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High School Agricultural Education.

By PROF. W. H. FRENCH.

SOMEONE has said that "states create schools, schools create ideals, ideals create leaders, and leaders create states." Thus the circle of human life and purpose is secured through a process of education. This means a process of training or development. The public high school was created by the people to furnish a broader general training and a better preparation for life's activities, than the elementary schools afforded.

The organization of secondary education in the United States began about the middle of the nineteenth century, and naturally the school was developed along the traditional lines of educational purpose and training. They gave little training for life, but actually they laid a foundation for collegiate training, and this in turn gave a training for the so-called "professional walks of life."

The great work-a-day world, with its industrial activities was not considered in the organization of the public high school.

The nineteenth century was pre-eminently an industrial era and toward the close of that period, the attention of the people and of teachers of all grades was turned toward the possibility of utilizing the well-organized school system for industrial training, and at the present time we are bending every energy to make the public schools serve the people in a larger and more effective way.

There is no longer any argument as to why industrial subjects should be taught, or in regard to the value to be derived. It has already been demonstrated that industrial trade courses, agriculture and domestic science or household arts, can be taught successfully in the high school, and by being taught successfully, I mean, that so far as the intellectual and moral powers of the child are concerned, these subjects afford excellent opportunity for development, and second, the actual useable value secured from such instruction has been demonstrated by use in the home,

on the farm, and in the work-shop.

As a matter of information, we present the plans and the methods of operation in the teaching of agriculture, as this subject is the one with which this article is supposed to deal most fully. We mention the other industrial subjects because the development in those lines has been equally rapid and successful.

Agriculture is the basic industry of mankind, and if any industrial subject is to be taught, this should be the first. It can be installed and correlated with the regular work of the public school more easily and with

structor. Suitable room is usually already available. The required laboratory apparatus and reference material will cost from \$100 to \$250, according to the location of the school, and any special features which it may be advisable to produce in course of the instruction.

From the standpoint of society, the first purpose of this instruction is to arouse an interest in and respect for the home and the farm; second, to secure proper mental attitude to farm operations, that is, to make the pupil in school a student of farm problems, and third, to give an opportunity,

In other words, we aim to set up an agricultural ideal, and to press home to the student the idea of his personal responsibility to the community and to himself, so that he may better utilize the great forces of nature for his own betterment and for the betterment of the state.

The course in agriculture is fitted into the regular high school course in the following order: First year, elementary science, botany, and agricultural botany. Second year, farm crops and horticulture. Third year, types of live stock, poultry, feeds and feeding, and dairying. Fourth year, soils and fertilizers, farm management, and farm mechanics. This course parallels and correlates directly with the regular scientific subjects usually presented in the high school, and the subject of agriculture is offered as an elective to both boys and girls.

A short sketch of the work may make the plan clear. The first year work introduces the student to fundamental scientific principles of plant and animal life, and through the work in agricultural botany, the student will handle the various agricultural plants from the standpoint of origin and development and methods of improvement.

For the second year work the student will deal with the best farm practice in the management of the several farm crops, including the orchard and small fruit crops, and the third year he will secure a working knowledge of the different breeds of farm animals, the principles underlying the development of animal life, "up grading" the dairy herd, etc., together with the theory and actual home practice in methods of feeding and caring for live stock, and in addition to this he will be familiarized with the underlying scientific principles of successful dairying.

During the fourth year, the student will secure a working knowledge of the different soils and the relation of fertilizers to soil improvement. Here, also, will come the application of the work in farm crops, and lastly, he

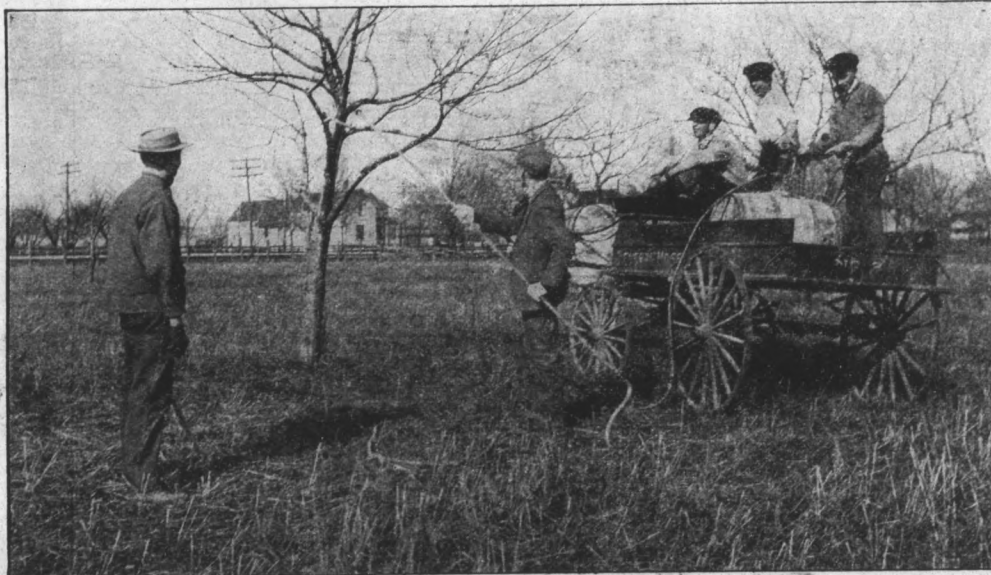


Fig. 1.—A Field Demonstration in Spraying which Supplements Theory with Practice.

less expense than any other of the industrial subjects. The necessities for this instruction in the high school are as follows:

- (a) A capable and trained instructor.
- (b) Proper laboratory room and equipment.
- (c) Suitable laboratory reference material.
- (d) Co-operation with the farms and farmers who live adjacent to the school location.

The largest item of expense will be incurred in securing the proper in-

while the school process is going on, for the actual work at either high school farm or on the home farm, of actual agricultural projects. This means intellectual efficiency and industrial efficiency.

We understand today that the trained mind is as essential to the manual worker as to the brain worker. We aim to make the work of farming attractive and to teach fundamental principles and practice in order that as the years go by our young men may be better farmers, do better farming, and produce better farm products.

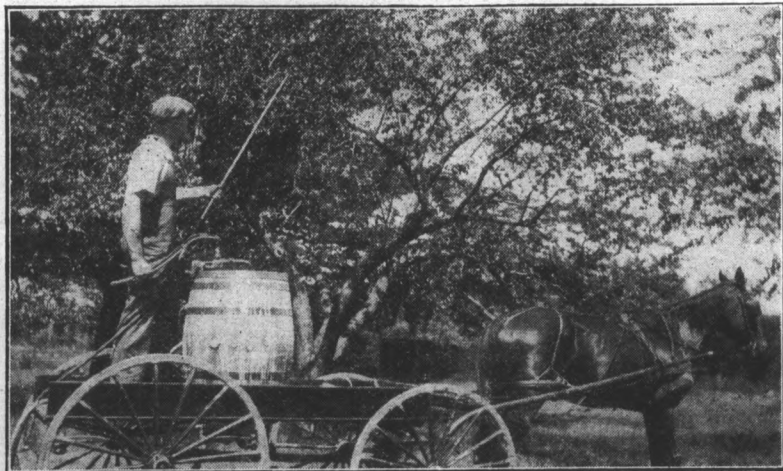


Fig. 2.—Getting Real Experience in the Business of Fruit Growing.



Fig. 3.—A Home Garden in Charge of the High School Students.

will take up a careful study of the general management of the farm on the financial side, farm records and accounting, together with the careful study of farm machinery in general, and particularly the gas engine. This is not a theoretical matter, as these things are being actually done in our high schools at the present time.

Some Phases of the Problem.

The problem of introducing agricultural courses in our high schools is somewhat complicated, by the fact of the varying size and location of the school; for instance, how much of agriculture can be taught in our larger cities? It is perfectly easy to do this work in the villages and small cities, but the city presents a separate problem. In such cases the regular four-year course has been modified and certain of the subjects selected which could be emphasized and developed to a larger degree than would be necessary in the ordinary school. For instance, in one large city, the class in agriculture has taken up the general discussion of farm and orchard crops, and then taken the subject of orcharding in a specialized way. This was accomplished by the renting of an orchard just outside of the city limits, and the boys took charge of the whole process of fruit growing, from the grown tree, which would include pruning, spraying, harvesting and marketing.

Another group took charge of a good-sized garden of small fruits, including strawberries and raspberries. This also was managed on a commercial scale. Figs. 1 and 2 show these boys at work in the orchard under the direction of the instructor. These were tenth grade boys. The seniors and juniors of this same school took up the subject of commercial dairying, basing it, of course, upon a careful study of dairy breeds of cattle and their proper management.

A third group took a course in landscape gardening, tree surgery, with actual practice in the gardens and among the trees of the city.

In another city, landscape gardening, vegetable gardening, and forestry, are the specialized phases which are presented. Fig. 4 shows one of the gardens managed by a school girl in this city.

In some of the smaller cities and villages, similar specialized phases of agriculture are taught, particular attention being given to home gardening. Fig. 3 shows a home garden in charge of the high school students.

In every village and city there are many vacant lots, some of which are usually unused and unsightly. The board of education in such places should rent all these lots and put them in the hands of the teacher of agriculture, who will interest the students in the productive agricultural enterprises. The board of education can in turn rent the land to students, or the students may work it on shares.

The matter of school gardening is not new; it has been practiced in the larger cities of this country for a good many years, but in such cases the children simply did the work as a school exercise and without any financial interest of their own in the outcome. Hence, the educational and industrial results were not always such as could be desired. Fig. 5 will show such a plot of ground in actual process of development in a Michiban village.

In the villages and smaller cities where the students have easy access to adjacent farms, it is not necessary for the board of education to provide land as the students will have sufficient opportunity for the observation of actual farm practice, and for the management of their own enterprises during the summer.

The Home Project.

One of the most important phases of the work in agriculture in secondary schools is the home project, as we

call it. Each student in the several years of the course is expected to select some project which will illustrate the material he has been studying during the year, and work this out, or begin its development during the summer vacation. Such practice will not use all the boy's time, of course, but the father may well give the boy the use of the land and suitable time for the development of this practical phase. One instance to show how this will work out. A boy decided that he would raise two acres of corn. He had in his own mind that on this plot of ground he would raise corn which he could sell for seed corn, and planted it. He carried out the theories he had learned in the classroom in the care and development of his crop, and in the fall had the satisfaction of husking 125 baskets of marketable corn from each acre, while his father on the same farm had to be content with 75 baskets, and the boy had the further satisfaction of selling his own father his seed corn for the ensuing year, together with practically all of his crop, either to neighboring farmers or to a commission merchant for that purpose. This is but one instance, but it shows what we mean by teaching agriculture and the best part of it is, that this boy has decided in his own mind to become the best farmer in that whole community.

Showing up the Results.

Another phase of this work is shown in the development of the community exhibit, or fair. The boys at the close of the season bring to the school, or to a place selected, the products which they have produced during the summer. They invite their fathers and mothers to do the same thing, and thus an exhibit of the farm and home products of that particular locality is arranged for the edification and development of all. At one of these community fairs, a fine group of cattle was presented, and the interest of the community is shown in the fact that the boys and their fathers erected a tent to cover the exhibit, and that during the two days the exhibit was given, more than 3,000 persons passed through these tents.

Any number of instances could be given to show how the teaching of agriculture improves the regular classical and scientific work of the high school, while at the same time laying a broad and deep industrial foundation. The superintendents of the several schools, where agriculture is taught in this state, will unite in this statement and in their approval of this particularly valuable industrial training. We have 42 high schools where agriculture is being taught to about 1,500 young men and women, most of whom are from farm homes.

An Increased Efficiency.

Efficiency is the great word today in industrial life, and we are becoming more and more aware that industrial efficiency means mental efficiency. It means trained minds and trained hands, and more than that, it means that during the process of training, ideals of life individually and in the community must be developed. The school must assist the boy in discovering himself. The high school period, or from 14 to 18 years of age, is called the formative period because during this time the habits formed, the tastes developed, and the ideals constructed, are those which will stay with the individual so long as he lives. It is not sufficient that the high school shall teach the classics well. This school, the people's school, must touch the individual life of the people and open the doors of opportunity which lead to a happy and successful life for the boys and girls. Man was created with a body which could work. He was also created with a mind which could think, and the public school was created to help the individual to live. This means that the function of the school is to increase the child's ability to understand, appreciate, enjoy, and

use the forces of nature which lie about him.

The plan here presented of teaching agriculture provides that 25 per cent of the student's time in the high school shall be given to agricultural instruction and training. The same amount of time can be given to the girls and the boys in other phases of industrial education. This, it seems to us, is not too much time or not too large a proportion of the school time for this most important phase of education. Not all of agricultural education can be given on the farm. The laboratory is a place of vital importance. Here is where the thinking power is developed, and here is where the power is secured which may be later utilized in the development of the home farm. Fig. 6 shows a corner of one of our agricultural laboratories. It tells the story of organization, thought, investigation, and these three things are absolutely vital to the development of the new agriculture to which we all look forward with the keenest anticipation.

This is the fourteenth of 52 special articles to be published in consecutive issues. The author has held the chair of Agricultural Education at M. A. C. since the inception of "High School Agricultural Education" in Michigan, and has had direct charge of the work.—Eds.

FARM NOTES.

Fertilizer for Corn.

For sowing commercial fertilizer with corn, which brings the best results, checking in with the corn, broadcast, or sowing with a grain drill before planting? Which is of greater value to corn, ground phosphate rock or commercial fertilizer? Van Buren Co. J. A.

The best method of applying fertilizer for corn will depend not a little upon the condition of the soil to which it is applied. The writer has tried both plans and prefers the use of a liberal application sown broadcast and worked into the soil when preparing the ground for corn. A little fertilizer put in the checks when the corn is planted will start the plants growing very thriftily, but only a small application can be made in this manner without danger of injuring the germinating power of the seed, particularly if a fertilizer containing much potash is used and it happens to be dry weather subsequent to corn planting time. We formerly used from 100 to 125 pounds per acre in checks but in recent years have used about 500 pounds per acre broadcast with excellent results. A complete fertilizer is preferable to ground rock phosphate where immediate results are desired. Ground rock phosphate must be applied in connection with organic matter to make it available, and some time must elapse before the full benefit of such an application is derived.

Depth of Plowing for Beans.

I have a field to plow for beans, a part of which was in beans last year. How deep should it be plowed for the best results? How can quack grass be most cheaply and effectually exterminated? SUBSCRIBER.

A great deal depends upon the condition and character of the soil as to how deep it should be plowed for best results. If a good deep soil—as is probably the case, in view of the fact that a second crop of beans is to be taken from a portion of it—it should preferably be plowed at a fairly good depth.

Quack grass can be successfully exterminated by thorough culture, which does not permit any of it to develop leaves above ground. Small patches can be killed out by other means, such as smothering out with a layer of tarred paper. A good way to eradicate quack grass from a field at a minimum cost is to grow some root crop on the land, which requires hand-hoeing, which supplementary work in addition to thorough cultivation persisted in for a single season will practically eradicate it.



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The Problem of the Sandy Farm.

By W. F. TAYLOR.

MICHIGAN has thousands of these farms, varying greatly in productive power. Some of them were cleared long ago. The process of clearing was difficult, and took a number of years of hard labor. The first fields fitted for the plow were cropped over and over, each time yielding smaller returns. At first wheat was grown on many of these farms and the amount produced varied from 15 to 20 bushels on the best of this soil, down to nine or 10 bushels on that which was lighter and poorer. At first clover grew on nearly all these sandy lands with little trouble on the part of the owner, and with results which promised well. But small clearings and large needs made it easy to neglect the sowing of clover until the organic matter was depleted, and when at last the owner came to a time when he thought he must seed down, the clover refused to stand the dry weather and when the grain was cut off it was not to be found.

Early Management Faulty.

As the price of lumber advanced it became an easier matter to clear land, for the timber could be sold at a good figure, and as the wood was worth cutting in many cases, by the time both were sold there was little left to do beyond hauling a few old rotten logs together, and gathering and burning the brush with them. Many thousands of acres of sandy stump lands are being cleared now in the northern part of our state, and if the clearing is not put off too long after the timber is cut, the task is not at all difficult.

It would seem that after the problem of clearing the land became easier, better care of the soil would result, particularly when the owner had had so many object lessons all around him, of the consequences of neglect; but the question of a living is always a problem on the farm, and even

all crops must get their nitrogen from the soil, and will suffer in proportion to the degree in which this shortage is felt.

There is still another trouble with our sandy soils. They are so loose in texture that they admit the air too readily, and the soil grains being larger than in the case of the clay, they do not retain the water so long. It should be understood also, that most of our sandy farms are low in content of all kinds of plant food that are likely to be lacking under any circumstances. The needs of the sandy farm may then be summed up as follows: Some protection from the winds in the case of cultivated fields, and provisions for keeping up the supply of moisture, lime, and other available plant food.

In some cases, the hardest problem of all is to protect cultivated fields from the effects of high winds in the

a profit. When it rains so much that the heavier lands are soaked and all crops suffer unless a good system of drainage has been provided, then the crops on our sandy fields laugh and grow to splendid maturity.

The Moisture Supply.

But we can do much to keep the water in our sandy soils if we will. Indeed, it seems to me that the most important thing of all is to provide against the effects of dry weather on these sandy fields. What shall we do? First, get the vegetable matter back into the soil. How? By a short rotation of crops, by plowing under green manures and by applying barnyard manure if it can be obtained without too great expense. It is very generally known that organic matter absorbs and holds large quantities of water in the soil, but the extent to which liberal quantities of vegetable matter will increase the yield of crops

If we have doubts about our need of lime we can make tests either with acid or litmus paper, and ascertain the facts.

Ground limestone is getting cheaper, and marl is found to be plentiful in many localities. I am convinced that we must apply large quantities of lime to our sandy soils in the very near future if we are to get the best results. We have come to associate lime with alfalfa, but we shall find it almost as useful to the clover crop, and of much benefit to all legumes. Ground limestone is a very economical source of lime in the long run, but if our soil is very sour, it will be well to apply 500 pounds per acre of burned lime at the beginning, and then put on the limestone or the marl. Let me urge the readers of the Michigan Farmer to look for marl beds. We can afford to haul marl 10 or 12 miles in the winter if we must, but if we look around we may find it nearer by.

The Nitrogen Supply.

We must grow our nitrogen. We cannot afford to buy it. We can afford to buy and use a small quantity of commercial fertilizer to help give the young plants a start, to assist in getting a better catch of clover, or to secure a stronger stand of vetch. But if we depend on buying fertilizers to keep up our farms and intend to make no other provision to this end, we shall find the fertilizer worth as much and sometimes more, than the crop. It is wise to buy fertilizers of the right analysis when we use them to promote the conditions that make in themselves for greater fertility. But the thoughtless application of these goods with no purpose beyond the particular crop to which they are applied, is bad management.

On the contrary, the buying of commercial fertilizers to help increase the organic matter in our soil, is excel-



Fig. 4.—A Home Garden Managed by a City School Girl.

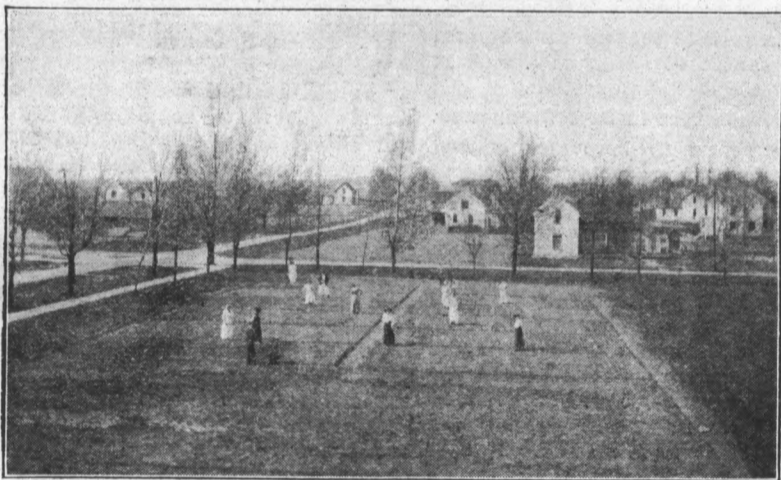


Fig. 5.—A Typical Plot of School Gardens in a Michigan Village.

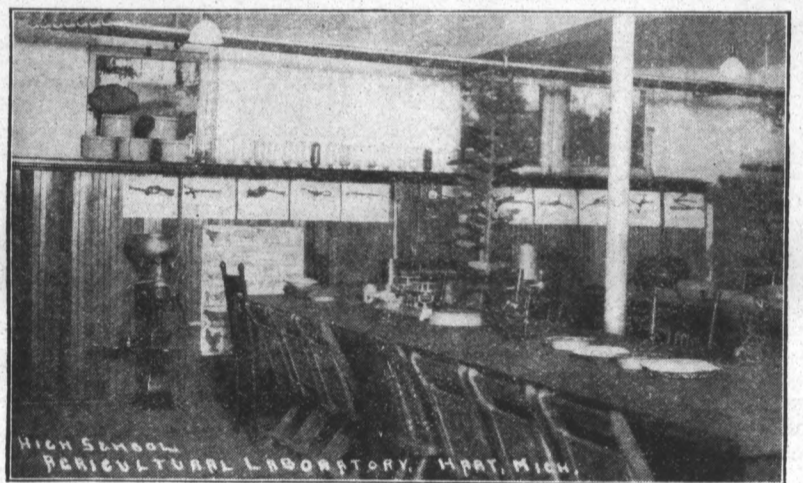


Fig. 6.—A Corner in a Typical High School Agricultural Laboratory.

though the cost of clearing has been materially reduced there are other demands for money which put the beginner up against great difficulties. So it happens that the great majority of these sandy farms are tilled year after year in the beginning until the organic matter is out of the soil, and dry weather affects every crop to a great extent, and particularly the young clover. With the content of vegetable matter reduced, the soil is apt to blow so that even if dry weather should not be present, high winds would be likely to greatly damage the young seeding.

Much Sandy Soil Needs Lime.

Again, much of our sandy soil is lacking in lime, especially if it has been farmed for a considerable period of time. The nitrogen-fixing bacteria will not grow on the roots of clover in a sour soil. At least these bacteria will not thrive in such soil, and so when the lime becomes exhausted, the clover is beset with this difficulty.

When our catch of clover comes to grief, the nitrogen is soon lacking and

spring and early summer. We may accomplish much in this particular, by laying out our fields so that they will not be too wide; plowing long and rather narrow strips not to exceed 20 rods in width, with grass or grain alternating. In some cases it is wise to leave wind breaks when clearing the land. If the roller is used on sandy soil, it should not be a smooth roller unless we intend to follow it with a light harrow or weeder. A smooth surface will suffer much more from the wind than one that is rough.

Cover Crops Important.

Our plans for the management of the sandy farm should always include some cover crop upon each field in winter. Fall and winter winds play sad havoc with sandy fields left with no covering and we can well afford to expend considerable time and labor to protect from their ill effects.

Perhaps the greatest problem connected with this matter is that of retaining moisture. If we could keep the water in our sandy soils we could generally grow crops that would pay

grown on the land, is not yet fully understood.

Organic Matter the Remedy.

One of the greatest needs upon Michigan farms of nearly all types of soil, is more organic matter. Our sandy lands simply must have it if they are to be worth tilling, and our system of farming must provide for it. I have known a few who, by sowing winter vetch in corn at the last cultivation have done much to add to the organic matter. Clover will be found of great value, but vetch will catch and hold a little easier, and will build the soil just as fast. Another important factor in the retaining of moisture is to keep the soil compact. Where we can, we may avoid plowing our sandy fields. The roller may be used often with discretion, and cultivation need not be so deep as upon the heavier types of soil.

The most urgent need of our sandy lands in this regard, is for lime, nitrogen, and an abundant supply of organic matter to help make the minerals available.

lent practice, particularly when the crop plowed in is a legume.

Large quantities of nitrogen can be added to the soil in a few years very cheaply by the use of clover or vetch, and the decomposition of this vegetable matter helps to make the minerals in the soil available for plant food.

It may be hard to get a good stand of vetch at first without inoculation, but this is easily secured by applying the culture and the cost is so little that no one should think of sowing vetch the first time without inoculating the seed.

A light application of manure will help wonderfully in securing a good stand of vetch. A heavy application is not needed.

Rolling will not change the size of the soil grains but it will pack them closer together, exclude much of the air, and thus prevent the organic matter from drying up and promote its decomposition.

The Essentials of Success.

And now in conclusion. If we protect as much as possible from the

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high winds, plow under plenty of organic matter, use the roller wisely, add plenty of lime, apply all the barn-yard manure we can get, and grow our nitrogen in clover and vetch, always endeavoring to keep the soil covered in winter, we shall find the sandy farm not so much of a problem after all.

This article is already too long. I wish it might have been shorter, but I know so many people on this kind of land who are almost discouraged that I have given the matter much thought. We can work our sandy lands more days in the year and with much less power than the heavy soils. If we will but grasp the fundamental principles of soil building and apply them, our luck on these farms will change.

In many cases it will have to be done gradually for lack of means; but more often for lack of faith. Most men would find the money to buy vetch or cloverseed if they could be made to feel its importance.

There is some sandy soil in Michigan that will probably never be farmed. Some of this is sold now and then, to people from the cities who know nothing about the country, by unscrupulous men who should be in Jackson helping to make a certain institution there pay a revenue to the state. But the greater part of our sandy farms can be worked with profit if we attend to the fundamentals of soil management.

greater than the Texas man's loss. There is not the spirit of the cattlemen that one finds in even the most remote western range country, and which animates and pervades the settler whose ambition is to get a few cows and grow into more. Twenty cows on the range will, with the irrigated garden patch, maintain and provide a family without either much privation, or much luxury and these conditions prevailed when beef was much lower than it is now or probably ever will be again.

One sees the tragedies of attempting to farm on light sandy soil in Michigan just as the dry farmer in the sandhill country has existence in seasons of rainfall made joyous and then comes dry seasons and disaster. The Kinkaid act, applicable to the dry farming section, provided for a 320 acre homestead, instead of 160, to encourage cattle raising. Michigan needs a Secretary Lane to take hold of the range question and instead of having vast areas of land returned to the state for taxes absolutely idle to experiment on fencing off some blocks and leasing these for pasturage. This would enable the settler to solve the problem of summer feed and allow him to devote his energies to growing winter feed. The ownership of 10 or 20 cows, with cheap summer range and fed at home, with their progeny, during the winter would, in my estimation, show a much increased labor income to the northern farmer.

Experimenting with Cash Crops.

In Iosco county a Hungarian, who could talk little English, had grown one-fifth of an acre of tobacco. From his 10-year-old girl, who could talk good English, but beyond that like any child of that age, could give little positive information, it was gleaned that the crop was 120 pounds of good quality for cigar making purposes. An exhibition of Michigan tobacco is rather unusual and in this instance an intelligent Slav was trying at least, with some degree of success, in determining the soil problems of northern Michigan.

Beans, Peas and Wheat.

The quality of white beans is better as a rule, than those grown farther south. There is some anthracnose and blight, but not bad. Load after load of beans come to the elevators with but one pound pick.

There is a prevailing opinion that pea growing spoils land for wheat. Others account for the decline in yield and quality of wheat to the hard winters and then have pointed out that the winters are just like the ones they used to have when good wheat was grown. My guess would be that these soils are rather short on phosphorous and lime and that a good grade of phosphatic fertilizer would put the wheat yield and quality back to that of former days. Wheat as a fall crop aids wonderfully in the economy of farm life by its opportune time of harvesting a cash crop and relieving the tension of farm work in the spring when so many crops crowd one another for seed time.

Shiawassee Co. J. N. McBride.

CATALOG NOTICES.

The Holt Mfg. Co., Stockton, Calif., are sending out a 24-page illustrated catalog describing the Baby Caterpillar 30 H. P. tractor. This is a handsomely printed catalog describing all details of construction of this new type of Caterpillar tractor adapted especially to use on the moderate-sized farm. Write for a copy of this catalog, mentioning the Michigan Farmer.

Wing's Quality Seeds for field and garden planting are catalogued and described with illustrations, in Wing's Seed Book for 1915, published by the Wing Seed Co., of Mechanicsburg, Ohio. In addition to its value as a catalog, this book contains valuable information on the seeding and growing of alfalfa and the uses of this great forage crop, chapters on corn, soy beans, clovers, grasses, vetches, soil fertility, standard grain crops, etc. Mention the Michigan Farmer when writing for a copy.

SOME COMMENTS ON NORTHERN MICHIGAN AGRICULTURAL CONDITIONS.

Northern Michigan in the lower peninsula is in the formation period in agriculture. Many have social problems and settlements have all the earmarks of as permanent agriculture as is to be found anywhere in the state. Corn, good and sound, is grown in practically every county on good soils, and this great American cereal seems wonderfully adaptive within reason. Silos are beginning to be an important feature of the farm and the merit of silage as a feed is scarcely a debatable question.

Great Possibilities in Beef Production.

There seems to be a pronounced interest in beef producing with cheap summer feed, and silage for winter. There is a decided lack of breeding in much of the native farm stock from a beef standpoint. Dairy bred bulls, because of the predominance in dairy circles of the unwelcome bull calf, seem to have found a welcome in the northern counties. Cattle buyers who visit this section are not complimentary in their remarks regarding the quality of the native stock. If beef growing were to receive the attention that dairying has had in the fostering of that industry by the state, northern Michigan would be a large contributor to the beef supply. Perhaps the largest distinct herd of beef-bred animals in Michigan is now owned in Alpena county. These are Herefords and have wonderful potentiality in furnishing foundation stock where so badly needed in the range country of Michigan. It was one of the tragedies of the live stock business, the building up of the great beef herds of cattle in southern Michigan and their disappearance under the cheap conditions of western range production. It is somewhat dramatic to see the reappearance of the beef breeds now in the northern part of the state where much of the area is better adapted to beef than the dairy. The report of the farm survey in the low return to the small dairy farmer is an interrogation point in northern Michigan.

Lack of breeding and small capital available for farm enterprises reminds me of the boastful man in Texas, who lost a million dollars one year by not having enough cattle to eat up the grass that went to waste that season. Michigan's loss this season is much

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Costs Less to Buy—Less to Operate

Has more speed, more power and weighs less than any other stump puller.

It clears land quicker, cheaper and better than by any other method. One man with a "Kirstin" easily saves the work of two horses and two men using the old-style horse-power puller. The "Kirstin" operates on a tremendous leverage principle: pounds pulling at the handle mean tons pulling at the stump. Big stumps can be jerked out in a "few minutes." As easy to handle and operate as driving a team. Clears over an acre at one setting. Pays for itself in a few weeks. Prove this at our risk. Order a Kirstin now—try it a whole month before you decide to keep it.

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There's a "Kirstin" for every requirement—a dozen models—Chain or Cable equipped as desired. All are guaranteed for life—sold on a month's free trial and terms to suit you. Write today for further information—learn how easy it is to clear up your stump land and make it worth \$25.00 to \$50.00 more per acre. The "Kirstin" Stump Puller has a dozen other uses, moving heavy objects, hoisting, etc. Pulling stumps for others yields big profits. No owner of stump land can afford to be without a "Kirstin" One-Man Stump Puller. And every owner of stump land can afford to own a Kirstin because they cost so little and are so easy to pay for. Your terms are our terms.

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A FIRM SEED BED BRINGS SUCCESS WITH ALFALFA.

I have been experimenting with alfalfa for several years but as I was having no success with it I concluded that my experience was not worth relating. I read all I could find in the books and papers about it and I made up my mind that it is just what we want on our Michigan farms if we can raise it successfully. I was pleased with the hope of finding a grass which would hold to the ground for several years without re-seeding, and still have all the fertilizing virtues of clover. I commenced by sowing one corner of a lot to alfalfa at the same time that I was seeding the lot to timothy or clover and I sowed it in the same way, i. e., in the grain crop without dragging. Every experiment was a failure. Only a few seeds would grow.

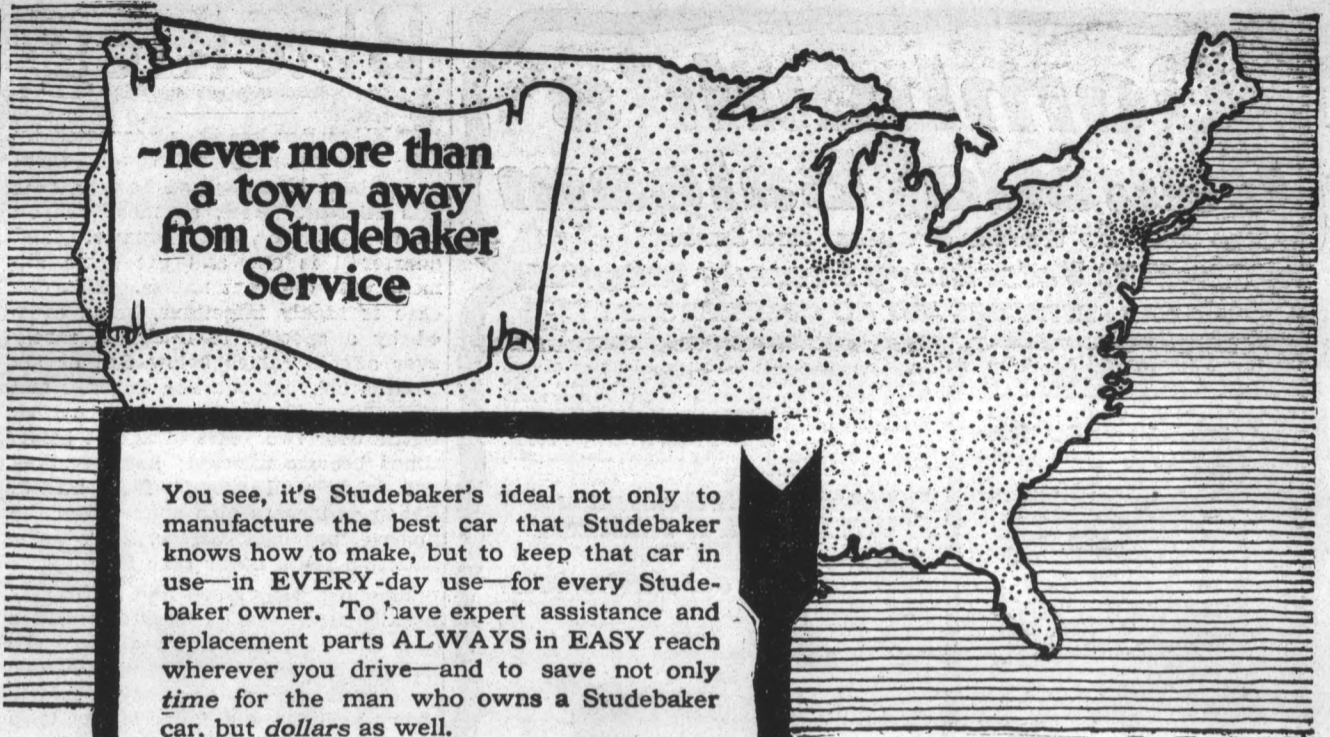
About that time our highway commissioner plowed the road in front of my house up into a turnpike. I thought perhaps conditions in this soil might be favorable to the growth of alfalfa, so I scattered some seed along the side of the turnpike and waited for results. The alfalfa seed failed to grow, except an occasional seed where we came around onto the turnpike to get to the mail box. I understood that to mean that alfalfa seed should be well worked into the soil. Our feet had packed the soil down and started the alfalfa to growing. I was fitting a piece of ground for alfalfa at the time, and I used the knowledge I had gained to good advantage. I dragged the ground thoroughly before and after seeding. Then I hitched to a six-foot board float and loaded it down with 180 pounds of human flesh, and proceeded to give the ground a thorough floating. I was severely criticized by one of my neighbors, who took the liberty to refer to my work at a farmers' institute which was held a few months later, and he finished up by saying that I would not get a stand of alfalfa. I made no defense of my action but simply stated that I had experimented in different ways and I was trying that as an experiment. I am glad to say that my neighbor was mistaken, for I have a splendid stand of alfalfa and my ground has been examined by a man who ought to understand alfalfa and he has pronounced the inoculation good. I found some sweet clover growing in the highway and I scattered some of the dirt and seed over the ground. I had good results from the alfalfa crop last season.

Branch Co. O. A. VANDERBILT.

THE GREAT NEED OF THE FARMING BUSINESS.

The development of better systems of distribution which involve less loss and waste, is of vital importance in the farm business. This is particularly true with respect to the more perishable products. Its effect must be to make a larger return on the farm business. Estimates made in the United States indicate that on the average the farmer probably receives 45 to 55 cents from each dollar expended by the consumer. It is said that the farmer of Denmark and some other European countries, receives 60 to 65 cents from each dollar expended by the consumer. The importance of this increased return can scarcely be overestimated. To obtain it will require the united efforts of communities—the standardization of products, and the development of a closer social structure among the smaller producers. It is obtainable, but as a factor affecting the business of farming it, must be solved by groups of individuals. It is a problem of organization and co-operation. Individual efficiency and skill may solve it only to a limited degree.

—Thomas Cooper.



-never more than a town away from Studebaker Service

You see, it's Studebaker's ideal not only to manufacture the best car that Studebaker knows how to make, but to keep that car in use—in EVERY-day use—for every Studebaker owner. To have expert assistance and replacement parts ALWAYS in EASY reach wherever you drive—and to save not only time for the man who owns a Studebaker car, but dollars as well.

And to give that kind of Service that Studebaker believes in, Service that MAKES SURE that you will get full money's worth of pleasure and use of your car for every dollar you invested in it, Studebaker has built up a national organization of branches and dealers and Service Stations so COMPLETE that wherever you go you are "never more than a town away from Studebaker Service."

But even knowing the type of SERVICE that Studebaker gives—and knowing the high ideals of manufacturing that name of Studebaker stands for, you may be surprised when you come to look at this Studebaker FOUR—to see simplicity, the accessibility and the many SERVICE-giving qualities that Studebaker has built into this car.

It's the ideal car for use on the country roads that Studebaker knows so well—EASY-riding and EASY to drive—handsome as any car you ever saw—and with POWER, lots of it, more than enough for any roads or any hills you'll ever face. And with careful balance of weight and alignment that cut down the cost of maintenance to the low limit.

Why not see this FOUR today—this FOUR that Studebaker built to stand the test of country roads? See it and drive it yourself—and judge how much you CAN get for \$985

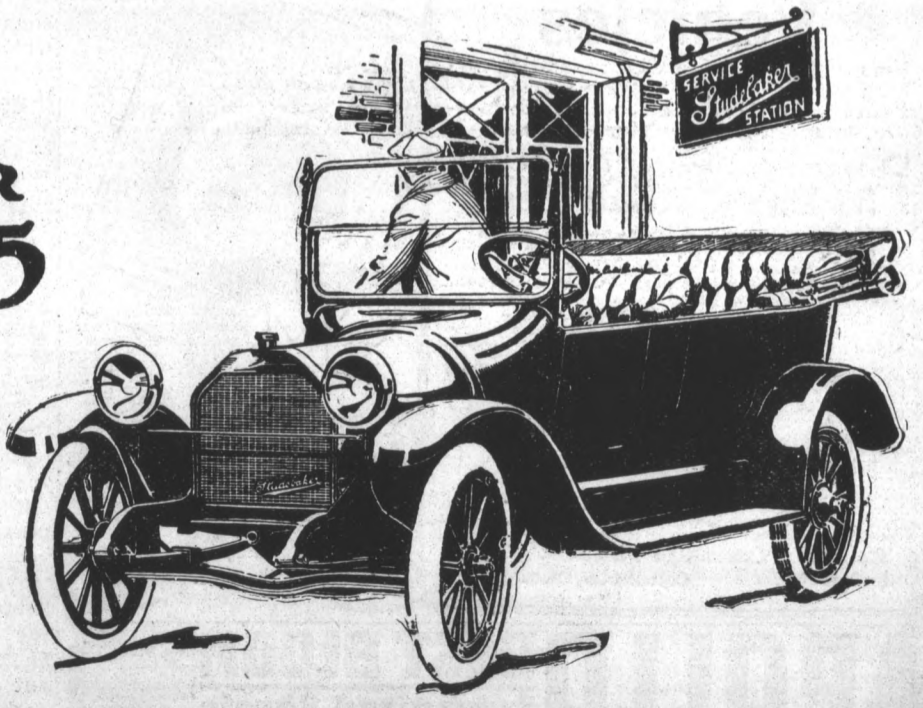
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Electric Lighting and Starting—FULL-Floating Rear Axle—Timken Bearings—Safety Tread Rear Tires—One-man Type Top.

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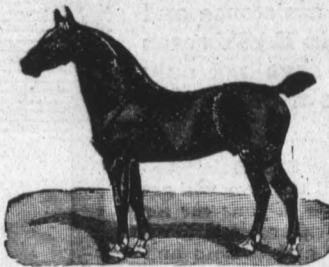
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We guarantee that one tablespoonful of Caustic Balsam will produce more actual results than a whole bottle of any liniment or spavin mixture ever made. Every bottle sold is warranted to give satisfaction. Write for testimonials showing what the most prominent horsemen say of it. Price, \$1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use.

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CAUSTIC BALSAM IS THE BEST

Your Gombault's Caustic Balsam is the best liniment I know of. I have bought four bottles for my neighbors, and two for myself. I have cured a sweetened horse with the Balsam. —Louis Miller, Sharon, Wis.

GOMBAULT'S CAUSTIC BALSAM IS EXCELLENT.

Having read an advertisement in Wisconsin Agriculturist about your Gombault's Caustic Balsam, I have tried some of it and think it excellent. —J. M. Worawodovsky, Big Flats, Wis.

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Blackleg.

THE writer has been requested by several readers to tell them about blackleg and how to treat this ailment. Now, as most of you know, blackleg, black quarter and quarter-ill is one and the same ailment with different names. This disease is highly infectious, being caused by a specific bacillus. It rarely ever affects calves below five or six months old, but between this age and two years is the dangerous period. Cattle over two years of age do sometimes become affected; however, they are fairly well exempt from attack. Sheep and goats also suffer from the disease, but man, horses, hogs, dogs, cats and fowls never take it.

Blackleg, very much like anthrax, is usually restricted to definite localities and as you perhaps know, there are certain pastures upon which the disease seems to appear pretty regularly every summer and fall. It has been supposed that swampy, undrained pastures were the ones most likely to retain this contagion, but this theory will hardly hold, because the disease is found to exist on all kinds of soil. The disease has been produced by placing some of the mud of swamps under the skin of young cattle; therefore, wounds on cattle should be protected against this infective germ. It is not unusual for the disease to break out in stables, all going to show that the infection may be carried from the pasture lot to the stable by the cattle, or on the boots of attendant.

Symptoms.

The symptoms of blackleg may be either of a general or local nature; however, they are usually local. The general symptoms resemble many other acute infections or bacterial diseases, usually producing loss of appetite and of rumination, followed quickly by a dullness, weakness and high fever. It is not unusual to find the temperature 107 degrees F., and considerable lameness or stiffness of one or more limbs, due to the tumor or swelling which is usually present. Death usually results in from one to three days and is generally preceded by difficult breathing and occasional attacks of convulsions. Invariably you will find a swelling under the skin, on the thigh, the neck, the shoulder, the breast, flank or rump, but never below the knee or hock joint. In exceptional cases the back part of tongue and throat may be affected and in all cases the tumor at first is small, but painful and appears to spread rapidly and dip quite deep. When the parts are manipulated a peculiar cracking sound is heard, the result of gas which usually occurs as the bacillus multiply. Now, at this stage the skin becomes dry and cold to the touch in the center of tumor. If the swelling is cut into, a dark red, frothy, strong-smelling fluid is discharged, but at this stage the diseased parts appear to be painless.

Treatment.

In this disease remedies appear to have proved unavailing, as blackleg usually proves fatal. Some writers recommend a line of treatment, but none of their remedies have given me anything like satisfactory results; therefore, I should advise against medication as a curative agent. However, vaccination has been thoroughly tried out and proved to be efficacious in preventing blackleg. Now, as a preventative, it should consist in the removal of the animals from an infected pasture to a non-infected field and if the infected pasture be swampy, it should be drained. It is also important to burn the carcass, to prevent dogs or birds from spreading the infection. It is also equally important to thoroughly disinfect the stable where the animal died. If the pasture has growthy grass, let it ripen and

when dry burn it over, or spread straw over it and burn it; this will have a fairly good effect in killing the infective germs. Readers who have a suspicion of this contagion being on their premises should not neglect to vaccinate every calf or head of stock between five months and two years of age on their premises. The work is easily done and every intelligent dairyman and stock man can do it. The vaccine is prepared and distributed by the Bureau of Animal Industry and many other reputable manufacturers of commercial vaccines. This preventative treatment is inexpensive and so easily applied and attended with no danger to the animals, leaving very little excuse for not immunizing your young cattle against blackleg. DR. W. C. FAIR.

FEEDERS' PROBLEMS.

A Ration for Young Pigs.

Am just starting in the hog business with 40 young pigs. What should I feed for best results, and for economy? What do you think of rape for hog pasture? How much should I sow for 40 growing pigs? When should I sow and how? How long after sowing before I can turn the hogs in, and would they grow on just rape, or should they have other feeds? Would 40 hogs harm a 20-acre field of new seeding?

Genesee Co. SUBSCRIBER.

Perhaps the most satisfactory ration for young pigs is wheat middlings. If skim-milk is available, corn meal can be used in connection with the skim-milk at the rate of one to three pounds of milk for each pound of corn meal with profit as the pigs increase in age. A little tannage, perhaps 10 per cent as much as is fed of corn, and a little feeding molasses will make the ration more nutritious and palatable. A variety of feeds gives better results with young pigs than any single grain or limited combination.

Rape makes a fairly good pasture for growing pigs, but has one disadvantage in that if allowed to get too large before the pigs are turned in, it irritates their skin in a disagreeable manner. It should be sown broadcast at the rate of five pounds per acre on a well prepared seed bed, and may be pastured in six or eight weeks after sowing. It should not be overstocked, and pigs pastured on rape or any other forage should be fed a supplementary grain ration. If other pasture will be available, a couple of acres should be sufficient for the number of pigs mentioned during the midsummer season when other pasture is generally dormant. If no other pasture is available, a larger area would be required. Pasturing new seeding is not to be especially commended, but hogs would injure it less than almost any other kind of stock, if proper precautions are taken to prevent them from rooting.

Oats for Fattening Steers.

Does it pay to feed oats half-and-half by measure with corn, to fattening steers, with clover hay and cornstalks for roughage, or would you sell the oats and buy cottonseed or some other concentrated meal? The steers are yearlings and are on full feed now. Genesee Co. W. E.

It would not pay to feed oats with corn to fatten steers at the present comparative price of oats and other protein feeds. Cottonseed meal is undoubtedly the cheapest protein concentrate with which to balance the corn for fattening steers at the present time.

The average prices of horses, etc., one year ago were as follows: Under one year old \$56.69; between one and two years old \$92.96; between two and three years old \$134.37 and three years old and over \$173.18. Milch cows \$60.34 per head. Cattle other than milch cows, under one year old \$17.77; between one and two years old \$30.14; between two and three years old \$45.09 and three years old and over \$58.10. Sheep under one year old \$4.07 and one year old and over \$4.79. Hogs not fattened \$6.74 per cwt.

It Took 15 Years to Prepare for My New 5% Profit Offer

Let me tell you the story. Let me show you how I have turned the best factory of its kind in the world and the best sales system in the vehicle line to making high-grade vehicles for you at unheard-of low prices.

Split Hickory Vehicles

have gained a world-wide reputation for high quality. That's because for 15 years I have made them of second growth hickory, split, not sawed. Now, my quality is higher than ever, but I have worked out my new 5% plan to split prices lower than I ever could before.

30 Days' Road Test 2 Years' Guarantee

That's the way I back up the quality of Split Hickory Buggies. I send them to you for a hard-road test on your own roads. If the quality isn't there, you send the buggy back and I pay all the freight both ways. If you see the quality and keep the buggy, my two years' guarantee protects you.

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Read the new price splitting offers. See 150 of the latest, niftiest styles that ever rolled over the road—and over 300 illustrations. Send your name on a postcard and I'll mail the big buggy book and also my new 70 page Harness book, both free. Address

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A Moderate Priced Car of Unusual Qualifications

Dodge Brothers have manufactured the vital parts for more than 500,000 motor cars.

They have manufactured as many as 225,000 sets of motor car parts a year. This means millions of pieces, large and small.

They have established costs on every piece, every part, every operation.

They know to the fraction of a cent, the most and the best it is possible to get out of men, material and machinery.

Naturally, therefore, the element of experiment does not enter into the construction of Dodge Brothers' car.

It is reasonable to suppose, for instance, that Dodge Brothers, accustomed to cutting as many as 34,000 gears a day, should know how to produce good gears.

A plant accustomed to heating and forging 300,000 pounds of steel a day should certainly know something of the science of handling steel.

They have brought to bear upon the construction of their car, everything that tends to produce value—extraordinary experience; immense production capacity; complete financial independence.

Unerring Accuracy Characterizes Dodge Brothers' Work

The car is marked by that rigid insistence upon unerring accuracy, which is recognized as the chief characteristic of all Dodge Brothers' work.

Ordinary good practice has not been good enough—in every detail you will find the exceptional.

You will encounter many features which exceed your expectations—never one that falls below them.

Your enthusiasm over one feature has scarcely subsided before you discover that another, and then another, reaches the same high plane.

Not a detail in the car was determined simply by precedent or custom—the one thought was to see how much value Dodge Brothers could give by getting the utmost out of their manufacturing experience and equipment.

You are almost sure to ask yourself how it is possible to incorporate such quality at so moderate a price.

The answer is furnished by the extraordinary experience and equipment enjoyed by Dodge Brothers and to which we have just referred.

Examine The Car Item By Item

It will interest you to scan the specifications, item by item, and see if you

can conceive how the material, the design or the manufacturing practice could be improved.

You will find such vital parts as the springs and the gears made from chrome vanadium steel.

This has several valuable results.

Because of the strength of chrome vanadium steel, the leaves in the springs are thinner than those ordinarily used, and it is possible to use more of them.

These leaves are self-lubricating.

And yet you will find that every essential part is stout and strong and of full size.

Unlooked-for Quality Everywhere Evident

Every feature you examine reveals unlooked-for quality.

The leather used in the upholstery is of selected stock—real grain leather.

The tufting is deep and soft; the filling, natural curled hair.

The full floating rear axle seems to stand out as an extraordinary value, until you discover other values equally important—as for instance, the Timken bearings thruout; the S. R. O. ball bearings in the clutch and transmission;

the single unit starter-generator; the Eise-mann water-proof magneto; the fact that in direct drive no transmission gears are engaged or in motion; the exclusive use of drop forgings and drawn work instead of castings; the perfect streamlinebody, the specially designed oval

fenders; the one man type top, etc., etc. You will find not merely a few refinements, but the highest form of refinement at every point, even to minor details.

An example of this is the beauty and completeness of the black enamel instrument board with its equipment of oil gauge, battery gauge, gasoline pressure gauge and pump, carburetor adjustment, speedometer, dash light and switches—all nicked.

In Action The Car Is Even More Impressive

Some of the concealed quality might be lost upon you if it were not immediately revealed in the way the car handles itself.

There is no mistaking the ease with which it gets under way—the gliding sensation which bespeaks not merely power in plenty, but beautiful balance and an equitable distribution of weight.

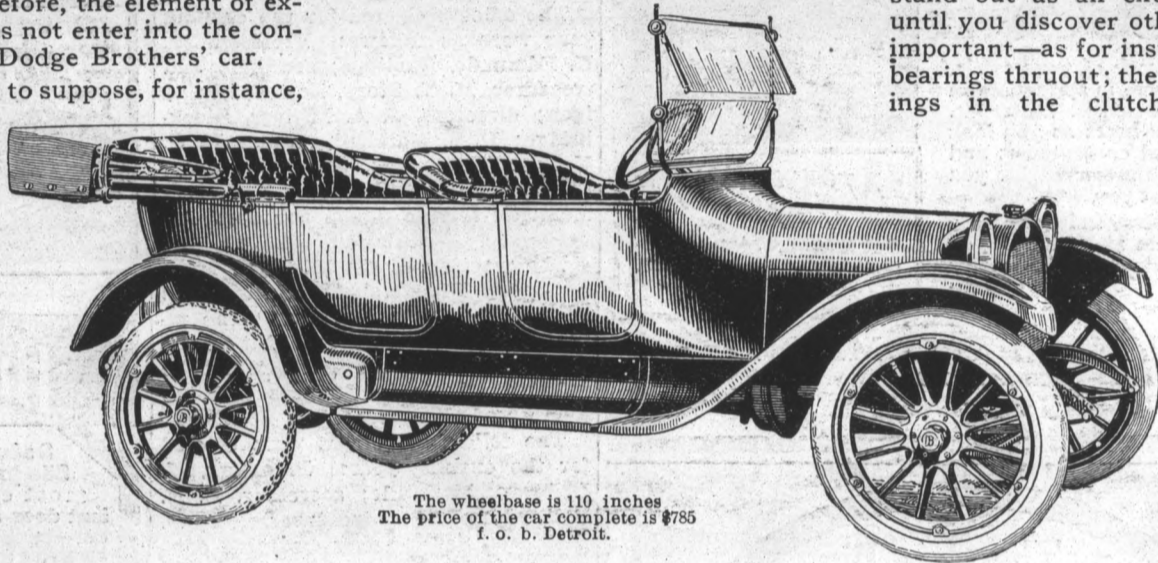
The specifications, in one sense of the word, speak for themselves.

But how good the car is, not even the quality indicated by these specifications can show.

You cannot really know until your foot has pressed the accelerator.

Instantly you will realize that here is delightful responsiveness—an unusual power of picking up—and above all, a steadiness on country roads at all speeds very much out of the ordinary. The price of Dodge Brothers' car is really the last thing for you to consider.

The important thing is to realize how much they have given you at a moderate price.



The wheelbase is 110 inches
The price of the car complete is \$785
f. o. b. Detroit.

The net result is maximum strength, with maximum resiliency.

Again, this generous use of light, strong, costly steels makes unusually light weight—the shipping weight being approximately 2200 pounds.

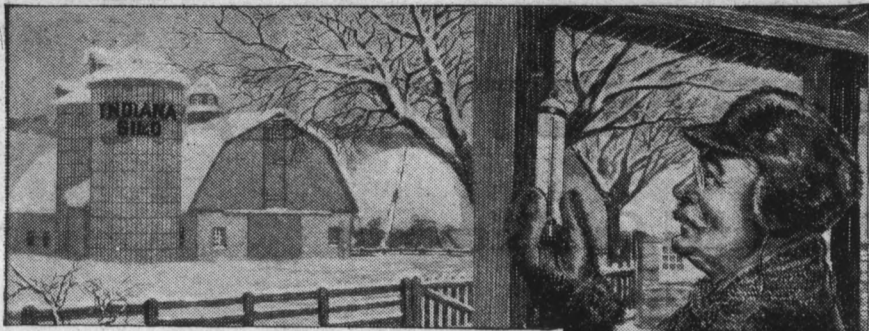
General Specifications

- UNIT POWER PLANT**—Aluminum Cone Clutch—Leather faced
- MOTOR**—Four cylinder, cast on block with removable head, 3 7/8 inch bore by 4 1/2 inch stroke, 30-35 H. P. Water Cooled Centrifugal Pump
- RADIATOR**—Tubular Type
- LUBRICATION**—Splash and force feed
- HIGH TENSION MAGNETO**—Waterproof Eise-mann
- GASOLINE SYSTEM**—Pressure feed, 15-gallon tank hung on rear
- INSTRUMENT BOARD**—Carries Jones 60-mile speedometer, driven from transmission, gasoline air pressure pump, gasoline air pre sure gauge, oil pressure gauge, magneto switch, current indicator, lighting switch, carburetor adjustment, glove locker, and dash lamp
- DRIVE**—Left side, center control
- STARTER GENERATOR**—Single unit, 12-volt, 40-amp Battery
- TRANSMISSION**—Selective sliding gear type—three speeds forward and reverse Chrome-Vanadium steel gears, heat-treated
- REAR AXLE**—Full-floating Removable cover plate to give access to differential
- TIMKEN BEARINGS** thruout, including wheels and differential
- S. R. O. BALL BEARINGS** in clutch and transmission
- STEERING GEAR**—Ir-reversible, of worm, nut and sector type—fitted with 17-inch wheel
- SPRINGS**—All Chrome Vanadium steel, self lubricating
- FENDERS**—Exceptionally handsome oval design
- RUNNING BOARDS AND FOOT BOARDS**—Wood, linoleum covered and aluminum bound
- WHEELS**—Hickory, demountable rims, 32 by 3 1/2 inches
- TIRES**—Straight side type—Non-skid rear
- BODIES**—Five-passenger touring and two-passenger roadster. All steel, including body frame. Special enameled finish. Upholstered in genuine grain leather
- WHEELBASE**—110 inches
- WINDSHIELD**—Rain vision, clear vision and ventilating
- TOP**—One-man type, mo-hair covered, Jiffy curtains and boot
- LIGHTS**—Electric: two head lights with dimmer, tail lamp and dash light
- EQUIPMENT**—Electric horn, License brackets, Robe rail, Foot rail, Tools, Demountable rim mounted on rear
- SHIPPING WEIGHT**—Approximately 2200 pounds
- PRICE**—Touring car or roadster, \$785 f. o. b. Detroit.

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116 Joseph Campau Ave.

DETROIT



**Winter outside,
Spring within the Barn**

WHEN the world is wrapped in her blanket of white and the air cuts like a knife, when the frost screeches beneath your feet and the rabbits and quail are starving in your icy pastures and stubble fields, when the straw stack affords little protection from the penetrating cold and your stock are sheltered in the barns then is when you appreciate your

INDIANA SILO

There is springtime in the breath of your cattle, suggestive of green pastures; there is springtime in the brimming buckets of milk rich in butter-fat. And there is springtime in your heart as you look upon this picture of health and contentment and realize that the Indiana Silo has preserved for you in full measure the harvest of last year's toil.

Let the thermometer tell its story in its own way. No weather is cold when there is plenty in the manger and plenty in the milk pail. Prosperity laughs at Zero and the Indiana Silo is "The Watchtower of Prosperity."



Now is the time to plan to erect an Indiana Silo. We are making special discounts for early orders. Write for catalog.

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582 Live Stock Exchange Bldg., Fort Worth, Tex.

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The succulence and palatability of perfect ensilage produces maximum results at a low feeding cost. No other feed contains as much "succulence value" as well preserved ensilage. It is the most economical feed for summer as well as for fall and winter. But there's as big a difference in silage as there is in silos. Build your silo of material that lasts for generations and keeps ensilage as fresh and succulent—all the year—as the day the corn was cut. Erect a

Natco Imperishable Silo

The silo that's made of vitrified hollow clay tile, whose glazed surfaces do not absorb the silage juices, and admit no air from without. No freezing. Reinforced by continuous steel bands. No swelling, shrinking, warping or cracking. No repairs. No painting. No adjusting. Stops silo troubles forever. Write to nearest branch office for list of owners in your State, and for catalog A.

National Fire Proofing Company
Organized 1889 Pittsburgh, Pa.
Syracuse, N. Y. Bloomington, Ill. Philadelphia, Pa.
Madison, Wis. Lansing, Mich. Huntington, Ind.

"The Silo That Lasts For Generations"

Why Not have the comfort and convenience of an indoor closet in your home. The **Wolverine Chemical Closet** can be installed in any home at very small expense. No water or plumbing required. Can be set in most any room in the house. Gives you every convenience of the water closet enjoyed by city people. No need for you to endure the cold and exposure these winter days.

Write at once for particulars. **DALL STEEL PRODUCTS CO.**, 709 Main St, Lansing, Michigan

Duplex FARM Tool Grinder

Grinds your plow shares, cultivator points, axes, sickles, knives and all tools. Edge or side of wheel can be used.

No Engine too small for it. Will last a lifetime. Special attachment for grinding discs furnished free. Write for circular.

Pays for itself in one season.

Duplex Mill & Mfg. Co., Box 408, Springfield, O.

15 SHOTS QUICK!

When you shoot with the **-STEVENS-** **VISIBLE LOADING REPEATING RIFLE**

This No. 70 is both quick and safe. And when we say safe we mean very safe. Every cartridge is visible as it moves from the magazine into the chamber—you know if your rifle is loaded. The Stevens Visible Repeater takes fifteen 22 short cartridges, thirteen 22 long cartridges or eleven 22 long rifle cartridges—all rim-fire. Bead front and elevating rear sights. 20 inch round barrel, blued frame, rubber butt plate. Length over all 35 ins. Weight 41-2 lbs. A beauty! List price only \$8.00 but dealers sell it at \$7.00, except west of the Mississippi River and in Canada. With this accurate rifle you don't guess; you know that drawing a bead gets the game.

Write us today for the "STEVENS RIFLE BOOK." It is FREE and tells everything you want to know about Rifles, Pistols and Rifle Telescopes. Latest expert information, with pictures and descriptions of all the wonderful line of STEVENS Rifles.

J. STEVENS ARMS & TOOL COMPANY
15 BROADWAY, CHICOPEE FALLS, MASS.

STATE BREED MEETINGS.

Michigan Duroc Jersey Swine Breeders' Association.

The eighth annual meeting of the Michigan Duroc Jersey Swine Breeders' Association was held at M. A. C., January 13, 1915. Owing to the colt and barrow show some of the breeders were late in assembling and the meeting was not called to order at the appointed hour. In the absence of President Bray, Director Edmunds presided, who gave us a very interesting talk on the Progress and Development of the Duroc in the past 15 years. Followed by a talk on Stock Food by L. L. Harsh, Union City, and others.

The meeting was one of the most interesting held by the association and all look forward for 1915 to be the most prosperous for the live stock breeders. The breeders were very optimistic for the outlook in the future and appreciated very much the courtesy shown them by the faculty of the M. A. C.

The officers elected for the ensuing year were as follows: President, C. U. Edmunds, Hastings; secretary and treasurer, M. T. Story, Lowell, Mich.; directors, J. A. Mitteer, Stockbridge; L. S. Marshall, Leslie; H. G. Keesler, Cassopolis, and W. Kelsey, Hastings.

Michigan Merino Sheep Breeders' Association.

The meeting of the Michigan Merino Sheep Breeders' Association was entirely a business meeting. The report of the secretary and that of the treasurer showed the association to be gaining a little in finances and the number of sheep recorded.

The following officers were elected for the ensuing year: President, H. L. Mayo, Nashville; secretary, E. N. Ball, Hamburg; treasurer, R. D. Stephens, South Lyon; pedigree committee, T. V. Quackenbush, Plymouth; R. D. Stephens, South Lyon and Frank Downs, Nashville; directors, Lewis Adams, Armada; O. Frost, Armada; J. Smith, Dexter, Mich.

LIVE STOCK NEWS.

For a month and a half there has been a large marketing of half-fat cattle at Chicago, and they have sold at ruinously low prices. Most of the former owners of these cattle now wish they had them back again, but they cannot be replaced by others, and such stockmen as are fortunate enough to have usual supplies of feeders cannot avoid making good money, provided they take pains to finish them off in good shape for the market. The advance in the price of corn has impelled many owners to market their cattle prematurely, while cold weather at times has been an influence, as well as the prevalence of foot-and-mouth disease over a large part of the country. The present winter has been on the whole more than usually favorable for feeding, and despite the high price of corn, making beef is sure to prove a paying business. It is well to remember that while the country has grown enormously year by year in population, the cattle supply in the United States is much smaller than a decade ago.

A prominent sheep seller in the Chicago market says: "With corn and hay at present prices, it certainly costs plenty of money to feed lambs and sheep, yet I believe owners who are making them good are getting well paid for their feed. I am sorry to see so many half-fat lambs coming to market, as they have to sell way out of line with the choice flocks, there being no feeder competition for them."

The British government is buying American turkeys for naval use, orders for more than 1,000,000 pounds having been placed in Chicago recently. Poultry in cold storage in this county is reported as 20 per cent less than at this time last year, and prices are 10 per cent lower, although there has been an advance of 1½ cents recently, owing to the large British demand.

Reports from various parts of the country that farmers have sold so many of their horses that the farm supply is a good deal run down. The farm demand is starting up in the Chicago market, and the other day a dealer received an order for a carload to ship to Wisconsin. Other orders for farm chunks followed, and before long a brisk trade is expected.

**Makes Barn Work Easier
Makes Barn Profits Bigger**

Cows are sensitive. Beat a cow, and she "dries up." Give her the best you can, and she rewards you by doubling her milk supply and enriching it, thereby multiplying your profits.

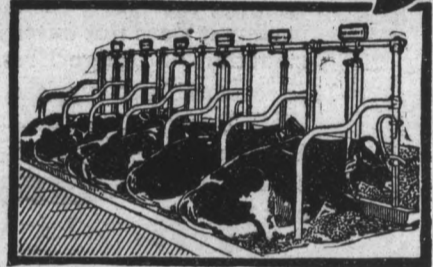


JAMES Sanitary Barn Equipment

Keeps your cows comfortable—contented, ill-fitting stalls, stanchions, etc., are irritating. Actually reduce milk flow. Use James Equipment. Designed by dairy barn experts—originators of Sanitary Barn Equipment Ideas. Get our catalog showing Stalls, Stanchions, Pens, Carriers, Ventilators, Watering Buckets, etc. Going to remodel or build? Then ask also for the book, "Building the Dairy Barn," by W. D. James and assistant experts. Say how many cows you own and when you expect to build. Both books FREE.

James Mfg. Co.

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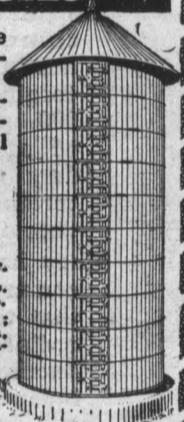


The HINGE-DOOR SILO

Solves the Silo problem—most convenient door and ladder—strongest anchorage—steel door frame.

We also make The Lansing Silo The Chicken Silo Wood Tanks, all sizes, and handle Silberzahn Cutter.

Woods Bros. Silo & Mfg. Co. Dept. 15, Lincoln, Neb. Branches—Lansing, Mich.; E. St. Louis, Ill.; Topeka, Kas.; Denver, Colo.; Oklahoma City, Okla.; Maryville, Mo.; West Bend, Wis.; Jackson, Miss.; Atlanta, Ga.; Amarillo, Tex.; Minneapolis, Minn.



This Insures Air-Tight Joints

Don't look for spoiled ensilage in a B. V. T. Silo. You'll never find any, because there are no cracks or leaky joints. Our celebrated "tongue and groove" mortar joints make it like a million gallon jug! Study end view of block.

Proof Against Air, Sun, Fire, Wind, Moisture and Time.—Built of glazed, vitrified hollow tile, steel reinforced. It will never fall down. We guarantee it not to. Will last forever. Write for free Booklet G.

BRAZIL HOLLOW BRICK & TILE CO.
BRAZIL, INDIANA



Save an Extra 17% of Your Ensilage

No waste from leakage or evaporation as in other kinds. You keep all your ensilage sweet and fresh when you use a

ROSS In-de-str-uct-o Galvanized Metal Silo

Can't blow down, buckle, twist or collapse. Stands rigid even when empty. Fire-proof. No painting or repairs. Easily erected. No spoiled ensilage near wall. Guaranteed against silage acid. We also make the Ross Wood Silo. Write for free catalog.

The E. W. Ross Co., Box 314 Springfield, Ohio.

EARN COST THEN PAY. TILE SILO

Chain of Kilns; Atlantic to Rio Grande

Reduces freight cost; fire and frost-proof; weight anchors itself; ample hoopage galvanized; priced at your town; 5 year guaranty; free sample.

Kalamazoo Tank & Silo Co., Kalamazoo, Mich.

BUY FEED-CAR LOTS Cotton seed—Oil-Meal, Hominy, Gluten, etc. Save money. Ask price. J. E. Barrett Co., Red Mill, Jackson, Mich.

The Hand Separator and its Care.

THE hand separator has come to stay. It is no longer necessary to make any argument to prove its worth to the average dairyman. It saves time, labor, and money. It is not indispensable to the patron of a whole milk creamery, who live near enough to the plant to enable him to deliver his milk without too much labor; but it does greatly lessen the expense of delivery in cases where the distance is more than a mile or two, and the quality of the skim-milk is much better if it is separated on the farm.

I have said that the hand separator is a labor-saver. However, no one can truthfully say that it is a light task to separate a large quantity of milk at home. The labor comes either in the morning when you are trying with all your might to get to work in the field, or at the close of the day, after you have had enough of work and mightily wish you could get through and read or rest a while before retiring.

Separator Must be Kept Clean.

Then, too, the separator must be kept clean. I have heard the agent of nearly all the standard machines tell how easy it is to clean their particular machines. I have washed one of them myself a great many times, and while it washes as easily as any of the lot, it is not as inviting a means

good butter. A change is sure to come, however, and in the long run, the dairyman who furnishes a clean product is sure to win out. So the machine must be kept clean. It is practical from a purely selfish point of view, too, for a dirty separator will not skim clean.

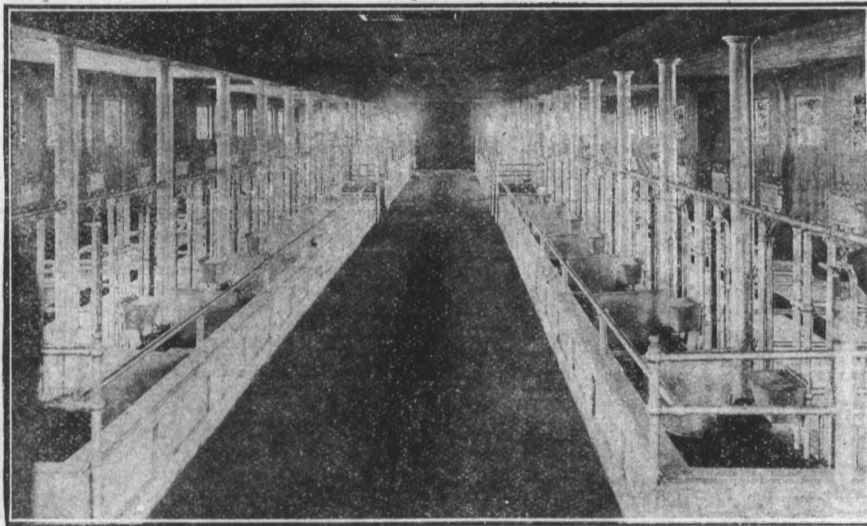
Keep Machine Well Oiled.

The machine must be well oiled. Not a single bearing should be allowed to get dry for a moment. A little too much oil is usually just enough.

It should also be carefully protected from dust and an examination should also be made to see that the bearings are clean and free from dirt. As soon as any of them are worn they should be immediately replaced. This is not a hard task. A separator will last for many years if it is taken care of.

The machine should be firmly fastened to the floor. A cement foundation is best, though this is not absolutely necessary. The important matter is to fasten the base so securely in some way that it will not move when the machine is in motion. No machine will do good work unless it is firmly fastened down.

Again, the machine should be properly turned. If it is made to be turned from 45 to 48 revolutions in a minute, that is the speed at which the crank should move. If it is turned at



Sanitary Conditions Are Easily Maintained in Modernly Equipped Barns.

of recreations, as some other things that are bound to suggest themselves after a hard day in the field.

The machine must be kept clean, though, or the cream will not be up to the proper standard as regards quality. Yes, it will sell. There is the pity. We have plenty of companies that will buy any amount of poor cream, make it into butter, and put it on the market. The farmers are not to blame for selling it to them either. I do not blame the tired wife and mother for not washing her separator at the end of a hard day's work, when she is so weary that she can hardly stand, and the baby must be put to sleep, and the older children gotten to bed, and the mending left until tomorrow because she simply cannot do any more. I do not know that we can blame anybody for not taking any more care of their cream than the market demands.

Put the Golden Rule in Practice.

But we should place our product on the market in just the condition that we should like to find it if we were the consumer and were buying it of someone else. In other words, we should use the "Golden Rule" in the practice of our business. We should also, as consumers, be willing to pay for a good clean product, what it is worth to product it, and the public has no right to ask that dairymen shall take all this extra trouble to furnish a clean product, until it is willing to pay for the trouble.

It is entirely wrong to pay the same price for cream that is full of damaging bacteria as is given for a good clean product that will make extra

a lower rate of speed, it will not skim clean. If it is turned faster than necessary it will skim just as clean, but it will be an added burden upon the separator.

Proper Speed in Running Essential.

A few years ago I was riding in a car and listening to an agent of one of the great manufacturers of separators. He had just been in a contest with another machine, and had won out by a large margin. Now I personally know that the machine with which he contended would skim just as clean as his. I have seen them tested again and again. The simple trouble was in the turning. As a matter of fact, the machine that was beaten in this contest should have been turned 60 times in a minute, while his required but 48 revolutions of the crank in that time. His machine was turned fast enough and the other was not, hence the difference, and the joy of that particular agent.

Some years ago the writer suspended a weight upon a cord, near the separator. The cord is just long enough so the weight swings 48 times each minute, which is the proper speed for the machine. We simply turn once around at each movement of the weight, and until the good Lord repeats the law of gravitation, we shall turn that machine right, if we are there to do it, which is quite doubtful, of course. But while we are here and observe this rule, our machine will skim clean unless it is out of order.

Little Loss in Proper Separating.

If a separator skims as clean as it ought, it will not leave more than

Any temperature, any time!

Many old-fashioned things are now being replaced by the better, because the new give the people not only what they need but a greater value. The solid popularity of radiator heating is due to the fact that it does give home folks the genuine heating comfort they need—as they need it—and no fuel waste! You can have just the volume of warmth, just the degree of temperature you like, and just at the turn of a valve —if you use



These world-famous heating outfits are the best controlled, the most reliable distributors of warmth, the most economical users of

fuel, the most cleanly, and the easiest to care for —easier than a stove—a child can run them.

IDEAL Boilers and AMERICAN Radiators are perfectly safe—protect the home from all fire risk and never leak coal gases. IDEAL Boilers consume less soft coal or cheapest screenings to heat the whole house than stoves consume of expensive hard coal to heat a few rooms. They also burn lignites, wood, coke, oil, gas, etc.—anything that will burn. Every known improvement and many exclusive features make IDEAL Boilers and AMERICAN Radiators the most efficient and economical in the world, yet our enormous volume of sales in both Americas, Europe and Australia enables us to put the price within reach of all.



A No. 1-22-W IDEAL Boiler and 422 ft. of 38-in. AMERICAN Radiators, costing owner \$180, were used to heat this cottage. At this price the goods can be bought of any reputable, competent fitter. This did not include cost of labor, pipe, valves, freight, etc., which vary according to climatic and other conditions.

IDEAL Boilers are put in farm houses and other buildings remote from waterworks supply. A few gallons only of water need be added once or twice during the season. They can just as well be put in farm houses without cellars, or where cellar is used for vegetable storage the piping may be covered with asbestos to hold temperature down to degree required.

Why not put in at once IDEAL Boilers and AMERICAN Radiators and cut your fuel bills, passing a winter of solid, clean, comfort, every room and hall "warm as a pepper-pod," without spreading ash-dust or coal-gases to ruin the housewife's disposition and the house furnishings. Fuel saved plus freedom from repairs (nothing to rust or wear out as long as house stands) make IDEAL Boilers and AMERICAN Radiators the best investment in home equipment. Iron prices now rule the lowest in 10 years and at this season you get the services of the most skillful fitters. Let us tell you our full story—complete, valuable book of heating facts sent free. Write us today. Puts you under no obligation to buy.

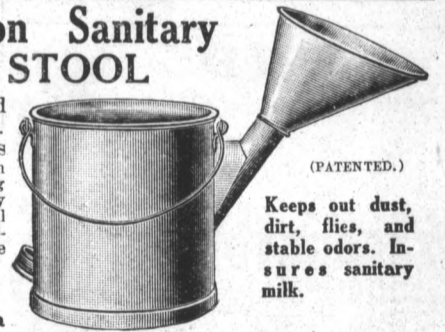
Showrooms in all large cities

AMERICAN RADIATOR COMPANY

Write to Dept. F3 Chicago

Alexander's Combination Sanitary MILK PAIL AND STOOL

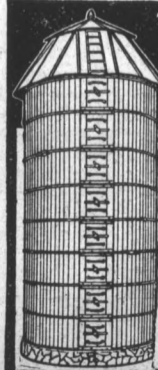
The best, most practical, most sanitary and most convenient milk pail yet devised. Sit on it and milk into the funnel. Pail is entirely closed and milk strained as it passes from funnel into pail. Get larger profits by producing better milk. Rust proof and indestructible. Easy to clean. Cow can't kick it over. See at the Annual Convention of Michigan State Dairymen's Association, Flint, Mich., Feb. 16, 17, 18 and 19 or write for free catalog and further details.



(PATENTED.)

Keeps out dust, dirt, flies, and stable odors. Insures sanitary milk.

INDIANA BOARD & FILLER CO.
Dept 2, Decatur, Indiana



The NAPPANEE SILO ADDS 40% VALUE to Your CORN CROP Write For Free Catalog

Buy a NAPPANEE — Get a Guarantee

Get a good Silo—A NAPPANEE—and make 40% more from your Corn Crop. The NAPPANEE insures green, fattening, milk-making feed all the year round. Added profits pay for Silo first year.

NAPPANEE Big Exclusive Features At No Extra Cost Only the NAPPANEE has the air-proof, rust-proof splice, tags. Seals like a fruit jar. Bears strongest Guarantee of any Silo because best and strongest.

Get the NAPPANEE Silo Book — It's FREE! Send postal for FREE BOOK explaining wonderful advantages which make the NAPPANEE the biggest money-maker ever offered farmers. Investigate NOW.

Nappanee Agents Wanted Reliable men wanted to handle sales in unoccupied territory. Rush inquiry to insure first chance.

NAPPANEE LUMBER & MFG. CO., 262-S. Madison St., Nappanee, Ind.



Use NATCO Drain Tile—Last Forever

Farm drainage needs durable tile. Our drain tile are made of best Ohio clay, thoroughly hard burned. Don't have to dig 'em up to be replaced every few years. Write for prices. Sold in carload lots. Also manufacturers of the famous NATCO IMPERISH-ABLE SILO, Natco Building Tile and Natco Sewer Pipe.

NATIONAL FIRE PROOFING COMPANY, Fulton Building, PITTSBURGH, PA.

Ready TO USE

Right From the SACK

No Mixing
No Bother



And You Get Your Money Back If It Fails

—to beat your present dairy ration. Mr. W. W. Eldredge, Jr., East Falmouth, Mass., one of the thousands who have tried LARRO-FEED on our money-back guarantee, writes: "I can get more milk out of it than any other feed I ever used."

Larro-feed

is an honest, wholesome, milk-producing ration composed of choice Cottonseed Meal, Gluten, Dried Beet Pulp, Dried Distillers Grains, Wheat Bran, Wheat Middlings and a little salt. Nothing else. You get all these choice feeds in one sack—all uniformly mixed and in just the right proportions to produce the best results. A trial will convince you. It costs you nothing for the feed consumed if it fails. Get LARRO-FEED at your dealers or write direct for sample and price. The Larrofe Milling Co., 1041 Gillespie Bldg., Detroit, Mich.

COLUMBIA Batteries



Plow Along!

Thousands of pounds of Tractor are dead without a few ounces of Batteries.

Get good Batteries—Columbia Batteries—cost no more—last longer.

Made and signed by the largest dry-cell works in the world. Sold and used for all battery purposes everywhere. Insure satisfaction by insisting on Columbia Batteries.

Made in U. S. A. by National Carbon Co., Cleveland, Ohio.

Convenient Falmouth Spring City Binding Posts, no extra charge.



\$15.95 Upward ON TRIAL

AMERICAN CREAM SEPARATOR

A SOLID PROPOSITION to send fully guaranteed, a new, well made, easy running, perfect skimming separator for \$15.95. Skims warm or cold milk; making heavy or light cream. The bowl is a sanitary marvel, easily cleaned.

ABSOLUTELY ON APPROVAL

Cases thoroughly protected. Different from this picture, which illustrates our large capacity machines. Western orders filled from Western points. Whether your dairy is large or small write for our handsome free catalog. Address:

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Learn what agricultural college and experimental station men say. Write for printed matter on the

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Feed Cooker and Boiler

Just the thing for cooking feed for poultry and stock, heating water for cows—boiling of hogs—washing, etc., rendering lard and tallow, sterilizing dairy utensils, boiling sap, etc. 8 sizes. Satisfaction guaranteed. Write today.

LEWIS MFG CO., 64-78 Oswego St., Cortland, N. Y.



NO BRICK FOUNDATION.

Wanted Agents to sell Farmers Account Books. Quick seller. Big Profits. Exclusive Territory. Address L. L. Byphers, Fort Wayne, Indiana

one pound of fat in 5,000 pounds of milk, and it is possible to do such good work that not to exceed half that amount will be lost.

It takes a good cow to produce 10,000 pounds of milk in a year, and if we lose but a pound of fat from the yearly product of such a cow, we should surely not complain.

Suppose though, that we lose a pound of fat for each 500 pounds of milk. This means 20 pounds, or 20 times the amount lost in a year from the product of the 10,000-pound cow. It will pay well to understand and properly care for the hand separator. Oceana Co. W. F. TAYLOR.

MANAGEMENT OF THE BULL.

If everyone interested in breeding dairy cattle would spend a few hours' time investigating the causes of abortion and shy-breeding, more attention would be given to the care and management of the breeding bull. One of the most difficult problems dairymen have to contend against is abortion and failure to get the cows with calf. This can be accounted for largely by their methods of handling the bulls. Every shy-breeding cow, or one that has aborted, regardless of her diseased condition, or anything else, is usually bred every time she comes in heat without any restriction. Among these cows that have aborted or failed to get with calf, a large per cent are diseased. This disease is transmitted from one cow to another by the breeding bulls until the disease goes through the whole herd. Every dairy farmer must learn not to have diseased cows served by their breeding bulls if they want to keep their herds free from abortion and secure a greater per cent of vigorous calves. If there are any who believe that infection from diseased cows cannot be conveyed to healthy cows through the act of serving, we can readily prove that it can if he will furnish us with some of his clean, healthy cows. Many experiments show that this can be done and must be guarded against by breeders of dairy cattle. Will the editors kindly have our veterinary editor give us some advice on this subject at an early date?

New York. W. MILTON KELLY.

MOLASSES AS STOCK FOOD.

Have you ever had any experience with feeding molasses, and how would it compare with other feeds? Molasses 17c per gallon. Sanilac Co. E. H. R.

Molasses shows about the same analysis and hence about the same feeding value as corn. It should not be used to supplement corn but in the place of corn in the ration. It also has another value and that is, it improves the palatability of the ration. Cows will eat more coarse fodder, like straw and cornstalks, if their foods are sprinkled with molasses. Cows, and all kinds of stock, for that matter, like molasses.

WHAT CAUSES THE COWS TO COUGH?

I have five cows which I feed corn fodder, millet hay and some clover hay. I had 1900 bushels of cowhorn turnips. I have been feeding all they would clean up. I have a common pan and I feed that just level full of corn and oats, with a couple of handfuls of cottonseed meal. Can you tell me what makes the cows cough? They seem to be healthy. They get all the salt they want and have a shelter to run to when out in the yard. Let me know if the feed causes them to cough.

Genesee Co. F. H.

I don't think this feed will cause cows to cough. All the foods in the ration are good cow foods and certainly ought not cause any cough. I would suggest that you look for some other cause. Better consult your local veterinarian. He can probably find the cause and give the possible remedy.

This Man Will Help You Solve Your Feeding Problem

Today there are over two thousand representatives of the McClure Company. These men are directly connected with our factories, accredited agents for the Saginaw Silo. When you buy a Saginaw Silo you deal direct with The McClure Company through its personal representative.

Everyone of these Saginaw men is well qualified to help you solve your feeding problems. He will show you the conditions under which your silage will keep properly. He can give you accurate information about silage feeding, what to feed with it to get a properly balanced ration. Saginaw men know the size silo you need to properly take care of your feeding.

Nearly, in your county or town you will find a Saginaw agent ready to talk silage feeding with you. He can show you how to make bigger profits from your farm.

This is a part of the service the McClure Company is giving to the farmers of this country. We aim to choose as our representatives men who can intelligently discuss with you better farm equipment and help you increase your earnings. You will find Saginaw Silo men the kind you like to do business with.

You surely are planning on building a silo some day in the near future. You have visions of greater things both for you and your folks on the farm. The silo makes these things possible. It is the bulwark of prosperity on thousands of farms today.

Silos have demonstrated their usefulness, in fact they are a necessary part of modern farm equipment. Every day you do without a silo means losses that come from high feeding costs. Every year you pay for a silo whether you buy one or not.

Let's get together on this silo proposition. You can talk it over with one of our personal representatives without putting yourself under any obligation to buy.

Write for the name of our personal representative. Let us put you men in touch with each other. At least send for our silage feeding book No. 117

The McClure Company (Formerly Farmers Handy Wagon Works) Saginaw, Mich. Cairo, Ill. Fort Worth, Texas Des Moines, Iowa St. Paul, Minn.



The Saginaw - The Last Word in Silo Construction

Yes! I Challenge the World To Beat My Separator and My Price

It can't be done—and to prove it I will send this New Galloway Perfect Skimming Sanitary Cream Separator anywhere in the United States without an expert to set it up, to any inexperienced user for a ninety-day free trial to test against any make or kind of separator that even sells for twice as much and will let you be the judge. It's the most modern, the most sanitary, the most scientific, the cleanest skimming, the most beautiful in design of any separator made today, and I have seen them all. Travel 20,000 miles, count 'em, and you won't find its superior at any price. Made in our own factories from the finest material, on the best automatic machinery, by skilled workmen, in tremendous quantities, all parts alike, and standardized, and sold to you for less money than dealers and jobbers can buy machines not as good in carloads for cash.

This Ayrshire cow is Nona 2d of Avon, one of the famous prize-winners in my Ayrshire herd. The New Galloway Sanitary Cream Separator is, like her, a thoroughbred and a leader.



SEPARATOR CATALOG FREE

Also My 1915 Sliding Scale or Profit Sharing Price Schedule.

All I ask you to do is FIRST get my proposition before you decide to purchase any cream separator of any make, kind or at any price. No such price as I make on this high-grade separator has ever been made before. I save you dealer's, jobber's and catalog house profits and sell you a better separator every time. FIRST get my proposition. Just drop me a postal.

WM. GALLOWAY, Pres.

Wm. Galloway Company

183 Galloway Station

WATERLOO IOWA

90 Days' Free Trial Ten-Year Guarantee Simple in Design, Easily Operated, Bath in Oil, Easily Cleaned Bowl, Smooth, Oval Surface, All Parts Interchangeable. Leads them all for Close Skimming.

R-2 Rev.

\$14.75 AND UP BUYS A GENUINE "IOWA" SEPARATOR

Made in the largest Cream Separator factory in the World. Famous patented Curved Disc bowl, owned exclusively by us, skims closer than any other Separator, warm or cold milk, thick or thin cream. Finest grade of tinware. Enclosed dust-proof gears.

NOTHING IS SLIGHTED. QUALITY OF CREAM SEPARATOR IS GUARANTEED IN EVERY PARTICULAR.

Splendid shop organization, factory equipment and quantity output accounts for low prices impossible for others. Equally attractive prices on larger Separators. Write for descriptive books of Separators.

ASK ABOUT FAMOUS "CHORE BOY" LINE OF GASOLINE ENGINES—MADE IN ALL SIZES AND UP \$28

ASSOCIATED MANUFACTURERS CO. 181 MULLAN AVE. WATERLOO, IOWA

Make Big Money NOW!

Sell the best cream separator on the market. Get the Exclusive Agency for your territory and be Independent. It's easy to make from \$30 to \$60 a week. We teach you the business and appoint you our SPECIAL AGENT. WRITE TODAY, as we appoint only one man for each territory.

The Cleveland Cream Separator Co., 1017 Power Ave., Cleveland, Ohio

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BREEDING HEIFERS BACK TO THEIR OWN SIRE.

I have some fine three-quarter blood heifers. Would like to know if it would be advisable to breed them back to their own sire. He is six years old and has proven to be a good one. My cows are giving from 25 to 30 lbs. of milk, testing 4.5. I have corn silage and alfalfa, bean pods and corn stover and for grain I have ground oats and beans and corn-and-cob meal, also cottonseed meal at \$1.80 per cwt. Would you advise me to feed them grain; if so, how much?

Oceana Co. SUBSCRIBER.
I remember hearing Ex-Gov. Hoard, of Wisconsin, say once that in-breeding or in-and in-breeding was like a double-edged sword, and will cut both ways. What he meant by that was that in-breeding or incestuous breeding would magnify imperfections as well as perfections. If your heifers, for instance, have poorly shaped udders, then by breeding them back to their own sire you may expect to magnify this rather than to improve it. If your heifers are a trifle lacking in constitutional vigor don't expect to improve them in this respect by in-breeding. And so one might enumerate any weakness and say that this weakness would tend to be magnified by in-breeding. But on the other hand, if these animals are superior animals in every respect physically, and the sire is a prepotent dairy animal, there is no way you can improve your herd so fast as by this practice.

No one can advise you without making a thorough study of your animals. If you have the intuitive power of a real breeder you are perfectly safe, but if you haven't you better let in-breeding alone. In-breeding has been the method by which all of our domestic breeds of live stock have been brought to their present degree of excellence. But understand, the men who formed and improved these breeds were no novices. They were masters of both the science and the art of breeding. Many a novice has completely ruined his animals by in-breeding. That is why the average man has such a horror of it.

With beans as grain you need but little cottonseed meal, for beans contain over 20 per cent protein. It would probably be better to feed one pound of cottonseed meal a day and not so much bean meal, for bean meal if fed in excess makes a very firm fat and a tallowy, brittle butter. I certainly think cows giving milk should have a good liberal grain ration. Good dairy cows will always pay for it. I also think young growing heifers should have a little grain, and after they are once bred a liberal grain ration will develop them as nothing else can. Don't be afraid of overfeeding a heifer after she is once pregnant. That will be the easiest money you can make.

COTTONSEED MEAL THE CHEAPEST SOURCE OF PROTEIN.

Will you please tell me which is the cheapest to feed, oil meal at \$1.90, cottonseed meal at \$1.85 per 100 lbs, to mix with corn meal, bran, mixed hay, and cornstalks?

Oceana Co. W. W. D.
The foods constituting the roughage in the ration must be considered as well as the grain, one cannot form an intelligent opinion of the value of a ration from the grains fed alone. Cottonseed meal contains 36 to 37 per cent digestible protein, while oil meal contains only 30 to 31 per cent, hence at the prices given the cottonseed meal is by far the cheapest source of protein. If clover hay constitutes the roughage, one could balance the ration pretty well by feeding corn meal and bran, and there would be no need of feeding either oil meal or cottonseed meal; but, of course, the bran could also be done away with and either oil meal or cottonseed meal fed. Corn meal and cottonseed meal would be the cheapest combination to feed with clover hay and other ordinary roughage.

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Only \$2 a Month No Interest To Pay—No Extras

The prices we quote include everything. You have no extras to pay—no interest. You buy direct from the manufacturer and save nearly half. We give **30 days' trial** on your own farm. During this time if you don't find the New Butterfly the lightest running, easiest cleaning, and best all around separator on the market (regardless of price) you don't need to keep it. Just send it back at our expense and we will refund what you paid, including all freight charges both ways.

Used on More than 30,000 Farms

Over 30,000 New Butterfly Cream Separators are now in use. No doubt some of them right in your own neighborhood. We have been advertising in this paper for years—the publishers know us and know we do just as we agree. Read these letters from just a few of thousands of satisfied owners:



Seven Years Old—Runs Like New
"The Butterfly Separator we purchased of you about seven years ago is still doing fine work. I recently took it apart and cleaned the gears with coal oil. Now it runs like a new machine and works as well as ever."
H. S. Stonebraker, Kokomo, Indiana.

Twelve-Year Old Girl Runs It
"We would not do without our Butterfly Separator or exchange it for all the other machines we have seen. Our little girl, 12 years old, runs it like a clock."
Mrs. F. E. Rude, Ashland, Wis.

Made \$61.39 More From Same Cows
"We made \$78.61 worth of butter before we had the machine and in the same length of time, we made with the Butterfly Separator \$140.00 worth of butter from the same number of cows."
Thos. S. Kermosky, Point Aux Pins, Mich.

Lighter Running and Easier to Clean
"We don't see how we got along without the New Butterfly as long as we did. It runs lighter, is easier washed and kept clean than the higher priced machines in this neighborhood."
R. E. Morrison, Ollie, Mont.

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Why not get one of these big labor-saving, money-making machines while you have the opportunity to do so on this liberal self-earning plan? Let us send you our big new illustrated Catalog Folder showing all the machines we make and quoting lowest factory prices and easy payment terms. We will also mail you a book of letters from owners telling how the New Butterfly is helping them make as high as \$100 a year extra profit from their cows. Sending coupon does not obligate you in any way. Write today.
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Gentlemen: Without obligation on my part, please mail me your free Catalog Folder and full particulars regarding your special easy payment offer on the New Butterfly Cream Separator. I keep..... cows.
Name..... P. O. State..... R.F.D.

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Because it Increases the Production and Lowers the Cost.
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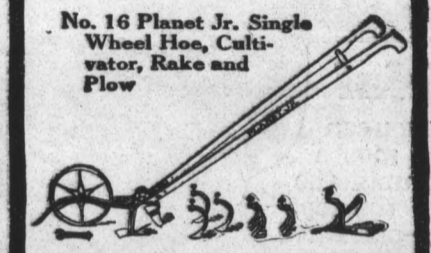
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Stronger, better made, and capable of a greater variety of work than any other cultivator made. A great favorite in corn, potatoes, tobacco, tomatoes, and similar crops. Non-clogging steel wheel. Can be fitted with plow and disc attachment.

72-page Catalog (168 illustrations) free
Describes in detail over 55 tools, including Seeders, Wheel Hoes, Horse Hoes, Harrows, Orchard- and Beet-Cultivators. Send postal for it now.
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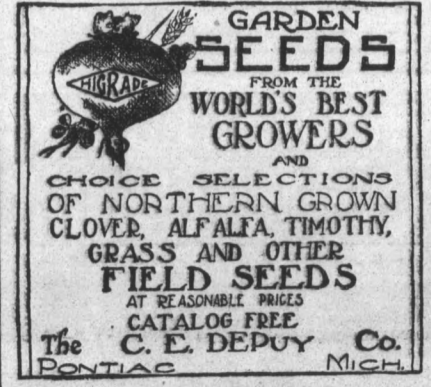


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More important than ever. The U.S. will export potatoes this year. Every bushel raised will be needed. Potash is scarce. Seed will be high. This planter puts one piece only in every space, saves at least one bushel of seed every acre. No injury to seed, no disease carried, best distribution of fertilizer. Ask your dealer to
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SPRAY We Make Sprayers For Every Need

Bucket, Barrel, Knapsack, Potato Sprayers, High-Powered Gasoline Engine Orchard Rins, etc. Tell us your wants. We will supply the sprayer suited to your work and give you accurate spraying information.
This Empire King (Mounted Barrel Sprayer)
Leads everything of its kind. Throws fine mist spray with strong force. No clogging. Strainers are brushed and kept clean and liquid stirred automatically. For catalog, spraying formula and directions address
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Economy in Orchard Culture

THE economic side of the care of the orchard is a chief factor in the methods as practiced by Mr. Clark Allis, of New York, according to his talks given at the recent State Horticultural meeting at Kalamazoo. Although Mr. Allis is very unorthodox in many of his methods, he does not want to force his methods upon others, as he realizes that there is no absolutely best way of taking care of an orchard. Everyone must decide for himself according to his local conditions as to what methods are best, and even though one has certain set plans, these often fail. He suggests that we keep our plans to ourselves and then, if they fail, we should endeavor to make the other fellow think that we tried to do what we did, probably the ultimate results will be just as satisfactory anyway.

An Economical Way to Set Trees.
The economy and the ease in doing the work is well illustrated in Mr. Allis method of setting his trees. A dead furrow is plowed where each row of trees is to be. This is loosened up with a subsoil plow which puts it in shape for the trees. According to the usual custom the broken roots are cut off and then the roots are dipped in a winter strength (1:8) of lime-sulphur. Contrary to the general belief, he has not found this dipping injurious to the trees. The head of the tree is started low, so as to leave from three to five limbs as scaffold limbs.

Young Trees Not Pruned.
Aside from the pruning the trees get when they are set, they receive practically no pruning except to cut out an occasional cross limb until they come to bearing age. Mr. Allis, in common with the experience of many other practical orchardists, has found that pruning young trees delays the bearing of the trees by encouraging a sappy growth which does not set to fruit buds. He has one orchard, 26 years old, which has given him very good results in fruit, although it has not been trimmed. Generally, however, he trims his bearing trees lightly each year. It has been his experience that untrimmed young trees are a third larger than those which have been trimmed.

In pruning it is not Mr. Allis' policy to cut out the larger limbs unless absolutely necessary. He endeavors to keep the shape of the tree by cutting out the smaller limbs. This is opposite to the method practiced by Mr. Case, also of New York, who told the State Horticultural Society of his methods last year.

Prunes During Winter.
As to the time of pruning, Mr. Allis says that he trims any time during the winter when the weather is favorable for outdoor work, trimming both peaches and apples at this time. Although early spring is supposed to be an ideal time for pruning trees of all kinds, on account of the size of his orchard, he finds it impractical to wait until then. He does not paint the wounds left by cutting large limbs, as is recommended by most all authorities on fruit growing. Another feature of labor saving and economy in his methods of caring for the orchard is a brush burner for burning the brush made by pruning. This is a large sheet iron affair which can be easily drawn from place to place, upon which the brush is piled and burned as it is made.

In the case of peach trees, Mr. Allis found that heavy pruning paid, as he has noticed that in a great many cases severe pruning took the place of thinning, and in all cases found that the increased size of the fruit paid for thorough pruning.
Method of Controlling Blight.
With reference to the control of the blight, he has found it of little value to cut it out during the growing season. An endeavor to control it by

cutting it out at this time proved expensive, and did not accomplish the results it is supposed to. He has found it an advantage, however, to cut out the blighted limbs in the fall and winter. By doing the blight pruning at this time all the hold-over blight is cut out and a very great source of infestation for the next spring is greatly reduced.

His orchard is cultivated until at least the middle of June and sometimes until the end of July, the time depending upon the season. If the season is a dry one, the cultivation is continued longer than if it is normal. At the last cultivation a cover crop is put in, anything that is cheap being used. This past season alfalfa and mustard screenings were used. In the fall he plows to the trees and then cultivates crosswise. By cultivating in this manner, he is able to prevent the tendency of the earth to mound around the trees from continual plowing to the trees. He believes in fall plowing because it relieves him of that work in spring when he is busy with spraying.

Baldwin a Favorite Variety.
Mr. Allis' main variety is the Baldwin, with McIntosh, Maiden Blush, Wolf River and Twenty-ounce as fillers. He believes the Baldwin to be the best all-around market apple, and one which will average greater returns, year in and year out, than any other variety grown in his section of New York.

To assist him in getting better prices for his fruit, and also as a side line, Mr. Allis operates a cold storage plant. His plant has a capacity for 15,000 barrels and is conveniently located on a railroad siding. He had some trouble in getting the railroad officials to consent to building a siding for his storage house, as it was between two towns where there were sidings. However, by the presentation of barrels of apples to several of the officials, he readily got their consent.

He first used the calcium chloride system of cooling for his storage house, but found that the labor involved in handling the ice for a house of the capacity of his was too great, and he has therefore changed to the ammonia system for cooling. With electric power conveniences and having his own water supply, he has found this system an efficient and easily operated one. Mr. Allis' experience is that it pays to store apples. During the past season it paid him 75 cents a barrel over the prices offered at harvesting time.

In order to solve the help problem he arranges his work, as much as possible, so that there will not be congested periods of work and slack times. For this reason he carries on many of the orchard operations at times when it is not thought best. However, it enables him to employ a maximum number of year-men. These he pays \$500 per year, furnishes them comfortable quarters and gives the usual extras.

Alfalfa growing and orcharding is Mr. Allis' favorite combination. He finds that the work involved in the care of the alfalfa in no way conflicts with the work in the orchard, and besides, nets a very good profit.

TROUBLE DEPARTMENT.

Tobacco Stems for Control of Aphis.
I can get a large quantity of tobacco stems. Would it be all right to put these around apple trees to exterminate aphis? If I would boil the stems and spray the trees with the solution would it kill aphis? How will I test the solution to find out what per cent nicotine is in it?
Indiana. A. H.
Tobacco stems are generally considered a nitrogenous fertilizer, and as such are of value only to put around the trees in a powdered form. They

"There is the most accessible automobile in the world"

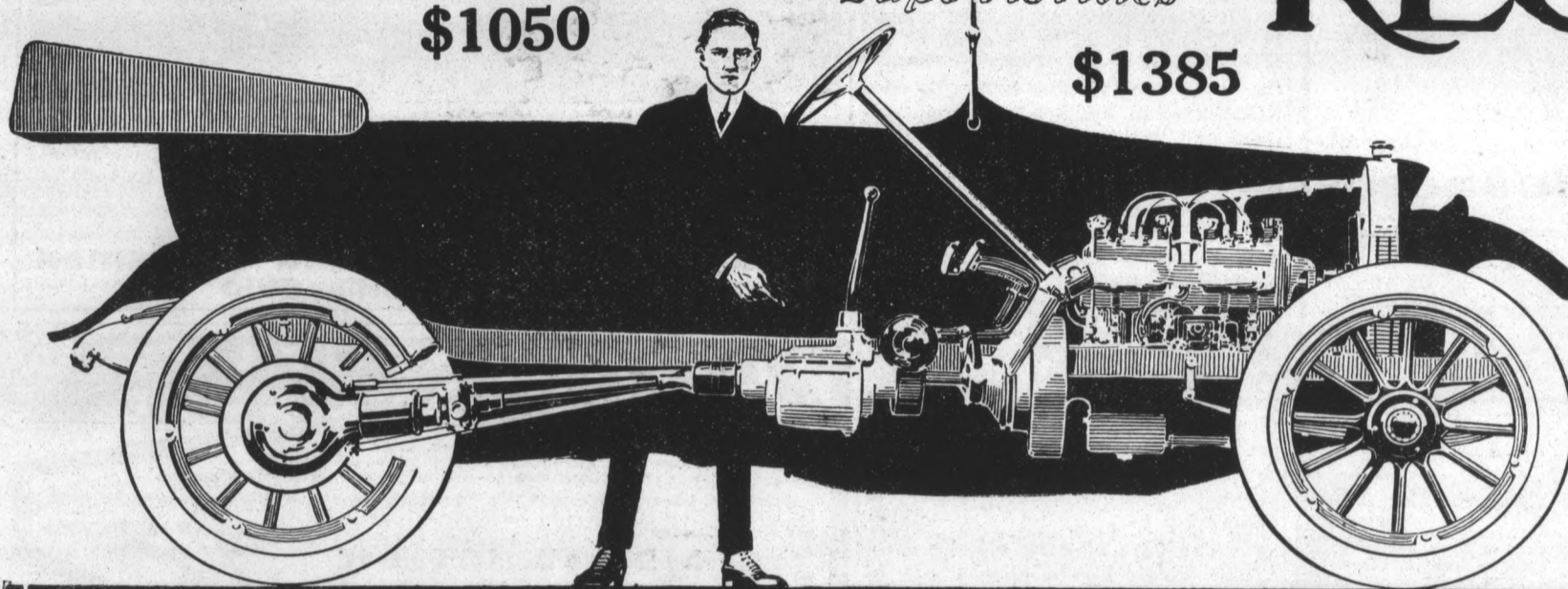
THE NEW REO—The Fifth—
The Incomparable Four

\$1050

THE REO SIX—
The Six of Sixty
Superiorities

\$1385

REO



That statement applies with equal force to the New Reo Six and to Reo the Fifth, "the Incomparable Four"—for in this respect all Reos are alike

THE 3-UNIT POWER PLANT which always has been and always will be a feature of Reo automobiles, makes this the most accessible automobile in the world.

REO ENGINEERS INSIST that the only excuse for the 2-unit chassis is that it is easier and cheaper for the manufacturer—while it is obviously less accessible and, therefore, more expensive to the owner.

YOU KNOW THE TYPE WE MEAN—that in which the transmission is incorporated in a kind of annex to the motor or the rear axle in such a way that in order to make an adjustment or repair to one unit you must disturb two complicated mechanisms.

A PROMINENT REO DEALER, who also handles another make of car of much higher price, was recently asked why it was that his repair shop was always full of the higher priced cars while a Reo was so seldom seen there, though he sold so many more Reos.

"IT ISN'T SUCH A BAD CAR," he replied. "In fact it is a mighty good car as cars go. But it is so inaccessible that when anything does go wrong it takes so all-fired long to fix it."

IF YOU HAVE PAID—as doubtless you have many times—a five dollar "repair" bill for what you felt ought to have been a five cent adjustment, you will appreciate that.

"ACCESSIBILITY"—'twas a word to conjure with in ads a few years ago. For most of the things you did to a car in those days had to be done while lying on your back. So, when a designer could so arrange the units that you could take a more comfortable position—as kneeling or lying on your side!—its "accessibility" was loudly proclaimed.

BUT WHEN THE TERM CEASED to be novel most makers dropped it. And then they forgot also to design the quality into their cars!

NOT SO THE REO ENGINEERS. Several years ago the Reo chassis had been standardized and perfected to a point where we believed—and still believe—it will require no radical change for a long time to come, if ever.

AND ALL THE EFFORTS—all the engineering knowledge of the Reo organization, from that time, has been concentrated on the improvement and the refinement of that standard Reo chassis in one direction—greater accessibility.

FOR WE BELIEVE it is the paramount consideration in an automobile. We believe nothing so directly tends to reduce the maintenance cost of a car as that quality of accessibility.

STUDY THIS FEATURE in Reo cars. You'll find it isn't simply an advertising phrase—it's a fact. Go over the entire car—each unit separately and note the vast amount of attention and care that has been exercised in the direction of simplicity and accessibility.

ANY ADJUSTMENT or repair can be made to any unit without disturbing any other.

WHY REOS ARE THE ONLY CARS in which main crank-shaft as well as connecting-rod bearings can be adjusted without taking the motor out of the car. Patented feature—strongly protected.

EVER TRY TO ADJUST your steering gear—to take up wear? Ever get anywhere in the attempt? Yet they all call them "adjustable." Now, study the Reo steering mechanism—it's so simple the average person never notices it. And owners tell us they almost forget there is one on the car—so seldom does it require even the slightest attention. It's self-adjusting—automatically. Accessible too—look and see if it isn't!

AND, DO YOU KNOW, some makers who are now copying that "Always Reliable" Reo steering gear used to laugh at it! Such is the reward of leadership.

AND THAT BRINGS UP another matter—a detail of Reo policy. You know, the Reo engineers never adopt anything just because it is new—not unless it is better. Nor do they discard a feature of proven excellence just to supplant it with a more conventional one.

BUT TO RETURN to our subject—Accessibility:

Most makers seem to overlook or to ignore the fact that it's one thing to assemble and adjust parts when the chassis stands stripped on the factory or garage floor—but it's an entirely different matter to do it when the parts are covered by the body above and the drip-pan below—with immovable dash directly over the place which, perhaps, you most want to reach.

DOES THAT LAST PARAGRAPH bring up memories that are more poignant than pleasant? Thought so. Then you'll derive real joy from the possession of a Reo.

AND SIMPLICITY. Don't be deceived by a smooth-looking casting. Looks simple—but may conceal a mess of inaccessible gears and bearings and traps. Get into it and make sure.

LOOK TO THE CLUTCH—can you get at it without taking down both motor and transmission—or is it hermetically sealed inside that "simple" looking annex?

DIFFERENTIATE between that which is really simple and that which is only "simple looking." Between Accessibility with the body on—and what the dealer has in mind—the Accessibility of a stripped chassis—or a motor on a special stand. There's a world of difference.

AND THAT REMINDS US of another Reo dealer—one of the most successful. He advertises "don't buy a Shop Service Car—buy a Road Service Car—Road Service built in at the factory."

ASKED WHAT HE MEANT by that, he said: "When I see too much emphasis laid on 'Shop Service' in advertising a car I opine that that car must be so built it will need plenty of it. I have watched it and found I was generally right."

REO ROAD SERVICE—built in at the Factory—that is our strong point—that and simplicity and Accessibility, so that, when any adjustment or repair or replacement must be made you can do it easily, anywhere with ordinary tools—and at the slightest cost.

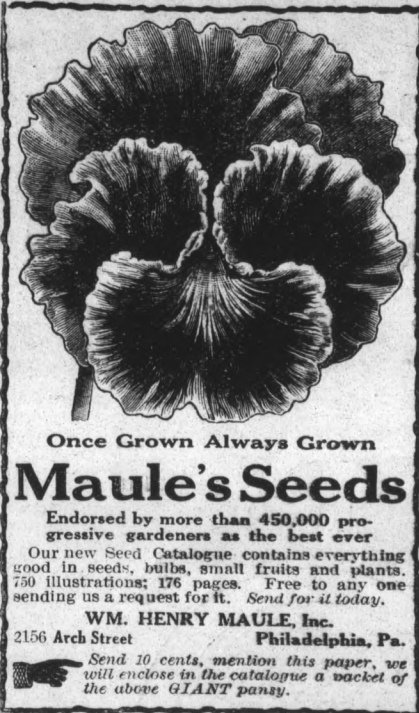
ALL THE EXPERIENCE—all the ingenuity—all the skill—of the Reo engineers have been concentrated on this one idea for several years—simplifying design always with greater accessibility in view.

AND WE ARE MOST PROUD of the result. Ask any Reo owner—and the longer he has owned his Reo the more enthusiastic will you find him. He will repeat the words that head this ad.

The New Reo the Fifth, \$1050

The New Reo Six, \$1385

REO MOTOR CAR COMPANY, LANSING, MICHIGAN
Manufacturers of Reo Automobiles and Reo Motor Trucks



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 Endorsed by more than 450,000 progressive gardeners as the best ever
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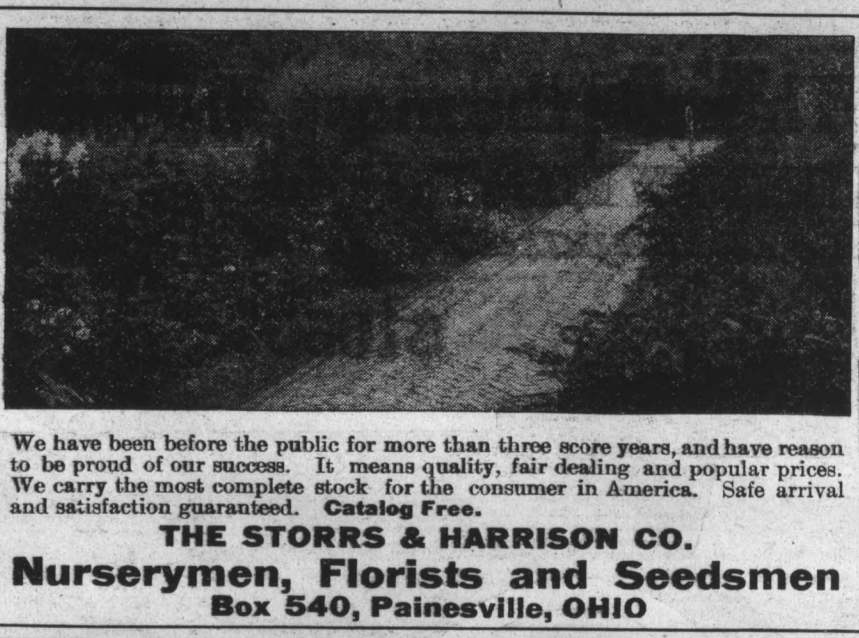
also contain some nicotine which is useful in controlling sucking insects, such as the aphid, but in the tobacco stems the percentage of nicotine is so small that the desired effect in the control of aphid cannot usually be had without a great deal of trouble. If they are put around the trees in powdered form they would have very little effect on the woolly aphid which sometimes attacks the roots of the trees, and which is the only sucking insect which attacks the apple tree roots, but its effect would be so small as to be of little practical value. In boiling the stems for spraying purposes, one would have to boil a large amount of them and use the resulting liquid in quite concentrated form to get any results. It would be advisable, both from the standpoint of economy and labor for you to use one of the commercial tobacco extracts for spraying purposes if necessary. The only practical advantage in using tobacco stems in any way would be to use them as a fertilizer by mixing them in the soil when young trees are set. For this purpose they should be in powdered form. The method of testing the percentage of nicotine in the solution of tobacco extract involves too much chemistry for the ordinary person to undertake.

The Care of Bark Injuries.
 This winter I have allowed one of my brood sows to run in my young apple orchard and she has taken the bark off, in spots, from two of my young apple trees; they are four years old. Can you tell me if there is anything I can put on them to heal so as the bark will grow again?
 St. Joseph Co. E. D.

When the bark on an apple tree is injured so that some of it has been taken off, it is advisable to trim the loose and ragged edges of bark on the wound back to where the bark is firmly attached to the tree. Then the wound should be thoroughly painted with an application of pure white lead and raw linseed oil; this paint should be made quite thick so that it will serve as a protection to the wound and prevent the evaporation of moisture. If the wound is near the base of the tree after trimming up, instead of painting, one can mound the earth so that it will cover the wound, or one may use cow dung to cover the wound, but neither of these methods are as good as the painting, as they are not as sanitary, and may cause fungus growth to start. It all depends on the size of the wound as to whether it will entirely heal or not. As these trees are only four years old, undoubtedly the wound will heal over even though quite serious, as young trees heal over more quickly than do older ones.

Re-planting Peach Orchard.
 I pulled out an old peach orchard that had grown to a heavy June grass sod, and plowed the sod late this fall. Would you advise planting a new orchard in the spring, or waiting another year to get the sod thoroughly killed out? What crop would be best to plant in the young orchard?
 Antrim Co. H. J. G.

The matter of re-setting a peach orchard which has died out through disease or by freezing out, has been a serious problem to peach growers. Many have tried various ways of re-setting these old orchards on the same ground, and the conclusion of their general experience is that it is not advisable to do so, especially immediately after the old orchard has



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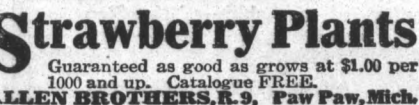
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been taken out. For some reason or other, the re-set trees do not do well. There are several theories regarding the cause; one is that the peach tree is one of the plants which throw off toxins into the soil which are detrimental to plants of the same kind which succeed them. Another is that the peach tree is such a gross feeder that it takes the plant food necessary for the young tree to do well. Perhaps both these things have some bearing on the fact that new orchards do not succeed in old peach orchard ground.

The usual method of re-setting peach orchards is to plant to other crops for several years, using some one of the legumes very frequently and turning them under as a green manure. This treatment will enrich the soil, and will also help to rid the soil of the toxic effects of the old trees, and the peach root aphid, which is generally prevalent in peach orchards especially in the lighter soils and is a great check to the growth of the young trees. By this method growers have had quite good success in re-setting their orchards.

In re-setting the old orchard, it is advisable not to set the new tree in the same places where the old ones have been. The rows in the new orchard should be midway between those of the old one, as in that way the new trees will have the advantage of the least depleted soil in the orchard.

For the first year of the young orchard, there is no crop better than corn, provided that it is not planted too closely to the trees, and the soil is rich enough to grow a good crop of corn without detriment to the trees. With corn in the orchard the young trees will be sure of thorough cultivation, and will also be afforded shade from the sun, which is very beneficial to the tree the first year. Many growers are successful with the growing of melons or tomatoes in the orchard, but in the use of such crops one must often do heavy fertilizing. They are crops which require more intensive care than corn, and if one cares to give this, they can be grown successfully in the orchard without detriment to the trees.

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The kitchen windows afford ample room for growing enough early plants for the average home garden. It is necessary to give the tomatoes, egg plants and peppers a start somewhat earlier than can be done in the outside rows, especially in the more northern sections. Few have the opportunities to give the plants the benefit of a greenhouse, but the kitchen answers the purpose very well. I use a method in starting the plants that avoids transplanting. In many cases this is a somewhat delicate operation, especially if the ground is dry when the time comes to set the plants. A box or tray, three inches deep, and of a size to fit the window shelves and hold a certain number of ordinary small tin cans, is made of half-inch pine lumber. This has one side so arranged that it can be removed by unhooking at each end. Into this are set as many cans as it will hold. The tops and bottoms are first removed from the cans by standing them on a hot stove to melt the solder. These are filled with soil and the seeds planted, a few in each can. One plant is left in each receptacle until time for transplanting. When the plants are set out in the garden, holes are dug of sufficient depth to hold the can. After pressing the dirt solidly around it, gently slip the can off over the plant. This leaves it in the ground without any disturbance to the roots. A piece of tin or a shingle may be used to slip underneath the bottomless cans when removing them from the tray.

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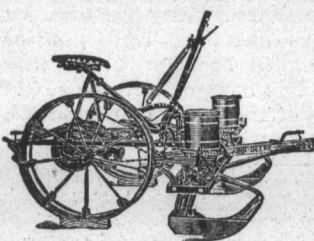
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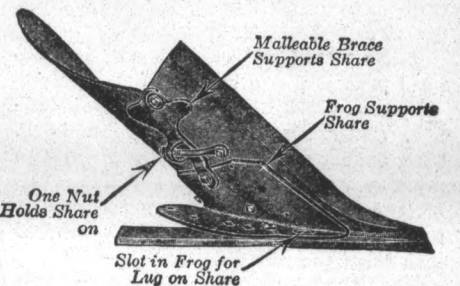
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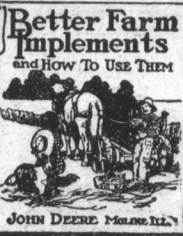
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DETROIT, FEB. 6, 1915.

CURRENT COMMENT.

Our Washington interesting Farm correspondent has compiled the following statistical data touching the comparative prosperity of the American farmer, which should be both interesting and instructive to the average reader:

Within 15 years American farmers have more than doubled the value of their annual combined farm products. Last year the value of all farm crops, farm animal products and farm animals sold and slaughtered aggregated \$9,872,936,000, which was \$83,000,000 more than the grand total for 1913, the previous record year. Crops in 1914 were valued at \$6,044,480,000, slightly less than in 1913, on account of the reduced value of the cotton crop brought about principally from the European war.

The estimated total value of the animal products and of the farm animals sold and slaughtered was \$3,838,456,000, distinctly higher than in 1913. The corn and wheat crops were the most valuable ever produced in the United States, bringing the year's crop value total to only \$88,279,000 less than the total for last year.

The value of the principal farm crops in 1914 was: Corn, \$1,702,599,000; wheat, \$878,680,000; hay, \$779,968,000; cotton, \$519,616,000; oats \$499,431,000; potatoes, \$198,609,000; barley, \$105,903,000; tobacco, \$101,411,000; sweet potatoes, \$41,204,000; rye, \$37,018,000; sugar beets, \$27,950,000; rice, \$21,849,000; flaxseed, \$19,540,000; buckwheat, \$12,892,000.

In 1914 two important crops exceeded previous records—wheat, with 891,000,000 bushels, following the 1913 record of 763,000,000 bushels, and cotton, with 15,966,000 bales, the previous record being 15,693,000 bales in 1911.

The value per acre of all enumerated crops averaged about \$16.44 in 1914, compared with \$16.52 in 1913 and \$16.15 in 1912.

Michigan Farmer readers will recall something of the furore which was created two years ago by the consideration and passage of an alien land law, so-called, by the California Legislature. Prominent federal administration officials sought to use their influence toward a modification of the terms of this law in the fear that foreign complications might result upon its passage. It was, however, finally passed in a form which has apparently served, at least temporarily, the pur-

pose of the people of California who were behind it, without such serious results.

A number of bills have been introduced in the California Legislature to modify the provisions of this law in a number of respects, including the elimination of the so-called three-year lease clause, which is sought by labor organizations generally throughout the state. The effect of this proposed amendment would be to prohibit Japanese and other alien farmers who are ineligible to citizenship from leasing land which they are prohibited by law from purchasing.

In this connection, Governor Johnson, of California, has recently issued a statement that there is this year no occasion for further action in this matter, the statute enacted two years ago having upheld the rights and dignity of the people of California without giving just cause of offense to a friendly nation and intimating that his approval will be withheld from any bill which may be passed affecting the terms of this law.

Practically the same question has been agitated in Michigan through the report circulated that northern Michigan lands were to be colonized by Japanese. While this program has not materialized the question is still being discussed to some extent. Although it would seem that there is no call for action along this line by the Michigan Legislature under present conditions, we have, to the end that our readers may be informed upon this subject, secured from a citizen of California who is well qualified to discuss this subject, an article on the causes which gave rise to this legislation in California, which will be presented in an early issue.

In another column of this issue will be found a criticism of the work of the State Tax Commission in reviewing and equalizing the assessments in a township in one of the better agricultural counties of central Michigan. As bearing upon the justice of this criticism, we have a letter from the supervisor of the township in which the writer of this criticism lives, in which the statement is made that the percentages given are approximately correct.

We are gathering data which will show something of the work of the Tax Commission in the reviewing and equalizing of assessments in both rural and urban communities, which will be presented in these columns as soon as it can be gotten into shape. In the meantime, we believe that Michigan Farmer readers would do well to at least reserve judgment in the matter of favoring the abolition of the State Tax Commission or the curtailment of its work. If the law under which the commission works is defective, these defects should be remedied, but it seems quite apparent and is the opinion of most students of the problem of taxation that some central supervisory control over the work of local assessors is essential to general uniformity of equality of assessments.

We certainly believe that the author of this criticism is in error in assuming that the farmers of the state are being deliberately and systematically exploited by the state through its tax commission. Quite as vigorous protests have been heard from city property owners. It will be recalled that last year when the Kent county assessments were reviewed by the Tax Commission, the mayor of Grand Rapids made vigorous protests against the revised assessments, and offered to sell parcels of his property at less than the assessment value fixed by the commission.

A perfect system of taxation has never been devised; the present system undoubtedly has many imperfections which should be eliminated as rapidly as possible, but we believe the changes made should be along the

lines of evolution rather than revolution.

Various phases of the tax problem were discussed at the sessions of the Michigan State Tax Association, held in Detroit last week. Various opinions on the best methods of improving Michigan's tax laws were advanced by the educators and experienced tax officials who appeared on the program. Few of these proposed innovations, which ranged from the adoption of an income tax for state purposes to the exemption of public service corporations from taxation, were favored by the conference in the resolutions adopted by the body, which were as follows:

"The tax conference indorses the work of the tax commission and compliments it on its successful labor in the valuation of property and the equalization of the assessments. The success of this work encourages us to believe that the present ad valorem system should not be abandoned on all personal property without further trial.

"We indorse the principle of a low specific tax on intangible values commonly known as moneys and credits, except bonds issued by Michigan municipalities.

"We indorse the principle of a specific mortgage tax. It has placed on the rolls an increasing amount of mortgage credits. If the rate applied is not sufficient it may be increased either by the application of a low graded rate based on the length of time to the maturity of the loan or by an actual charge.

"The association recommends the establishment of a budget system for proposed state expenditures and a compulsory uniform system of accounting for the several counties.

"We indorse the recommendation of the tax commission and the State Association of Supervisors that the state board of equalization be composed of the tax commission, the auditor-general and the attorney-general.

"We urge on all members of this association the importance of increasing its membership and its influence. It has a valuable work to do in Michigan. No effort should be spared to widen the field of its labors and to make it a powerful factor in Michigan's economic life."

THE DETROIT TRIBUNE DISCONTINUED.

We can accept no more subscriptions to the Detroit Daily Tribune. All subscriptions received by us after January 30, will be returned, as that publication has been discontinued. Old subscribers of the Detroit Tribune will receive the Detroit News.

HAPPENINGS OF THE WEEK.

Foreign.

The European War.—There is activity in both the eastern and western war zones. A series of big battles are reported to be in progress in the passes of the Carpathian Mountains. Here the Russians are endeavoring to march across the mountain range and overrun the plains of Hungary. They have already conquered Bukovina, the southern district of Galicia and are threatening Transylvania. To protect Hungary, Germany is sending a large number of troops to assist the Austrians. The Teutonic allies fear that if Russia should have a successful campaign in this quarter, Roumania would come to the aid of the Slavs. The campaign in Poland seems to be at a standstill, while in Prussia the Russian invasion is reported to be making headway and the armies are now within about 50 miles of Konigsberg. Three Turkish armies are reported to be marching upon Egypt. In the west there have been several small engagements, but the line of battle remains practically where it has been during the past month. An Amsterdam despatch states that the Germans are massing large numbers of troops in Flanders near the Yser Canal. This movement is interpreted to mean that another attempt will be made to gain control of the Belgian and French coast. Another view is, however, that it is merely a precaution to offset the new armies that the Allies will soon put in the field.

The bread situation in Italy is becoming serious. A royal decree has been issued suspending the duty on wheat and other cereals. Government control of these products is a probability.

Two British merchant ships were sunk in the English Channel by German submarines last week. Other

British merchantmen have also been torpedoed by German submarines in the Irish Sea. It is the general belief that the Germans purpose to menace the commerce of her enemies through the use of underwater craft wherever possible.

Diplomatic advices declare that Greece has decided to aid Serbia (Serbia), in the event of another Austrian invasion of the latter country. At present Greece is allowing munitions of war to pass through her territory to Serbia in spite of the protests of Austria and Germany.

A personal attack was made upon General Villa, of Mexico, last week. It was at first announced that the military leader was killed, but later reports indicate that he was only mortally wounded.

National.

The United States Senate is now considering the government ship purchase bill which is meeting strong opposition from the minority party. The opposition leaders are determined to defeat the measure, which will require a continuous talkfest until the fourth of March, when the present Congress will cease to be, by statutory law. The filibuster began last Friday.

Efforts are being made in this country to organize an international peace party among women. The movement is being promoted by English suffragists.

A cargo of flour donated by the millers of the United States is now enroute to Belgium to be given to that unfortunate people. The cargo is estimated to be worth \$500,000.

Considerable property was destroyed, train and wire service greatly hampered by a severe wind storm in eastern Texas and parts of Arkansas and Oklahoma Sunday.

The eleventh annual convention of the American Concrete Institute will be held at the Auditorium Hotel, Chicago, February 9-12, 1915. The convention will mark the completion of the tenth year of the existence of the Institute and an especially interesting and profitable program is being arranged. The eighth annual cement show will be held at the Coliseum on February 10-17. The simultaneous convention of several allied organizations will bring together a large gathering of people interested in every phase of the cement industry.

Although the Rumely Co., Laporte, Ind., are in the hands of a receiver it should not be construed that their lines of goods will not be manufactured in the future, for the receiver is already giving additional attention to branch organizations for the purpose of giving better service to patrons in the various districts.

THE LEGISLATURE.

As usual, every two years the interest of the people of the state is directed toward the state Legislature, and on every hand we hear the question asked, "what legislation is likely to be enacted this session?" Many of those asking this question fail to realize that it would be a prophet, indeed, that could answer such an inquiry. The best guess along this line can be made by taking into consideration the personnel of the present Legislature. It is interesting to see from what walks of life these men come. The Legislative Manual will show something like this:

In the Senate: Lawyers, eight; real estate and loans, five; farmers, five; physicians, three; bankers, two; merchants, two; contractor, one; paving supplies, one; railroad agent, one; with one listed as retired, and with one each as publisher and printer.

In the House: Farmers, 34; lawyers, 21; merchants, six; publishers, six; real estate, six; retail merchants, four; printers, three; laundrymen, two, and 16 from 16 other walks of life.

So you see nearly all lines of industry are represented, a condition to be desired as the scrutiny of every bill is apt to be much closer than would be the case if any great proportion of the members looked upon the matter from one viewpoint.

It is generally considered that the friends of temperance legislation occupy a strong position, and no doubt some new laws along this line will be passed. There is a strong feeling, however, that the state-wide prohibition bill should be initiated by the voters themselves, as the campaign to secure the necessary signatures for its submission, would arouse the enthusiasm necessary for the passage of the measure.

The mortgage tax law will, without doubt, be changed. It is likely to be made an annual tax instead of a recording fee.

The primary election law will, undoubtedly be changed. In just what particular we do not know at this time.

The measures for increased appropriation (Continued on page 163).

Magazine Section

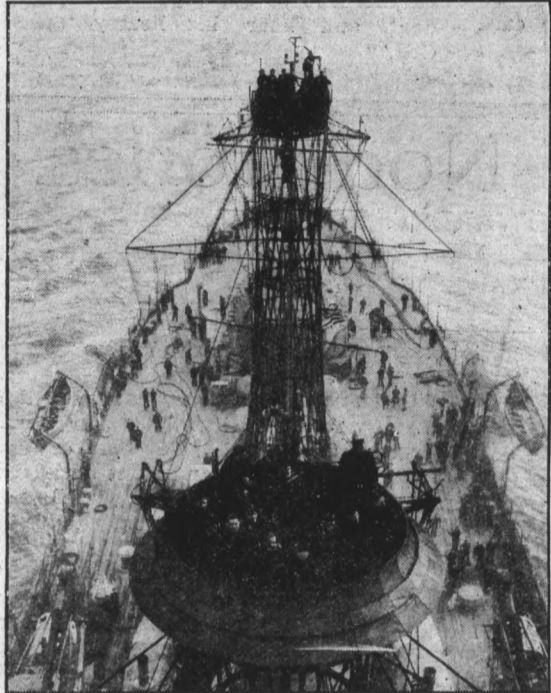
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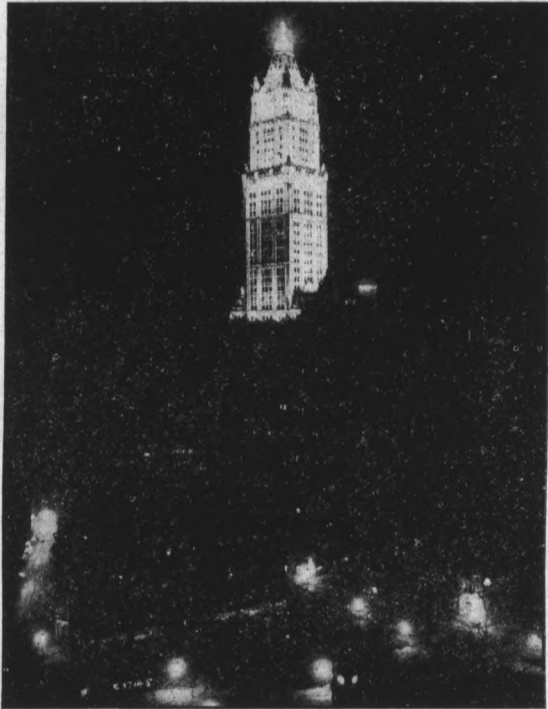
The FARM BOY
and GIRL
SCIENTIFIC and
MECHANICAL

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

WORLD EVENTS IN PICTURES.



Fighting Masts of U. S. S. New York.



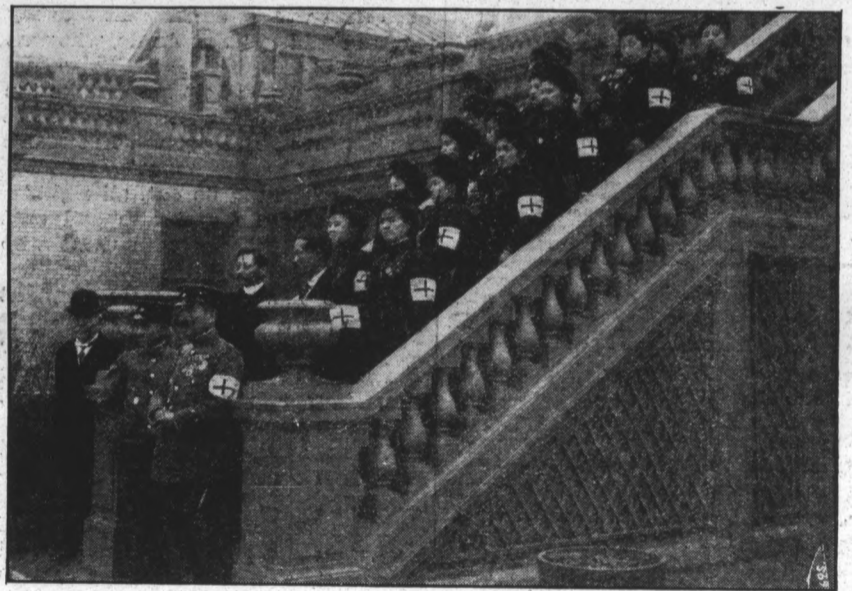
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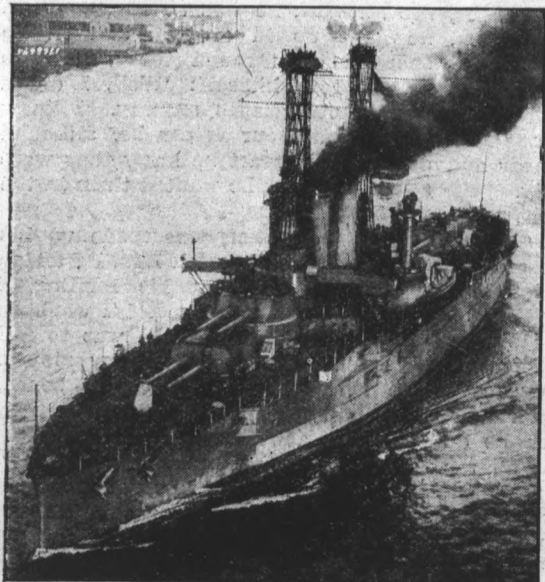
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A Reminiscence Party.

(A Hitherto Unpublished Story of Lincoln.)

By O. V. ROE.

THIS party was necessarily composed of elderly people, and of the many interesting reminiscences given there, the one to be here related was the most enjoyed on account of its being in a way connected with our great President, Abraham Lincoln, and has never been given to the public.

The lady who told it was 83 years old, and was a nurse in the army during the Civil War, and the incident occurred at a time when the people's hearts quaked because of the nearness of the southern army to the national capital. It is best given in her own words.

"I was an army nurse at the front during the Civil War, and at one time immediately after a battle was assisting to place some wounded soldiers into ambulances. When my work was nearly completed and the ambulances were gone, I heard a faint call: 'Nurse, nurse.' I found concealed behind some bushes, a southern soldier, who begged me to help him get home. He said: 'I am badly wounded, of no use to either army and if I must die I want to get home.' I talked to him while I thought.

"I noticed on the ground the body of a union soldier who had just died. I said: 'Would you be willing to wear a union soldier's uniform?'

'Anything, anything, so I can get home.'

"There are some soldiers who have been wounded going to Boston and if you are properly uniformed you can go with them, and perhaps from there you can find some way of going south. Mind, I do not say you can go but I will help you to try.' He was more than willing and I went into my tent and said to black Annie, who was my helper:

'Annie, can you help me to take the clothes off a dead man and put them on a live man and put the live man's clothes on the dead man?'

"Oh, yes, I kin do dat, all right.'

"We made the exchange and sent him to the barracks with those who were going to Boston.

"Before his clothes were changed he gave me a card saying:

"If you are ever in trouble on our side of the line, or need help from our men, show this card to any officer, and you will want for nothing.'

"I was afraid to tell what I had done, so I never said a word to anybody about the card.

"When stationed in Washington I frequently saw President Lincoln, and at one time was a member of his family.

"Shortly after the battle fought nearest to Washington, one day the President came into the hospital, and with his eyes full of unshed tears said to me:

"Nurse, I have learned that in a barn just outside our lines are twelve of our soldiers all wounded. Our soldiers cannot go to them without being fired on, and they will die if they do not receive help—what can be done? I don't know why he should have come to me, but that President did many things for which he nor anyone else could give no reason.

"We talked of many ways, and finally I thought of the card given me by the wounded soldier. I finally told him I would go there and might perhaps do something. He expressed surprise and wonder as to what I could do, and deprecated the risk I would run, but I said I would try.

"I took my precious card and walked twelve miles, reached the outermost posts of our own army and under a flag of truce approached the

enemy's lines. I said to the picket: 'Are any officers in camp?'

'Yes.'

'Say to them a lady wishes to speak to them.' They came and asked:

'What do you wish, nurse?'

'There are twelve of our men in that barn wounded and hungry. Our men cannot feed them because you will shoot them, and you will not, and they will die if they are not hedped.'

'Well, how do you expect me to help them?'

'With your permission, sir!' They laughed. I showed the little card I carried in my hand.

"The officer took the card, looked at it, then at me, in apparent amazement.

'How did you get this?' I told in detail of the occurrence, with the wounded soldier. He asked:

'Did you do that?'

'I did.' The officer showed the card to other officers and they went a little way off and talked. When they came back to me, the officer said:

'The man whom you helped is at home and doing well. You can have those men and anything else you want.' He gave me an escort and allowed our soldiers to remove the men from the barn.

"When I returned successful, it was worth all the labor and the risk, to see the smile of satisfaction that lighted the face of our big-hearted President, and hear his hearty 'thank God.'

Land O' Nod Stories.

By HOWARD T. KNAPP.

How Sharpnose Looses a Dinner.

OLD SHARPNOSE sure is having a hard time finding his dinner," said Billy Be By Bo Bum, after he and Tinker Teedle Tee, the merry little elf, had followed the trail of the big brown mink for more than a mile along the bank of the dried up creek that wound its crooked way through the White Forest.

"Yes, sir, he sure is," replied Tinker Teedle Tee. "But Sharpnose is a bully good hunter and the most patient fellow alive. In fact, the hungrier he is, the more patient he becomes. So one thing is certain, if we follow his tracks far enough, we will find where he had a good meal."

So Billy Be By Bo Bum and the merry little elf, who you know, was only about as big as a minute, trudged on and on over the snow carpeted floor of the White Forest.

"Now, I wonder what the old rascal was up to here," said Billy, as the double row of neat little footprints stopped under a big pine and then circled around and around the base of the tree. "See Tinker, he ran around this tree so many times a regular path is worn in the snow, just as it was back there where the trap was hidden in the hollow log, but I don't see where any trap could be hidden here, do you?"

"No, I don't believe Mr. Mink was afraid of a trap this time," replied Tinker Teedle Tee. "He was just trying to figure out a way of catching a dinner that was out of his reach."

"It must have been a bird," said Billy. "Any other of the Little People would have left their tracks in the snow."

"Right you are Billy Boy. You guessed right the very first time, for, unless I am very much mistaken, plump little Mrs. Partridge was roosting in the branches of this tree last night."

"I'll bet it made old Sharpnose mad to see such a fine dinner so near and yet out of his reach," said Billy.

"Yes, I guess it did," answered Tinker. "I can just see Mrs. Partridge watching him out of the corners of her bright little eyes and laughing to herself at Mr. Mink below here on the ground. But she doesn't always laugh at Mr. Mink. In the spring and summer when she lays her eggs and brings up a brood of little partridges, she fears Sharpnose as much as do any of the other Little People, for the old villain has a fondness for partridge eggs. He thinks they are the finest things to eat there is and would travel all day and all night if he thought a meal of them was waiting for him. As Mrs. Partridge builds her

nest on the ground, she has no way to protect her eggs from Mr. Mink, if his sharp little nose leads him to the spot where she has built her nest. But he didn't get her this time, and as he gave up trying and went on about his hunting, I'll bet he felt just as did Fleetfoot, the sly old Fox, the time he tried to rob the grapevine."

"Why, how did Mr. Fox feel then?" "Do you mean to tell me you never heard that story?" demanded Tinker Teedle Tee in surprise.

"No, sir, I never did, so please tell me all about it Tinker," coaxed Billy.

"Well, one summer evening when the moon was shining bright, Fleetfoot the Fox made up his mind to rob Farmer Meadow's chicken roost. But when he reached the barnyard, he found the henhouse was locked up as tight as tight could be, and there was no way to get in at the Biddies. Of course, that made Fleetfoot mad, for he was very, very hungry. So when he found he would have to go without a chicken dinner, he sneaked into the garden where the grapevine grew up over an arbor.

The vine was loaded with dozens and dozens of bunches of fine, juicy grapes, but they all hung quite a distance from the ground. That didn't bother Mr. Fox, for he is a dandy jumper. So he gathered himself together and sprang into the air, snapping at the grapes with his jaws. But he didn't jump quite high enough, so he tried again. This time he came a little nearer but still not near enough. Again and again he tried, but he always fell just a wee bit short of those fine, juicy grapes. Every time he jumped and missed, he got madder and madder, until at last he couldn't see straight, he was so angry. Then he gave up in disgust, and as he sneaked off through the garden he muttered to himself: 'Well, I didn't want those grapes anyway. I know they are as sour as can be,' although down in his heart he knew they were sweet and that he wanted them in the worst way.

"So when Sharpnose made up his mind he couldn't catch Mrs. Partridge and went on about his hunting, I imagine he said to himself 'I wouldn't eat Mrs. Partridge if she was to fall right off her perch into my mouth. She is a skinny old bag of bones, tough as shoe leather and not worth bothering about!'

"But Sharpnose must be getting awfully hungry, he is having such a hard time finding his dinner," said Billy.

"Never mind, we will follow his trail a little further," said Tinker, and next week I'll tell you how Mr. Mink found his dinner.

Crittenden stepped out of the post-office at Goldspur, with his usual monthly letter from London town in his pocket.

In front of the store was Mollie Owen, mounted on her brown pony. The sight was enough to make any man pause, but there was more than her beauty and grace to check the Englishman, for a moment later she began to cry.

Beside her stood Lin Dewing, a grin on his face, and cheerful contentment fairly emanating from his personality.

From a lounge at the door of the postoffice, Crittenden caught a remark that sent the blood faster through his heart.

"Lin's got her dead to rights. She can't meet the payments on the Upper Bend outfit, and he won't give her time. No fool woman can run the ranch, no matter how good-looking she is. It needs a man!"

Nobody will ever know whether the spark of British chivalry collided with an instantaneous appreciation of Mollie's points, or whether it was purely subconscious action regulated by fate's decree, sex attraction, and opportune propinquity. Suffice it to say that some irresistible current turned Crittenden's footsteps in the direction of the brown pony and Mollie.

"I understand, Miss Owen," he began, with the delightful drawl that gave Goldspur gooseflesh, "that you need a foreman over at your place."

Mollie met his eyes, and stopped crying. She liked his eyes. There was a glint of humor in them, and they were a relief after the little black slits that furnished Lin's soul with loopholes.

"I'll take you if you want to try it," she flashed back. "What's your name?"

"John Crittenden."

Mollie felt a slight thrill of disturbance. She had heard of John Crittenden. Everybody around Goldspur had. Rumor said he was a "remittance man," and rode in every month for the purpose of receiving a certain letter from London. As one of the boys had put it:

"When a man's folks ship him half a world away, and then pay him off regular to stay there, he's done something to make it worth while!"

Mollie looked again into Crittenden's dark-gray eyes, and wondered what he had done. She bit her lip, studied her saddle-horn attentively, and turned her head toward Lin.

"I've got thirty days, haven't I, Mr. Dewing, if I can raise the balance? The interest is paid up to the tenth."

"Yes'm, you sure have," responded Lin happily. "And I hope you can raise it. If you can't, I guess I'll have to take the place off your hands."

Mollie smiled, and tightened the reins.

"All right. I'll be here on the 10th, then. You'll come over tomorrow, Mr. Crittenden?"

Goldspur heard Crittenden's promise to go, and saw him lift his hat to her—to Mollie Owen cantering away on her brown pony—just as if he had been old Bill Cody saluting the crowned heads of Europe.

"Are you sure going to do real work, Crit?" asked Lin dryly.

He got no further. Crittenden did not use gun-play, but no other inquiries were made as to his future plans after he had settled with Lin that day.

Next morning, while the early mist still curled like low cam-fire smoke up the hillsides, he rode to Upper Bend. Mollie was out feeding her chickens when he arrived.

"I've got three other men working here, but they aren't a bit of good," she told him. "Two look after the sheep, and one stays around handy to help me here at the ranch. The place is all run down. It needs a man's hand and point of view. I hope you'll get down to business, and work a straight deal with me!"

"I will," said Crittenden. "That's what I came for."

The Remittance Man.

By IZOLA FORRESTER.

But he did not tell her how strange it seemed, this buckling into harness after nearly two years if inertia. He himself hardly sensed the keen, buoyant spur of responsibility.

One day Mollie stopped him, as she was riding.

"Things are picking up, John!" She called him John quite naturally now. "I think we'll put through. There's five hundred to pay by the 10th. I've got some saved toward it, and I heard today those new folks down the valley want to buy sheep. We could let a bunch go, couldn't we?"

"Would you mind taking in a partner here, Miss Owen?" asked Crittenden slowly. "I like it, and I think I could make a good thing out of it. I can put in my share, and that would pay off Dewing and give us a start."

The color rose to Mollie's face. She

Mollie added anxiously. "You may go on working here, of course, only I couldn't take you as partner."

Then Crittenden told her, simply, without any show of repentance or excuse for the past. He had made a failure of life at home. He was no criminal, but he had been a spend-thrift and general ne'er-do-well. He had come to the west to try to find himself, to learn his bent in life, to see whether there was a groove that he fitted.

"I think I've found it here," he finished. "This suits me. The money I told you of is my own. I am not paid to stay away, as the men say. I have a small, a very small income, but it keeps me going. The trouble has been that I ran into debt at home. Out here the outlook is wide. I will make a good partner, Miss Owen."

"Would you promise to be as faith-

moonlight, and looked longingly up the valley, toward the sheep-camp, four miles away on the mountain-side. There was a new light in her eyes. She clasped her hands behind her head, and laughed softly. There at her ranch Crittenden had found himself, had learned to walk the path that men trod—self-reliant men with the spirit of the game of life in them, not remittance men. Mollie caught a glimpse of the possible future, and bent to find another brown and yellow pansy, warming to her finger tips at her own thoughts.

Instead, she found Crittenden's latest letter from London, carefully folded as it had fallen from his pocket.

She sat down on the low stoop, chin on palm, weighing her love's worth. In the clear moonlight, Lin Dewing found here there. Mollie barely listened while he explained how he had ridden fifteen miles out of his way to see her.

"It's on account of this here Crittenden you've taken in as partner, Mollie," he told her. "You've turned the whole thing over to him, and he's made a mess of it. The boys won't stand for him any more. They're riding tonight to clear him out of the valley, and Goldspur—"

"What are you talking about, Lin Dewing?" gasped Mollie hotly, crushing the letter in her hand. "You know he's never done a thing that was crooked!"

"Hasn't he? Do you know that he sold off a bunch of sheep to the K. T. outfit, on his own account? Didn't put that in with the ranch profits, did he?"

"I told him to do it," retorted Mollie swiftly. "What else?"

"He don't know the game, nor the rules of sheep-grazing. He's trespassed on cattle land. The boys will make him see light!"

"It isn't them—it's you, Lin Dewing!"

Mollie caught up a lantern, and started on a run for the corral. After her went Lin, his horse following leisurely. Neither spoke. He knew what she meant to do. As she seized the bridle and saddle from their hooks, he caught at her arm.

"Don't be a fool, kid! You can't stop them now. What do you want with him, anyhow? I only pushed you hard on the payments because I wanted you to have to ask me for help."

"Heaven help anybody who had to ask you for help! You let me go!"

"I won't. Yell, yell all you want to! There ain't a soul in four miles 'ceptin' you and me, Mollie!"

"Ain't there?"

Mollie tore her wrist from his grasp, and whistled. Lin swung around at the answering barks, but the big wolf-hounds were on him, and he went down like a worried fox.

"Watch him, Scraggs!" Mollie called. "Easy, Monk, just watch him! Don't let him get away!"

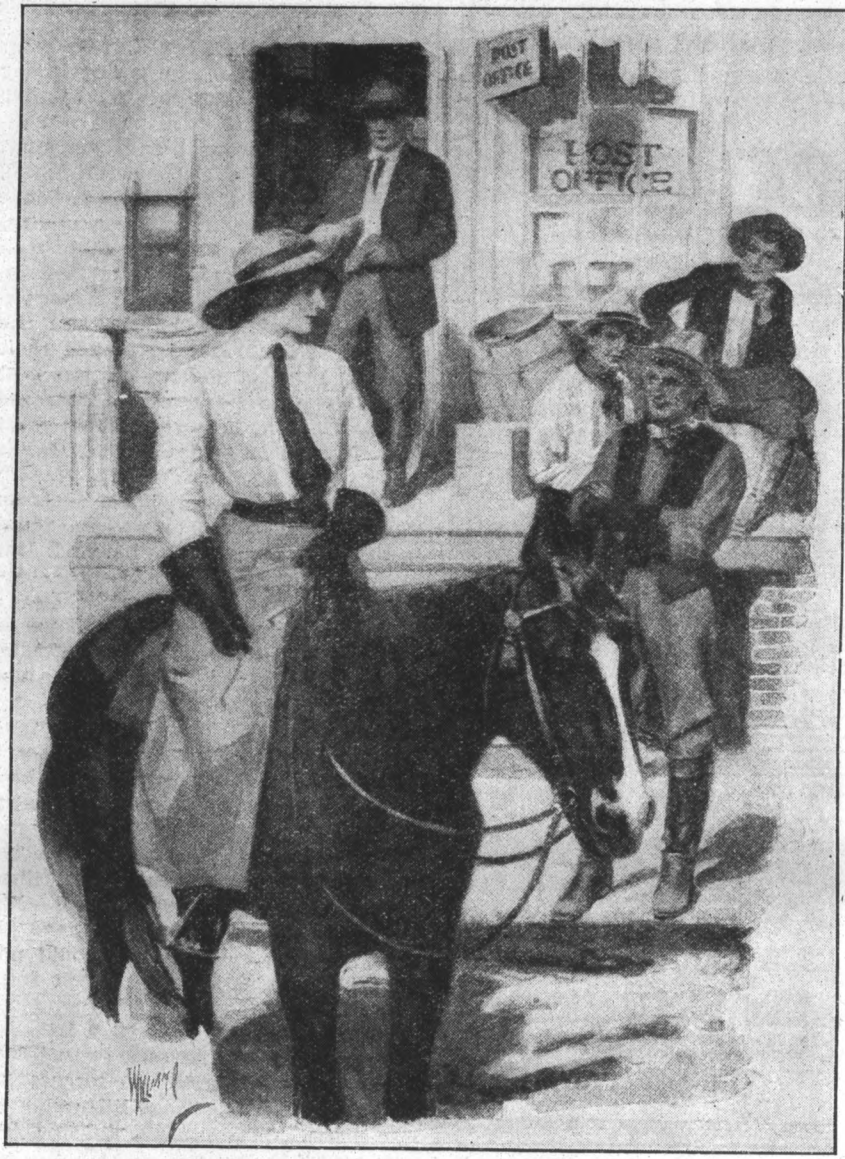
She hardly gave a backward glance at the prostrate, swearing figure. Her pony was making for her, and she slipped on the bridle, swung the saddle over the blanket, and snapped the buckles. No old-time Spanish four-in-hand straps for Mollie!

The pony was on its way before her right foot had caught the stirrup, and she bent low, laughing recklessly, every nerve on fire at the thought of what lay ahead. She knew Lin Dewing and his crowd of men. They would clean out the sheep-camp without a qualm, unless she could reach it in time to warn Crittenden and the herders.

So it happened that when the raiders rode over the rim of the foothill and looked down at the sheep, close huddled in the moonlight, they met a surprise. Mollie had begged for a revolver.

"It's half my property, and half my fight," she told Crittenden. "I want to help!"

He gave her one. There was barely time to get the saddle off her steaming pony, and sling a blanket across



did not meet his eyes. It was not an easy thing she had to tell him, but she went ahead bravely.

"John, I want to be frank with you. I like you. You know that, don't you?"

"No, I didn't," said Crittenden, and the look in his eyes almost made Mollie lose her courage.

"You're a bully foreman," she added firmly. "But would you stick?"

"I've heard all about you, of course—"

"What have you heard?"

"That you are a remittance man." Crittenden's eyes twitched.

"Well? Does that make me any the less efficient a foreman for the Upper Bend?"

"That isn't it. I suppose we women have different ideas of things from men. I don't care if you're the best foreman in Goldspur; I wouldn't want a remittance man as my partner!"

Crittenden did not speak for a minute, but rode beside her, looking ahead.

"I'm sorry if I hurt you, John,"

ful as you have been the last three weeks?"

"I'll promise anything if you'll let me stay," he retorted with sudden recklessness, and Mollie at once discontinued the personal circuit.

II.

But she took him at his word. Dewing was bought out the following week, and Crittenden became partner at the Upper Bend. Tacitly a new basis of friendship had been established between the two, however. He rarely came to the home ranch, but spent his time at the sheep-camp. Mollie did not mind—not so very much.

Sometimes he would ride up while she tended flowers, or sewed under the one lone cottonwood that shaded the house.

One morning he rode back with a brown and yellow pansy in the button-hole of his gray flannel shirt. The dusky petals reminded him of Mollie's eyes.

That evening Mollie went out in the

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its back, before Dewing's men came; but even in those previous moments he had managed to make her understand what her coming meant to him.

But the fight was his own. Brief as it was, a keener sense of enjoyment swept over him than he had known in years. He was fighting for more than Mollie's rights—for his own new hopes and ambitions.

When it was over, he sent the herders to look after the three silent figures that lay on the moonlight-splashed hillside, and turned to Mollie. She saw his eyes, and the great longing in them, and handed him the letter from her blouse.

"I found it by the pansy-bed, John," she told him, with her old directness. "I didn't read it, but it bothered me. I thought that when we went into partnership you stopped all this sort of thing."

"Yet you rode tonight to save me, all the same!"

"To save the sheep," corrected Mollie, avoiding his eyes. "I must get home. Lin may be chewed to mince-meat if he tries to get away from the dogs."

"I'm going with you," said Crittenden.

"But why?"

"Why?" He reached for her suddenly. "Because I have the right, or mean to have from tonight. Your eyes were the spur that started me on the new road, Mollie. I've been trying to keep the trail since. That letter was only in answer to one of mine, ordering the disposal of the property that brought me in the little income I told you of. I'm not going back any more, and I don't want any ties to hold me. Thank God, I can stand alone now!"

"Not alone, John," she whispered.

Winston of the Prairie

BY HAROLD BINDLOSS.

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CHAPTER XIX.

The girl looked at him curiously, for she knew how some of the smaller settlers lived, and once more felt divided between wonder and sympathy. She could picture the grim self-denial, for she had seen the stubborn patience in this man's face, as well as a stamp that was not borne by any other man at Silverdale. Some of the crofter settlers, who periodically came near starvation in their sod hovels, and the men from Ontario who staked their little handful of dollars on the first wheat crop to be wrested from the prairie, bore it, however. From what Miss Barrington had told her, it was clear that Courthorne's first year in Canada could not have been spent in this fashion, but there was no doubt in the girl's mind as she listened. Her faith was equal to a more strenuous test.

"There is a difference in the present, but who taught you bridge-building? It takes years to learn the use of the ax," she said.

Winston laughed. "I think it took me four, but the man who has not a dollar to spare usually finds out how to do a good many things for himself, and I had working drawings of the bridge made in Winnipeg. Besides, your friends have helped with their hands as well as their good-will. Except at the beginning, they have all been kind to me, and one could not well have expected very much from them then."

Maud Barrington colored a trifle as she remembered her own attitude towards him. "Cannot you forget it?" she said, with a curious little ring in her voice. "They would do anything you asked them now."

"One generally finds it useful to have a good memory, and I remember most clearly that, although they had very little reason for it, most of them afterwards trusted me. That made, and still makes, a great difference to me."

The girl appeared thoughtful. "Does it?" she said. "Still, do you know, I fancy that if they had tried to drive you out, you would have stayed in spite of them?"

"Yes," said Winston dryly. "I believe I would, but the fact that in a very little time they held out a friendly hand to a stranger steeped in suspicion, and gave him the chance to prove himself their equal, carries a big responsibility. That, and your aunt's goodness, puts so many things one might have done out of the question."

The obvious inference was that the prodigal had been reclaimed by the simple means of putting him on his honor, but that did not for a moment

suggest itself to the girl. She had often regretted her own disbelief and once more felt the need for reparation.

"Lance," she said, very quietly, "my aunt was wiser than I was, but she was mistaken. What she gave you out of wide charity was already yours by right."

That was complete and final, for Maud Barrington did nothing by half, and Winston recognized that she held him blameless in the past, which she could not know, as well as in the present which was visible to her. Her confidence stung him as a whip, and when in place of answering he looked away, the girl fancied that a smothered groan escaped him. She waited, curiously expectant, but he did not speak, and just then the fall of hoofs rose from behind the birches in the bluff. Then a man's voice came through it singing a little French song and Maud Barrington glanced at her companion.

"Lance," she said, "how long is it since you sang that song?"

"Well," said Winston, doggedly conscious of what he was doing, "I do not know a word of it, and never heard it in my life."

Maud Barrington stared at him. "Think," she said. "It seems ever so long ago, but you cannot have forgotten. Surely you remember Madame Aubert, who taught me to prattle in French, and the day you slipped into the music-room and picked up the song, while she tried in vain to teach it to me. Can't you recollect how I cried, when you sang it in the billiard-room, and Uncle Geoffrey gave you the half-sovereign which had been promised to me?"

"No," said Winston, a trifle hoarsely, and with his head turned from her watched the trail.

A man in embroidered deerskin jacket was riding into the moonlight, and though the little song had ceased, and the wide hat hid his face, there was an almost insolent gracefulness in his carriage that seemed familiar to Winston. It was not the abandon of the swashbuckler stock-rider from across the frontier, but something more finished and distinguished that suggested the bygone cavalier. Maud Barrington, it was evident, also noticed it.

"Geoffrey Courthorne rode as that man does," she said. "I remember hearing my mother once tell him that he had been born too late, because his attributes and tastes would have fitted him to follow Prince Rupert."

Winston made no answer, and the man rode on until he drew bridle in front of them. Then he swung his hat off, and while the moonlight shone

into his face looked down with a little ironical smile at the man and woman standing beside the horse. Winston straightened himself, feeling that there was no need of all his self-control, for he saw his companion glance at him and then almost too steadily at Lance Courthorne.

The latter said nothing for the space of seconds, for which Winston hated him, and yet in the tension of the suspense he noticed that the signs of indulgence he had seen on the last occasion were plainer in Courthorne's face. The little bitter smile upon his lips was also not quite in keeping with the restlessness of his fingers upon the bridle.

"Is that bridge fit for crossing, farmer?" he asked. "Yes," said Winston quietly. "You must lead your horse."

Maud Barrington had in the meanwhile stood very still, and now moved as by an effort. "It is time I rode on, and you can show the stranger across," she said. "I have kept you at least five minutes longer than was necessary."

Courthorne, Winston fancied, shifted one foot from the stirrup, but then sat still as the farmer held his hand for the girl to mount by, while when she rode away he looked at his companion with a trace of anger as well as irony in his eyes.

"Yes," said Winston. "What you heard was correct. Miss Barrington's horse fell lame coming from one of the farms, which accounts for her passing here so late. I had just led the beast across the incompleting bridge. Still, it is not on my account I tell you this. Where have you been and why have you broken one of my conditions?"

Courthorne laughed. "It seems to me you are adopting a somewhat curious tone. I went to my homestead to look for you."

"You have not answered my other question, and in the meanwhile I am your tenant, and the place is mine."

"We really needn't quibble," said Courthorne. "I came for the very simple reason that I wanted money."

"You had one thousand dollars," said Winston dryly.

Courthorne made a little gesture of resignation. "It is, however, certain that I haven't got them now. They went as dollars usually do. The fact is, I have met one or two men recently who apparently know more games of chance than I do, and I passed on the face which was my most valuable asset, to you."

"You passed me on the brand of a crime I never committed," said Winston grimly. "That, however, is not the question now. Not one dollar except at the time agreed upon, will you get from me. Why did you come here dressed as we usually are on the prairie?"

Courthorne glanced down at the deerskin jacket and smiled as he straightened himself into a caricature of Winston's mounted attitude. It was done cleverly.

"When I ride in this fashion we are really not very unlike, you see, and I let one or two men I met get a good look at me," he said. "I meant it as a hint that it would be wise of you to come to terms with me."

"I have already done so. You made the bargain."

"Well," said Courthorne, smiling, "a contract may be modified at any time when both parties are willing."

"One is not," said Winston dryly. "You heard my terms, and nothing that you can urge will move me a hairsbreadth from them."

Courthorne looked at him steadily, and some men would have found his glance disconcerting, for now and then all the wickedness that was in him showed in his half-closed eyes. Still, he saw that the farmer was unyielding.

(Continued next week.)

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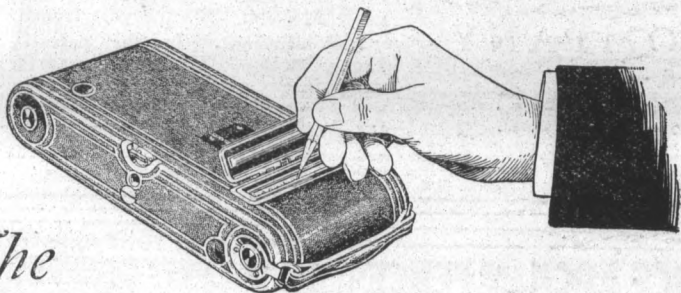
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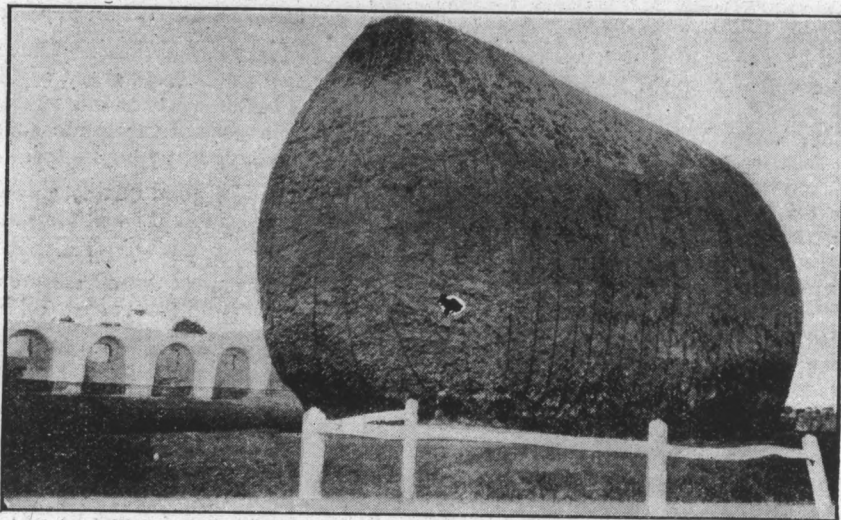
389 STATE ST., ROCHESTER, N. Y.

European Co-Operative Agriculture.

As Seen by American Commission.

By WM. B. HATCH, Michigan Member of the Commission.

WE entered Hungary at Triest Washington. In it may be seen everything agricultural, from a traction engine to a hen's nest. I was surprised to be shown in this thriving city of Hungary's seaports and although peopled chiefly by Italians, it formerly on the Danube a Presbyterian church being an Italian city, it resembles in 500 years old and to be told that 49 per cent of the church adherents of the city are protestants. The central market interested me. All foodstuffs from the farm, as well as all meat and fish, have to pass through the central market and pass sanitary inspection before anyone can buy or sell them, either merchant or individual. It was one of the best ranged markets I have ever seen. Most of the fish were exhibited alive, as in an aquarium. I cannot bring myself to realize that



Hungarian Hay Stack Roped Down to Protect Against Elements.

numbers of them made their fortune in America then returned to Hungary purchased farms there at much higher prices than prevailed in America, and many of them lost their fortune thus after they made it.

It was the twentieth of May when we crossed Hungary from Fiume to Budapest. It took all day. It is mountainous near the coast and in about the same latitude as southern Michigan. In crossing the mountains we ran into a snow storm. So thick was the snow that we could scarcely see the spruce forestation work which is much in evidence on these untillable slopes. Once down from this altitude the farms look more like home, except that there is scarcely a fence or any cattle grazing unattended. No silos are to be seen and little corn. Grass, wheat, oats, barley and sugar beets look about as you would expect to find them at home, except a little more advanced.

Budapest, with its million people, begins the impression to deepen as we go along, that there is a world-wide multiplying of people in the cities and a corresponding subtraction in the country. Here is maintained permanently the Museum of Agriculture as an educational exhibit. It compares with our agricultural building at

in the same domain in which the American Commission conducted most of its inquiry, is now being waged the most destructive war in history. I could scarcely remember a year since I was a boy old enough to take notice, when a great European war was not talked of, so I did not attach much importance to the war talk we heard. But it is now of more than passing interest to recall that the Hungarians said when we were there, that the Austrians would soon start something which would let the dogs of war loose, and that the armies would work disaster to Hungary. This was only about a year ahead of the time when just this prophecy commenced to be fulfilled. And the worst part of the fulfillment as regards Hungary seems to be just ahead.

Hungary contains about three times the area, and nine times the population of Michigan. But it is more acutely differentiated in this: only 19 per cent of the population of Hungary is urban, and 81 per cent is rural, while in Michigan 47.2 per cent is urban. This may account for agriculture receiving more nearly the attention due it in Hungary than it does in Michigan and America generally. Hungary didn't get its first responsible government until 1848, and not



Herdsman and his Charges as seen at Hungarian Government Farm.

until forty years later did it have a separate agricultural department. But its Minister of Agriculture has large powers and a wide jurisdiction now. He has quasi-judicial functions as well. He is the court of last resort in the administration of criminal law for offenses relating to the forestry department, land settlement, viticulture, agricultural instruction, and the administration of laws relating to agricultural laborers—a socio-economic work of great importance.

It is probably correct to say that the Hungarian agricultural policy is state-conceived and state-endowed to a large extent. This is probably more necessary there than here. But if it is not necessary or so necessary with us, and we find ourselves less efficiently organized agriculturally, shall we charge it to ourselves? Can we charge it to anyone else, since we are the state? Should a democratic state be less responsive to the common people's welfare than an aristocratic or monarchical state?

It sounds a little familiar to hear the Hungarian government say, "the Hungarian farmer is distinguished by his conservative tendencies and he is to be persuaded to economic reforms only by means of instruction and enlightenment." The main aid rendered by the state is to provide the farmer with seeds, saplings, and stock for breeding. The government breeding farms are noted for their aid in bettering the live stock industry. It requires a fair interest on the cost of the stock, fair freight rates, and insures the stock for one year. In certain restricted areas the granting of implements and apparatus for farming is encouraged. Short courses, the production and distribution of serums at small cost, the wide distribution of printed matter put into popular form leads us to see that the Magyar farmer is following similar lines to those followed by the Anglo Saxon. They have two national farmers' organizations, the National Hungarian Agricultural Union and the Hungarian Farmers' Association.

The Department of Agriculture states that "the organization of credit forms a subject of permanent care. The National Agricultural Union, founded in 1863, the first Hungarian Mortgage Credit Bank under the title of the Land Credit Bank. Following this, from the same source, was the Small Farmers' National Land Credit Institute and the National Central Credit Association in 1896." These were achieved along purely altruistic, co-operative lines.

There are few private banks in Hungary, these are in the cities and do little land mortgage loan business. Both limited companies with share capital and limited liability and co-operative companies are encouraged and are numerous. Thirty per cent of the share capital must be paid in at the time of organization, but oftentimes the balance of the subscription does not have to be paid in—it is paid out of the profits.

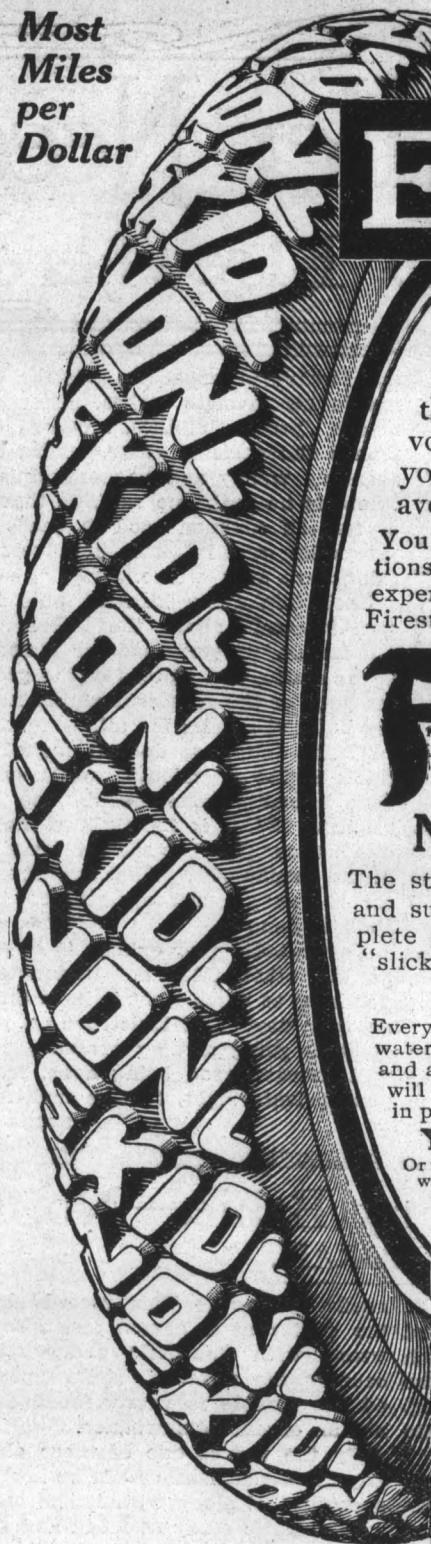
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BY EDEN PHILLPOTTS.

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Woman and Her Needs

At Home and Elsewhere



Why Insist on Your Rights.

IT was in the largest and most exclusive woman's club in the city. The committee on child welfare had reported a plan for the year's work among the poor children, a plan comprising night classes, girls' and boys' clubs, free dental work and many other features. The idea was well worked out, not a detail had been omitted, but it threw the club into a furore.

Each of the 300 women not on the committee immediately clamored for the floor. All had a plan so much better than that offered, as to make the original seem quite stale, flat and unprofitable. Every woman knew her way was best, and was ready, nay even anxious, to fight for her idea. Discussion waxed warm and eloquent, the committee members defending their report and urging its adoption, while the 300 other women struggled to amend and strike out until the original recommendation would have been quite snuffed out. The main point at issue, help for needy children, was quite lost to view. Each woman could see but one thing needful, to have her own way.

The president finally wrapped for order. She was a woman of 50 years, splendidly poised, sane and far-sighted. The members respected her judgment, revered her goodness and copied her clothes.

"What difference does it make?" she began clearly, "what difference does it make whose plan is followed or who gets the glory? The all-important thing is not how shall we work, but shall we work at all? The children need us. Are we to let them suffer while we argue whose plan shall be followed? Or shall we forget ourselves and our ambition for the greater need of the community?"

Discussion languished and wholesome shame showed on many faces. The committees' report was adopted unaltered and its suggestions immediately started. One or two grumbled because they were not leaders, but the majority forgot their differences.

The same spirit of egoism hampers every attempt at organized effort. Ev-

ery club, every lodge, every church and church society is kept back in its social work by members who insist on having things done their way. No matter how good the suggestion, there will always be some who know a way a thousand times better, and who threaten to resign and break up the society, or at least not to keep the project, unless things can be done as they say.

Exaggerated ego keeps them from seeing the other fellow's right to an opinion.

"I guess I am just as bright as Mrs. Blank," they argue. "I have just as much right to my way as she has to hers. If things can't go as I say, I'll not help."

They entirely forget that others are seeing them just as they see Mrs. Blank. They are not ready to forget self for the common good.

And the thing which is true of the community is true of all too many families. Self is the ruling motive in all too many homes, especially where

the mother is unselfish. Father demands his favorite dishes, sister demands pretty clothes, brother demands the easiest chair, unlimited spending money and no home duties. There is no unity, no working together for the common good in times of prosperity, and in times of adversity things are even worse.

Each thinks for himself, puts his own interests above the interest of the family. "Every man for himself" is the motto, and instead of the greatest good of the greatest number, nothing but bad results for all.

"What difference does it make?" I think of the president's words every time I hear anyone insisting on her "rights." What is the right of the individual compared to the greater right of the community? What does it matter if you go unrecognized, so that good is done?

Undoubtedly your opinion is as good as the other fellow's. Undoubtedly you have as much right to have things go your way. But insistence on your right is going to stay progress, if it will prevent good being done, forget your private right, for the multitude.

DEBORAH.

Michigan's Happy Babies—No. 10.

By DEBORAH.

ONE of the greatest helps to the young mother of a bottle-fed baby is the feeding chart which is always given out by specialists who are consulted in cases of bad feeding. These are slips of paper ruled into spaces providing entries for each day of the week, in which the mother must set down the exact amount, even to teaspoonsful, of whatever food the child takes, and all other matters the physician needs to know.

Here are set down the exact amount of boiling water, cream, milk, lime water, sugar, starch, or other food prepared; the size of each meal, the number of meals, amount of food prepared in the morning, amount left at night, whether or not the child vomits, the condition of the bowels, the amount of sleep, temper, temperature, and sundry other things the doctor

needs to know. This record shows the doctor at a glance just what is wrong with the child and what is causing the mischief, always provided the trouble is wrong feeding and not an organic disturbance.

By the use of one of these charts any intelligent mother can be her own specialist, if along with it she makes a systematic study of foods and their effects. The mother who has brought up two or three children will probably scoff at the idea of keeping a daily record. But the young mother will find such a chart a godsend. It will require only a few minutes to fill it out each day, and the thought required to make intelligent entries will do more than anything else to educate the mother in the difficult subject of baby feeding. If the baby has colic today, or if the bowels are loose, or

if it vomits, after having been perfectly well, a glance at the chart will tell the mother what she has done wrong and where the trouble lies, provided always, the chart has been faithfully and exactly kept.

Exactness is the great word in the care of a bottle-fed baby, especially if it is a delicate one. Exactness in measurements, even down to the exact half of a level teaspoon; exactness in the size of the feed and the time to give it, and exactness in filling out the chart, these spell success. Half the failures in feeding babies by hand arise from carelessness. The untrained mother does not realize that the tiny stomach can be injured, often beyond repair, by continually giving it just a little bit more than it can digest. It may be only a teaspoonful too much, but if it is more than the stomach can take care of it works mischief.

A chart is indispensable with a delicate baby. It is the only means of really knowing just what effect different foods have. And the mother who has once used a chart will use it in every case. It gives her a complete guide to health for the little one, and is of priceless value to her when the baby is grown.

Feeding charts may be secured by addressing the Household Editor and sending a self-addressed and stamped envelope. If you wish any advice regarding the feeding of the baby fill the chart carefully for one week and return, with stamp. All questions on feeding will be gladly answered.

WRITE FOR "INFANT CARE."

"Infant Care" is the title of a pamphlet just issued by the Children's Bureau of the United States Department of Labor. It is the second of a series of popular pamphlets for the use of mothers on the care of children. The new publication takes the baby from birth through its second year, dealing with such questions as feeding, clothing, bathing, sleep and exercise, or in other words, with the questions which all mothers must face, sooner or later, in the care of the baby. The book is written in simple, non-technical language, easily un-

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John Whittaker, in a Studious Pose.



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derstood by the average American mother. Special mention is made, also, of the care of American babies in the tropics. It contains 84 pages, is illustrated with a number of plates and pictures and includes an appendix and a useful index. The appendix gives a list of other government publications regarding matters of domestic economy, such as milk, foods, home sanitation, and other objects of importance in the work of making the home suitable for the rearing of children.

The pamphlet will not, of course, take the place of the advice of a physician, but it includes a section on how to keep the baby well, which describes the minor ailments of babyhood and the symptoms indicating the onset of more serious illness. Special emphasis is placed on the danger to infants of whooping cough and the measles.

The pamphlet was prepared, under the direction of Miss Julia C. Lathrop, Chief of the Bureau, by Mrs. Max West, who also prepared the pamphlet on Prenatal Care, which was the first of the Care of Children Series. Infant Care, like all the other publications of the Bureau, may be obtained free of charge by addressing a postal card request to the Chief of the Children's Bureau, Department of Labor, Washington, D. C.

CARE OF GLASSWARE.

BY ADDIE FARRAR.

The brittleness of glassware is proverbial, and when one takes into consideration its cost, the need of careful usage becomes apparent.

In buying glass and china ware for the table it is wise to purchase a good quality. Cheap glassware is a delusion and a snare and neither looks nor lasts as well as the more expensive kind. It is a great mistake to think that thick glass dishes are any stronger than those of thinner make. As a matter of fact, it is thick glass that succumbs the easiest to careless usage, and particularly so when pouring hot sauce or fluids into them. Science teaches us that heat causes expansion, and also that heat requires time to travel from one part of a solid body to another, and so in the thick glass vessel the heat from the hot fluid poured into it expands the inner surface; but before this heat has had time to expand through to the outer surface, the expansion of the inner part has cracked that of the outer. In thin glass the heat coming from the contents extends more quickly to the outer surface, which it cannot do in thick glass, and to all intents and purposes the surface expands simultaneously, and the glass therefore remains unbroken.

However, even with this knowledge, it is wise to be careful and temper the glassware before putting hot things into the pieces. When putting hot drinks, such as lemonade, etc., into tumblers, it is always best to put in the cold ingredients first and then gradually add the hot water, always taking the precaution of the silver spoon; that is, putting into the glass a silver spoon and allowing it to remain there while you pour in the hot fluid. If the fluid is very hot, best stand your glasses in warm water first.

Great care should be used in washing glassware. Two pans should be provided, one with moderately hot water and the other with cold. Wash the glasses first in the moderately hot soapy water, rinse in the second and turn down on a linen cloth, folded two or three times, to drain for a few minutes. This is done to prevent the edges of fine cutglass from becoming chipped. When drained, wipe with one cloth and polish with a clean linen cloth that is not so old as to leave lint behind. Do not let the glass drain too long or the result will be a clouded glass. Always put the glassware

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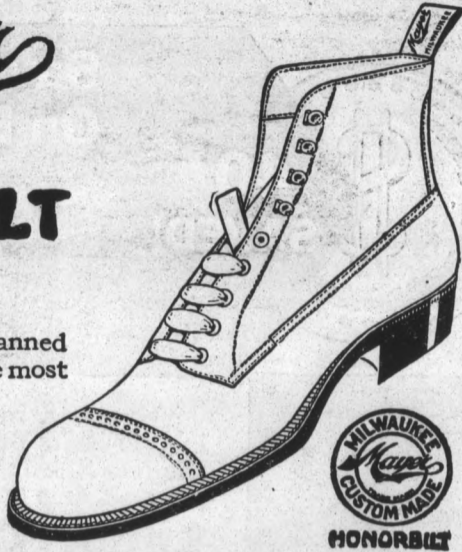
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in the pan, one piece at a time to prevent breakage.

Many housekeepers declare that table glassware washed in cold water is the brightest and that hot water leaves a cloudy appearance. This is a matter of individual taste but usually the warm water works the best.

In washing fine glass or other glasses with steam, do not hold the glass by the stem when washing and wiping, but concentrate your attention on the bowl and thus save broken stems.

Decanters and wine bottles stained inside may be cleaned by putting a few cinders into them and pouring vinegar over the cinders and shaking vigorously. The smell may not be pleasant but the chemical action of the gas thus formed by the mixture soon loosens the stains. Rinsed in clean water the bottles will be bright and clean. Potato parings put into decanters with warm water poured over them are good. Let the mixture stand for a few hours and shake and rinse.

For the lime deposit that comes on water bottles from hard water, use tea leaves, covering the leaves with vinegar and shaking well. This will usually remove the deposit. If, however, the carafe has been neglected put inside a teaspoonful of weak hydrochloric acid and shake afterward, rinsing the bottle well.

SAN DIEGO THE BEAUTIFUL.

The following letter from Mrs. Ella E. Rockwood, former editor of the Household Department, will be of interest to her many friends. Mrs. Rockwood has spent the past year in California.

I am enjoying this mild winter weather, although for the past few days it has rained, and that makes it not quite so pleasant. However, the fruit men and farmers are glad to see it, for nearly all the crops, excepting citrus fruits, around Los Angeles are grown by depending on the natural rainfall, which comes through the winter months. There is no diversity of crops here as we have in the east, but every rancher devotes his entire acreage to one variety, so in case of a failure for any reason, they are hard hit.

You have no doubt visited California and know about the magnificent highways they have here. In Los Angeles county they have hundreds of miles of asphalt and stone boulevards. I don't remember the exact figures but the county voted something like three or four millions of dollars for improvements of that kind. They now have a chain of boulevards threading the entire county, full-width roadways, in many cases bordered with cement curbing. All this makes autoing a delight and constitutes one of Los Angeles' best assets. Along one stretch of road from Owensmouth to Lankershim, a distance of nearly 30 miles, there is a border of roses on trellises the whole way on either side of the road. Back of the roses for 30 feet is a parking planted to ornamental shrubs and trees all maintained at the expense of the county. Farms flanked by such an attractive highway are in oranges or lemons, wheat or barley, and held at from \$500 to \$1000 an acre for the latter. Those in oranges or lemons, of course, are very much higher.

But I would not care to own an orange grove. There is too much danger from frost of late years. Every tree, 80 to the acre, must have its smudge pot ready for lighting and must be tended more or less through the winter months, often for a week at a time. They burn crude oil in these heaters, and great tanks of this fuel are ready at every orange grove on the approach of cold weather. The big freeze of two years ago wrought sad havoc in the groves, but it also taught growers that better methods of protection must be employed. Even now in some instances they are in-

stalling systems which involve less labor than the individual smudge pots, something that will warm the entire air space of the orchard, operated between the rows. As you may see, it is an anxious time for the orange grower when the mercury begins to drop to near the danger line and nobody thinks of such a thing as getting a full night's sleep till the cold snap is past, for the night hours are the dangerous ones. The weather bureau sends warning to the growers by telephone.

I have learned since coming here, what is the cause for the difference in the thickness of skin on different oranges. I was told by one grower who was showing me over his grove, that the nature of the soil was responsible for it. A soft, loose soil produces a thicker rind than a harder soil. Variety has nothing to do with it, so I was told, and both navels and Valencias are similarly affected. The thin leathery skins are usually expected to hold the most juicy specimens.

All California, more particularly the coast region, is making great preparations for the entertainment of exposition visitors. This, the best advertised of states, is making a strong bid for popularity and money is being lavished in every direction to please and to captivate easterners that they will eventually come here to make their homes. A city beautiful is what each municipality, big and little alike, is striving to make of itself. To this end vacant lots and open places are being planted to flowers and ornamental shrubbery, highways are set with trellises over which roses in full bloom for nearly the entire year will clamber and every other possible means employed to beautify the land.

I hope everyone who comes to California next year will go to San Diego. I feel like urging this because it will well repay the visitor who wishes to get the true California atmosphere, especially as it has even yet so many reminders of the early Spanish occupancy. Of all the places I have visited, San Diego in many ways pleases me most. The city is charmingly situated, rising from the incomparable bay of the same name, in a gradual ascent which makes the blue waters, with beautiful Point Loma outlining it on the north and the ocean beyond, visible from every point. Once seen it can never be forgotten. The California-Panama Exposition, which opened January 1, at San Diego, will compare very favorably with the one in San Francisco, although not on so extensive a scale. For the simple reason that San Diego is away off by itself and has at present but a single railroad completed, is apt to discourage tourists from going there. Before the close of 1915, however, two more roads will be completed between this most southwestern of United States cities and the east.

By all means go to San Diego, is my advice to prospective visitors. Visit not only the exposition but historic spots in and around the city. See the Old Mission, the first in the chain of 23 built by the Spanish padres, take a trolley ride out to Old Town, the first settlement in California, established by Father Junipero Serra in 1769, and, if international affairs are not too turbulent at the time, cross the border to Tia Juana in Mexico (Lower California), and get a glimpse of conditions in that revolution-torn Republic. Tia Juana is easily reached from San Diego, a regular line of auto buses operating for the benefit of visitors. Tourists usually return laden with souvenirs, up to one dollar valuation free of duty.

Except for the fact that most visitors from the east come to avoid the cold weather at home, I should certainly recommend coming in summer to the the expositions. Contrary to general opinion, the summers on the coast are not hot, and there is then protection must be employed. Even now in some instances they are in-

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(Continued from page 152).

ations for nearly all the state institutions is very great. Most of them are, no doubt, needed, but all cannot be granted with justice to the taxpayers. The needs of the Agricultural College, particularly, appeal to the farmers of our state, yet the friends of the other institutions and colleges see equal importance to their claims. The finance committees in both ends of the Capitol are sincerely trying to cut these demands without crippling any of the good work more than is unavoidably necessary.

The general tax laws are not likely to be materially changed, but perhaps some steps will be taken towards gathering information and looking into the advisability of the separation of the state and local taxes.

Some of the state papers for the last few days have been engaging in criticisms of the Legislature, because the Senate did no business the second week, but spent that time in visiting the state institutions. These papers tried to convey the idea that these investigations delayed the work of the session, but, in fact, the opposite is true. The institutional committees cannot report the appropriation bills intelligently without these visits, and the finance committee can do little work until the appropriation bills are all before them, as it is essential the sum total should be known before many of the appropriations are passed upon.

The House pursued the opposite course, but they found that it has not worked to any advantage. The fact should not be lost sight of that the members themselves are the last ones to wish the session prolonged, as their pay is for the term and not by the day, but to the credit of the members be it said that there has never been a case where our Legislature has shortened the session at the expense of necessary legislation.

As the session progresses we may find something further to say relative to the merits of some of the particular measures as they come up.

H. E. POWELL.

THE FARMER AND THE TAX COMMISSION.

Is the farmer being exploited by the state? Is he discriminated against by the tax laws? Is the Tax Commission an instrument of injustice? Let us first discover how much of the property of the farmer is exempt by law from taxation. Can you find any except \$250 personal property and stock too young to be weaned from their mother's milk? Except these he is taxed on his entire holdings, and on mortgage and note that he may owe, and the farmer is a large borrower, both on mortgage and note. Now if he was relieved from the payment of taxes now levied on his debts and other forms of property were made to pay their just share of taxes, the farmer would not be justified in asserting that the state is exploiting him in the interest of other classes of its citizens.

For the purpose of determining the correctness of our position that the farmer is unjustly taxed, let us consider the lawful exemptions of property largely held by the non-producing classes. Here are some of them: Mortgages, land contracts, building and loan association stock, bonds of practically all kinds. Add to these the properties, the value of which is easily concealed, such as merchandise, book accounts, notes, and I believe that it is safe to assume that one-half of the property owned by the wealthy classes is not listed for taxation.

These exemptions add immensely to the burden of taxation borne by the producing classes, of whom the farmer is perhaps the largest, still the state is not satisfied but makes the farmer the subject of discrimination by a tax commission ostensibly created to bring about equity in taxation, but who have used the power given them to further increase discrimination, inequity and injustice. These minions of the law sent into our country looked at the property of the farmer and small home owners through magnifying glasses, in fact, the result of the work of the commission here is an insult to fair dealing and it goes without saying that the same is true of their work throughout the state.

It culminated here in a farcical review, conducted by the men who did the work of estimating the values of the property to be reviewed. Seven hours in a stuffy village hall were given the review of four townships and our village of 2,000 inhabitants. This may be a legal review but I submit it is heaping insult upon injury and could not have been done by fair-minded men. The conclusion of the whole matter would seem to be that a law, the execution of which is not sufficiently guarded to insure competence in the work and justice in the

results is too defective to remain on the statute books of our state.

Lest some say that the picture I have drawn is exaggerated I herewith submit the following figures, taken from a tax roll of the township of Portland, made by the commission this fall and our local supervisor last May, showing per cent of increase of tax commission estimate above that of the local supervisor. Per cent advance on farm property outside of corporation limits, both personal and real, 68; real estate within corporation limits, 33; personal property outside of corporation limits, 61; personal property within corporation limits, 21. Now, when we understand that the farmers and small holders of real estate within the corporation limits were advanced equally or more than the property outside of the corporation in the township and that the greater per cent of the personal property inside the corporation consists of merchandise and bank stock, we have a view of the work of this Tax Commission that is not at all pleasing to the lover of justice and fair dealing.

Now, just a word in regard to the law responsible for the injustice and inequity of which we complain. I have just finished the careful reading of the law creating the Tax Commission, together with the amendments. It is certainly a remarkable piece of legislation. In spirit it is un-American, contains the essence of tyranny, creating a horde of little irresponsible czars and sending them about the state to place figures on property for taxation purposes, the value of which they can have no adequate knowledge and makes their estimate final.

This law discredits the law makers responsible for it and will not be endured by a liberty and justice loving people. All classes of our people should join in petition to the Legislature to repeal this law, as the farmers here are doing.

Ionias Co. S. H. PILKINTON.

FARMERS' CO-OPERATIVE TELEPHONE LINES.

I have noted with much satisfaction the interest you have taken in co-operative enterprises the past year, but there is another kind of co-operation that I think needs discussion at this time, and that is the co-operative mutual telephone lines. We have here in northern Van Buren and southwestern Allegan counties, a system of mutual telephone lines with about a dozen exchanges. These are operated at cost, each member paying a membership fee of from \$6 to \$12, or an average of \$9.12, which is used to construct lines. Each member buys his own instrument, and operating expense is divided pro rata, according to the number of phones on each exchange. The average is \$7.37 per year, or less than half the cost of service delivered by stock companies. About 2,000 telephones are in use, and the different exchanges are connected, so that all members enjoy free exchange of service. The system is connected with the long distance copper circuit of the Citizens' Telephone Co., at Allegan, Chicora and Gobleville, and the toll lines of the Home Telephone Co., at Decatur, thus giving toll service with over 200,000 telephones in Michigan. The system is dominated by a board of control composed of delegates from each exchange meeting at least yearly for the adjustment of all matters affecting the system.

The first organized exchanges are out of debt and are improving their equipment. The scheme furnishes farmers the best possible means of obtaining satisfactory service at actual cost. Other communities would have established exchanges had not the last session of the Legislature passed the so-called Bayliss bill, section 9 of which prohibits new companies from forming without the consent of the State Railroad Commission, which consent is refused where the service would come in competition with the large stock companies. Every farmer in Michigan should take the matter up with their senator and representative and urge the passage of the present Lewis bill, which provides that mutual telephone companies, not organized for pecuniary profit but incorporated under the laws of the state, may own, operate and extend their lines without the consent of the Railroad Commission. Anything that can be done to secure the passage of this bill I believe will receive the sanction of the farmers of Michigan.

Van Buren Co. C. E. DENTON.

MICHIGAN FARMERS' INSTITUTES.

The following corrections are announced by Supt. Taft to the list of institutes for February which were published in our last issue:
Jackson Co., Parma, Feb. 18-19.
Kalamazoo Co., Portage, Feb. 8-9.
Lapeer Co., Clifford, Feb. 4-5.



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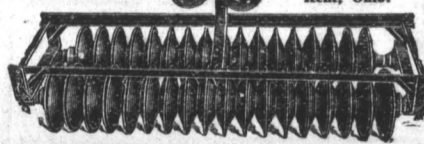
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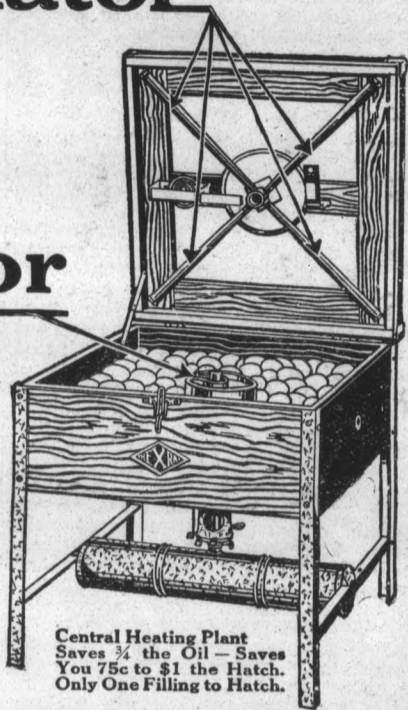
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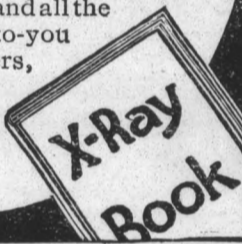
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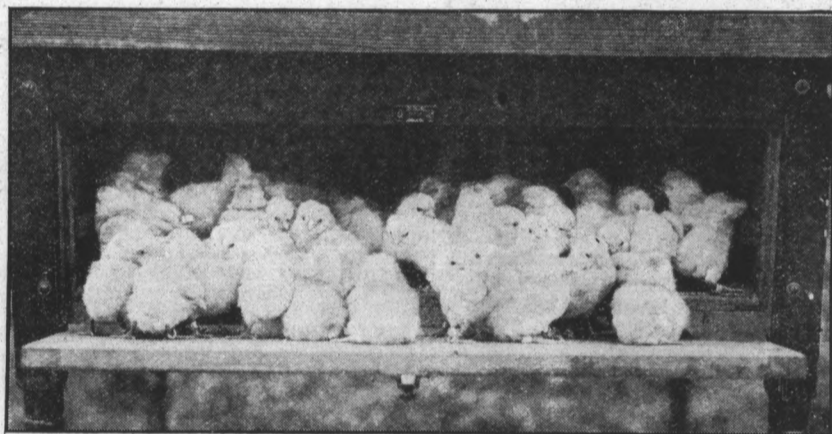
THE eggs should be selected of medium size and an average color and shape for the breed. An unusually large egg can not be expected to hatch. An unusually small egg may be defective and should not be incubated. An even, uniform lot, assorted as to size, color, and shape, will give the desired results where others fail. Freshness is a prime necessity. While an egg six weeks old may hatch, the chick will be weak and difficult to rear. Fresh eggs hatch earlier, while the chicks from them are stronger than those from the older eggs. As a general rule, eggs more than 12 days old should never be placed in an incubator. This is one of the reasons why eggs from a flock numbering from 10 to 12 hens are more apt to hatch than are eggs from a pen of three or four hens. The eggs do not need to be stored so long previous to reaching the number for a hatch. All eggs for hatching should be clean; if not clean they must be washed in tepid water and carefully dried with a clean, soft cloth. This washing will not injure the egg, yet it must be performed quickly and carefully, else the jarring of the contents may ruin it for hatching purposes. As fast as the eggs are washed and dried they should be covered with a layer of clean cloth or absorbent cotton to prevent their becoming

chilled. It is good practice to stand the eggs in a cool quiet place, each with the large end uppermost, for a period of 12 hours previous to placing in the incubator or under the hen. This will serve to balance the yolk in the center and locate the air cell. Eggs laid the day they are set will hatch several hours earlier than those a week older. Age in the germ-life does not count until incubation starts. The date of laying has nothing to do with it, except deter results, when saved too long.

Get Fertile Eggs.

First in order, therefore, would come the study of the egg itself. An egg receives its fertility from the male bird, yet the condition of the female at the date of laying has much to do with the hatching quality of the individual egg. The breeding hen must be healthy and properly fed or she can not be expected to produce an

ent cotton to prevent their becoming



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egg capable of carrying the germ-life to a successful hatch. Hens kept in unhealthy quarters, or too closely confined, are not likely to produce eggs that would guarantee strong, healthy chicks, if indeed they would produce any whatsoever. Hens suffering from disease or infested with vermin may lay to a certain extent, yet eggs from such hens will rarely hatch, and even if they should, the chicks will not be likely to mature into vigorous and growthy fowls that would carry profitable poultry keeping to its goal. Therefore, to secure hatchable eggs the hens must be healthy, have plenty of out-of-door exercise, and be fed upon a well-balanced ration. An exclusive corn diet is not conducive to high fertility. Fowls housed in confined quarters must have a mixed grain diet, together with plenty of grit and bone, with meats, clovers, or other substances in the line of nitrogenous food. They must be kept from lice and must have plenty of litter, straw, hay, chaff, or leaves in which to scratch. Fowls having free run demand less attention to diet and are far more apt to produce fertile eggs than fowls that are confined. Nearly every poultryman has a different conception as to the number of hens that should be confined with a cock bird during the fertile season. It is a matter of breeds, also much depends upon the manner the fowls are kept, and their ages and condition. Great care should be exercised over the matings of the fowls and the regulation of the size of the breeding pens should be recognized accordingly. With the majority of fowls, the most desirable results will be gained from mating from 10 to 12 hens to one cock.

chilled. It is good practice to stand the eggs in a cool quiet place, each with the large end uppermost, for a period of 12 hours previous to placing in the incubator or under the hen. This will serve to balance the yolk in the center and locate the air cell. Eggs laid the day they are set will hatch several hours earlier than those a week older. Age in the germ-life does not count until incubation starts. The date of laying has nothing to do with it, except deter results, when saved too long.

Keeping Eggs for Hatching.

Eggs waiting for incubation should be kept at a temperature of about 60 degrees F., although they will stand a variation of temperature from 40 to 100 degrees. They should not be allowed to dry out, nor be exposed to a current of cold air, steam or vapor. During storage, eggs for incubation should be partly turned each day. A little attention to these simple directions will make a great difference in the possibilities of fertile eggs and will greatly augment the percentage of chicks, as well as their vigor.

It is a very poor practice to set more than one kind or breed of eggs in the same machine, inasmuch as eggs of various types vary in thickness and strength of shell and in the amount of heat and moisture required.

The whole theory of incubation is based upon the fact that, if a fertile egg be kept for a sufficient period of time under given conditions of heat, moisture, and position, it will be transformed into a healthy fowl.

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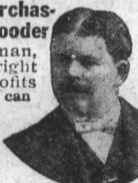


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Winners include: Mr. J. H. Brown, Wis., Winner 1914; Mrs. J. B. Quinn, Wis., Winner 1914; Mr. J. J. Gandy, N. J., Winner 1914; Mrs. L. A. Clark, Ill., Winner 1917; Mrs. M. A. Brochton, N. D., Winner 1916; Mrs. C. D. French, Iowa, Winner 1914; Mr. W. H. Gandy, Mich., Winner 1914; Mrs. W. J. Cullen, Ohio, Winner 1913; Mr. W. H. Gandy, Mich., Winner 1913; Mrs. W. H. Gandy, Mich., Winner 1913; Mr. W. H. Gandy, Mich., Winner 1913; Mrs. W. H. Gandy, Mich., Winner 1913; Mr. W. H. Gandy, Mich., Winner 1913; Mrs. W. H. Gandy, Mich., Winner 1913; Mr. W. H. Gandy, Mich., Winner 1913; Mrs. W. H. Gandy, Mich., Winner 1913; Mr. W. H. Gandy, Mich., Winner 1913; Mrs. W. H. Gandy, Mich., Winner 1913; Mr. W. H. Gandy, Mich., Winner 1913; Mrs. W. H. Gandy, Mich., Winner 1913; Mr. W. H. Gandy, Mich., Winner 1913; Mrs. W. H. Gandy, Mich., Winner 1913.

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TELLS how these 21 World's Championships were won—tells how the Belle City took thirteen out of twenty-eight prizes last season. The winners themselves tell of their wonderful success in their own words. But these 21 Championships are only a part of the story. Thousands of men and women, boys and girls, in all parts of the country are getting high percentage and perfect Hatches right along with their World's Champion Belle City Incubators—many of their letters are printed in my Big Free Book. Send for it today—read their own words—get all the facts, proofs and particulars—satisfy yourself.

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Belle City Incubator Co., Box 14, Racine, Wisconsin



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Big Rapids, Mich., Oct. 15, 1914. My wife and I will always speak a good word for the Belle City. We have nine Belle City Incubators in operation—hatched and sold 3,750 chicks this season, and could have sold as many more if we had the incubators and eggs. Hatched as high as 97 per cent. C. E. RAPER. Trotwood, Ohio, Jan. 15, 1914. The World's Champion Belle City Incubator is the best on the market. I operated it alongside of two other makes. The Belle City required less oil, less care and gives much higher percentage of hatches. In fact, my three hatches in the World's Champion were 100 per cent every time. VICTOR E. WENGER. Montevideo, Minn., April 27, 1914. My first hatch was 100 per cent. It is the best incubator I have ever run, and I am proud of it. MRS. O. A. CONNER. Orla, Mo., June 25, 1914. My first hatch in the World's Champion Belle City Incubator was 100 per cent. GEO. P. HALEY.

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PERFECTION SANITARY CIRCULAR METAL BROOD COOP

made entirely of galvanized iron which will last a life time. They are properly ventilated, and are Rat, Mink, Weasel and Skunk proof. Just the coop you are looking for. Write for circular & special introductory prices.

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\$6.50 For This 60 Egg Incubator.

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All set up, ready to use. Write today for free booklet or order direct from ad. Wolverine Sales Co., 711 Delaware St., Dept. B, Grand Rapids, Mich.

PEARL GRIT

Not an Expense, a Money Maker. Repays its cost over and over in bigger, healthier, better laying fowls. Grit that is more than grit. Aids digestion, gives appetite, supplies egg shell, bone and feather material. Send for booklet.

OHIO MARBLE COMPANY
41 S. Cleveland Street, Piqua, Ohio

The former system is, used the more extensively in heating incubators ranging in capacity from 60 to 600 eggs. Incubators, known as mammoth machines, holding 1,000 eggs or more, are usually operated by aid of a boiler and hot water, piped to the various compartments. There is very little reason why either means of heating should have greater success in hatching than the other, providing the same method supplying the heat to the eggs is used and other factors be equal.

Exactness Essential in Operating Incubators.

The successful operation of any machine depends explicitly upon exactness and accuracy. Not only should the work be performed properly, but it must be done "on tick." To the woman who fills the lamps at a certain hour of the day, or the man who will wind his watch at a given hour each evening, there need be no fear of neglect of the care of the incubator. Others beware! To the person who is unwilling to study, read, and to practice, and is unwilling to attend to the few wants of the machine at the proper time, making a specialty of promptness and punctuality, it would be unreasonable to expect results from the best made machines.

Too Many Caretakers Spoil the Hatch.

One person only should be responsible for the care of the lamp. If two or three are tinkering with the heating apparatus, no one knows what ought to be done, or when it should be done, and the affair is a wreck before the ship has left port. Lamps should be filled, cleaned, the wick trimmed once each day. The morning is the best time for this work; never at night. If a regular hour is not adhered to, neglect will result. The best time would be just after the eggs have been turned. Never fill the lamp more than within half an inch of the top. Use the best grade of oil. Previous to placing the lamp in the chamber, wipe it off clean, guaranteeing yourself against fire. Trim a square, clean-cut wick, which will give best and most heat with least opportunity for smoke.

Careful Operation Gives Good Results.

The operation of the incubator is but one of the several factors determining the success of a hatch; yet it would be quite possible, through carelessness or neglect in such operation, or through ignorance of the principles of incubation, to destroy completely the hatching qualities of the most fertile eggs. On the other hand, careful and intelligent operation may mean excellent results from strong eggs and really satisfactory results from weaker eggs. EARL W. GAGE.

PEDIGREE POULTRY BREEDING.

My ambition is to build up a heavy laying strain of fowls. I have an idea that there is bound to be an increasing demand from farmers and poultry men for stock and eggs from laying strains of poultry, with which to improve their flocks. Most farmers and poultrymen who are giving the bulk of their time to egg production for the market, do not have the time to give to breeding for heavy egg producers that they ought to have. Now, then, do you think I am right in believing that the man who makes a specialty of developing a heavy-laying strain of trap nested layers, will find a ready market for stock and eggs at good prices? In starting a business of this kind, do you think there would be any preference as to breeds? Would one have any advantage with a heavy-laying strain of Rocks over Leghorns, because the former is a general-purpose fowl? Is not the general-purpose hen more or less like the general-purpose cow? That is, she is not as well adapted for either purpose as is a breed adapted by nature to one particular thing.

SUBSCRIBER.

I wish you would investigate the pedigree work of some of our leading dairymen. I know a man in the state of New York who had to mortgage his farm to help pay for a pure-bred Holstein bull. By painstaking work this man has built up a herd that he

has refused an offer of \$100,000 for. Besides that he has sold more than that many hundred thousand dollars worth of stock and has an enviable reputation.

Demand for Well-bred Stock Unlimited.

I think there is almost an unlimited demand for well-bred, heavy-laying strains of poultry. One man, across the pond, whose stock by some is claimed to be of unquestionable breeding, is making a fortune out of us Yankees by selling us some of his heavy-laying strains of White Leghorns and Wyandottes. He won several egg-laying contests in Connecticut and Missouri with the result that he is now reaping a small fortune.

Your idea that there is bound to be an increasing demand from farmers and poultrymen for stock and eggs from heavy-laying strains of poultry, is well founded. I would not hesitate a minute to make the statement that for such stock there is almost an unlimited demand, at big prices. There are, however, three things necessary for you to do, and they are: 1, get the stock with the records; 2, keep your pedigrees so you can back up your goods; 3, through some good way bring your records and stock before the public.

Select Egg Producers.

In my humble opinion, I think you can make no mistake in selecting the Leghorn, because as a breed they have already established the reputation of being the most economical egg producers of them all. They are bred all over the world, hence you would have a large field to cater to. Of course, any of the profitable breeds would furnish a large field, as far as that goes, in fact, there is absolutely nothing in the world for you to worry about but one thing, and that is how to produce the goods. It is the goods you have to have, the rest is easy. What you want to have is something like this: Several hundred vigorous cockerels, coming from a 200-egg dam and 200-egg sire, the dam should have a strain of pedigrees on both sides, showing 200 egg yields or more and the sire the same. More than this, you want to breed up a strain of known reproducers of high producers. It is not the high producers we are after—it is the known producers of high producers that are worth a fortune. A high producer at the most is not worth more than \$3 or \$4, but a known producer of a high producer is easily worth a hundred dollars.

Reproducers of High Producers Bring High Prices.

If I could, today, buy a Leghorn cockerel from you with a pedigree showing that both his sire and dam have been reproducers of high producers of 180 eggs or better, or if you could prove to me that this cockerel when properly mated, would be a re-producer of stock producing 180 eggs or better, I would not hesitate a minute to offer you considerable more than a hundred dollars for him. But I would want substantial proof that he had the breeding back of him, and I would want this in pedigree form under sworn signatures. In other words, I would want to take nobody's word for it. All this requires several years of trap nesting, recording pedigree breeding, hatching and rearing. It would require much time, money and skill.

You are right in your remark about the breeds and general-purpose breeds in comparison with the general-purpose cow. They can not excel in two things—one generally must be sacrificed to some extent.

There is one thing absolutely necessary, and that is to get the best foundation stock you can. I would much rather have two of the very best than four not so good. In other words, make your start small but start with the best stock you can get and then breed intelligently. You should start where the other fellow left off.

Texas.

F. W. KAZMEIER.



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Take equal quantities of "High Standard" Paint and any other brand, and prove for yourself how much better "High Standard" covers and how much farther it goes. You'll find that the paint that costs less per gallon will actually cost more for the job. This is only one reason why it is economy to use



The right basis of comparing painting cost is not price per gallon but cost per year. Divide the cost of painting by the years the paint wears. On this basis, "High Standard" Paint will last so much longer, that its cost per year is far less than the cheap paint which costs less by the gallon.

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"High Standard" Paint is based on 30 years of outdoor exposure tests. The ingredients are selected by painstaking chemical tests, and blended (far more thoroughly than by hand mixing) by the most modern and efficient machinery. There is no guess work about this paint. You can apply it with the knowledge that it will hold fast to the wood in perfectly protecting coats, hold its color and not fade, withstand the weather for years, fail only by gradual wear—leave a good surface for repainting.

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This free book is the most helpful and appreciated book we ever issued. Full of good ideas for painting the house and barn and decorating the interior of the farm house. Tells also why "High Standard" Paint is dependably good and economical.

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Makes Chicks Healthy and Strong

Vim and vigor are necessary if the chicks are to thrive and mature quickly.

CONKEY'S gets them started right and keeps them growing. Package or pail, 25c, 50c, \$1, \$1.60 and \$3.

CONKEY'S WHITE DIARRHEA REMEDY should be given in the drinking water from the start. It will help to bring your chicks through finely—25c and 50c. Send 4c for Conkey's Poultry Book—worth dollars to you.

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RECORD HATCHES

Mrs. Halton of N. Vernon, Ind., reports two 100 per cent hatches from her Progressive Incubator. Only Incubator with double walls and hundreds of dead air cells. All wood parts California Redwood. No extras to buy. Money back guarantee.

155 EGG Set up ready for use

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Self-regulating—ventilating—copper boiler—hot water heat, safety lamp, egg tester, 2 doors—thermometer. Freight prepaid east of Rockies. Incubator and Brooder both for \$9.85. Order now or send for big free Incubator Book.

Progressive Incubator Co.
Box 164 Racine, Wis.

LIVER COMPLAINT.

In looking over some poultry clippings, I find one so nearly like the one I sent in recently, where complaint was made of trouble with turkeys, that I will send it in, hoping it may solve the trouble, and also perfect a cure. The writer says: "One of my chickens died. It stood around, with its head drawn back to the wings. The head looked pale, and of a yellowish tint. The bird grew light to about half its natural weight. The crop was entirely empty, but the stomach was as hard as a rubber ball, and on opening it I found it filled with gravel and small straws. It had an inflamed look. The inside skin was loose from the outer part, about two-thirds around. The droppings were yellow and white and thin, as in dysentery. Can you suggest a remedy?"

Part of the symptoms point to the common trouble of "growing light," a liver complaint. Probably you noticed when you dissected the bird, that the liver had an unnatural color, and a rotten or cheesy look. When alive, a fowl suffering from this complaint has a regular jaundice or bilious look, with diarrhea at one time and costiveness at another time. There is no positive remedy after the trouble once seats itself. In the early stages, when the bird seems mopey, and the blood seems to leave the comb and wattles, the disease can be checked by giving a family liver pill. Repeat the dose in a day or two. Remove the bird to separate quarters, and feed warm mash of bran and a little corn meal or middlings. Give a little whole wheat at night. A little condition powder added to the morning mash will greatly aid a cure. Give plenty of green food. Cabbage hung up in the henhouse furnishes excellent greens for fowls in winter.

The disease, "growing light," is not contagious, but at the same time the sick birds should be removed to warm and dry quarters."

This complaint of "growing light" is almost identical with that described by the owners of the turkeys and the Rhode Island Reds, so we would suggest a trial of liver pills as recommended above. JENNIE WILLSON.

BEE NOTES.

Queens of one's own breeding are usually as good as those secured from queen breeders, especially where one breeds from selected stock. Every beekeeper should produce a certain number of his own queens each year. Mr. Guernsey does not breed queens for market but tries to raise sufficient to supply his own needs.

Nuclei are taken from his choicest colonies, preparing to swarm, and with the queen cells thus secured a number of nuclei are started. Two frames are taken from an eight-frame colony and three frames from a ten-frame colony. Late in the season, if more queen cells are needed, stimulation of that colony is resorted to. The speaker stated that he secured as fine queens as could be desired, by this method.

Summer field days, of which two were held last season, are being planned for nineteen fifteen, and it is hoped to meet a large number of beekeepers in this way. The object of these meetings is to make sure that every beekeeper present is able to identify the disease and is familiar with the methods of treatment. Methods of management are also discussed and those present often gain a lot of useful information. F. E. MILLEN.

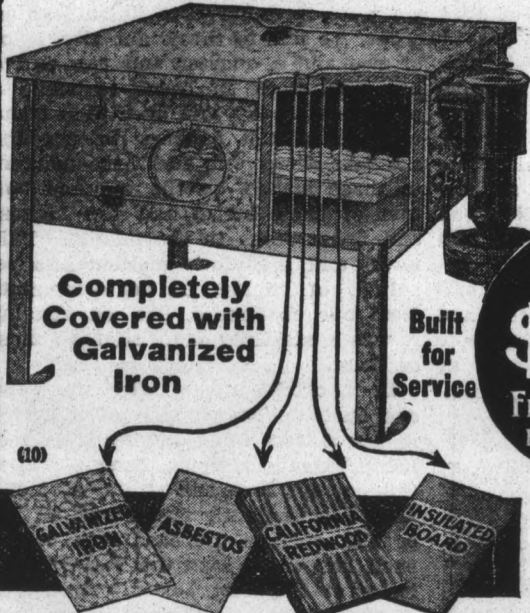
SOME EGG.

One of my hens laid an egg which seems to me to be worthy of mention. It weighs 5 1/4 ozs. and measures 8 7/8 inches around the largest way, and 7 1/2 inches around the smallest way. My flock consists of seven hens of the "just hens" kind. Allegan Co. W. F. ROSE.

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BIGGEST HATCHING
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Why take chances with untried machines when for only \$10 we guarantee to deliver safely, all freight charges paid (East of the Rockies) BOTH of these big prize winning machines fully equipped, set up ready for use? Why not own an Ironclad—the Incubator that has for two years in succession won in the GREATEST HATCHING CONTESTS EVER HELD? In the last contests conducted by the Missouri Valley Farmer and Nebraska Farm Journal, 2,000 Machines were entered, including practically every make, style and price. With 140 Egg Ironclad—the same machine we offer with Brooder, freight paid, for only \$10, Mrs. C. F. Merrick, Lockney, Texas, hatched 148 chicks from 148 eggs in last contest.



We Give 30 Days Trial
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You have nothing to risk. We will send machines—let you use them 30 days—urge you to compare them in quality of material, hatching ability, workmanship and price—and if you don't find them satisfactory, send them back—we'll pay the freight charges and return your money. You are absolutely safe. We have to do as we advertise. If we didn't the publishers of this paper would not carry our advertising.

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It tells how Ironclads are made and why they win in the Big Hatching Contests.



140 EGG INCUBATOR CHICK BROODER

When an incubator is constructed of material of this kind it gives you the strongest and most durable incubator that can be made—a machine that will not warp or shrink, or open up at the seams, as every joint is lapped over with our galvanized iron covering—giving you a machine that will last a life time. Don't class this big, all-metal-covered dependable hatcher with cheaply constructed machines. Ironclads are not covered with tin or other thin metal and painted, like some do to cover up poor quality of material. Ironclads are shipped in their natural color—you can see exactly what you are getting. Don't buy any incubator until you know what it is made of. Note these Ironclad Specifications: Genuine California Redwood, triple walls, asbestos lining, galvanized iron covering. Galvanized iron legs, large egg tray, extra deep chick nursery—hot water top heat, copper tanks and boilers, self regulator, Tyco's Thermometer, glass in door, complete book of directions, and many other special features fully explained in free catalog. Write for it today or order direct from this advertisement and save time.

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We dare say that you never heard of any other incubator with one-third as many users. We build Old Trusty so that you can get good big hatches in it any time, even in coldest winter—we give greatest value per dollar in price not only because of the good, reliable construction invented by M. M. Johnson, but because of the big factory output which lets us quote a price several dollars less than any other factory would have to ask. We send it on 30 to 90 days' trial and a 10 year guarantee.

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We'll not bound you for an order. That's not our style. All we ask is that you let us show you the way you can make more money out of your chickens than you ever have before. Then if you feel interested enough, you will use your own reason. Drop us a postal today for the book and see if we don't agree on the same idea.

Write for Low Price Based on 100,000 Sales this year. We Pay Freight East of Rockies.

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With SHAKING and DUMPING GRATE Adjustable Hover Chicks always Visible Price \$19.00, including Automatic Regulator, \$24.00. Economical and safe. 100 per cent efficient. Large and small farms use the Ideal with success. Vastly superior to oil burners. The Ideal Fresh Air System gives perfect satisfaction. Many testimonials showing wonderful results obtained during ZERO weather in the cold spring of 1914. Write for free 28 klot. Learn to brood chicks without loss. Make two chicks grow where only one grew before. LIBERTY STOVE COMPANY, 114 "M" Second Street, Philadelphia, Pa.

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BOTH For
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Wisconsin have hot water heat, double walls, dead air space between, double glass doors, copper tanks and boilers, self-regulating, nursery under tray. Incubator and Brooder shipped complete with thermometers, lamps, egg-testers, all set-up, ready to use when you get them. Incubators finished in natural color showing high-grade Calif. Redwood lumber we use—not painted to cover up cheap material. Send for catalog and we will send you a sample of the material, then you can compare it with the kind others use. If you will do this we know you will order a Wisconsin. Money back if not satisfied.
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50 Leading Breeds pure bred chickens, ducks, geese turkeys, Fowls, eggs, incubators at lowest prices Catalog 2c. **W. A. WEBER, Box 914, Menkato, Minn.**

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"Hoosier Strain." Established in 1893. Winner of 11 first prizes at Chicago, Cincinnati and Indianapolis in two years. 300 fine Cockerels, some good cock birds, hens and pullets in any number. All stock shipped subject to approval. Prices reasonable. Write your wants. **G. Earl Hoover, R. 7, Matthews, Ind.**

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A Nice bunch of Single Comb R. I. Red Cockerels, and White Runner Drakes at \$2 each. Eggs and Baby Chicks in season. **O. E. Hawley, Ludington, Mich.**

Barred Plymouth Rocks—We have some very nice trios & pens to offer now at reasonable prices. **OSTRANDER BROS., Morley, Mich.**

R. C. & S. C. Rhode Island Red Eggs, \$1.50 per 15, White Runner Drakes at \$2 each. Eggs and Baby Chicks in season. **O. E. Hawley, Ludington, Mich.**

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Mammoth White Holland Turkeys, Hens \$5; Toms \$6; Trios \$15. Columbian Wyandotte Chicken Eggs in season. **Alden Whitcomb, Byron Center, Michigan.**

White Holland Turkeys, fine early hatch, hens \$3 toms \$5. Also Buff Plymouth Rock Cockerels \$1.50 each. Satisfaction guaranteed. **MAE WHITEBECK, "Two Pines" Montague, Mich.**

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WHITE WYANDOTTE COCKERELS, EGG-A-DAY POULTRY RANCH, Marshall, Mich.

65 Breeds—Chickens, ducks, geese, turkeys, guineas, hares and dogs. Stock and eggs reasonable. 60-page catalog free. **H. A. SOUDER, Box 50, Sellersville, Pa.**

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BARRED ROCK COCKERELS—\$3 each, two for \$5. Large, farm raised. Winners for 10 years. **J. A. Barnum, Union City, Mich.**

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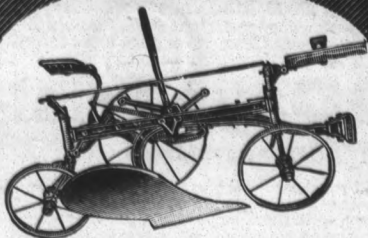
BARRED AND WHITE ROCKS—Large farm raised utility Cockerels. \$3 two for \$5. Bred for beauty and business. Order from this ad. Eggs in season. **RIVERVIEW FARM, Box 798, Union City, Michigan.**

White P. Rocks, Pekin and white runner ducks, White guineas, eggs and day old ducks and chicks. **H. V. HOSTETLER, St. Johns, Michigan.**

White Leghorns Day-Old-Chicks. Write for circular. Poultry to all our customers. **MAPLE CITY POULTRY PLANT, Box C, Charlotte, Michigan.**

Additional Poultry ads. on page 169. J

The New Janesville Plow



Only One Lever Needed

We have done away with the bothersome second lever. This one lever working with the foot lift controls the plows while plowing deep or shallow.

Operate Foot Trip Only

Set the depth lever to plow as deeply as you wish, and you are fixed for the day's plowing, operating the foot lift only at the ends of the field. Simply press the foot trip, and the plow enters the ground point first; touch it again and out it comes. This simplicity in construction takes a whole lot of work and worry out of plowing as you go round after round in any kind of a difficult field.

Floating Bottoms Assured Depth

The depth of the furrow is the same all over the field, up hill or down, as well as in the hard spots. This is regulated automatically by the hang of the plow bottoms in the frame. The plow bottoms have just enough motion at the cutting edge of the shares to take away the "pinch" at the plow points as they turn over the furrow. It is somewhat like the flexible movement that you get in a spade when digging into hard ground, you must work the handle a little before the spade will enter. This easy motion reduces the all-day pull of the team as the plows glide through the soil.

Easier Pulling

Don't forget the sun-baked fields in the late summer when your poor horses will have to sweat and pull to turn over the hard ground, or next spring when the work is rushed and your colts are green. This flexible movement is found only in a plow like the Janesville. The proper suck of the bottoms is self-regulating according to the depth you are plowing, and as the shares become dull more suck is added, another feature found only in the Janesville.

No other wheel plow hugs the furrow wall like this New Janesville. This provides steadiness, allows more tag room, insures even width of furrows, and makes easier work for you and the horses.

These are only a few features found in this New Janesville, but they help take the hard work out of plowing. You save your team, you have an easier day yourself, and you speed up good plowing with less effort.

Write for Booklet

of many actual field scenes showing how the six times World's Champion won with Janesville Plows. It's the secret of all good plowing and how it is done. Write for copy.

THE JANESVILLE MACHINE CO.
49 Center St. Janesville, Wis.
Established 1859
Builders of Harrows, Planters, Cultivators and

JANESVILLE PLOWS

With S. & S. Auger Twist Moldboards

Grinds Oat Hulls at One Grinding

Fine enough to feed swine. No other grinder at the price does this. Also grinds ear corn, screenings, seeds, hay, alfalfa, Kaffir corn, grain. 1 set buhrs grind 1000-3000 bushels.



LETZ FEED MILL
Self Sharpening Silent Bulb

10 days free trial to show you that the Letz grinds more feed—better—on less gas than other mills. State H.P. of engine. Letz Mfg. Co., 210 East Road, Crown Point, Ind.

Less Work

By using low "Electric" steel wheels on your old running gear or using our



Handy Steel Wagon
Save high lifts, get lighter draft, prevent rutting, save money in repairs—steel wheels do not dry out or rot. Write today for free catalog on wagons and wheels. **ELECTRIC WHEEL CO., 35 Elm St., Quincy, Ill.**

Conducted Government Examinations. Can help you secure Railway Mail or other Government Positions. Trial Examination free. Osmont, 17 E. St. Louis.

Farm Commerce.

Is the Sulzer Law a Success?

By EDWARD PAYSON.

THE Michigan apple pack of 1914 under the Sulzer law has passed into history, and we ask ourselves what was the net gain to growers and consumers, if any. I have heard it said that a prison convict, even after he has discarded his striped suit, still has the manner and air of a forbidden member of society and will hang his head even when well introduced and vouched for.

And so it is that the Michigan barrel, long ago convicted of mean and disorderly conduct, even though robbed of that beautiful top "facing" or

we were in a hurry to finish loading a car, we had to throw out also, a lot of two and a quarter and two and a half-inch stock in order to make a presentable pack, and even then I had to instruct the packers to put the smallest Kings, two and three-quarters to three inches, on the top and bottom of each barrel and the biggest and finest stock in the middle. This novel and ingenious method has resulted, of course, in no complaints from our customers, but we imagine it was a startling innovation to most of them.



High-Class Grading is But Little Understood.

layer which so long has trapped the unwary, is still an object of suspicion, not only from past misdeeds but from a certain hang-dog look which still lurks over its neat and clean outlines.

A case in point: I sold a barrel of Wagener apples to a new customer recently and his cold skepticism as to its contents was far from refreshing, especially after I had announced that the barrel contained a "genuine Sulzer pack," and I would guarantee it to be 90 per cent good color and 90 per cent free from worms. However, he did not know what the Sulzer law was, but did remember how often he had been "soaked" by Jones and Smith and a long list of by-gone growers, and he did not want to pay out good money, etc., etc. So I unpacked the barrel down to the middle to show it was an honest barrel of apples and then he was satisfied and paid for them cheerfully.

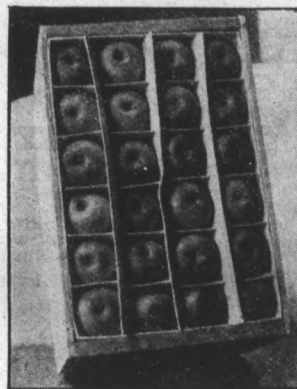
So when I am asked what is the future of the barrel pack, I can simply say, that it is no place for No. 1 or fancy apples, but it may answer all right for No. 2 stock, in case a grower thinks it wise to try and market No. 2 at all.

And, by the way, a good Sulzer pack will never come until our orchard men grade apples as to size. One of the best packers on the Peninsula (Old Mission) lost a good sale on 200 barrels of Spies and Wageners; now the barrels had good Spies but everything from two and a quarter to four inches were mixed up in a jumble pack and therefore hardly a marketable lot.

One Improvement.

One marked advance, however, under the Sulzer law, is the fact that fewer wormy apples were packed, and the wormy apple has been our worst enemy in barrels. I could not discover that our apples are any better colored under the new law, as the tendency found in many orchards visited was to replace former wormy stock with small green apples, a change which may show an advance toward an honest pack, but which makes a bad impression on the average buyer. This fall in a nearby county I personally inspected 230 bushels of large King apples and only succeeded in getting 39 barrels of good No. 1 apples, as the balance were rejected for worms and "water core." As the grower had no grading machine and

marked contrast with the average customer's suspicion of a barrel, is his action when buying a box of fancy Wageners, Spies, Snows, Grimes Golden or Jonathan from a store. Each box is plainly marked 88, 96, 104 or 120, etc., as the case may be, on each box end. Also the variety. He looks at the neat boxes well bulged at the center, selects about the size of apples wanted and pays the price asked, without a murmur, as he knows that he is buying "intrinsic value goods." Our prices ran from \$1.50 per box for Snow to \$2.25 for Spy and Jonathan. And certainly these prices will net our growers more than when stock is barreled, even though it takes more time to work up a trade with the consumer. And in our opinion the box trade must first be launched with the consumer in the cities, as he is the fellow who will, in the end, create a demand for Michigan boxed apples, so that finally the commission man and the grocer will be forced to handle same. This seems the only quick and feasible route to a large



Box Has a Reputation.

and profitable trade, and it has been demonstrated in dozens of orchards in a large way and no longer admits a denial.

Now as regards profit on boxing apples. I can state from two seasons' experience that you could go out in the fall and buy No. 1 apples in reasonable quantities at 60 to 70 cents per bushel, grade and paper them and put them in good Oregon boxes so they cost you not to exceed 95 cents per bushel all nicely packed. Figuring that it cost 20 per cent to sell the consumer direct, this would mean 40 cents per box on a \$2.00 box of Wageners to cover freight and selling. So you should get a profit of 50 to 65 cents a bushel on the various varieties and certainly this brings apple growing into the profitable occupations. When I have shown that a mere apple packer can go out and buy his stock from the grower (at the grower's price), and still can show about the above profit to a middleman for his work of repacking and marketing the stock, certainly the Michigan grower can gather in both profits when he takes it into his head to study the business of packing and marketing the goods himself.

And right here let me say that almost the only available apples to be found in our orchards today which are adapted to box packs, are Wagener, King, Jonathan, Spy, Snow, Grimes Golden and Ben Davis, (also Wealthy for a fall pack).

And of these we must soon cut out King and Spy as they are both too large for the average demand, and then King is subject to "water core" and has to be repacked often, and the Spy in most seasons does not color up to "fancy," and therefore does not make a good appearance in the box, so the only "dead sure" stock for our new orchards to plant is Wagener, Jonathan, Grimes Golden, Stayman's Winesap, Snow and possibly Wealthy, as they all make good boxing stock, and sell well as "fruit stand" apples. Ben Davis sells well late in the year, but our present supply around here is ample for all needs.

Changing Sentiment.

Two years ago when I began the agitation of boxing apples in the western Michigan counties, fully 95 per cent of the growers pronounced solidly against it and now nearly one-half are strongly in its favor.

One of the long repeated arguments was that a barreled apple was the "poor man's apple" and that boxed goods were for the well-to-do and the rich man. Now, before you shed any crocodile tears over the supposed "poor man's apple" and its loss, just take a glance at the heavy loads of fruit lining our streets on the way to the cider mill and the evaporator plant. These brought 25 cents per 100 pounds for cider and 40 to 50 cents for canning and drying. I examined many wagons and it was frightful to see so many good marketable apples dumped in with the green wormy stuff and all because the farmer did not want to bother to sort them out into the various grades and pack them properly.

Only 400 carloads of barrel apples were shipped from the entire Grand Traverse region. I stoutly contend that even last fall in what was called a flush crop, that there was still a woeful lack of good market apples, well graded and packed, and that most of the barrel stock sent to the cities brought a low price, mainly because the "hit or miss" character of the shipments made good prices impossible.

ADULTERATION OF OATS TO BE STOPPED.

Seventy-five carloads of oats intended for export have recently been seized by the federal authorities because they were found to be adulterated within the meaning of the Food and Drugs Act. The adulteration charged is the addition of feed barley or water, or both. Under certain circumstances adulteration in these ways may be so profitable that it is believed to be at times a common practice among grain shippers. The government, however, is determined that the practice shall cease at once, and field



Our Market is Improving.

representatives of the Department of Agriculture have all been instructed to exercise the utmost vigilance in detecting future shipments adulterated in this way.

Low grade barley which is known to the trade as "feed barley" is sometimes mixed with oats when there is sufficient difference between the prices of the two grains to make this profitable. This "feed barley" is the product which remains after the best grade of the grain has been separated and removed for malting purposes. It contains material percentages of weed seeds, foreign grains and dust, and the addition to oats of such a product is held to be a violation of the Food and Drugs Act. The addition of water to oats arises from the fact that the grain is sold by weight. Investigations of the Department of Agriculture have revealed the fact that water is sometimes added in the amount of from two to four per cent.

POULTRY MARKETS PERMANENT.

There is a great deal of satisfaction in being engaged in a line of agriculture, the products of which have a well established market. With such an outlet for his products, the farmer is able to go ahead with some degree of certainty as to what he can and cannot do. The poultry business is one of these lines of farming. There is a broad market for every kind of poultry product; the channels of trade have been established and there is more or less harmony in the trend of the markets throughout the country.

Our country towns consume no small part of the poultry grown in their respective communities, but at these primary points there is almost always a surplus of poultry products. The surplus of these communities finds its way to the larger cities and when the demand becomes urgent, quotations in the small places usually take a sudden advance and attract attention to the business.

The surplus is consumed largely in the cities receiving supplies directly from primary points, but this does not always maintain in our large central western municipalities. Here the supplies accumulate in large quantities and holders later sell to the large cities of the east. Here, in turn, the greater portion of the shipments are consumed by the inhabitants of these large centers of population, but a portion is again re-shipped to nearby smaller places where the supply of local producers is not sufficient to satisfy the needs of the people.

While it is possible to figure out ways whereby these products could be gotten to the consumer in a more economic way, yet as a general rule it will be found, with the conveniences we now have at hand, that business competition has reduced excess costs to a minimum, and the average producer will usually find it to his advantage to place his products in the regular line of trade.

On the other hand, the man who has a special product will undoubtedly find a better market by developing a special trade. The regular channels of trade are suited to the average grade of products, and for this reason the man who gives his flock special attention and has a product that grades above the average cannot afford to sell at the prices established by those who produce common goods. The special product should be marketed as near the final consumer as possible; here it will find a greater appreciation than will be given it in the general market, which will result in a better price to the producer.

In all, it will be found that whether one wishes to make a special effort with his poultry flock or whether he desires to care for it as the average person would, the broad market due to the general use to which poultry products are put, makes it a line of endeavor that carries much satisfaction because of its permanency.

How Many Hides Has a Cow?

Sole leather is not adapted to soft, tufted upholstery of automobiles and furniture.

Hides must be split into thin sheets to produce upholstery leather.

The two lower fleshy, grainless sheets are coated, embossed, and sold as "genuine Leather." That is why so much "leather" upholstery cracks, rots and peels so quickly.



**MOTOR QUALITY FOR AUTOMOBILES
CRAFTSMAN QUALITY FOR FURNITURE**

Is Guaranteed Superior to Coated Splits.

Fabrikoid is used by leading makers of automobiles, buggies and furniture, with entire satisfaction.

It is the ideal material for recovering your couches, davenport, dining chairs and Morris chairs.

If there is no dealer in your vicinity, we will sell you by mail.

Small Sample Free. Large Sample (18x25 inches) 50c postpaid.

**DU PONT FABRIKOID CO.,
WILMINGTON, DEL.**

Canadian Branch, Toronto, Ontario.

Craftsman quality Fabrikoid on sale by John Wanamaker, Philadelphia; McCreery & Co., Pittsburgh; J. & H. Phillips, Pittsburgh; John Shillito Co., Cincinnati; Stix-Baer, Fuller Co., St. Louis; Du Pont Fabrikoid Co., 621 Broadway, New York.

**CHARITY don't mean
just loosenin'
yo' purse strings—
it means openin'
yo' heart and lettin'
out kindness and
cheerfulness**



Velvet Joe



The touch of a match to a pipeful of **VELVET**, The Smoothest Smoking Tobacco, lets out the mellowest of tobacco taste and fragrance. Try some of Kentucky's *Barley de Luxe* age-mellowed into **VELVET**. 10c tins and 5c metal-lined bags.

Leggett & Myers Tobacco Co.

FREE

**The Factor of Safety
in the Human Body**

This booklet tells you how to keep tab on your strength reserve. We mail it on receipt of postcard request. If you ask in a letter enclosing six 2c stamps, we will also send a sample copy of **GOOD HEALTH**—the pocket magazine which teaches you how to keep well. Address your postcard or letter—

GOOD HEALTH PUBLISHING CO.
6602 W. Main St., Battle Creek, Mich.

Maple Syrup Makers

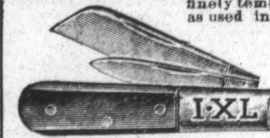
You get **EFFICIENCY** and **SERVICE** in our **Champion Evaporator.**

Quick work, fuel saving, durability and **BEST QUALITY** of SYRUP. Write us for Catalogue.

Champion Evaporator Co., Makers, Hudson, O.



Celebrated **I. X. L. Pocket Knife** Westholm I. X. L. Knives, containing two strong genuine Sheffield steel blades, finely tempered, of same quality as used in the most expensive I. X. L. knives. Low prices possible only by using the inside cut stag for handles. Postpaid 50c each.



FULLY GUARANTEED. Reliable Specialty Co., Post Office Box No. 168 Madison Sq., New York City.

TOO LATE TO CLASSIFY.

\$5.95 Incubator and Brooder

Express Paid 30 Days' Trial Money Back Guaranteed

Altogether holds 100 chicks in hatcher and brooder. 2 machines complete in one, warmed by one lamp, saves one-half fuel. Big success everywhere. No wood; made of sanitary rustless metal, asbestos and air space insulation. Automatic regulation. Handy, simple. Children run it. Order from this ad, or write for booklet **NOW—FREE.**

BROODER-HATCHER CO.
722 S. Robey St., Dept. 80 Chicago, Ill.



Simplicity Hatchers

Write for Great Free Circular telling all about this wonderful Hatcher—its "no-cold-corners," scientific design; its simple, compact, sanitary and other modern features. **SOLD AND GUARANTEED BY DEALERS EVERYWHERE.**

Indianapolis Corrugating Co., MFRS. Indianapolis, Ind.



See and Try BEFORE YOU PAY 30 DAYS

This 135-Egg Incubator and Brooder shipped anywhere on 30 days' trial. No money down—no deposit.

\$9.45 Pays for BOTH if Satisfactory When Tested No other such open liberal offer as this, because no other outfit equals the UNITED Incubator hot water; Brooder hot air. Both galvanized iron. Satisfaction guaranteed. We take all the risk—send for full details. Address **THE UNITED FACTORIES CO., Box 231 Cleveland, O.**

FOR SALE—Rose Comb Brown Leghorn from the leading strains in America, also Mammoth Pekin Ducks, Stock and eggs in season. **CLAUDIA BETTS, Hillsdale, Michigan.**

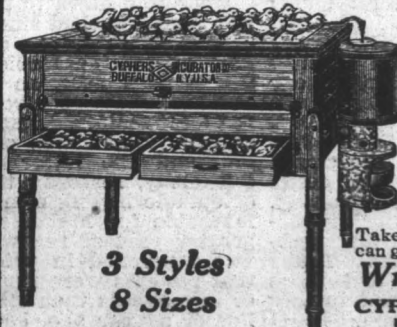
FINE LITTER OF PEDIGREED COLLIE PUPS. Best Breeding. Males \$8.00. **WALT STANFIELD, Hillsdale, Michigan.**

Trained Running Fox Hounds—30 Fox and Coon hound pups. Puppies. Send stamp. **W. E. LECKY, Holmesville, Ohio.**

Low Priced Incubators Offered By Cyphers Co. Makers of World's Standard Hatchers

Write For FREE Book 200 Pages

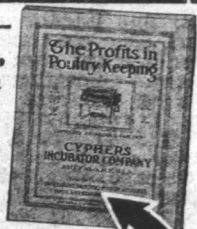
NOW you can have your choice of three Cyphers Built Incubators—the Superior Hot-water Incubator, the Columbia Hot-air Incubator, and the Standard Cyphers—all built with the **same skill and care** that have made the name "Cyphers" famous for 18 years.



\$10.00 and Up All Fully Guaranteed

Here is your opportunity, Reader, to make poultry pay you a good big profit this year. Get started now with one of these machines—have plenty of eggs and chickens to sell when prices are highest. Take advantage of the valuable **free help** that our staff of poultry experts can give you. Learn about our "Personal Letter Service."

Write for this 200 page book—"The Profits in Poultry Keeping"—our complete catalog and poultry guide for 1915. Address our nearest office. **CYPHERS INCUBATOR COMPANY, Dept. 35, Buffalo, N. Y.** Boston New York Chicago Kansas City Oakland Dallas



"The Profits In Poultry Keeping"—Yours Free



PIONEER 22925

80 HEAD

For Immediate Sale

60 STALLIONS

Ready for Service.

20 Brood Mares with foal, also some Yearlings and 2-year-old Fillies.

All of these at your own price. Write now before they are gone.

JOHN CRAWFORD,
Importer. - - Byron, Michigan

Dunhams' Percherons

are today as for the past Forty-eight years the breed's best.

As a matter of fact you can also get more here for your money than elsewhere. If you are interested in Percherons and want to get in touch with the oldest concern in the business—the one that handles the best class of horses, and whose reliability is proven by the experience of thousands of satisfied customers. Come and see us.

New illustrated catalog on application.

DUNHAMS', Wayne, DuPage County, Illinois.

LOESER BROS.

Buy pure bred STALLIONS and MARES now, we have both Imported and Home Bred Stock, and for quality our Belgians and Percherons cannot be excelled. It will pay you to see our horses.

LIGONIER, IND.

METZ BROS.,

Importers and Breeders of

Percheron Stallions and Mares

We have a fine selection of stallions and mares ranging from 1 to 6 years old. Prices reasonable, terms to suit purchaser. METZ BROS., Niles, Mich.

PERCHERON STALLIONS FOR SALE.

15 two and three-year-olds, black. These are good weights and desirable horses of our own breeding. We sell direct to the farmer at reasonable prices, and invite inspection.

A. A. PALMER & SONS,
R. R. Station Orleans. P. O. Belding, Mich.

JACKS AND MULES

Raise mules and get rich. 230 head fine large Jacks, Jennys, and mules 14 to 17 hands high. Large registered Jacks and Draft Stallions, cheap now. Mules by the pair or earload. Stock guaranteed. Write for prices today. Address

KREKLER'S JACK FARM
West Elkton, Ohio.
Branch Barns, Clinton, Indiana.

Registered Percherons, BROOD MARES, FILLIES AND YOUNG STALLIONS

at prices that will surprise you. L. C. HUNT & CO., Eaton Rapids, Michigan.

—Reg. Shetland Ponies, mostly spots, 1 spotted stallion and young stock for sale. Dr. W. T. Morrison, Pigeon, Mich.

PERCHERONS

—Imposant, one of the heaviest horses in state, at head of stud. Brood Mares as good, young stock for sale. CHAS. OSGOOD & SONS, Mendon, Michigan.

FOR SALE

—Registered Percheron Stallion Mares and Fillies at reasonable prices. Inspection invited. F. L. KING & SON, Charlotte, Mich.

FINE REGISTERED PERCHERON STALLIONS, blacks, from weanlings to 12 years old, and sound. WM. McRODAN, Dutton, Kent Co., Mich.

Just Say—"Saw your ad. in the Michigan Farmer" when writing advertisers

Veterinary.

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

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

Bruised Fetlock.—Last September a bunch came on hind shin and fetlock joint of my ten-year-old horse, caused lameness, and as a remedy I applied blister, but it only reduced bunch one-half. He is yet quite lame and I wish you would give me a remedy. Reader.—Apply one part red iodide mercury and six parts lard to bunch every ten days.

Poor Surgery.—I had a heifer dehorned last March; she nearly bled to death; one side of head has never healed; wound discharges lots of pus and remedies I have applied fail to effect a cure. W. G. Howell, Mich.—Scrape off diseased bone and apply equal parts oxide zinc, powdered alum and tannic acid to sore twice a day; also cover sore with oakum and cloth.

Choking.—Have a pig ten weeks old that has sick spell immediately after taking first mouthful of corn or milk. He has a sort of fit, falls over, but recovers in about 60 seconds, returns to trough and finishes his meal. H. T. White Cloud, Mich.—Warm his milk and other feed, spread it thin to prevent his choking.

Fits.—I have several fall pigs that are thriving fine, but one of them takes fits, and I have thought he choked, or it might be for want of exercise. L. J. Paw Paw, Mich.—Feed them out of a shallow trough and warm swill and milk. A large mouthful of cold water, milk or grain very often produces choking or spasm of larynx, followed by a fitty convulsion, which seldom lasts very long.

M. W.—Some of your chickens suffer from roup and those you examined after death died of tuberculosis. Destroy every sick bird, whitewash their roost and keep them free from cold drafts of air; also feed them easily digested food. Burn everyone you kill.

Improperly Fed—Rheumatism.—We have a bunch of pigs four months old that first show lameness, breathe fast, gradually grow worse, get down and are unable to get up. Now lately others show soreness in hind quarters and apparently weak in joints of legs. I have been giving them copperas and sulphur. Is this as good as any remedy you can prescribe? P. L. J., Wayne Co.—Feed your pig less corn, more oats, oil meal, tankage and roots. Give them a little more exercise, keep them dry and warm; also give each one 3 grs. of ground nuxvomica, 30 grs. of hypo-sulphite soda at a dose three times a day.

Sweeny—Founder.—I have a seven-year-old horse that is lame in fore leg. Three years ago he was sweenied in shoulder. I applied blister and he got over it. A little later his ankle swelled, puffs bulged out, but I have taken them off and the horse is not worked for a year, but is very lame. When he walks heel strikes ground first and toe tips up and I would like to know where the lameness is. H. E. M., Shiloh, Mich.—He may have foundered, or back tendons been stretched and are weak. Clip hair off coronet and back tendons and apply one part cantharides and six parts lard every ten days.

Scurvy—Feeding Unbalanced Ration.—I recently became a reader of the Michigan Farmer; also bought and moved onto a farm where I have 30 little pigs that have scurvy. We also have a hundred chickens of mixed breeds, but the eggs we get from them are imperfect. W. R. S., Kalamazoo, Mich.—Apply one part carbolic acid and nine parts vaseline to skin of pigs three times a week. Feed your poultry some green stuff and a greater variety of grain; besides, furnish them some crushed oyster shells, grit or sand of some kind and they will be all right. I advise you to consult from time to time successful poultry men.

Sidebones.—I have a horse that had sidebones, but went sound until about a week ago. S. W., Bad Axe, Mich.—Remove shoes, lower heel, clip off hair and apply one part red iodide mercury and four parts lard every week or ten days and you will succeed in arresting growth. Remember, keeping heel too high is one of the common causes of sidebone.

Rheumatism—Bone Spavin—Sore Eye.—I have a valuable eight-year-old

mare lame in right hind leg, but no blemishes noticeable. She limps a short distance on starting out, then generally gets over it; our local Vet. blistered hip, but did little or no good. She has been lame about 12 months. She is used for light work and is in good condition. I also have a two-year-old colt that injured right eye last summer. Vet. has been treating him, but a white film has formed over entire pupil, causing almost total blindness. E. B., Kent City, Mich.—Your mare shows symptoms of occult bone spavin lameness. Give her rest and apply one part red iodide mercury and eight parts lard to hock joint every 10 days. A cataract has formed on eye which makes the case incurable.

Switcher.—I have a mare that is in foal which has nasty habit of switching and is inclined to be rather cross, but does not kick. She is three years old, weighs 1,700 lbs., and I have just begun breaking her. M. H. B., Rockford, Mich.—Hanging two, three or sometimes as heavy as a four-pound weight to tail for a few hours before driving a switcher, will prevent it. Another plan is to use breaching, tying tail to each side, or using a hinge crupper with bar in order that tail will hinge up and down, but not swing sideways. These appliances can be used to advantage, but I believe your mare, with kind treatment, will perhaps get over it.

Wart on Thigh.—I have a horse with large wart on thigh and I have applied several remedies without result. W. H. A., Roscommon, Mich.—The wart should be cut off and if it bleeds much burn it off with a redhot iron, or apply Monsell's solution of iron, then apply powdered alum to wound twice a day.

Infected Milk and Butter.—Two years ago last summer my cows' milk and butter seemed to be all right, but last summer and a year ago the cream would smell and had a bad odor when a day old; besides, the butter has a peculiar odor. Furthermore, the milk is a little stringy and ropy. During cold weather the milk, cream and butter appears to be all right. R. A. C., Allegan, Mich.—When summer comes, clean and thoroughly disinfect your cow stable and remove from it anything that has a strong odor, or is decomposing, and be sure that milking utensils and the hands of the milker are clean. Give each cow a dessertspoonful of hypo-sulphite of soda at a dose three times a day. Your milk house should be kept clean, properly ventilated and well supplied with fresh air.

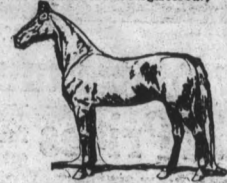
Infectious Ophthalmia in Sheep.—I am anxious to know the cause of my ewes going blind. They seem to be losing their sight without any apparent cause. These sheep are housed in a shed that lets them run out in the yard at will, and I am feeding them corn and oats ground, mixed hay, and corn in cob. They appear at first to have weak eyes and the wool has a coating of white matter under the eyes. Later, a film appears on eye, causing blindness. M. L. A., Tecumseh, Mich.—Dissolve a teaspoonful of borate of soda and a teaspoonful of boracic acid in half a pint of boiled water and apply to eyes once a day. Also blow a small quantity of calomel into eyes once a day. Or, apply a three per cent solution of nitrate of silver once a day. Feed them some roots and salt them well.

Diseased Legs.—I have a colt that is 20 months old, whose hind legs are stocked, skin rough and scabby; our local Vet. treated her for blood trouble, but his medicine did not appear to have much effect. E. M., Stanton, Mich.—Give colt a teaspoonful of hypo-sulphite of soda, a teaspoonful of Donovan's solution and a tablespoonful of ground gentian at a dose in soft feed three times a day for not less than 30 days. Dissolve 1/4 lb. acetate of lead in half a pint of glycerine, 3 ozs. of carbolic acid in a gallon of boiled water and wet sore legs twice a day. Bandaging in cotton will have a good effect, but the bandages should not be left on too long.

Gastric Fever.—I have a three-year-old colt which does not act right; will lay down when out in yard, but always stands when in stable. He is fed one quart of oats at a feed twice a day, also has plenty of mixed hay. F. H. H., Stockbridge, Mich.—Furnish a box stall for your colt when stabled, also give him a dessertspoonful of hypo-sulphite of soda and a tablespoonful of ground gentian at a dose in feed three times a day. Add one quart of wheat bran and a little salt to the quart of oats and he will do better.

Mrs. T. J. S., Keystone, Ind., writes that if the lady that asked the question a few weeks ago what to do to make the cream churn easier, will try feeding her cows once a week one teaspoonful each of sulphur and borax she would not have any trouble after a few feeds. I fail to understand what special beneficial effect so small a dose of sulphur and borax given to cows once a week could have on their milk yield, or how it could in any way change the quality.—Ed.

SAVE-THE-HORSE



THE TIME, NOW!

All the winter long, the troubled owner of a lame horse reads our advertisements. Then, day after day slips away, while he talks, laments, listens, takes advice and hesitating—**FAILS TO ACT**—till the Springtime is on him and his horse is not yet able to work. Meantime the thrifty, prosperous, resolute man, reads, considers the evidence carefully—**Decides Promptly**—and his horse is quickly cured, worked, too, if needed. That's exactly what happens every year.

Send for our 96-page "Save-The-Horse BOOK" It explains all about our system of treatment—tells exactly how to go about it to get the best results in the up-to-date treatment of Ringbone—Thorough—SPAVIN—and ALL—Shoulder, Knee, Ankle, Hoof and Tendon disease—Tells How to Test for Spavin; how to locate and treat 58 forms of LAMENESS—Illustrated.

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Hundreds of "backward" cows that are sold for meat ought to be kept in the herd. Most of the poor milkers are non-productive because their system is run down. They need medicine that will tone up the sluggish organs of digestion and enable them to thrive and perform their natural functions of production and reproduction.

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Cow Abortion

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thirty-five years, served two owners and is still on the job.

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These many long lived wagons are the result of Studebaker superiority; a superiority which comes from the long aging and weathering of the timber, tested steel, the splendid standardization of the manufacturing processes and the rigid requirements of test and re-test through which each wagon has to pass. Even Studebaker paint and varnish is analyzed before it is used.

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Associational Motto:

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Associational Sentiment:

"The Farmer: He garners from the soil the primal wealth of nations."

CLUB DISCUSSIONS.

Agriculture vs. the Professions.—The January meeting of the Wixom Farmers' Club was entertained by Dr. Gertrude Banks at the K. O. T. M. Hall in Wixom. A large number were in attendance. After all were served with a good dinner, and enjoyed a social hour, the president called the meeting to order and officers were elected for the ensuing year as follows: President B. T. Nicholson, elected for the fifteenth year; vice-president, David Gage; treasurer, R. D. Stephens; recording secretary, Mrs. S. N. Childs; corresponding secretary, Mrs. R. D. Stephens; organist, Mrs. Martha Furman. Music and recitations followed, then the question as to which renders the greater service to the world, the business of farming or the professions, was discussed at some length. On the part of the farmer it was argued, and with reason, that he feeds the world. That agriculture lies at the foundation of all the varied industries of the world and without it they must all necessarily fail. On the part of the professions it was admitted that the farmer does feed the world, but without the aid of the professions he would be comparatively helpless. The lawyer, the doctor, the teacher, the preacher, and in fact, all the professions are rendering mankind a great service in developing the intellectual, the moral, the physical and the spiritual nature of man. In other words, while the farmer feeds the body, the professions feed the mind, which in the last analysis is the greatest factor in the development of the human family. There are but two things in the world, one is the mind and the other is matter, and the greater of these is the mind.—Mrs. R. D. Stephens, Cor. Sec.

Gentleman's Day at the Indianfields Farmers' Club was fittingly observed. The Club was entertained by Mr. and R. W. Black on Thursday, January 21. About 70 members and invited guests were present. The ladies visited and did fancy work while the men served a fine dinner, mashed potatoes seasoned with butter and cream, baked ham, and everything that goes to make a good farmers' dinner, not forgetting the delicious coffee donated by W. E. Clough, one of our town merchants. After the social hour the meeting was called to order. The first on the program was a poem, "Dead," by S. G. Ross, which was well received, and he kindly recited another, "Yesterday." Paper by John Miller, "Suckers on the corn," paper by Robt. Park, "The farm is the place where home means most, because it is there that parents, children, and the daily business come together." Paper by Castle Taggett, "Where town and country meet." Otto Zemke gave a talk on the success of the Caro Farmers' Co-operative Elevator Co., which was appreciated by all present. The question box was well filled with timely questions. It was decided a day well spent. Meeting adjourned to meet at the home of Mr. and Mrs. Roy Henry, February 18.—Margaret Arnold, Cor. Sec.

An Excellent Program.—The Arbor Farmers' Club met January 20 at the pleasant home of Mr. and Mrs. Henry Braun, with 85 members and visitors present. After a bountiful dinner was served, which all enjoyed, the meeting was called to order by the president, J. H. Quackenbush, followed by a good program consisting of recitations and vocal solos. Rev. E. L. Moon, of the Dixboro church, gave a very interesting talk on the home, in the way of landscape gardening, followed by discussion. Then came the tax problem by W. S. Bibbie, one of the Arbor's best speakers. Referring a part of his remarks to the pensioning of teachers and aged people. Discussion, "when will the farmer be pensioned?" The meeting closed with music by the orchestra, to meet again in one month with Mr. and Mrs. Burt Galpin.

Grange.

STATE GRANGE OFFICERS.

Master—John C. Ketcham, Hastings.
Overseer—C. H. Bramble, Tecumseh.
Lecturer—Dora H. Stockman, Lansing.
Secretary—Jennie Buell, Ann Arbor.
Treasurer—Frank Coward, Bronson.
Executive Committee—C. S. Bartlett, Pontiac; Geo. B. Horton, Fruit Ridge; J. W. Hutchins, Hanover; W. F. Taylor, Shelby.

PROGRAM SUGGESTED BY STATE LECTURER FOR FEBRUARY.

First Meeting.
Music from Grange Melodies.
"Housekeeper's Prayer," given by chaplain.
Practical food problems from the bulletin, with cheese demonstration.
Lincoln anecdotes, given by the young people.
The feeding value of skim-milk for hogs, calves, and chickens, by two of the brothers.
Surprise feature—a New England kitchen.
Refreshments.
Reading, "Ability."
Music, "Home Sweet Home."

LOCAL OPTION CAMPAIGN.

I am going to communicate with the secretaries in regard to the local option campaign which our Pomona Grange is putting on. We are going to do something definite along this line, and are appointing a committee of three from each subordinate Grange to work locally in their respective communities and then we expect to hold 16 meetings in the county during February and March, when the local Granges will furnish part of the program, and the county committee will also furnish good speakers. I give this outline, thinking it might interest others.—F. E. Hay, Secretary County Committee, Eaton County.

AMONG THE LIVE GRANGES.

There was a large and enthusiastic audience present at the meeting of Perry Grange, January 9, numbering over 100. The installation of officers was conducted by P. P. Bishop, of Henderson Grange, assisted by Wm. H. Lovejoy, of Perry Grange. The work being finished, a fine program was rendered, after which a bountiful supper was served, and a pleasant social evening spent. The Perry Grange is certainly a "live wire" in the community, and the young people are taking hold of the work with much interest, and we hope for still better things the coming year.—Mrs. H. O. Bridger, Secretary.

GRANGES ORGANIZED AND REORGANIZED.

The number of Granges organized and reorganized from October 1, 1914, to December 31, 1914, both inclusive, is as follows:

Organized.
California 1; Colorado 2; Connecticut 1; Idaho 1; Illinois 3; Iowa 7; Kansas 18; Maine 2; Massachusetts 3; Michigan 1; Montana 1; Nebraska 5; New York 11; Ohio 5; Oregon 6; Pennsylvania 9; South Dakota 3; Washington 5; West Virginia 10; Wisconsin 1. Total 95.
Re-organized.
Kansas 1; Ohio 1; Oregon 1. Total 3.

COMING EVENTS.

Gratiot County Pomona Grange will meet with Liberty Grange, located at North Star, on Saturday, February 20. A prominent speaker will be in attendance.

Kalamazoo County Pomona Grange will meet at Woodman Hall, Schoolcraft, Wednesday, February 10. The following program will be given: Morning session, 10:30:—Business in the fourth degree; business in the fifth degree; 12:00 o'clock, dinner will be served by Schoolcraft Grange. Afternoon session, 1:30:—Invocation, by Rev. Brown, Schoolcraft; welcome, Master of Schoolcraft Grange; response, J. Hurlbert, Richland, master of Pomona; recitation, Miss Florence Burch, Schoolcraft; general song; diseases of farm animals, Dr. Dunkley, Kalamazoo; recitation, Mrs. Ella Hamilton, Scotts; San Jose scale, E. F. Stoddard, Cooper; music; address, E. F. Salisbury, Parkville. The afternoon meeting will be open to the public, and all are cordially invited to attend.

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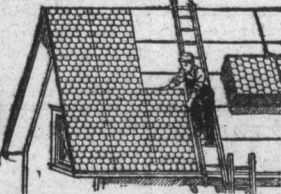
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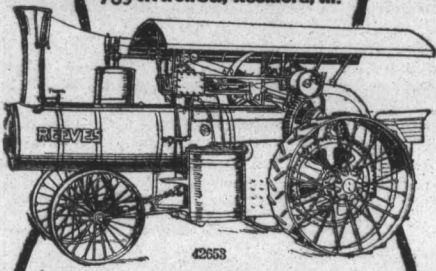
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DAIRY, FOOD AND DRUG LAWS.

BY FLOYD W. ROBISON.

(Continued from last week).

The Adulteration of Maple Syrup.

A well-known and highly valued food product is maple syrup. It is typical of a class of products which the public values very highly because of the excellence of the flavor and the peculiar adaptability of the product to our food and diet. There is no product which has been more freely adulterated than has maple syrup and maple sugar, and yet we know of no single instance in which its adulteration has been prejudicial to public health. In earlier times glucose, or corn syrup, so-called, was used as a substitute for a portion of the maple syrup, and consequently the resultant product could be sold at a price much less than pure unsophisticated maple syrup. Later, cane syrup, or rather granulated sugar syrup, and what is known as refiner's syrup, was added in the place of glucose. This change was caused by the creation of special statutes relating to the sale of products containing glucose. But sugar syrup, from granulated sugar or from brown sugar, can be produced much more cheaply than it is possible to produce maple syrup, and consequently the manufacturers of the pure maple syrup experienced some difficulty in finding a market for their product, due to the low-priced competition of the adulterated goods.

Why Protect the Manufacturer?

It requires no acumen or no remarkable foresight to see that commerce of this kind unrestricted would in a very short time indeed, entirely inhibit the manufacture and sale of pure maple syrup, produced from the sap of the maple tree. So, while it has become the duty of the food department to so legislate that these sophisticated articles should be plainly and clearly marked so that the public would be advised of their true nature, it has also become the duty of the department to religiously and energetically enforce the provisions of these laws so that added protection would be afforded the manufacturer of the pure maple syrup. For if we furnish no protection or inducement for the manufacturer to produce pure products how can the law, in justice, apprehend him when he follows the rule of his competitors and himself sophisticates the product he sells.

We have seen that the dairy, food and drug laws of the state are designed: first, for the protection of the consumer against poisonous and injurious ingredients in food and drug products; second, to prevent fraud and deception in the sale and traffic in such products; third, to protect the honest manufacturer, dealer and vendor of such products. We come now to a consideration of one more exceedingly important function of a law such as we described, namely, to indicate to the consumer how he may obtain products of high quality and to place at his disposal opportunities for the exercise of his discretion in the purchase of food and drug products.

The Sanitary Phase.

This fourth function of the law has not been given deep consideration by executive departments. It is the one which involves possibly the greatest amount of skill from an executive point of view, and the evidence of infractions of the law in this line of operation are much more difficult to present before a court than are those presented in the other phases of food law problems. It is under this phase of the problem that we have chosen to present the various sanitary problems involved in the domain covered by a food law. It may perhaps seem strange, and yet we wonder why, that

the average official invested with the enforcement of food laws does not take readily to the enforcement of laws in sanitation. Sanitary science, however, which is at the bottom of food sanitation, involves problems which require an equipment not possessed by individuals who have in the past been so acceptable as executors of food and dairy laws.

Manufacturers Are Asking Questions.

When the food manufacturing industry was in its infancy and when food law enforcement was a novelty, considerable risk could be taken even at the expense of food manufacturers, that the idea underlying the need for food inspection should become recognized by the public in general. But when restrictions upon the methods of manufacture became common and manufacturers, who were to the best of their ability producing products of excellence and who were putting their life energy into the business, began to ask questions of food departments it became increasingly necessary that men of intelligence and discrimination and judgment should be in charge of these departments. State departments and government officials have seemingly avoided their responsibilities in these matters as long as it has been possible for them so to do. When a manufacturer places a product of his own manufacture upon the market and finds by experience that that product as built by him is in contravention of the law, his next step in the protection of his business will undoubtedly be to build that product in conformance with the law. He is confronted, however, with a difficulty in the matter and it is a difficulty which state and federal departments in justice to all should recognize, and that is the particular attitude which they individually will take in the enforcement of the law.

It is Difficult to Make Food Laws Specific.

Unfortunately for all except attorneys and the courts, it is difficult to enact into a law directions so specific that there is no opportunity for ambiguity. Food manufacturers cannot, at the beginning of their career, bring suit to establish the correctness of the basic principles under which they are operating. We think then, it becomes the duty of a food department to outline, when so requested by the manufacturer, the policy of that department with reference to any particular products concerning which there can be no ambiguity but we will take for illustration a well known, familiar example.

(Continued next week).

CATALOG NOTICES.

"Seed Annual for 1915," published by D. M. Ferry & Co., seedsmen, Detroit, Mich., is a 100-page book profusely illustrated by half-tones made from actual photographs of the products of seeds listed in this large catalog, which include a full line of farm, garden and flower seeds, garden equipment, etc. It is conveniently indexed for reference use, and contains a number of colored plates. Mention the Michigan Farmer when writing for a copy.

Triumph Incubators and Brooders manufactured by R. F. Neubert, Mankato, Minn., are fully illustrated and described in a 50-page catalog published by this company. This catalog

Burpee's Annual for 1915, published by W. Atlee Burpee & Co., Burpee Bldg., Philadelphia, Pa., is given the title on the cover page, "The Plain Truth About Seeds that Grow." It is a comprehensive catalog of 182 pages, listing a full line of farm, garden and flower seeds, summer flowering bulbs, etc. It is profusely illustrated and indexed for the convenience of the user, contains illustrations describing the construction of Triumph goods in detail, and lists as well a full line of poultry equipment. The Neubert twentieth annual poultry catalog is also enclosed upon request.



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