glucose is a product derived in part at least from the same kind of materials which go to make glue. We are therefore heartily in sympathy with efforts of the Corn Products Refining Company to secure a name for their product by which it will be known commercially and which will not be antagonized at the beginning through the consumer's misunderstanding. Corn syrup it is not, because the word syrup, in our judgment, when prefaced by the name of its source, would mean strictly a syrup produced by the evaporation of the juice of the corn plant. Such a syrup has been made but we understand has never been commercially produced. Sorghum syrup is produced in this way; maple syrup is produced in this way; cane syrup is produced in this way; all true to their names because they are the resultant product caused by the evaporation of the juice of that particular plant. Corn syrup, the name by which glucose is now known is not produced by the evaporation of the juice of the corn plant. In fact it has no relationship to the juice of the corn plant.

It is produced entirely by an acid hydrolysis of the starch from the grain of the corn plant, or in some of the other countries, by acid hydrolysis of the starch of potatoes. Any cereal or product containing starch can be converted into glucose and we apprehend that if an occasion should arise where there might be a plentiful supply of potatoes and a scarcity of corn, this product might be made more largely from potato starch than from corn

(Continued on page 75).



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For Seven Years
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The FARM BOY
and GIRL
SCIENTIFIC and
MECHANICAL

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

THE farm folks have more elasticity in their schedule than do their city brothers. But one custom is more strictly adhered to in the town than on the farm; and that is the custom of vacations among steady workers, except among the most unfortunate classes.

And there is great good sense in the vacation proposition. Even the employer has come to see that a week, or two weeks, or four weeks, brings their worker back with added brightness and a renewed amount of that invaluable quality now universally known as "pep."

With the farmers and their families the vacation proper is not as common as it should be. From spring to fall

there is always "something doin'" to prevent the members of the family from getting off the farm—at least for more than a very short period. I speak of the grown-ups now, for the children have their vacations, and though they may do some work still "change is rest," in their case.

Everybody needs a vacation at least once a year. They need to get out of the rut, and to have time to take an inventory of themselves. It can be done if people are sufficiently determined. If there is more than one woman or man on the farm, turn about.

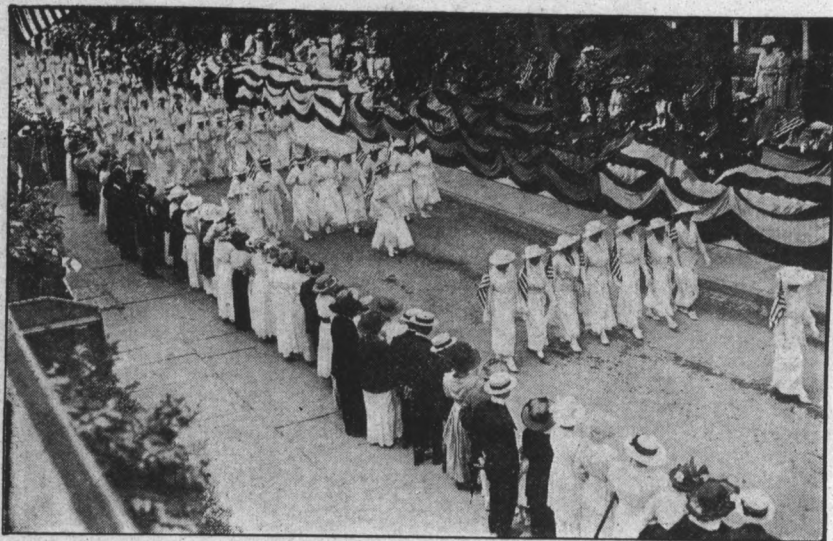
Vacations By F. J. YATES

The rest will bring the vacationist back to work with enough renewed energy to attack the added burden without fatigue. If there is but one man or woman—just father and mother—leave no stone unturned to make a vacation possible for each. Surely there must be one week—if not two—between May and September when the farm can be allowed to "go hang" while Brown's boy helps mother with the chores, and father runs away for a time with an old friend in town or country, or lets the traces slacken in any way which suits his fancy—as

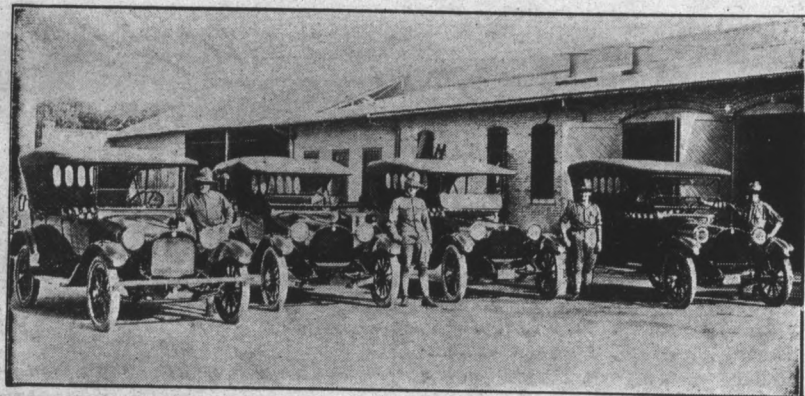
long as mother sees they are really slack. And surely father can fix it up so mother can wave farewell to her dishpan and broom—or vacuum cleaner and patent dishwasher, if mother is very up-to-date—while father feasts on canned fruit and the baked stuff sent in by sympathizing neighbors. (Be very sure, mother, no neighbors ever let a "lorn man" suffer for food if they knew it). Just so each one gets their "rest in change," that is the important point; let the details arrange themselves.

But says someone, "We simply can't afford trips this year." Well, cheer up. Don't pity yourself. A trip isn't absolutely necessary. There are other ways of "rest in change." Suppose you

WORLD EVENTS IN PICTURES



Society Leaders and Matrons Marching in Independence Day Parade.



Automobiles are Essential in Modern Military Operations.



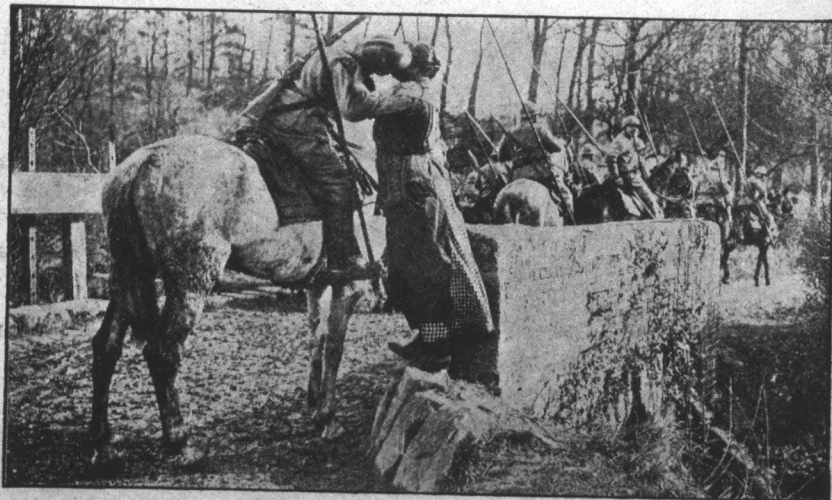
Troopers of 11th Cavalry Released by Mexicans After Capture at Carrizal.



British Guns Batter German Trenches with Terrible Results.



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French Cavalry Patrol Halts for a Trooper to Bid His Wife Adieu.

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make the farm your headquarters and take horse and buggy excursions to the friends you've been wanting to see for so long. Doesn't matter if they live forty miles from you, you can drive that. Or else fish, or loaf in the hammock with fancy-work or books, or paste snapshots into your kodak book—or do anything whatsoever you wish to do and think it good fun. It's your vacation remember. But do have your home vacation free from intrusion. If necessary have a contract drawn and signed by every member of the family to the effect that they'll let your vacation be a real one.

Oh, dear! Here's a wail from a young father and mother all alone with little children. I hear that wail from forty different directions. How about it? Take your vacation in bits. That is much better than having none. Use those days through the summer when the work is light on both sides of the house. Get up early, feed, milk, and turn out all but one nag, which nag is to convey you to your vacation spot, if you do not possess an automobile. Chuck into your vehicle of transportation lunch, books, fancy work, maga-

zines, toys, fishing tackle, kodak and all other necessities; shake the reins over Billy's back, fox-trot to the nearest picnic spot, wood and water being the only stipulations, pitch your luggage and proceed to have one installment of that vacation. Pull off the children's shoes and stockings and turn them loose to play. Then simply loaf and invite your souls in any direction you wish.

If you have a neighboring family which is very congenial invite them along—if not, don't. You are after relaxation and rest and a comfortable speaking acquaintance with nature. Don't begin to say you have all the nature you want on the farm. What man ever enjoyed a sunset while he was trying to drive a bunch of pigs back through a gap in the fence? What woman ever got the most out of the beauty of the out of doors while she was pulling onions for supper. It takes a genius to do that, and you and I are just plain folks. No, to hear the voice of nature you musn't be making so much noise yourself that she can't get a "show-down." But, whatever you do folks, be sure to get that vacation.

In Sheep's Clothing

By ANNA E. BLEY.

PHOEBE ANN TRENT knelt upon a newspaper and stirred up the rich moist soil with her trowel. She was planting tiny scarlet sage plants which would grow and flourish about the little green-shuttered cottage, and in the late summer burst into a profusion of vivid blooms.

She sniffed the pleasant earthy smell and breathed in the warm balmy air. Someone down the village street was beating carpets—she could hear the steady whack-whack. Signs of spring were everywhere. The gate clicked, the gravel crunched under a heavy footfall.

"Prob'ly the grocer's boy," thought Miss Trent as she pushed the dirt firmly about the roots of a plant with her thin, worn fingers.

"Good-morning, sister," said a deep voice.

She looked up. A large man wearing a very black broadcloth suit and a very small white lawn necktie stood beside her. He had a smiling, florid face. The sun reflected upon his polished glasses and sent minute golden gleams from the fillings in his teeth.

"A minister," decided Miss Trent and rose stiffly to her feet. She quickly tucked in the white curls which had strayed from the smooth bands at her forehead.

"Good-morning, sir. Won't you come in?" She led the way into the house. Wiping his feet carefully upon the mat, he followed her into the neat front room, and seated himself in a large haircloth chair which Miss Trent indicated.

He laid his hat on the carpet beside him, and clearing his throat began: "Howardson is my name, Joseph Howardson. My esteemed friend, Deacon Hewitt, has been telling me of your work in the Sunday school, sister, and I felt called to meet you."

Miss Trent smoothed her white apron and flushed with pleasure. "I have only done my duty, sir," she protested modestly.

"My dear sister, you have nobly carried out the work the Lord has called you to. The deacon spoke of your faithful attendance at church. 'Thou has been faithful over a few things, I will make thee ruler over many things,'" he quoted piously.

"The deacon himself never misses a Sunday," remarked Miss Trent thoughtfully.

"A noble man, sister, and a noble husband."

"The deacon's a good Christian man, and I suppose he is a good husband. Some folks think he's a little close toward Maria."

"Close? Why, do you know what

Deacon Hewitt has done, sister?" Mr. Howardson hesitated. "I do not know that I should mention it—it is a little matter between the deacon and myself. On account of my great friendship for him, I have been able to do him a slight favor."

"Oh, I should never think of mentioning it to Deacon Hewitt," Miss Trent hastened to tell him.

Mr. Howardson looked cautiously around. "There are no eavesdroppers about, sister?—no one who would betray our confidence?"

"Oh, no, John Paxson—he's my boarder—clerks down at the coalyard."

"I have always been an earnest laborer," he commenced, "in the Lord's vineyard, and He has greatly blessed me in the work. About a year ago, I was conducting services through the state of Nevada—a very godless country, sister—when I came across a mine being worked by a small company of Christian men. These men were working very hard, for the mine is exceeding rich. Why, Sister Trent, I have seen nuggets of gold as large as goose eggs."

"You don't say!" ejaculated Miss Trent.

"Yes, ma'am, as large as goose eggs, and if we could get the proper machinery, there is no limit to what that mine would produce."

"You're interested, then, yourself?"

"Yes," replied Mr. Howardson. "I have had a little more experience with the world than my poor hard-working brothers, and together we have formed a company, it being my blessed privilege to bring it before a select few, and let them buy the shares before the general public learns of it—to let them in on the ground floor, as it were."

"We don't have much confidence in gold mines here in the east," came from Miss Trent a little sharply.

Mr. Howardson looked hurt. "My dear sister, I think you misunderstand me. I am not selling stock. You are perfectly correct: never allow yourself to be taken in by anyone selling gold-mining stock. All the good mines can dispose of their stock right there at the mines, as I was—"

"Oh, I hope you'll excuse me, sir. I've been warned so often against investing money since father died, that I'm over-particular."

Mr. Howardson's face lighted up. "We were speaking of my friend, Deacon Hewitt."

"Yes, you said that you had been able to favor him."

"Did I say that his father and mine were boys together?"

"No; is that so?"

"To be sure; and Mrs. Hewitt and

he will be celebrating their fortieth wedding anniversary next fall."

"You don't say! It don't seem possible that Maria Peterson has been married forty years!"

"Yes, ma'am, forty years; and as a little surprise for her, I have let the deacon have one thousand shares of Zenith stock for a mere trifle."

"One thousand shares!" Miss Trent's eyes bulged.

"Yes, ma'am, one thousand shares, at the absurd and ridiculous sum of twenty-five cents a share."

That's two hundred and fifty dollars," ventured Miss Trent.

"Yes, ma'am; and do you know what that will be worth inside of six months?" He leaned forward and his voice sank to an impressive whisper: "One thousand dollars."

"For the land's sake! Is that possible?"

"My dear sister, that is why I call Deacon Hewitt a noble husband, one of the Lord's chosen few. On the twenty-fourth day of next October, Mrs. Hewitt will have a purse containing one thousand dollars in gold handed to her, a handsome gift from a loving husband to his partner throughout life's trials and tribulations for forty years."

Miss Trent rocked rapidly back and forth. Maria Hewitt, who had worn the same black dress made over and sponged for nine years, to be given one thousand dollars! She herself had over four hundred dollars in the Saving Fund in town. The possibilities turned her dizzy.

"You have a pretty place here, Sister Trent," Mr. Howardson's kindly voice broke in upon her reflections.

"Yes, I've always lived here." She recollected that the cottage needed painting.

"Well, I must be going," Mr. Howardson rose. "Of course, Sister Trent, you will not mention the little affair of the Deacon's to anyone? I should not wish it to get to his ears. It would seem like boasting, and, of course, the Lord has put it in my way to help a Christian brother."

"Oh, no," promised Miss Trent nervously. "Are you leaving Sandersville for good?"

"No; the deacon has asked me to conduct the prayer-meeting this evening."

"Is that so? Then, I'll hear you preach for I never let anything interfere with prayer-meeting."

"I like to hear you say that. If I can do you a favor at any time, remember that you can call upon Joseph Howardson," and with a gentle pressure of the hand and a "God bless you, sister," Mr. Howardson took his leave.

A few minutes later John Paxson came in for his lunch and found Miss Trent bustling about to get it ready in time.

"Who was your visitor, Aunt Phoebe Ann?" he inquired as he sat down at the table.

"Why, John, that was a very dear friend of Deacon Hewitt's. He's going to conduct prayer-meeting tonight."

"I thought he looked like a preacher," he said.

"Yes; he used to be an evangelist out west. He is a very godly man, John."

"What's he doing now?" asked John, putting a spoonful of green tomato pickle on his plate.

"Well, I don't know exactly. Maybe he's on east for a rest." Miss Trent passed him a cup of tea. They ate in silence for a few minutes.

"John, do you know anything about gold mines?" questioned Miss Trent.

John looked up, his knife and fork suspended in midair. "Don't you ever touch mining-stock, Aunt Phoebe Ann," he admonished solemnly. "Why, do you know that all the stock of mines that are any good at all can be sold right out there on the spot? They don't have to come east to peddle it around."

Miss Trent's cheeks glowed. That was precisely what Mr. Howardson had said.

"Oh, no, John. I wouldn't think of

making any haphazard investments."

John soon finished his lunch and went back to the coal-yard. Miss Trent cleared the table and washed up the dishes. Her cheeks were pink and her eyes sparkled. "Brother Howardson said he'd do me a favor; I hate to ask it, but he seemed real friendly. If I'd draw out four hundred dollars—by October it'd be worth sixteen hundred dollars. I'd put a clean thousand in bank, and then with the six hundred I could get things I've been needing for years. I'd have the house painted—I wouldn't want it done before fall anyway—have the roof fixed, and a new fence. I'd get an enamel bed and new mattress for John's room, and a new carpet and lace curtains for the parlor. I could put the old curtains in my bedroom," and her imagination flew as she picked over the spinach for upper.

Then she sat down at the sunny kitchen window with a tablet the insurance man had left, and a pencil. The doctor's wife was going by. In spite of the mild weather, she still wore her long fur coat, thrown open at the neck, and showing her ruffled white waist beneath. Miss Trent peeped between the geraniums on the window-sill and watched her.

"She does look awful stylish," she commented. "If I got all that money, there's no earthly reason why I should not have a fur coat too. I seem to feel the cold so these last few winters."

Miss Trent busily figured on the tablet. "It would be nice if I could make the Sunday school a present of a new carpet," she meditated. "Fifty dollars would get a real handsome and durable one." She could see the minister standing in the pulpit and could hear him say, "Our Sunday school is greatly indebted to Sister Trent for the generous gift of a handsome new carpet. May the Lord bless her and prosper her through all her days."

Her blue eyes grew misty, and other little gifts that she might make came to her mind. Then another thought—there were the twenty-five dollars in

A PICTURE FOR MOTHER.

BY ALICE A. LARKIN.

There are many days to celebrate,
They come and go each year;
There may be one of them right now,
That's surely drawing near.
I always like them, every one,
Some better than the rest,
But mother's birthday comes today,
And that is just the best.

I staid awake one night and tried
To think of something nice
To give to her this very day;
I wanted her advice,
For mother knows such splendid things,
When birthdays come along,
But 'course I couldn't say a word;
I knew 'twould be wrong.

For everyone had planned a s'prise,
From birthday cards to cake;
There didn't seem to be a thing



A little girl could make.
So I just wondered to the lot
And talked to Bonny Bess;
She understood me pretty well,
And pitied me, I guess.

I tried to shade her from the sun;
I scared the flies away,
And then along came Uncle Ned,
And deary me, but say—
He pulled a camera from his coat,
And snapped both Bess and me;
So here is mother's birthday gift;
Just think how s'prised she'll be.

her keeping that the Sunday school was saving toward a new organ. If Brother Howardson would only take that too! That would then become one hundred dollars. How the superintendent and teachers would rise up and call her blessed!

That evening she had supper waiting for John, and he noticed an air of suppressed excitement in all her movements.

When supper was over and John had gone out, she put on her shabby little bonnet, reflecting that it would not be extravagant to get a new one when she went to town, a bonnet with a few lavender or white flowers to relieve it. She locked the front door and slipped the key under the mat.

When she reached the church, she was astonished to find that they were going to hold prayer-meeting in the main body. Ezra Smith the sexton, told her that they had too many out for the Sunday school room. She walked in, silently, moved into her seat, and reverently bowed her head. When she settled back, she noticed how well-filled the place was. The minister and Brother Howardson sat on either side of the pulpit; Deacon and Mrs. Hewitt were conspicuous in a front pew.

(Concluded next week.)

A Berry Festival

By F. H. Merriman

THE invitations were unique. One sunny morning the parcel postman delivered tiny wooden berry baskets filled with green excelsior "grass" in which nestled half a dozen luscious red strawberries. The contents of the baskets removed, revealed the invitations written upon the inside of the baskets themselves. They consisted of an approaching date and the address of a young couple who had recently purchased a home.

The following Friday the guests assembled at the designated address and found themselves in a veritable garden of berries of all descriptions. A flourishing orchard surrounded the house but between the wide rows were berry bushes and vines of every description. A wide table upon the roomy porch held an assortment of long-handled baskets and beside this the hostess received her guests. She explained that they wished their friends to participate in their first berry harvest and each one present was given a basket and told to fill it with their choice of the berries which grew upon the place.

The baskets were not too large and the work of picking the berries progressed merrily. Raspberries, strawberries and blackberries grew in profusion together with a few rows of logan berries. "Nature faking" in the shape of candy raspberries attached to green shrubs puzzled some for a moment and added to the merriment. Also, green gooseberries were found plentifully impaled upon rose thorns and it was not discovered for some time that these emerald tokens "blazed" the way to a spot where a basket of wild gooseberries lay half hidden under the roses so that those who preferred the tart berry might not be disappointed.

After the berries were picked and the baskets filled and set away the guests assembled upon the porch and were given sheets of paper upon which the following guessing contest was written:

1. A berry that pertains to the law.
2. A mourning berry.
3. A moisture berry.
4. A foolish berry.
5. An animal berry.
6. A berry that is used in the sewing room.
7. A rough berry.
8. A marvelous berry.
9. A fish berry—often canned.
10. An aftermath of the haying berry.

A prize consisting of a dainty china berry set was given to the person having the most perfect set of answers.

The berries designated were:

- 1, Bar-berry; 2, blackberry; 3, dew berry; 4, gooseberry; 5, buffalo berry; 6, thimble berry; 7, raspberry; 8, wonder berry; 9, salmon berry; 10, straw-berry.

After the contest was over refreshments were served on the porch. Strawberry and blackberry shortcake proved most appetizing after the sojourn in the grounds and berry ices of all kinds were also served. A fruit salad containing strawberries proved very popular and for those who declared themselves particularly hungry there was delicious berry pie. Nothing was served that did not closely relate to berries or contain berries in one form or another.

After the appetites of the guests had been satisfied, old-fashioned romping games were played on the lawn while those inclined swung in the hammocks or lounged in the wicker chairs until it was time to take their berry-filled baskets and start for home. Upon arriving home it was found that each basket contained a tiny jar of thick cream hidden away beneath the berries so that the home folks might have a taste of the pleasures of the berry festival, an event that was remembered long after more conventional entertainments were forgotten.

GLUCOSE AS A FOOD PRODUCT.

(Continued from page 72).

starch. If the contention of the advocates of corn syrup is correct it would be proper in such a case to call that syrup potato syrup, but we apprehend that the manufacturer would not care to do this. Corn syrup should fill a very distinctive place in the human dietary. It is a nice product to use when body is required without excessive sweetness. It is used where most other syrups are used and has some advantages over sugar. It does not crystallize; in fact the addition of small quantities of glucose or corn syrup will prevent the crystallization of cane sugar from a syrup. We believe that its use in food products should be designated on the label in some way or another. We think it should not be used in prepared foods except it be stated on the label, and we see no fault with a law which requires a statement of the percentage of glucose used on the label.

The Label Should State the Fact.

These conditions of distinction under the law have been brought about because it has been necessary for the public to take these steps to prevent the adulteration of standard syrup and products containing sugar with glucose, not in the sense that it is an unsafe food product for we believe no claim will be made at the present time on these grounds but because its employment cheapens the product and therefore works an injustice upon the consumer; as well—(and this should be thoroughly borne in mind), as well as upon the manufacturer of rigidly pure food products.

Food laws are designed not only to protect the manufacturer of food products who is trying to deliver to the consumer an unsophisticated article, and it becomes fully as much the duty of the Dairy and Food Department to protect the honest manufacturer of pure food products as it is to protect the consumer of these products. If we allow an unscrupulous manufacturer, one who deals in low-grade and adulterated products, to have entry into the markets of the state without being compelled to disclose in a plain manner the true character of those products, the government has been lax in its duty to its honest citizens and legitimate manufacturers.

ONE WOMAN'S SUCCESS

A Grand Traverse woman who has been willing to experiment has worked out a marketing system for cottage cheese. She is eight miles out of Traverse City on a rural mail route. Her

customers are in Traverse City and are served by city mail carrier. The business is solicited by mail and telephone and the cheese goes forward by parcel post, it being delivered in the city the same day as mailed with the rural carrier.

A fancy product is being produced and an effort is made to cater to that trade which is not particular about price if only a high grade article is delivered. It is expected that eventually a list of customers will be secured who will take one or two pounds of the product each week.

A price of 20 cents a pound, plus the parcel post charges, has been put upon the product. This means 25 cents for a one-pound package delivered, 46 cents for a two-pound package. As packages are attractive as well as the product being of a high quality, it is believed that the price is sufficiently low to insure the marketing of the entire output.

It took several trials to work out the container phase of the problem. Cartons of the right dimensions for one-pound bricks of cheese or butter are used. These are substantial enough for the mails when sent singly, and when more than a pound goes in a single order boxes of corrugated strawboard, holding two cartons each, are used.

THE FARMER'S GAME.

BY DORA H. STOCKMAN.

A blood-red dawn, and a sullen sky.
The leaves hang limp; from the field
near by
"Bob White, Wheat's ripe," calls the
busy cock
Where the quails breakfast at the finest
shock.

The keen farmer reads the weather
signs
As he buckles the straps and snaps the
lines—
"Get your forks, boys, quick. Get into
the game.
That wheat must be in before the
rain."

Across the field dance the prancing
bays
Catching the spirit; the wide rack
sways
And bumps and rumbles at every jump
Grazing the gate and banging a stump.

"Whoa." They stop between shock-
rows
Then the pitchers begin with eager
throws;
Bundles to right and bundles to left
The catcher shifts them with pitchfork
deft.

Row upon row piles up on the rack
To a golden mound like a moving
stack;
A race to the barn, sprint her up in
the sling,
A trip and a drop, make the "home
run" swing.

"One inning, play ball," shouts the
Captain, gay,
Ice cream, if we beat Storm King, to-
day
With our Harvest team. Old Thun-
der's to bat
Each swing of his club makes a rum-
bling crack."

The second inning is quickly done,
Like the lightning's flash are the bun-
dles flung;
Panting and puffing they pile up the
score
With the fourth load entering the big
barn door.

The fifth is a rusher, with bundles to
bat
The murky clouds are as black as your
hat;
The streaks of lightning chalk up the
score
As the sixth "home run" bumps
through the door.

"Just one more load. Now boys, play
ball!"—
A crash as though the heavens would
fall
And a blinding flash like the noonday
sun
Show the last load in and the game is
won.

Cheer on the side lines and stamp your
feet
For the pluckiest team of the season
has beat;
And their Harvest trophies are loaves
of bread
When the Farmer wins, the World is
fed.

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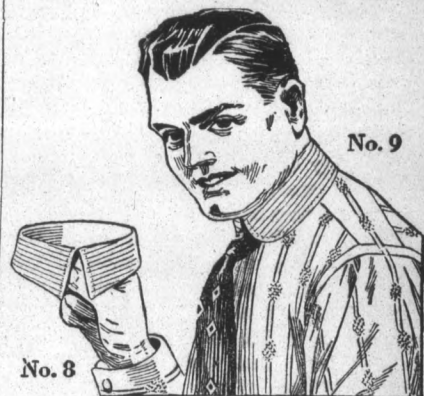
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34 by 4	12.10	13.95	3.40
35 by 4	12.25	14.25	3.50
36 by 4	12.75	14.75	3.60
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Woman and Her Needs

At Home and Elsewhere



Simple Diet for Young Children

HABIT rather than instinct guides civilized man in the choice of foods," says Mrs. Ellen H. Richards. Teach children to eat plain foods. Do not discuss your likes and dislikes before them, for a chance remark may form a dislike for a food that has much value.

Childhood differs from maturity in its needs. The adult requires food that yields energy, with just enough protein to keep the body in repair. The child requires food for growth as well as energy and repair. His digestive organs are not fully developed, so the food given must be easily digested.

Milk ranks high because it contains all of the foodstuffs with the exception of starch. In the feeding of the young child nothing can take its place; for the child from four to ten years of age it is estimated that from one and one-half pints to one quart daily is desirable. This amount includes that used with cereals, cream soups, cocoa, vegetables, etc.

Eggs, fresh and properly cooked, should form an important part of the child's diet. Remember always to cook them at a low temperature, as a high temperature makes the albumen tough and hard to digest. They can be poached either in water or milk, soft-boiled, scrambled, coddled, or baked. The white is more easily digested than the yolk and occasionally it is better to give only the white. One a day can be given, and, after the third year, sometimes two a day.

Meats. Authorities differ as to the use of meats and broths, some giving them after the second year, and some not until after the eighth year. If they are used, only the most easily digested, as beef, lamb and chicken, should be given. When given to very young children, meat should be scraped and broiled, because of the difficulty of chewing it. When milk and eggs are used freely children are well fed without the use of meats.

Bread. Fresh or hot breads are not easily digested, so should not be given to children. Zwieback, stale bread or properly made toast can be used freely. Children usually like brown breads and they make a pleasant change in the diet.

Cereals contain all the foodstuffs, but the larger part is starch. Oats and corn contain more fat than the others, so give more heat. Because of the large amount of starch found in them cereals require long cooking to make them palatable and digestible. The bran found in rolled oats and wheat sometimes proves irritating, but this is usually overcome by longer cooking. Cream of wheat, farina, or something similar can be substituted. The ready-cooked cereals are not recommended for young children. Milk or cream can be served with cereals, but no sugar or syrup. Dates, raisins, or figs, finely chopped, can be added to a cooked cereal about five minutes before serving.

Vegetables. Uncooked vegetables should not be given to young children, but mild flavored ones, as spinach, asparagus, peas or string beans, that have been cooked and mashed fine, can be used. Older ones can have baked, mashed or creamed potatoes, squash, beets or carrots. Before ten years of age, children should not be fed cabbage, lima beans, corn or egg plant.

Fruits and sugars. Fruits are valuable, but take care in choosing them.

Under five years of age it is better to give only cooked fruits and the juice of fresh fruits. Orange juice and the pulp of prunes can be given daily, as they are rich in iron. Dates, figs and raisins can be stewed with little or no sugar and used freely. Bananas can be baked, but if served raw the stringy portion should be scraped off. Children under six years of age are better off without candy, but after that it can be given occasionally at the close of a meal. Do not give it between meals.

Desserts. Fruits, sponge cake, angel food or other very plain cakes can be used; simple puddings, made of eggs, milk, corn starch, etc., are also suitable.

Beverages. Water and milk are the only ones that should be given before six years of age; after that cocoa can be given, if we remember that cocoa and milk are food as well as drink. Exclude tea and coffee from the diet as long as possible.

WHEN IT'S TOO HOT TO SLEEP.

BY LULU G. PARKER.

One of the less expensive ways to get cooled off after a day's work is the sponge bath. This is as good as the shower bath and requires nothing expensive in the way of equipment except a tin basin, a soft cloth and a little water. A cold bath is good in the morning, but it tends to keep one awake. The evening bath should be a little warm, the water about 100 degrees. Use a soft towel and pat the body dry without rubbing.

Avoid heating or over-stimulating foods. Eat cereals, fresh fruits and vegetables. Avoid an all-cold meal even on the hottest days. Have hot chocolate, or other hot drink with cold food, or one hot dish, an omelet or creamed vegetable, with a cold drink. Iced water should be taken very sparingly.

Sleep out of doors if possible. A sleeping porch is not an absolute necessity, but a big piece of mosquito netting is. This should be large enough to cover the sleeper and his cot or hammock. If it is not possible to sleep out of doors then keep all of the windows open, and have the sleeping-rooms clean and free from flies. The less furniture and drapery there is in the summer sleeping-room the better.

A strip of matting spread between the sheet and the mattress will make a cooler bed. A pad of newspapers basted together and put under the sheet will also help. A sheet wrung out of cold water and hung at a window or door will lower the temperature of the room appreciably while it is drying. If the general health is maintained, proper food eaten, and cleanliness observed, the danger from heat prostration will be reduced to the minimum.

WARNING TO MOTHERS IN SWAT- THE-FLY CAMPAIGN.

The tendency at this time of the year of the health authorities in various cities of the middle west to offer a premium of 10 cents a hundred for dead flies in connection with their clean-up campaign brings up for discussion an important question of sanitation and hygiene. If a fly, alive, is a possible bearer of death through the disease germs which it carries on its

body, how do children who swat the fly and then carefully preserve the decomposing bodies for the coveted 10 cents a hundred escape infection through the same germs?

Apparently, through zeal in these wars of extermination, those in authority have overlooked a most dangerous feature of the movement. Swat the fly, of course, but burn him up immediately because he is more filthy dead than he ever could be alive. Decomposition adds to the menace.

To instruct children to "swat flies" and accumulate them until they have enough to bring in and collect 10 cents a hundred seems nothing short of a crime against modern sanitation. It would be a dangerous practice for grown people who took every possible precaution against infection; but for children to carry dead flies with their hands and then perhaps handle food without washing is almost certain to spread every disease that flies are known to carry.

The only possible way, from a sanitary standpoint in which flies could be caught and preserved for the estimating of their number would be on a sheet of sticky fly paper which embalms the flies' bodies with a glue which prevents germs from spreading. This might add to the difficulty of estimating the exact number but it would



An Ideal Sport Suit of Purple and Green Jersey.

be near enough for all practical purposes. And it would protect children from probable infection in the very diseases against which the fly campaign is supposed to protect them and would teach them to regard the fly as the deadly insect he is instead of encouraging them to regard him as an object of familiarity and indifference.

NATURE PLANNED FOR A BALANCED RATION.

BY M. A. L.

The necessity of a balanced ration for human beings is shown in various ways. The person who eats one kind of food only, as starches and sugars, and cuts out milk, eggs, and lean meats is never in the best of health, any more than the one who over-indulges in proteins. A safe and sane combination of the various elements is the only guarantee of good digestion, which usually means good health.

But the result of the balanced ration, good health, is not the only evidence nature gives of its desirability. The digestive tract itself shows us that na-

ture designed we should thrive on certain elements, for certain organs of the body have been especially prepared to digest the different food elements.

The starches are converted into sugar in the mouth by the action of the saliva. That is, they are if we chew them sufficiently to give the digestive fluid time enough to act. But all too often we swallow the soft-cooked cereals, vegetables and baked goods at a gulp, giving the saliva no chance to digest them, and then chew religiously the lean meat which is digested by the gastric juice in the stomach. It often seems a pity that nature didn't reverse things and use the stomach for starchy digestion, since the wisest of us are apt to swallow the starches without sufficient chewing. We can see the necessity for thorough mastication of the starchy foods when we eat hard, dry toast, dry crackers, a crust of bread or any other starch which forces us to chew it long and carefully. The longer we chew it, the sweeter it becomes, showing us that sugar has been formed and the process of digestion already begun.

The stomach, into which the food passes, secretes the gastric juice which digests the proteins, or the lean meat, eggs and other animal foods we eat, together with the legumes, or peas, beans and lentils. This juice changes milk into curds, which explains why so many people can not drink milk. It is because they swallow it quickly in huge mouthfuls and a mass of curds is formed in the stomach, causing distress. If the milk is sipped slowly in small mouthfuls so that small, separate curds are formed there is seldom any difficulty about its digestion.

From the stomach the food passes to the intestines where the fats are broken up by the pancreatic juice and intestinal juices, the waste products eliminated and the thoroughly digested parts which have not already been absorbed are taken up by the blood.

This provision for the digestion of all sorts of food is conclusive proof that the body needs all the elements. While we might find all we need in the various vegetables, cereals, nuts and fruits, the greater ease of digesting the animal proteins points to an economy in nature which we would be foolish to overlook.

RECIPES.

Rye Bread.—To make two loaves of good rye bread, take one pint of bread sponge, one large cup of rye flour, the same of yellow corn meal, scalded and cooled, one tablespoonful of melted butter, one of molasses, and a little salt. Knead with white flour. When light bake in a moderate oven.—M. A. P.

A Company Dish.—Pile hot mashed potatoes, which have been whipped till very light, into a large tureen or baking dish. Now carefully scoop out the center and into the hollow empty the contents of a can of salmon from which the bones have been removed. Cover carefully with a layer of potatoes, put grated crumbs over all, and brown in the oven.—Reader.

Log Cabin Salad.—Peel and cut in four pieces lengthwise, two bananas, and place in orange juice for half an hour. Place on individual serving plates in log cabin fashion and fill with one cup of fresh or canned cherries, stoned, which have been dressed with mayonnaise. Garnish with sprays of curly parsley and serve very cold.

Grange.

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

OCEANA POMONA.

Oceana Pomona Grange met with Walkerville Grange, Saturday, June 17. The day came at the end of a rainy week, and the roads were very muddy except such roads as are never muddy, of which class, thanks to the enterprise of our people, we have a goodly number of miles.

There are twelve Granges in good standing in Oceana county at this date, and eight of them were represented at the meeting. Seven of this number were on hand in the morning, which fact counts because it promises well for the rest of the day.

Memorial exercises were conducted and were in charge of our chaplain, Sister Evans. We were reminded of the uncertainty of life by the fact that only one or two Granges reported no deaths during the year just closed. It is the custom of Oceana Pomona to hold memorial exercises at its June meeting, and we want to commend this practice to any Pomona that has not been in the habit of thus honoring those of its members who may have finished their earthly labors.

Reports of Subordinate Granges indicated little change in the condition of Granges throughout the county, although two of the number have made very rapid growth during the last few months. Elbridge Center Grange reported that within a year the membership had more than doubled, and that they were having an average attendance of 80 per cent. Surely this is a mark high enough to aim at, and well worthy of emulation. Crystal Grange, too, has become a rural center. Membership is increasing, and what is much better, the Grange is finding and doing its work.

I always hesitate to say much about the dinner at a Pomona meeting. It might as well be taken for granted that the dinner is perfect. But good as they all are, if we were to draw a line denoting the average, we should put the kind of dinners furnished by Walkerville Grange considerably above that line. The fact that a number of the company had traveled from 20 to 25 miles to eat there, after doing no small amount of chores at home, did not lessen our power of appreciation at this point.

When Master Goodridge called the meeting to order after dinner, the hall was full. Everyone joined in the opening song, and Rev. B. O. Shaw offered prayer.

Rev. Shaw also gave the address of welcome. He said in part: "We welcome the Pomona Grange and members of the Order in the county, to Walkerville, because the Grange stands for 'Organization of farmers.' I have come nearly 200 miles since yesterday morning, and at one time I feared I might not be here to perform this pleasant duty. We welcome you because the Grange stands for better agriculture, better schools and churches, and better and more progressive community life. We welcome the Grange because of its work in the great cause of temperance, and its efforts along many other lines of right living." I wish we might give Brother Shaw's address in full, but the lack of space forbids.

We have often said that in our Pomona programs, we should bring together the best matter obtainable in the county. To do this, is vastly better than to depend on state speakers to do the work that our Order was instituted to help us to accomplish for ourselves. Not that we would discourage the securing of state speakers at Pomona meetings. On the contrary, we would have an outside speaker at two or more meetings of Pomona during the year. We would get the very best one obtainable and then advertise.

Farmers' Clubs

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

RALLY.

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

CLUB DISCUSSIONS.

Side Lines for the Farmer.—The July meeting of the Burton Farmers' Club was held at the hospitable home of Mr. and Mrs. M. L. Peterson and daughters on July 6. The president, Mrs. E. B. Putnam, called the Club to order and all joined in singing "The Star Spangled Banner." Several interesting topics were taken up, among them being, "Some side line which might be indulged in by the farmer for both profit and pleasure." Some might keep fancy poultry. Some keep bees, some might take parties driving in the automobile. One told of a farmer who had collected old iron for a year or so and was drawing it to town during the spring. Then there is the truck garden, which might prove profitable. Some might enjoy keeping Belgian hares, while some might enjoy raising fruits.

"Resolved, that it takes more ability to run the house than the farm." Mrs. Fauth thinks that running a house and making a home is the best test to our ability, as the mother and wife in the family. It takes tact and ability to live with people gracefully. Running a house is not like running machinery about the farm. The home-maker has to mould the character of her children. Her ability also involves the health of the inhabitants of the house. The home is the nation's safeguard and it requires responsibility, tact and ability to keep the little things and the big things of the home running smoothly. Mr. Fauth believes that running a farm requires more ability than the work of running the home. It requires physical strength and a great intellect to run a farm.

"How can the parents help the teacher in governing the children in school?" Mrs. Putnam looks at the children's troubles from the teacher's viewpoint. Do not sympathize with the children against the teacher. Show the child that the teacher is in the school for his own good. And seek always to work in conjunction with the teacher in the school, which will help in the school government.

But at each meeting we would try to bring together a splendid variety of good things from different parts of the county, things that are worth coming out to hear—all the more appreciated because our own people have rendered them.

But to get back to my story. One of the richest things we have listened to for a long time was a reading by Sister Aldrich, of Crystal Valley Grange. She chose the story of "The Ruggles Party," from "The Birds' Christmas Carol." Mrs. Aldrich interpreted this beautiful story as I have never heard it done before. She honored the author and performed a very helpful service for many who listened. There will never be any difficulty in getting out a crowd to a Pomona meeting if they can listen to numbers like that.

The address was delivered by the writer, and all he can say about it is that he is alive and hopes that all who listened to it can say as much.

It is always a pleasure to address the people of our good Pomona. We have not the largest organization of the kind in Michigan, we do not get out as large numbers at our meetings as gather in some of the more popular counties, but the great law of compensation operates here, for at least a part of what we lack in numbers, we make up in true Grange spirit. We have a few leaders who are not only faithful, but are in touch with members of the Order throughout the county, and what is vastly more important, they are always at peace with each other.

So that with no wish to detract from the reputation of one of the good strong Pomona Granges of Michigan, I want to close this report by saying that Oceana County Pomona Grange has a mission to the county generally, to the people of the country in particular, and is trying with a large measure of success to accomplish that mission.

W. F. TAYLOR.



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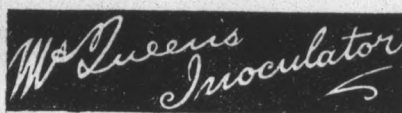


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A Razor Snap

A new lot of fine quality Imported Razors at 40 cents while the supply lasts, is now offered by the Michigan Farmer.

The razors are made of the best cutlery steel, five-eighth-inch blade, and black handle. We will not say just what these razors ordinarily retail at, as prices on razors vary with each dealer, but we have seen razors no better sold at \$1.25 and \$1.50.

Every man who shaves ought to have at least three razors as it is a proven fact that giving a razor a rest is beneficial to it, and here is your opportunity to get a supply at very little cost.

So, only while our present supply lasts the price is 40 cents each, postpaid, or a half-dozen at \$2.00, postpaid. Address all orders to the Michigan Farmer, Detroit, Mich.

Markets.

GRAINS AND SEEDS.

July 18, 1916.

Wheat.—The price movement for this grain at present hinges upon rust conditions, in the spring wheat fields of the northwest. Should the rust spread, prices are sure to go to higher levels. While there are many bears in the market, most dealers think that present prices are not high considering the war and the short acreage at home and abroad. Careful buying by European governments has squeezed most of the war advance out of wheat, leaving it in a position to respond to increased buying or serious crop injury. Investors are holding large quantities of wheat, and those who figure on a decline in price are comparatively few. Receipts of wheat at primary points were 1,650,000 bushels compared with 767,000 bushels a year ago. One year ago No. 2 red wheat was quoted on the local market at \$1.20. Last week's Detroit quotations were:

	No. 2	No. 1	Red.	White.	Sept.
Wednesday	1.16	1.13	1.18	1.18	1.18
Thursday	1.16	1.13	1.18	1.18	1.18
Friday	1.15	1.12	1.17	1.17	1.17
Saturday	1.18	1.15	1.20	1.20	1.20
Monday	1.18	1.15	1.20	1.20	1.20
Tuesday	1.17	1.14	1.20	1.20	1.20

Chicago.—July wheat \$1.11½ per bu; Sept. \$1.12½; Dec. \$1.15½.

Corn.—Good crop reports have failed to check the advance in corn values. Foreign buying continues good and the demand for local consumption is active. One year ago No. 3 corn was quoted at 80c per bushel. Last week's Detroit quotations were:

	No. 3	No. 3	Mixed.	Yellow.
Wednesday	81	82½	81	82½
Thursday	81	82½	81	82½
Friday	81	82½	81	82½
Saturday	81½	83	81½	83
Monday	82	83½	82	83½
Tuesday	82	83½	82	83½

Chicago.—July corn 79¾c per bu; Sept. 75½c; Dec. 65½c.

Oats.—The market for this grain remains firm, although the offerings of both old and new are liberal. The local demand is good and the buying for export purposes is very active. One year ago standard oats were quoted at 57c per bushel. Last week's Detroit quotations were:

	No. 3	No. 3	Standard.	White.
Wednesday	45	44	45	44
Thursday	45	44	45	44
Friday	45	44	45	44
Saturday	45½	44½	45½	44½
Monday	45½	44½	45½	44½
Tuesday	45½	44½	45½	44½

Chicago.—July oats 41½c; Sept. 41c; Dec. 42½c.

Rye.—The market for this grain is very quiet and the price is 2c lower than last week. Cash No. 2 is quoted at 96c per bushel.

Beans.—This commodity is scarce and the market is firm. Much of the inflation due to the Mexican war scare has been eliminated, therefore prices are lower than last week. For immediate and prompt shipment quotations are \$5.75 per bushel. At Chicago holders are firm and receipts very light. The demand is limited to that necessary for consumptive needs. Michigan hand-picked pea beans are quoted at \$6.50@7; red kidneys \$6@6.10.

Seeds.—Prime red clover \$8.90; prime alsike \$9.50; prime timothy \$3.30 per bushel.

FLOUR AND FEEDS.

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

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

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

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

DAIRY AND POULTRY PRODUCTS.

Butter.—Market is firm at prices the same as last week. Extra creamery 27½c; firsts 26½c; dairy 23c; packing stock 21c.

Eggs.—Market steady, with prices unchanged. Price for the week, based on sales, is 27½c.

Chicago.—The demand continues to be good at former prices. Receipts are kept well cleaned up. Dairies selling

well. Extra creamery 27½c; extra firsts 26½c; firsts 25½c@26c; dairy extras 27½c; packing stock 23c.

Eggs.—Hot weather is affecting eggs and current receipts include many bad ones. This caused lower prices for that grade and higher for the candled stock. Current receipts are quoted at 21½c; firsts 24c.

Chicago.—Strictly fresh stock holding steady but the bulk of receipts are weakly held. The market is slower but prices are unchanged. Firsts 22@22½c; ordinary firsts 21c; miscellaneous lots, cases included 18@22½c per dozen.

Poultry.—The market is quiet and firm at unchanged prices. Fowls 16@18c; broilers 25@28c; ducks 18@19c; geese 12@13c per lb.

Chicago.—The supply and demand are both good; speculators are active. Springers are slightly lower but hens are higher; shippers should not crowd coops. Hens 17c; roosters 12½c; spg chickens 1¾ lbs. and over 23c; 1@1½ lbs. 20c; spring ducks, over 2 lbs. 16c; spring geese 16c.

FRUITS AND VEGETABLES.

Cherries.—Sour Michigan cherries met with fair sale on the Chicago market. Red and black sweets are in good demand. White sweets are slow. Sour cherries are quoted at \$1@1.40 per 16-qt. case; sweets 75c@83 per 16-qt. case, depending on variety and quality.

Small Fruits.—Gooseberries \$2.50@2.75 per 24-qt. case; black raspberries \$2@2.15 per 16-qt. case; red raspberries \$5.50@5.75 per 24-qt. case; red currants \$1.50@1.75 per 24-qt. case; blackberries \$3@3.50 per bushel.

Chicago.—Gooseberries 75c@81 per 16-qt. case; blackberries \$1@2.75 per 24-qt. case; black raspberries \$1.50@1.60; reds \$1.25@1.50 per 24-qt. case; red currants 75c@1.40.

WOOL AND HIDES.

During the week there has been a fairly large amount of wool sold to large operators. Prices are firm and still have a tendency to advance. Dealers hesitate to buy at the present high prices, but all indications are that the market will continue firm and the price movement will be upward if any. With an embargo on wool from England and her colonies, practically the only available foreign wool is defective South American stock. At Boston Michigan unwashed delaines are quoted at 31@32c; do. combing 35@42c; do. clothing 29@31c.

Hides.—No. 1 cured 18½c; No. 1 green 15c; No. 1 cured bulls 13c; No. 1 green bulls 10c; No. 1 cured veal kip 20c; No. 1 green veal kip 18c; No. 1 cured murrain 18c; No. 1 green murrain 16c; No. 1 cured calf 28c; No. 1 green calf 25c; No. 1 horsehides \$6; No. 2 horsehides \$5; No. 2 hides 1c and No. 2 kip and calf 1½c lower than the above; sheepskins, as to amount of wool 50c@2.50.

GRAND RAPIDS.

Hot and dry weather threatens to cut the crop of raspberries and later berries short. Black raspberries are selling at \$1.75 per crate; red raspberries \$2@2.50; currants 75c@1. New potatoes are worth \$1@1.10 per bushel; peas \$1.25 per bushel; wax beans \$1@1.25; No. 2 red wheat has advanced to \$1.05, with other grain unchanged. Fresh eggs bring 22½c; dairy butter 23c per pound.

DETROIT EASTERN MARKET.

The market was very active Tuesday morning, although green stuff was a little draggy. Lettuce sold for 35c a bushel; head lettuce 50c; cabbage \$1@1.25; peas \$1.50; onions 20c a bunch; currants \$2.50 per 24-qt. case; red raspberries \$5 per 24-qt. case; black raspberries \$3.10 per 24-qt. case; new potatoes \$1.25 per bu; eggs 35c; butter 30c. Hay was being offered at \$20 a ton.

LIVE STOCK MARKETS.

Buffalo.

July 17, 1916.

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

Receipts here today as follows: Cattle 165 cars; hogs 80 d. d.; sheep 6 d. d.; calves 100 head.

With 165 cars of cattle today, there were around 35 cars of shipping cattle and the trade was in a demoralized condition. The bulk of the cattle sold 50c a hundred lower and there are several loads going over with no bids on them. We will need a very light run here next Monday, and if they come back with another heavy run they are bound to pound these grass cattle down lower.

Our receipts of hogs were not very heavy today, but demand was limited and the general market 10c lower than

Saturday's best time, choice grades selling around 10.30; a few a little more; ordinary grades from \$10@10.20; pigs and lights generally \$10; roughs \$8.75@9; stags \$6.50@7.50. Several loads left, that arrived late for the market, and prospects for the balance of the week about steady.

Sheep receipts very light, prices nearly the same as last week. Prospects about steady.

We quote: Best spring lambs \$10.50@11; cull to common lambs \$9@10; yearlings \$7.50@9; wethers \$8@8.25; ewes \$7@7.50; cull sheep \$3.50@6; bucks \$5.50@6.25; top veals \$12.75@13; heavy \$10@11.50; common and light \$10.50@12; grassers \$5.50@7.50.

Chicago.

July 17, 1916.

Cattle. Hogs. Sheep. Receipts today. 22,000 38,000 16,000 Same day 1916. 15,537 43,353 12,199 Last week. 45,952 139,935 79,319 Same wk 1915. 42,621 98,660 55,453

Hogs received last week fell off in average weight to 228 lbs., comparing with 233 lbs. a week earlier. The week opens today with hogs 5@10c lower than at the close of last week, sales ranging at \$9.15@10. Cattle were late in finding buyers, who were bidding 10@15c lower prices. Sheep and yearlings sold at steady prices, but buyers were bidding as much as 25c lower for lambs, despite the small receipts, including 3,200 southern lambs consigned to packers.

Cattle have been marketed of late more liberally than the very moderate requirements of local killers and shippers warranted, and as a result prices for all descriptions from the best to the poorest, took a downward course. With the appearance of extremely hot weather, the demand for beef fell off materially throughout the country, and this reacted on cattle, the greater part of the steers selling last week at a range of \$8.50@10.35, the lowest prices seen in a long time. The extreme range of prices extended from \$6.75@8.50 for inferior to fair grass steers up to \$10@11 for good to prime offerings, with one sale at \$11.20, consisting of 13 head of old-fashioned heavy steers which averaged 1730 lbs. Cattle bringing \$10.50 and upward graded as choice, and the medium to good steers found buyers at \$9.25@9.95, with sales of fair little killers at \$8.60@9.20. Good to prime yearling steers went at \$9.75@11, while butcher stuff sold at \$5.75@8.50 for cows and \$5.50@9.60 for heifers, with sales of cutters at \$5.15@5.70 and canners at \$4@5.10, while bulls brought \$5.25@8.25. There was a vigorous trade in calves, especially in light vealers, which found buyers at \$10@12 per 100 lbs., with the heavy weights going at \$5.50@9.50. Plenty of stockers and feeders were offered to meet the greatly reduced country demand, and prices took a sharp downward course, with sales at \$5.50@8.60. Stock and feeding heifers brought \$6.50@7.65 and stock and feeding bulls \$6.50@7.10. The general run of stockers and feeders looked as much as 25c lower than a week earlier, and there was a wide range of quality to select from. Because of the hot weather the cattle trade started in later than usual, the cattle taking on good fills. Outside of yearlings and good handy weight cattle, prices averaged 25@35c lower at the close of the week than a week ago.

Hogs were in excellent local slaughtering demand last week, and on some days shippers made tolerably fair purchases of the better class, the best barrows bringing a good premium. In spite of increasing receipts, the market developed a great deal of strength, and sales took place close to the highest prices of the year, with speculators taking a hand in the game on some days. In average quality there was a falling off, there being too many grassy packing hogs, some of which had to be carried over unsold at night because of unsatisfactory bids. Pigs were marketed rather sparingly, and most of these offerings carried considerable weight and sold correspondingly high, the demand being active for good lots. At the week's close hogs sold at \$9.20@10.05, comparing with \$9.55@10.25 a week earlier, while pigs brought \$7.75@9.50. Best light shipping hogs brought \$9.90.

Lambs comprised most of the offerings received last week in the sheep division at the stock yards, including a generous proportion of Idaho lambs, mostly of superior quality. Reactions from highest quotations took place on some occasions, but the undertone was inclined to be strong for desirable offerings, which were greatly wanted by killers. Idaho marketed some very nice feeder lambs averaging 60 lbs. at \$9.40, as well as some good fat little yearlings. Sheep and yearling prices were well maintained, but native lambs sold off 50@75c, while range lambs declined 25c. Lambs closed at \$8@10.75; feeding lambs at \$9@9.40; yearlings at \$7@9.75; wethers at \$6.75

@8.50; ewes at \$3@7.75; breeding ewes at \$7.25@9.85; bucks at \$4.50@6.50.

Horses were sold at generally unchanged prices, the offerings being only moderate in numbers, while the domestic trade was of the usual dull mid-summer character. The only genuine activity was in army horses, which sold at \$160@200 for artillery horses. Inferior to fair horses brought \$50@100, while commercial chunks went at \$165@215 in most instances, better and heavier horses selling at \$220@265.

LIVE STOCK NEWS.

Late carefully gathered statistics go to prove that the crop of spring lambs in this country was much smaller than was at first estimated, far fewer ewes having been bred than in former years, while other conditions were adverse. For instance, the serious drought resulted in seriously decimating the crop of lambs in Texas, and the general southwestern crop fell off materially. The crop of southern spring lambs is reported to have been anywhere from 20 to 25 per cent smaller than that of 1915, while the crop of native lambs of the entire country shows a great falling off. Late advices received from Nevada, Oregon and Washington are that marketings of spring lambs will be all of 25 per cent smaller than a year ago, while the shortage in Montana is positively startling, being now placed at 40 per cent. Under such abnormal circumstances, it will be seen at once that the country's production of sheep, yearlings and lambs must fall greatly below the trade requirements, this applying to not only live muttons, but even more so to feeders from the ranges and good breeding ewes and bucks. Within a short time there have been sales in the Chicago market of prime lots of spring lambs up to \$11.10 per 100 lbs., while prime yearlings sold at \$9.75, the best wethers at \$8.15 and prime ewes \$7.75. Buyers have paid up to \$9.85 per 100 lbs. for prime breeding ewes, while breeding bucks brought from \$6@8, with yearlings going at the highest. Prime feeding lambs from the range country have sold as high as \$9.40 per 100 lbs., and it is a foregone conclusion that the feeding operations of the next winter period are going to be unusually small. Not only will the available supply be limited, but the prices are so high as to frighten many intending buyers. The ranges of Idaho, Nevada, Oregon and Washington are now marketing some long trainloads of lambs, yearlings, and wethers, which are mostly choice and sell at fancy prices as a matter of course. One feature of the market is extremely unfavorable for the future mutton supply. Allusion is made here to the habit of the packers buying lambs of the feeder class at higher prices than sheepmen can afford to pay.

Michigan.

Shiawassee Co., July 10.—Weather for the past ten days has been very favorable for securing the hay crop. Wheat is looking fairly well, some fields, however, are very thin and the stand is short. Corn is very backward and a poor stand. Beans are looking well; rye an average crop. Oats are coming on in good condition. Fruit prospects are uncertain, especially apples. A number of miles of state road being constructed. Sugar beets a poor crop. Stock of all kinds in good condition.

Berrien Co., July 10.—Hay of all kinds a good crop, but early cutting somewhat damaged. Corn is making a good growth. Not many beans planted. Early potatoes made good growth of top, but tubers are small. Peach prospects good. Wheat \$1; oats 40c; new potatoes \$1.35; old \$1; butter-fat 29c; butter 25c; eggs 22c; hogs \$9; cattle \$7.

Cheboygan Co., July 15.—Yield of clover and timothy good; alfalfa not so good. Corn looking good but late. Potatoes fine, beans good. Lots of buckwheat. Fruit prospects are good. Milk 20c per gallon; butter-fat 32c; eggs 28c; butter 25c; old potatoes 80c; strawberries 10c per quart.

Emmet Co., July 12.—Fine growing weather the past week, and corn, beans and potatoes have picked up wonderfully. Yield of clover, hay and alfalfa is fair to good, and these crops are now being secured. Prospects good for an average crop of fruit.

Livingston Co., July 11.—Weather is ideal for securing the hay crop, which is especially good this year. Wheat is not very good, but has improved wonderfully. Corn and beans look good but are very small owing to the backward season. All growing crops need rain.

St. Clair Co., July 11.—It is very dry and growing crops need rain. Good haying weather and farmers are busy securing the crop. Not much alfalfa here. Not a heavy crop of fruit. Butter-fat 32c; cattle \$5.75; hogs \$7@9; wheat 95c; beans \$5 per bushel.

THIS IS THE LAST EDITION.

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

DETROIT LIVE STOCK MARKET.

Thursday's Market.
July 20, 1916.

Cattle.

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

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

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

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

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

Veal Calves.

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

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

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

Sheep and Lambs.

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

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

Hogs.

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

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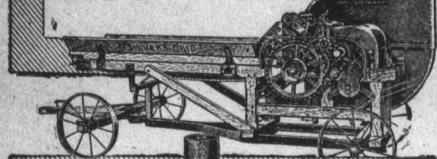
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Farm Commerce.

Marketing Potatoes to Advantage

THE farmers of Monmouth county, New Jersey, have given farmers in all sections of the country a practical illustration of what thought linked with business methods will do for the farmers. By employing teamwork in the disposal of their potatoes, vegetables and fruits, they are able not only to command the country's best prices, but to maintain a desirable price throughout the whole season, due to the even distribution of their produce.

Eight years ago the Monmouth County Farmers' Exchange was organized. In July, 1908, with a paid in capital of \$7,000 and a membership of 300 progressive farmers, the year's business amounted to \$454,414.11, while today with a paid-in capital of \$100,000, or 20,000 shares at \$5 each the annual business averages about \$1,300,000. It pays a dividend of six per cent on the stock held, and beside these features, saved its members thousands of dollars in the purchase of the best machinery, seed, fertilizer, etc., for use on the farms.

When the farmers depended upon the local middlemen, or brokers, for the disposal of their potatoes, from 1902 to 1907, they received an average price of 42½ cents per bushel, or \$1.16½ per barrel for their potatoes, with very shaky conditions every day before them, for nothing pleased these dealers more than to make the farmer believe the bottom was about to drop out of the potato pool, and so the harvest would be rushed that the potatoes might be placed in the waiting cars before the failure appeared. But this irregularity awoke Monmouth county farmers, and to secure satisfactory marketing conditions they organized.

The exchange has made a new story on average potato prices for the past seven years, and the advanced prices have given the hard-working farmers autos, fine homes, modern buildings, blooded stock, while actual benefits from co-operative effort has raised average land prices from \$100 up to \$300 per acre. Land values soon raise where crops are disposed of at advantageous prices.

Better Prices Secured.

For the period between 1908 and 1915, Monmouth county farmers have received an average price of 60½ cents per bushel, and \$1.66½ per barrel for their potatoes, or an advance of 50 cents per barrel and 18 cents per bushel over the average noted above. When a community ships out 3,000 carloads of produce in a season, these advanced prices make a large total and mean much to agriculture when the excess money goes to the farmers.

The Monmouth County Exchange covers one of the important agricultural sections of the east. It operates a territory 500 miles square in the central portion of New Jersey, extending through the counties of Monmouth, Middlesex, Mercer and portions of Ocean and Burlington counties.

Not alone are potatoes marketed for the farmer, but also apples, pears, berries, melons, sweet corn, pickles and such miscellaneous crops as are grown. Aside from selling the farmer's crops, this organization keeps the farmer supplied with seed potatoes, grass seed, hampers, spray material, barrels, lime, stable manure, and manufactures fertilizers from the purest and highest grades of chemicals that are to be had, thus insuring the members of placing on their soil genuine, true to name fertilizer, which will grow good crops and not burn out or lay idle and prove useless. Every dollar the Monmouth Exchange spends for fertilizing elements makes its return, and a few months later pays its annual dividend in ad-

vanced production. From \$3 to \$6 a ton is saved the farmer on fertilizer, and he gets good goods, too.

Plan of Organization.

The members of this organization elect 15 of their members to act annually as a board of directors, and these men select a man of business ability to act as general manager and sales director for the whole membership, each member being taxed a certain per cent for produce marketed or materials purchased, which is used to defray expenses. The system employed in conducting this great agricultural business enterprise is just as simple as possible, and all members are highly elated over results obtained.

There are between 40 and 50 shipping points maintained, and at each depot will be found the official agent-inspector, who acts as officeman, inspector and information gatherer. All produce is inspected, graded and credited to the member who brings it to the car, a telephone system being connected with the general manager's office, where these facts are 'phoned. The book-keeper credits the farmer with a given number of bushels of potatoes at a certain price, and he promptly receives his pay, as a treasury fund allows this. All carlot shipments, for these are all that are sent out, are shipped f. o. b., with bill of lading attached to a draft, so that the consignee must lay down his cash be-

fore he gets the goods. In days of old the city buyers would keep farmers waiting for months sometimes for their pay, then reporting that the produce was rotten and that half price would be allowed. This has been stopped.

Selling Territory Expanded.

Co-operation allows Monmouth farmers to distribute their crop over a wide range of country. I was surprised to learn that they covered the territory between the gulf and the great lakes, as far west as the Mississippi, and that shipments had been successfully made as far as Mexico. With the old system the farmer sold to a local jobber who sold to a wholesaler, and this man was the distributor. But the Monmouth county farmer, through his general manager, is all three, and keeps three profits for himself.

Advanced knowledge of the demands of various markets, which is collected by the general manager from various cities by telegraph daily, allows placing carlots of potatoes where the demand is greatest and the price highest. The farmers thus maintain values and prevent fluctuations of market prices that are so prevalent where indiscriminate shipments of farm products are made.

Monmouth farmers are able to attract the wider consuming field, for by clubbing together, working as one man, they command the attention of the largest trade in all parts of the country and thereby widen their markets and increase their price.

When a body of farmers, whether the number be 10 or 1,000, organize into one co-operative organization, the spirit to produce better crops is fostered and the task of preparing these better grown products for market becomes comparatively easier.

New York.

EARL W. GAGE.

Dairymen Secure Field Secretary

IT took a long time for some of the armies of Europe to get under motion; but look at the execution these armies are now doing. Many of the milk producers of Michigan have been very anxious to feel the impulse of the meeting held at the Agricultural College May 23 last, for the purpose of organizing the Michigan Milk Producers' Association. This milk producers' army has at last been organized and is ready to move. In fact, marching orders have been issued and the campaign is already begun.

The obstacles encountered after the May meeting were two in number—the lack of a good man and sufficient funds. It requires a man of rare qualities indeed to act in the capacity of a field secretary for an association of this character. He first of all should be conversant with the dairymen and the dairy interests of the state. Not only should he know these interests, but he should also be known and have the confidence of those to become affiliated in the organization. He should be a man of large capacity, of good executive ability and of commanding qualities. Such men are hard to find, and when located are difficult to secure in that they have much business of their own.

When the officers of the association had completed their survey of conditions and understood the type of man required to carry out the purposes of the new organization their attention immediately turned to R. C. Reed, of Howell, who has been identified with the dairy interests of Michigan for many years. He was one of the founders and the first president of the Livingston County Holstein-Friesian Association, through which organization the foundation for the wonderful accomplishments in making Livingston county the great Holstein center that it is today, was wrought. Afterwards he assisted in organizing and was the first president of the Michigan Holstein-Friesian Association and has been twice elected president of the Michigan Live Stock Breeders' & Feeders' Association.

Without doubt he is as well informed on the live stock interests of Michigan as any layman in the state. Ten years ago when the prohibition movement was unpopular Mr. Reed as a nominee for governor canvassed the state and for fourteen weeks traveled up and down, advocating those principles that are today so firmly woven into the political life of Michigan as to give well founded hopes that the entire state will adopt them at the November election.

Because of his splendid leadership and experience, as well as his close connection with Michigan's dairy interests, Mr. Reed is without question one of the best qualified men for the position of field secretary of the new organization, but when the officers of the association urged him to accept this position, he at first declined because of the large amount of work that the office would entail and also the extensive demands of his own business. Eventually, however, a compromise was reached and Mr. Reed contracted to give one-half of his time to the field work of the Michigan Milk Producers' Association. The milk producers are certainly to be congratulated upon securing so able a man, and nothing augurs more for the success of the work than his selection.

He has already devised a financial plan that is working beyond his fondest hopes and which has already been copied by the New England Milk Producers' Association. He is now in the field assisting in the organization of local associations. Reports will be published in the columns of this journal. In a near future issue the financial scheme evolved will be described. If dairymen in any locality feel the need of assistance in the organization of the milk producers or in putting new spirit and enthusiasm in an old organization of this character, they should correspond immediately with the new field secretary by addressing R. C. Reed, Field Secretary of the Michigan Milk Producers' Association, Howell, Mich.

EXTENDING CO-OPERATIVE SERVICE.

Co-operation has proved a great boon to thousands of farmers in other states. We are often told that farmers won't work together because each one is so firmly wedded to the idea of doing things his own way. It is true that men in the country are compelled to think for themselves and work out plans which are different from those used by others, but when it becomes necessary for them to work together they can do so very effectively.

Co-operative Beef Club.

For thirty years a beef club has been in operation in Prairie township, Carroll county, Missouri. The rules and plans of the club are now so well organized that it may be regarded as a model to be followed with profit by many other sections of the state. Butchering takes place every Friday afternoon and the carcass is divided among sixteen families. Similar organizations have succeeded very well in many other parts of the country. It is quite generally customary for each family to receive a different portion of the carcass so that in a few weeks or months any unequal division which may occur one week will be counterbalanced by a corresponding advantage or disadvantage in later weeks. Sometimes each family in turn furnishes an animal approved by a committee of the club and does the butchering. Sometimes the committee purchases and butchers the animal without calling on any members of the club and then sells the meat. In this case we have practically co-operative buying from members of the organization but without profit to those members who sell what they have bought for that purpose.

An Ice Club.

A number of enterprising farmers formed an ice club made up of men who join in purchasing a wagon-load of ice from a neighboring town and distribute it to the members of the club. In some sections a possible outgrowth of the idea might be a community ice-house, especially if a group of homes were clustered about a cross-roads, but where artificial ice is available it is often cheaper and always more sanitary than that obtained in winter from ponds or streams.

MICHIGAN CROP REPORT.

Wheat.—Average estimated yield of wheat in the state is 15.67, in the southern counties 15.58, in the central counties 14.94, in the northern counties 16.11 and in the upper peninsula 18 bushels per acre. The total number of bushels of wheat marketed by farmers in June at 56 flouring mills is 53,730 and at 52 elevators and to grain dealers 34,238, or a total of 87,968 bushels. Of this amount 71,969 bush-

counties 12.74, in the northern counties 14.90 and in the upper peninsula 16.92 bushels per acre.

Corn.—The condition of corn in the state is 68, in the southern counties 67, in the central counties 64, in the northern counties 72 and in the upper peninsula 74. One year ago the condition of corn in the state was 71.

Buckwheat.—The acreage of buckwheat sown or to be sown as compared with last year is 105 in the state, 104 in the southern and northern counties, 107 in the central counties and 111 in the upper peninsula.

Beans.—The acreage of beans planted or to be planted as compared with last year is 100 in the state, 97 in the southern counties, 102 in the central counties, 110 in the northern counties and 105 in the upper peninsula. The condition of beans compared with an average is 84 in the state, 85 in the southern counties, 80 in the central counties, 86 in the northern counties and 90 in the upper peninsula.

Potatoes.—The condition of potatoes in the state is 87, in the southern counties 88, in the central counties 82, in the northern counties 90 and in the upper peninsula 86.

Sugar Beets.—The condition of sugar beets is 84 in the state and upper peninsula, 87 in the southern counties, 78 in the central counties and 90 in the northern counties.

Clover.—The condition of clover as compared with an average is 100 in the state, 99 in the southern counties, 98 in the central counties and 102 in the northern counties and upper peninsula.

Hay and Forage.—The acreage of hay and forage that will be harvested as compared with last year is 108 in the state and southern counties, 106 in the central counties, 112 in the northern counties and 110 in the upper peninsula.

Peas.—The acreage of peas sown as compared with last year is 97 in the state, 102 in the southern counties, 105 in the central counties, 89 in the northern counties and 103 in the upper peninsula.

Cucumbers.—This is the first season this department has asked correspondents for report on acreage of cucumbers planted and we are of the opinion that not more than 50 per cent has been reported, the acreage reported is 16,720 in the state, 7,760 in the southern counties, 4,750 in the central counties, 3,600 in the northern counties and 610 in the upper peninsula.

Fruit.—The prospect for a crop of peaches in the counties included in the Michigan Fruit Belt is as follows:

Allegan	70
Berrien	80
Ionia	23
Kent	43
Ottawa	55
Van Buren	72
Muskegon	59
Newaygo	40
Oceana	67
Benzie	68
Leelanau	76
Manistee	63
Mason	75
Average for Michigan Fruit Belt....	61
Average for Mich. Fruit Belt, 1915	73

The following table shows for the state and the different sections the estimated acreage of the principal farm products, fruit excepted, for the year 1916:

	State, acres.	Southern counties, acres.	Central counties, acres.	Northern counties, acres.	Upper Penin. acres.
Wheat	766,391	566,704	137,436	57,330	4,921
Rye	310,836	220,755	91,438	94,857	3,786
Corn	1,987,154	1,495,337	335,251	152,958	3,608
Oats	1,722,923	1,094,047	403,533	165,295	60,048
Barley	80,029	43,774	26,856	3,111	6,288
Buckwheat	58,480	36,994	9,567	11,186	733
Beans	443,587	189,763	218,751	26,789	8,284
Peas	62,080	1,917	18,134	28,268	13,761
Potatoes	361,599	169,405	78,090	92,568	21,536
Sugar Beets	86,761	24,003	60,889	1,240	629
Hay and forage....	2,331,631	1,367,666	539,664	280,069	144,232

els were marketed in the southern four tiers of counties, 12,654 in the central counties and 3,345 in the north-

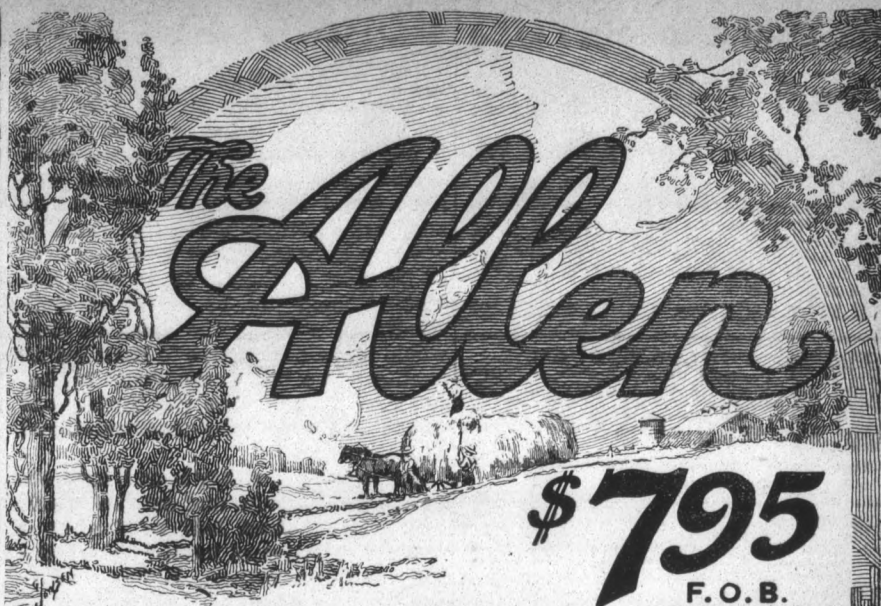
The following table of percentage gives the averages in regard to fruit in the state and the different sections:

	State, Co.'s	Sou. Co.'s	Central Co.'s	Nor. Co.'s	Up. Pen.
Apples—prospect for an average crop, per cent..	76	73	78	81	90
Peaches—Prospect for an average crop, per cent..	67	71	55	66	..
Pears—Prospect for an average crop, per cent..	69	67	68	72	80
Plums—Prospect for an average crop, per cent..	66	64	60	78	80
Orchards—Per cent that are cultivated.....	38	33	39	49	46
Trees—Condition last spring's setting, per cent..	88	89	85	84	97
Grapes—Prospect for an average crop, per cent..	79	80	76	81	100
Raspberries and Blackberries—Prospect for an average crop, per cent.....	92	91	92	97	97

ern counties and upper peninsula. The estimated total number of bushels of wheat marketed and used by farmers in the 11 months, August-June is 11,000,000. Seventy-one mills, elevators and grain dealers report no wheat marketed in June.

Rye.—The average estimated yield of rye in the state is 13.90, in the southern counties 13.61, in the central

Spring lambs are arriving freely in the Chicago stock yards, the proportion of sheep and yearlings now showing up being very small, as is usual at the midsummer period. Naturally, the prices have suffered a large decline from the fancy opening figures, but they are still unusually high as compared with other summers.



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Think over the car question—just what do you require? Don't you find most important—

POWER, ROOM, STRENGTH
MODERN CONSTRUCTION

These four points are the ones most desirable for most farmers and they show up strong in the specifications of the Allen 37. You will find the Allen up-to-date, powerful, roomy, well-built and complete.

There is no greater motor car value under \$1000—there is no car so well fitted for country use.

All we ask is comparison. Note these specifications.

37 H. P. 3 1/2"x5" 4 cyl. motor.
112-inch wheelbase.
53-inch underslung rear springs.
Full floating rear axle.

Two-unit electric starting and lighting system.
Weight 2300 pounds.
Gives 20 miles on a gallon of gasoline.

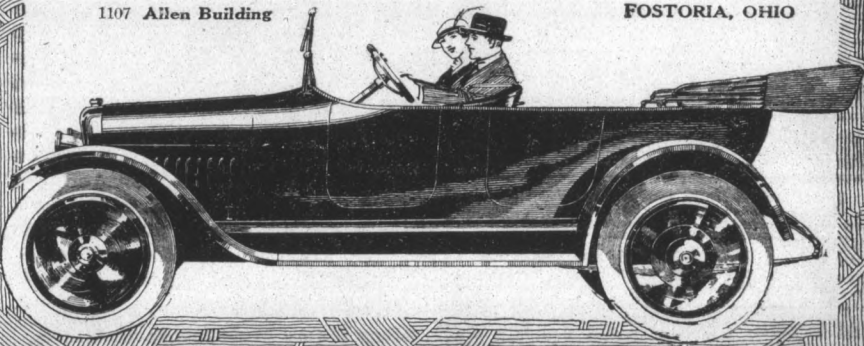
Model 37 has proven so satisfactory for the past year that it will be continued for this our fifth successful season.

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\$380,000 Saved in the Pockets of Our 9500 Members IN Comparison with Rates in Stock Companies.

The only Mutual Company in Michigan on its second season of successful operation.

This Company started at the right time of the year, and had the first pick of the careful automobile owners of the State.

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With over 2,000 accidents and about 1,500 automobiles stolen in Michigan last year, every prudent man should insure in the Big Mutual which covers fire and theft, and protects you against the damage cases brought against you above \$25 and up to \$5,000.

Cost only \$6.50 on a Ford; others in proportion.

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Send for Catalog A for prices of Bee Hives, etc. We sell everything for bees, including beginner's equipments.

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Send for catalog C for prices of Berry Baskets and crates. Special—200 Waxlined paper berry baskets postpaid for \$1.00 to any point within 150 miles of Lansing.

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Practical, Snappy, Instructive—YOUR PAPER. For the breeders of Mich., Ind., Ill., Wis., only. You should read it. 50c a year, 3 mo. 10c. Agents wanted. Big 4 Poultry Journal, Desk 26, Chicago.

POULTRY.

BARRED ROCKS 200 Egg Strain with records to 230 eggs a year—\$1.50 per 15. Delivered. By Parcel post. Fred Astling, Constantine, Mich.

Barred Rock Eggs, laid 950 eggs in one year. W. C. COFFMAN, BENTON HARBOR, MICH.

Cousins Northern King Strain Barred Plymouth Rocks. Have won many prizes. Eggs \$2. for 15. Both matings. Satisfaction guaranteed. David W. Cousins, North Port, Mich.

Hatch Every Week

Booking orders now for hatches July 31st and Aug. 8. EVERFRESH EGG FARM, IONIA, MICHIGAN.

JOHN'S Big, beautiful, hen-hatched Barred Rocks. Eggs, 30, \$2.50; 100, \$7.00. Select matings 15, \$4; 30, \$7.00, all postpaid. Photos. Circulars. John Northon, Clare, Mich.

Chicks, Balance of season, Wh. and Brown Leghorns \$3.50, S. C. Reds, Anconas, Wh. Wyandottes \$11 hundred, prepaid. Freeport Hatchery, Box 12, Freeport, Mich.

FOR SALE Pure bred S. C. Buff Leghorns and white Plymouth Rock cock- ernels. Kletzen & Webster, Bath, Mich.

Hatching Eggs Buff, Barred, Columbian, Partridge, Silver and White Rocks, Pekin and Rouen Ducks, Sheridan Poultry Yards, Sheridan, Mich.

Fowlers' Buff Rocks : Prices reduced one half, balance of season. Utility eggs \$1.75 for 15, \$1.50 for 30, \$2 for 50, \$3.50 for 100. R. B. FOWLER, Hartford, Mich.

Breeding Cockerels

White, Brown, Buff and Black Leghorn, Barred Rocks, Rhode Island Reds. Prices Reasonable. Sunnybrook Poultry Farms, Hillsdale, Michigan.

ORPINGTONS : —White, Single-Comb Kellerstrasse 8 wks old, chix Cockerels 75c., pullets \$1. up. M. E. THOMPSON, Redford, Mich.

Pine Crest, S. C. White Orpingtons. Bargain 4 yearling hens and cock, \$3, \$12 and \$15, just one half what they will cost next spring. MRS. WILLIS HOUGH, Pine Crest Farm, Royal Oak, Michigan.

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

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

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

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

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

RHODE ISLAND REDS and PLYMOUTH ROCKS. Males 5 to 12 lbs. according to age \$2 to \$5; P. R. hens weight 5 to 10 lbs., eggs 15 for \$1.00; 100, \$5; 120, \$6. Mammoth Bronze Tom Turkeys, 8 to 88 lbs. according to age \$6 to \$25, 10 eggs \$3. A. E. Cramton, Vassar, Mich.

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

SILVER GOLDEN AND WHITE WYANDOTTES. Eggs from all matings, 1.50 per 15, \$2.50 per 30 until July 1st. O. W. Brownings, R. 2, Portland, Mich.

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

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

DOGS

HOUNDS FOR HUNTING—Fox, Coon and Rabbits, all ages. Send 2 cent stamp. W. E. LECKY, Holmesville, Ohio

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

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CATTLE.

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

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

Forcing an Early and Rapid Moul

AN early and rapid moult can be forced if the proper care and feeding is given to assist nature in her work of preparing a new coat of feathers for the hens. This feed, as I have found it, should be rich in oils and carbohydrates since they contribute largely to the structure and growth of the new feathers. Of course, such feeding must not be overdone sufficiently to over-fat the hens as that would be as destructive to their laying qualities as a late moult would be, but the feeder must gage the proportions of the feed mixture by observation and experience.

For a flock of eighty hens I have obtained good results and cut the moulting time in about half by feeding a two-gallon ration of feeds in about the following proportions: Kafir corn two-fifths; millet one-fifth; coarse ground corn one-fifth, and bran and oil meal one-fifth, or enough to balance so that it will crumble good when wet. Fed at this rate, it would make about a quart for every ten hens, but this would probably need to be varied according to the needs of the particular flock. As the moult advances, the quantity of millet should be cut down and other feeds substituted.

Roosting Quarters and Moulting.

In conjunction with a change of diet the moult can be brought about sooner by housing the hens in warm roosting quarters. Nature endeavors to adjust the warmth of the feather coat to suit the comfort of the bird so that this will tend to hasten the loosening of the feathers. Then when the old feathers loosen and new ones are starting it will be found helpful to compel the hens to roost in the coolest place possible but great care must be exercised to be sure they are not forced to roost in a draft. This will accentuate the growth of a new coat of feathers to a wonderful extent so that if any are to be used for exhibition purposes at the county fairs the birds will be plump and sleek with a fine new coat of perfect feathers. Some poultry raisers have found it advisable to pluck the old feathers as soon as they are loosened so that a new feather will not be hindered in its growth by being obliged to push the old feather out of the way. This is undoubtedly a good practice but will require considerably more time than the average farmer is able to give to his poultry.

Keep Males in Separate Quarters.

It is but very little trouble to pen the male birds up in separate quarters during moulting time and permit no breeding. It is better for the hens as well as for the male birds. A temporary wire netting and some ordinary coops will furnish them with sufficient shelter a room for exercise.

Usually in a flock of hens there are a number that will moult late no matter how much care and attention is given them. These will not begin laying until late in the winter and as a rule will not be worth their keep, so that it is a profitable riddance to cull out the late moulters and put them on the market at the earliest date possible.

One possible hindrance to an early and rapid moult would be trouble from lice, and for this reason even if for no other, it is best to take added precautions to thoroughly cleanse the roosting rooms and rid the hens of lice before moulting time begins. The past season has been especially bad for lice on account of so much rainy weather keeping the dusting places wet and muddy so the hens cannot dust themselves and bask in the sun.

Nebraska.

P. H. E.

SCALY LEGS.

I have a flock of Plymouth Rocks which are affected with sore feet and scabby legs. Looks like dried bread crumbs.

Eaton Co.

C. T. D.

Your hens have what is called scaly legs, a disease caused by mites which

burrow under the scales of the legs where they live and breed. The scaly appearance is caused by the crusty deposit made by the mites. As the disease progresses the feet become involved and it becomes difficult for the fowl to walk.

This trouble is somewhat contagious but is more prevalent on fowls which lack the natural supply of oil in the skin. It, also, spreads faster when the fowls are kept on dry barren ground, especially that tending toward an alkaline condition or having ashes or cinders in it.

Individual treatment is necessary to effect a cure, the application of some penetrating oil being necessary. For this a mixture of one part of kerosene and two parts of raw linseed oil will give good results. An easy method of applying this is to put the mixture in a tall quart measure and then, at night dip the legs of the birds in it for a few moments. Care must be used to keep the skin of the legs under the feathers from getting wet with this mixture as the kerosene will have an irritating effect on the skin.

A teaspoonful of kerosene to one quart of water applied as above will also give good results but the raw linseed oil will have a softening and healing effect that the water does not have.

HATCHING TROUBLES.—CAPONS.

What causes young chicks to die in the shell at hatching time? Some die after pipping. Is it improper ventilation of the incubator? Eggs seem to have plenty of moisture. The chicks that hatch all seem strong and healthy. Would also like information about caponizing.

Lapeer Co.

READER.

Your idea of the probable cause of your trouble in hatching is right. Improper ventilation or insufficient moisture will always cause trouble. Very often one provides what he thinks is plenty of moisture for the incubator, but if the incubator is in a room in which there is heat or where it is very dry, the surrounding atmosphere counteracts to a great extent the effect of the moisture supply. Insufficient moisture will cause a dryness of the shell and a toughening of the tissue just beneath the shell which will make it difficult for the chick to pick its way through.

Eggs with weak germs may also develop until about hatching time but the developing chick will not have strength enough to pick its way through the shell. Too much heat or improper ventilation which will allow the fumes of the lamp to enter the egg chamber has a debilitating effect upon the developing chick.

Those who are making caponizing a business find it very profitable. The highest prices usually prevail from January to May, when the prices paid for dressed capons range from 20 to 30 cents per pound. The best breeds for caponizing are such as the Brahmas, Plymouth Rocks and Wyandottes. The best time to caponize is when the birds are between two and three months old. It is best to caponize a fowl which has been hatched early in the spring, so that it is entirely recovered from the operation before hot weather sets in. A well-grown capon will average between ten and twelve pounds when one year old. Outfits for caponizing can be bought from poultry supply dealers and directions for caponizing usually accompany each outfit.

When range is limited spade up the runs or move the brood coop a short distance daily.

Spoiled or decaying flesh, if eaten, will surely cause limber neck. Burn or bury the dead.

Do not keep unnecessary male birds. An extra hen eats no more and may lay eggs.

MILLO D. CAMPBELL CHAS. J. ANGEVINE

BEACH FARM GUERNSEYS

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

CAMPBELL & ANGEVINE,

Coldwater, Michigan.

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

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

VILLAGE FARMS, Incorporated

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GUERNSEY CATTLE

BERKSHIRE HOGS

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

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

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

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

GUERNSEYS

We offer a choice lot of high grade Guernsey cows and heifers, bred to registered bulls LaTertre of Maple Lane, No. 23192 and Sir Dena No. 36173. Prices reasonable. THE JENNING'S FARMS, R. 1, Bailey, Mich.

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

Herefords—One Bull Calf.

ALLEN BROS.

PAW PAW, MICH.

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



Purebred Registered

HOLSTEIN CATTLE

Holsteins, the best dual purpose breed.

Notable characteristics of the registered purebred Holstein-Friesian cattle are health and a hardiness adaptable to all climates, a high standard of vital force, large and easily raised calves, ability to digest and consume the roughage of the farm and transmute it into the valuable products, milk, butter, veal, beef, and surpassing all other breeds in the profitable production of milk and butterfat. The auction prices of this big "Black-and-White" breed have doubled in the past few years. Investigate them.

Send for FREE Illustrated Descriptive Booklet.

The Holstein-Friesian Association of America. F. L. Houghton, Sec'y., Box 164, Brattleboro, Vt.

Do You Want A Bull?

Ready For Service.

From a grand daughter of The King of the Pontiacs. Sired by a bull that is more than a half brother to the Champion Holstein Cow of the World, and whose dam is a 30 lb. 6 3/4 % fat daughter of Pontiac Aggie Korudyke who has more 30 lb. daughters than any other living bull. If you do write for pedigree.

EDWIN S. LEWIS, Marshall, Mich.

HOLSTEIN BULLS FOR SALE

Four of them from 12 to 17 months old by 31 lb. sire dam's A.R.O. Price \$100.00 to \$150.00. Younger bull calves from \$50.00 up. BLISSVELDT FARMS, Jenison, Michigan

FOR SALE

SOME VERY FINE YOUNG BULLS Whose sires have as high as 31 lbs. of butter behind them. As they are young, will make a low price on them. BIGELOW'S HOLSTEIN FARMS, BREEDSVILLE MICH.

HOLSTEINS, a nice straight deep bodied, blocky built bull calf, born Oct. 5th, 1915. His 7 nearest dams have A. R. O. records that average butter 7 days 23.36 lbs., milk 533.36 lbs. W. B. READER, Howell, Mich.

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

\$75 gets Hazel-let grandson of Maplecrest De Kol Parthena and Pontiac Maid 30 2 lb. Born March 26. Dam Pontiac Hesperia 2nd, 14.89 lb; 436.6 lb; her dam's sire brother to sire of world's record cow 31334 lb milk 1 yr. M. L. McLAULIN, REDFORD, MICH.

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

"TOPNOTCH" Holsteins

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

FOR SALE Two Holstein Bull Calves

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

Veterinary.

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

Elbow Tumor.—I have a nine-year-old mare with a soft bunch about the size of my two fists, just back of the fore leg, up next to the body. Everyone tells me it is a shoe boil. H. F. McC., Ewen, Mich.—If it is doing no harm, leave it alone until cool weather, then have bunch cut out, or apply tincture of iodine three times a week.

Poll-evil.—Is there any cure for a horse that has poll-evil and if so please give it. F. A. F., Kalkaska, Mich.—There is a certain amount of surgical work required in order to obtain the proper drainage and this work should be done by a competent Vet. If not you will find poll-evil difficult to cure. Inject a small quantity of tincture of iodine into cavity, or apply iodoform every day or two. Many cases of poll-evil are infected by using dirty syringes.

Wind Galls.—Navel Infection.—Have a two weeks' old colt which appears to have wind puffs on hock which cause considerable pain and lameness. This bunch appeared quite suddenly. T. E., Suttons Bay, Mich.—Your colt suffers from navel infection (joint ill) and it is now too late to do much for it. The colt should be well fed and if the navel is not yet healed, apply one part iodoform and nine parts boric acid once or twice a day. If your local Vet. treats the case, ask him to give the bacterin treatment and he will obtain fairly good results. Apply one part tincture iodine and four parts spirits of camphor to swollen joint once a day. Had you treated the navel properly, this ailment could have been avoided.

Too Much Kidney Action.—I have a five-year-old gelding that urinates six or eight times a day and his water is of a yellow color, but so far as I can tell, the horse is healthy. M. A. McK., Prescott, Mich.—Give your horse a teaspoonful of acetate of potash at a dose in feed once or twice a day. He is perhaps drinking freely of water and is perhaps perfectly healthy.

Scours.—I have a colt six weeks old which had an attack of scours when two weeks old. I gave it castor oil which appeared to effect a cure, but the colt is dull and does not have very much appetite. W. W., Carsonville, Mich.—Give colt 2 grs. of quinine and 15 grs. of bicarbonate of soda at a dose three times a day.

Sores on Back.—I would like a little veterinary advice about a cow that had some sores on her back last spring which are now healed, but there is a sort of horny substance in scars that I would like to take off. R. C. H., Ashley, Mich.—Apply one part vinegar and four parts water occasionally.

Foreign Body in Stomach.—For the past six weeks one of my cows has been gradually growing thinner; does not cough, has no pain, but usually bloats after eating food. Our local Vet failed to help her. F. J. D., Monroe, Mich.—I am inclined to believe that your cow has swallowed some foreign body which is lodged in her stomach and it will perhaps cause her death. Your local Vet. has doubtless done his best and I would advise you to act on his advice. By giving her ½ oz. doses of hyposulphite of soda three times a day, it might help her.

Contagious Abortion.—I have a registered heifer which lost her calf at six months and three of my other cows failed to get with calf. Would you advise me to breed this heifer, or what had I better do? I have sold my herd bull and have a younger one ready to take his place. G. B., Homer, Mich.—I am inclined to believe that you have contagious abortion in your herd and as you perhaps know, there is no sure and certain remedy for it; however, cleanliness and disinfection of your cow stable and premises, and giving each cow three or four drams of methylene blue in a gelatine capsule daily for six days, then discontinue the treatment for eight or ten days, then give the same number of doses two days apart, and at the same time treating your herd bull in a similar manner—you will find this treatment will produce fairly good results. In my practice I find, few dairymen willing to do the work and spend the money necessary to get rid of contagious abortion.

Umbilical Hernia.—I have a three-month-old bull calf that has a navel rupture the size of a hen egg. Is there a cure? J. E. S., Marion, Mich.—The only remedy for a case of this kind is a surgical operation performed by a competent Vet. and I might say that the operation is neither expensive nor difficult and is usually successful; however, all things considered, it might be most profitable for you to veal him.

Aug. 3 5th Public Sale of Duroc Jerseys

BROOKWATER FARM

This Offering Features:

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

Aug. 3

BROOKWATER FARM,

ANN ARBOR, MICHIGAN

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

Aug. 3

FRIST CHECK \$100 TAKES HIM

Holstein Bull 19 Months Old

His dam an 18 lb. grand-daughter of King Segis at 4 years. Sire's dam 30.59 lbs. of butter at 5 years. His grandsire a brother to the \$50,000 bull. A prize winner. More white than black, F. O. B. BYRON FIERO & CO., R. 5, Dowagiac, Mich.

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

HOBART W. FAY,

MASON, MICH.
REGISTERED HOLSTEINS
ESTABLISHED 1864.

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

FOR SALE—Reg. Holstein females, Pontiac Korndyke and Hengerveld Dekol Bred. Price right. 1 to 5 years. John A. Rinke, Warren, Mich.

6 Holstein Bulls

Ready for service, at farmers' prices. All have high testing A. R. O. daughters from world Record Sire, nothing better at any price. LONG BEACH FARM, Gull Lake, (Kalamazoo Co.) Michigan.

Holstein Calves, 10 heifers, and 2 bulls 15-18ths pure. 15 weeks old, beautifully marked, \$20.00 each, crated for shipment anywhere. Edgewood Farm, Whitewater, Wis.

I am going to sell 9 head of Thoroughbred Holsteins. J. W. TROMBLY, WARREN, MICHIGAN.

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

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

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

Senior herd bull, Majesty's Wonder 9077, for sale, sire of Royal Majesty, Dam Mina's Dewdrop, his full sister Majesty's Butter cup produced 703.2 lbs butter in 1 yr. Sons of Royal Majesty are scarce, here is a chance to get one reasonable, must sell to avoid too close breeding, write for particulars, also choice young bulls from above sire. Alvin Balden, Capac, Michigan.

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

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

JERSEY BULL CALF FOR SALE

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

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

FOR SALE—Jersey male calf. Dam, Count's 'Arabella; sire, Golden Oxford Lad. From Pierce's herd Grand Rapids. Inquire R. B. Record, Caledonia, Mich.

BIDWELL SHORTHORNS



For "Beef and Milk" Registered bulls, Scotch-topped roans, reds and white for sale. Farm at N.Y.C. Depot; also D. T. & L. R'y. Address G. R. Schroder Mgr. BIDWELL STOCK FARM Box B, Tecumseh, Mich.

Shorthorn Cattle of both Sex for Sale W. W. KNAPP, Howell, Michigan.

DAIRY BRED Short horns of best Bates strains, young bull 8 months old for sale, price \$150. J. B. HUMMELL, MASON, MICHIGAN.

FOR Sale—Reg. Short Horn Bulls by Maxwellton Monarch 2nd, a son of Avondale, from 8 to 10 mos. old John Schmidt, Reed City, R. No. 5, Michigan.

SHORTHORN COWS FOR SALE: No Bulls at present. R. R. Station, Elsie. H. B. PETERS, Carland, Mich.

Shorthorn AND POLLED DURHAMS FOR SALE. Have red roan and white. Have over 100 head in herd. C. Carlson, Leroy, Mich.

Shorthorns—Dairy or beef bred. Breeding stock all ages for sale at farmers' prices. C. W. Crum Secy. Cent. Mich. Shorthorn Breeders' Assn., McBride, Mich.

Two yr. red shorthorn Bulls. Roan Calf 9 mo. old 1 Poll Angus Bull calf. 8 mo. old, not reg. Priced to move quick. CHASE'S Stock Farm, Marlette, Mich., R. 1.

Registered Shorthorn Cattle, young bulls and heifers \$100.00, bred cows and heifers \$150.00. Write W. J. BELL, ROSE CITY, MICHIGAN.

Milking Shorthorns, roan 3 year old, Bates bred herd bull \$250. Young bulls and heifers. DAVIDSON & HALL, TECUMSEH, MICHIGAN.

REGISTERED SHORTHORN 1 heifer 7 mo. old, 1 heifer 2 mo. old, 1 heifer past 2 yr. old. H. W. MANN, D'Annville, Mich.

Red Polled Cattle. Have a fine young bull and O. I. C. pigs for sale. John Berner and Son, Grand Lodge, Mich.

HOGS.

Royalton Bred Berkshires. Six weeks old pigs, both sexes, registered, nice shaped and marked, \$7.00 each. Order quick. D. F. VALENTINE, Supt., Temperance, Mich.

Berkshires of best breeding, of various ages, either sex, all registered stock, no akin, special reduced price. Write your wants quick. Mitchell's Lakeside Farms, R. 2, Bloomington, Mich.

SWIGARTDALE FARM

HOLSTEINS AND BERKSHIRES

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

The Very Finest Berkshire Pigs Cheap C. S. BARTLETT, Propr. [Pontiac, Michigan]

Berkshires. I have 6 choice fall gilts bred for Sept. farrowing at \$25 each for immediate delivery. A. A. PATULLO, R. 4, Deckerville, Mich.

Berkshires. Of various ages, either sex, open or bred, prolific strains, Registered, at moderate price. Elmhurst Stock Farm, Almont, Michigan.

Duroc Jersey Boars and Red pigs, price, weight etc. given. I guarantee satisfaction, express prepaid. J. H. Banghart, East Lansing

Duroc Jerseys, some choice Jan. boars, spring pigs, pairs & trios not akin, a few sows for June farrow of leading blood lines. W. C. Taylor, Milan, Mich.

Duroc Jerseys—Fall and spring pigs either sex, from choice strains. S. C. STAHLMAN, CHERRY LAWN FARM, Shepherd, Michigan.

Duroc Jersey Sows and gilts bred for pigs, either sex. E. D. Heydenberg, Wayland, Mich.

For Sale, Duroc Jerseys, choice breeding spring pigs either sex. Prices Right. John McNeill, Station A, R. 4, Bay City, Mich

Duroc Jerseys, Apr. pigs either sex, boars ready for service and a few bred sows for Sept. and Oct. Some Holstein cows bred for fall. E. H. Morris, Monroe, Mich.

DUROC JERSEYS:-- all sold out present. Wm. W. Kennedy, Grass Lake, Michigan.

DUROC JERSEYS—A few fall boars for sale. Carey U. Edmonds, Hastings, Michigan.

Duroc Jerseys I have some good last September Boars and gilts. Gilts will be bred for September farrow. H. G. Keesler, R. No. 5, Cassopolis, Michigan

Dobson's Durocs Combined, size, quality, breeding. Herd boars, spring boars, spring sows for sale. Orlo L. Dobson, Quincy, Michigan.

Duroc Jersey Boars Ready for service. Big, Grand Champion blood lines. Gilts bred for Sept. farrow. F. J. DRODT, R. 1, Monroe, Michigan.

Durocs, Sows to farrow Aug. and Sept., spring pigs, either sex. Percheron Stud colt one year old. E. J. ALDRICH, Tekonsha, Cal. Co., Mich., Bell Phone.

Duroc Jerseys. Sows Bred for Aug. and Sept. litters, also early Spring Boar pigs. M. A. BRAY, OKEMOS, (Ingham Co.) Mich.

Duroc Jerseys, if you want a spring boar sired by Principle 4th, you'll have to hurry, are going fast, only a few left. J. Robert Hicks, R. 3, St. Johns, Mich.

CHESTER WHITES Sows bred for Sept. farrow, spring pigs in pairs, not akin. F. W. ALEXANDER, Vassar, Mich.

I HAVE started thousands of breeders on the road to success. I can help you. I want to place one hog from my great herd in every community where I am not already represented by these fine early developers—ready for market at six months old. Write for my plan—More Money from Hogs. G. S. BENJAMIN, E. F. D. 10 Portland, Michigan

O. I. C. BRED GILTS, Also young boars shipped O. O. D. J. CARL JEWETT, Mason, Mich.

Raise Chester Whites Like This the original big producers

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O. I. C. October boars weighing 200 lbs. at \$25 each for April shipment. C. J. THOMPSON, Rockford, Michigan.

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

400 Big Type O. I. C. and Chester White Pigs From Feb. Mar. and Apr. farrow sired by the five best boars in the state. School Master 52707 who won more champions, defeated more champions than any boar show 1915. Abo 2nd, sire to our undefeated breeders young herd at 7 state fairs, Allen junior champion at Wis. State fair 1914, and Captain Jim 33161, under 6 months boar and junior champion at every state fair show 1915. Then we have Le Doux model 29015, first in class at Sioux City, Iowa, 1914. Get our catalogue, its free. We Register Free; Guarantee satisfaction in every way. ROLLING VIEW STOCK FARM, Cass City, Mich.

O. I. C. bred gilts all sold, am offering Sept. boars and gilts, large growthy ones, and booking orders for spring pigs. A. J. Barker, R. 1, Belmont, Mich

O. I. C's. A few bred sows to farrow in April, May and June, I have 20 last fall boars to offer, also gilts. Have them not akin. All good stock. Otto B. Schulze, Nashville, Mich. ½ mile west of depot.

O. I. C's Some extra good fall boars: also gilts. Satisfaction guaranteed. A. R. GRAHAM, Flint, Michigan.

O. I. C. SPRING PIGS, Ready to Ship. JULIAN P. CLAXTON, Swartz Creek, Mich.

O. I. C. And Chester White Swine. Strictly Big Type. Spring pigs, now ready to ship. Can furnish in pairs not akin. These pigs are sired by Lengthy Prince and Model 1st. Two as good big type boars as there is in the breed. I will ship O. O. D. and record them free. NEWMAN'S STOCK FARM, MARLETTE, MICHIGAN, R. No. 1.

O. I. C. September pigs, both sex. Bred E. B. MILETT, Fowlerville, Michigan.

O. I. C. SWINE: If you are interested in O. I. C's, let me start you with a choice pair or trio, not akin, or a gilt, due to farrow about September first. A. J. GORDEN, R. No. 2, Dorrr, Mich.

O. I. C's Pairs and Trios no akin. 2 Reg. Holstein bulls 6 and 8 months old. Cloverleaf Stock Farm, Monroe, Mich., R. No. 1.

O. I. C. Choice Gilts bred for fall Farrow and Spring Pigs. Price Winning Stock. Write for low price. A. V. HATT, Grass Lake, Michigan.

O. I. C. Swine and Reg. Holsteins, few boar pigs of May farrow at a reasonable price, quality considered. ELMER E. SMITH, Redford, Michigan.

Boars at Half Price We still have a few big boned, big type Poland China boars ready for service, weighing up to 250 lbs. not fat at \$20 & \$25 each. Registered in buyer's name. Also registered black Percheron Stallion 2 years old \$250.00. J. C. BUTLER, Portland, Mich., Bell Phone.

BIG TYPE Poland China sows bred for July and August farrow, Spring pigs. G. W. HOLTON, Route 11, Kalamazoo Michigan.

Big Type Poland Chinas—Boars of August farrow, booking orders for spring pigs. A. A. WOOD & SON, Saline, Michigan.

Poland China Spring Pigs Our herd sire was Champion and Grand Champion at the State Fair last fall. Our sows are great big, stretchy, splendid individuals, with best breeding. Pigs from such matings will please you. Get our prices.

HILLCREST FARM KALAMAZOO, MICH.

FOR SALE, P. C. Sows, "Big Type" bred for Sept. farrow, extra good, months boar. March and April pigs. S. C. B. Minorcas. R. W. Mills, Saline, Mich.

Large Strain P. C. A few choice fall boars ready for service, and 1 May boar. Gilts for early farrow all sold, a few choice Gilts to farrow in Aug. and Sept., bred to black Wonder and Oaklands Equal Jr. H. O. Swartz, Schoolcraft, Mich.

Large Type P. C. Gilts and sows. Bred for Mar. and Apr. farrow. Sired by Big Des Moines, Big Knox Jr. and Giant Defender. Bred to Big Knox Jr. Smooth Wonder 3 and Big Jumbo, four great-est boars in state. Come or write. W. E. Livingston, Parma, Mich.

BIG Type Poland Chinas, Sired by Big Type King, B our 1000 lb. boar. Spring pigs, sired by big type King, Fesenmeyer A Wonder Jr., and Mow's Big Bone. W. Brewbaker & Sons, Elsie, Michigan.

For Sale Poland Chinas either sex, all ages. Some-thing good at a low price. P. D. Long, R. F. D. No. 8, Grand Rapids, Mich.

Heavy boned Poland China Spring pigs from large Prolific sows, also young and older sows bred for Sept. farrow. ROBERT NEVE, Pierson, Michigan.

Type P. C. Sows & Gilts all sold. Have 3 extra good spring boars. Sired by Big Defender. W. J. HAGELSHAW, Augusta, Michigan.

Large Yorkshire August and September pigs. 2 spring boars. Prices reasonable. W. C. COOK, Route No. 1, ADA, MICHIGAN.

GROWTHY THE DISEASE PROLIFIC "MULEFOOT" RESIST- PROFITABLE HOG ING

FOUNDATION STOCK FROM BEST BLOOD OF BREED

THE CAHILL FARMS KALAMAZOO - - - MICHIGAN

HAMPSHIRE SWINE Spring registered. John W. Snyder, R. 4, St. Johns, Mich.

Hampshire Swine. Bred Sows and gilts for August and September farrows. Spring pigs, both sex. FLOYD MYERS, R. No. 9, Decatur, Ind.

H. H. Halladay O. H. Halladay & Son Breeders of Hampshire Swine. Write your wants. Clinton, Mich.

SHEEP.

Kope Kon Farms Offers 100 Yearling Shropshire Rams. 100 Yearling And Aged Ewes. S. L. WING, PROP., KINDERHOOK, MICH.

Oxford Down Sheep. Good yearling field Rams and ewes of all ages for sale. M. F. GANSLEY, Lennon, Michigan.

HORSES

Percherons, Holsteins, Angus, Shropshires, Durocs DORR D. BUELL, Elmira, Michigan.

FOR SALE—Registered Percheron Stallions, Mares and Fillies at reasonable prices. In-pection invited. F. L. KING & SON, Charlotte, Mich.

Finance and Investment

The Difference Between Preferred and Common Stocks.

IN previous articles the fundamental difference between stocks in general and bonds in general has been explained and future articles will go into detail concerning the fundamental distinctions which characterize the different classes of bonds. In order that the readers of this journal may get a comprehensive view of finance and enjoy a working knowledge of the instruments of finance it becomes necessary to treat of as many subjects in general as possible in the earlier discussions in order to lay a foundation for the more intelligent reading of details later.

Just as most bonds are included in the more conservative class of investments than most stocks because of the additional safeguards with which they are surrounded, preferred stocks are intended to embody certain features with respect to common stocks in their legal and business standing which put them in the more favored class as a strictly investment security. Of late years they have received the attention of investment bankers to the end that more refinements may be proposed in an effort to enable the business man or company to interest investment capital in his security without mortgaging his property or consenting to some of the provisions which a bond issue force him into. This situation has made for a great many splendid preferred stock issues of good investment standing and supplied the business with necessary financing in a very satisfactory manner.

One of the greatest objections which business men have to putting a mortgage on their fixed assets in securing a bond issue is the added difficulty in providing for temporary accommodations at the bank. Bankers in loaning money like to feel that in the event of any trouble leading up to liquidation, they are on the same footing or if possible secured by prior claims than the other creditors. The very nature of the bond renders the holder a preferred creditor and the bank loaning money to a company with a bond issue outstanding has to look to what is left after the bonds are satisfied. Furthermore in certain states, tax laws favor the preferred stock issues of home companies to the exclusion of bonds. These facts, together with the greater yield, has made the preferred stock method of financing quite popular both with the investor and the issuing agency.

"The name 'preferred' really indicates the difference between the two classes of stock. Preferred as to assets in liquidation and as to dividends in operation is a chief characteristic. In keeping with the strictly investment purpose the preferred issue very seldom enjoys any voting power unless through a non-performance of certain provisions the voice in the management automatically is extended. Furthermore, the dividend is usually fixed at a certain figure, usually six or seven per cent, although sometimes the preferred shares with the common up to a higher figure. Cumulative stock gives the holder the right to demand that the dividend which may not have been earned or paid one year be paid the next year that it is earned, or in any event, before the common is paid. In this way the common dividend is withheld until the preferred is clear of all present or back dividends. Likewise in the event of the company going out of business for certain reasons the preferred stock, if there are no bonds, shares first up to its par value in the distribution of the assets, the common stock getting the rest. Of course, all creditors are first settled with or discharged.

Now, in consideration of these privileges and others of a more detailed nature the common stockholder demands certain favors. If he is to assume the greater business risk he

wants the greater profit in operation, and this is assured by the fact that after all expenses of the business are paid, taxes, interest on borrowed money, preferred dividend and a proper amount credited to surplus, he gets the rest. In prosperous times it is readily seen that the common stock disbursements may be very large, just as in misfortune the losses may be very heavy.

The common stock runs the business, takes the greater risk and receives the greater profits. The preferred stock enjoys more privileges by sacrificing other considerations, takes smaller return but expects greater safety. It is the old story of the greater the risk the greater the return, perhaps. Because of these limitations the price of preferred stays very close to par but the price of common is much higher or lower in direct ratio to the prosperity of the company. One is the speculation, the other the investment, and the preferred stock houses are holding the bond up as the acme of perfection to which they hope to attain in their preferred stock safeguards and investment provisions. Bonds, preferred stock and common stock are favored in their investment qualities in the order named and enjoy the privileges or give up income yield to the same extent.

J. R. MILLIGAN,
Financial Editor.

A TRIBUTE TO THE PIONEER.

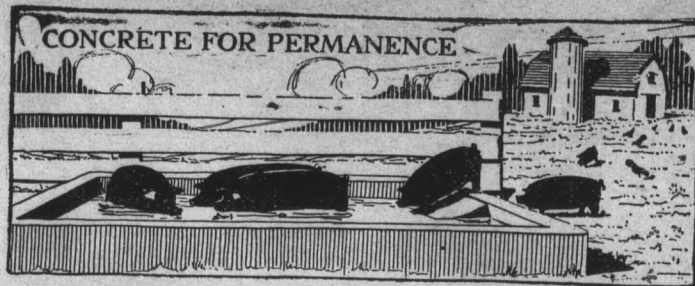
In a recent issue of the Michigan Farmer appeared an article on "The Index of Good Farming." In this connection the writer derives great satisfaction from the fact that recent statistics show a marked increase of average of staple crops grown in this country. Now it may be that the conclusions arrived at are somewhat misleading, as the estimates are largely made by local farmers, and it is quite natural to be somewhat optimistic when making reports on local conditions for publication. This increase is credited to better education and more progressive ideas of the present generation.

It would appear strange that if the increase has been so great that prices should have advanced to present levels. The writer well remembers when corn was so plentiful it was used for fuel, and many other products were almost as abundant. Butter was produced for 10 or 12 cents per pound, hogs and cattle three to four cents dressed, and other products in proportion. These conditions obtained when the ancestors of the present generation were clearing up and improving their farms, opening up roads, building school houses and making it possible for their descendants to enjoy the opportunities of today. Yet our farm paper writers often refer to them as soil robbers and unsophisticated "Moss Backs."

But why should there not be an increased average production? The pioneer worked amid stumps and stones, with perhaps a yoke of oxen, a jumper shovel plow and a drag that he had constructed with his own hands by getting the iron teeth at the blacksmith shop, his other tools being on a par with those mentioned, while now the present farmer has three or four big horses on a two-or three-bottom riding plow, and other tools to correspond. He will go into his 20 or 40-acre field without a stump and scarcely a stone, and when he tells about it he will get quite chummy to think he can do so much better than "Dad," apparently entirely ignoring the fact that dad made it possible for him to enjoy present conditions.

OBSERVER.

We yield to none in our admiration and appreciation of the pioneers who laid the foundation for our present agricultural development. Our larger opportunities are due to their work, but if we live up to those opportunities we must continue to progress.—Eds.



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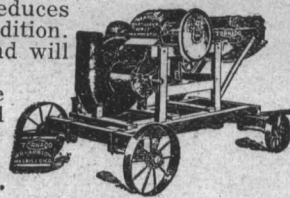
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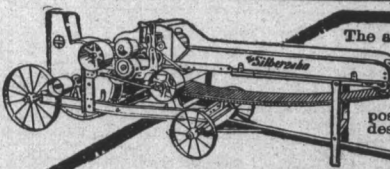


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