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THE FARMER'S ADVOCATE

AND HOME MAGAZINE

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* AGRICULTURE, STOCK, DAIRY, POULTRY, HORTICULTURE, VETERINARY, HOME CIRCLE.*

Vol. LI.

LONDON, ONTARIO, FEBRUARY 24, 1916.

No. 1222

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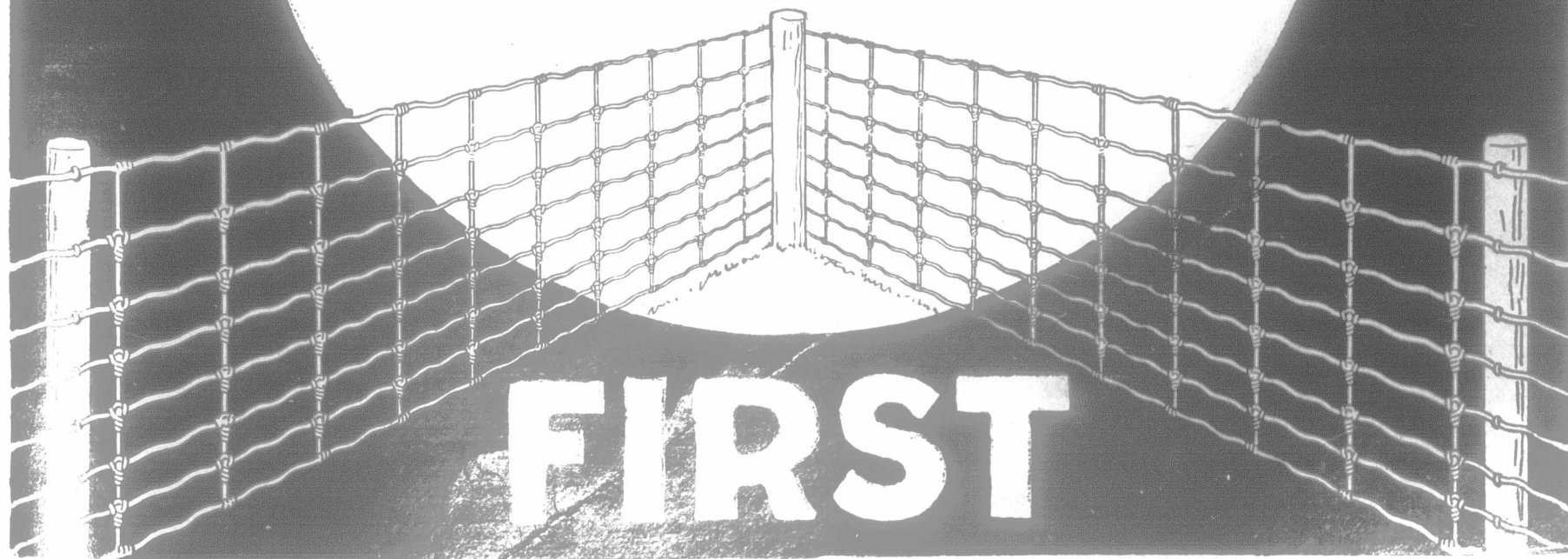
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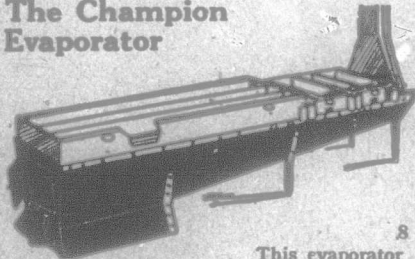
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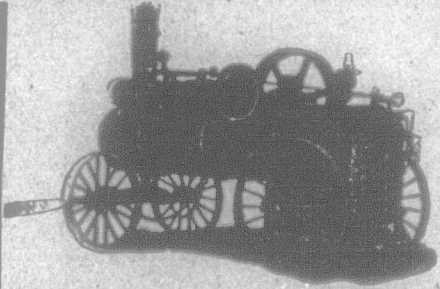
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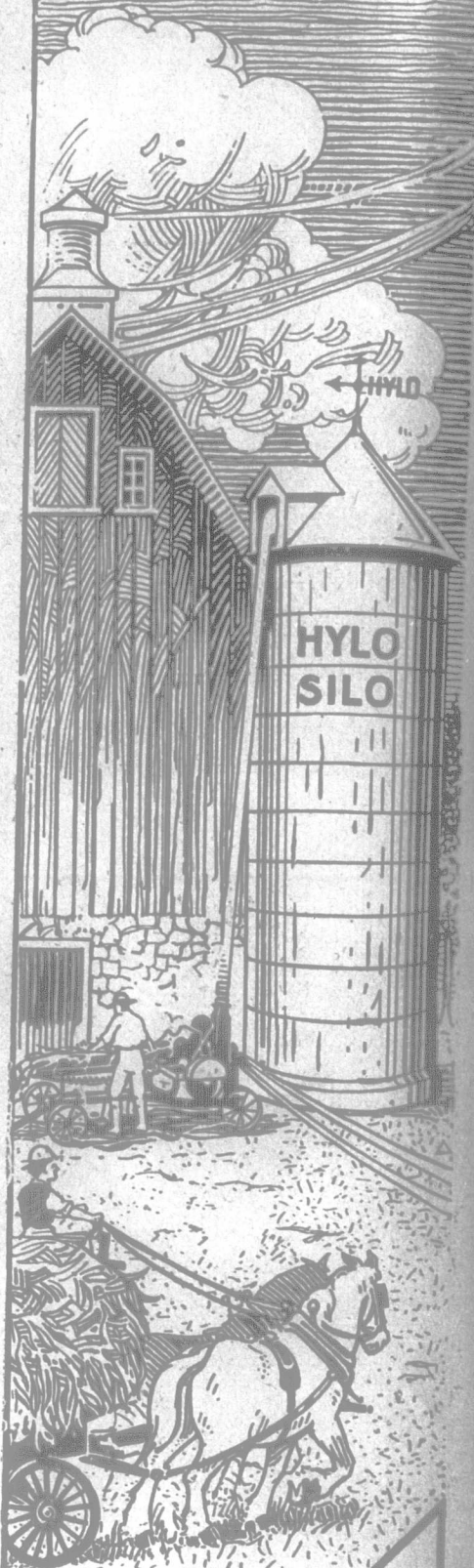
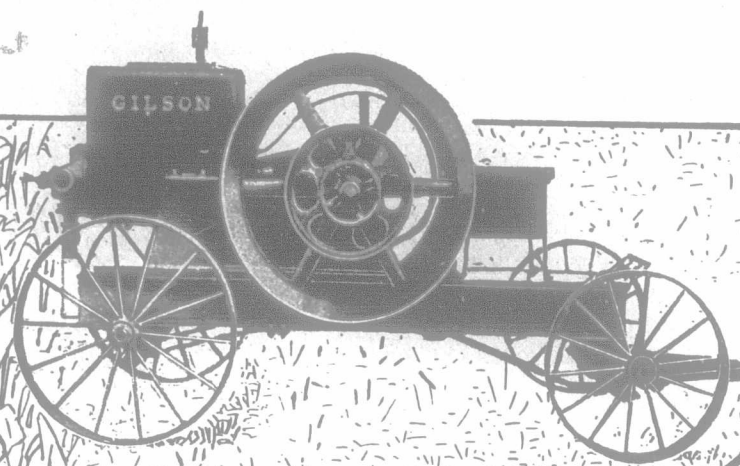
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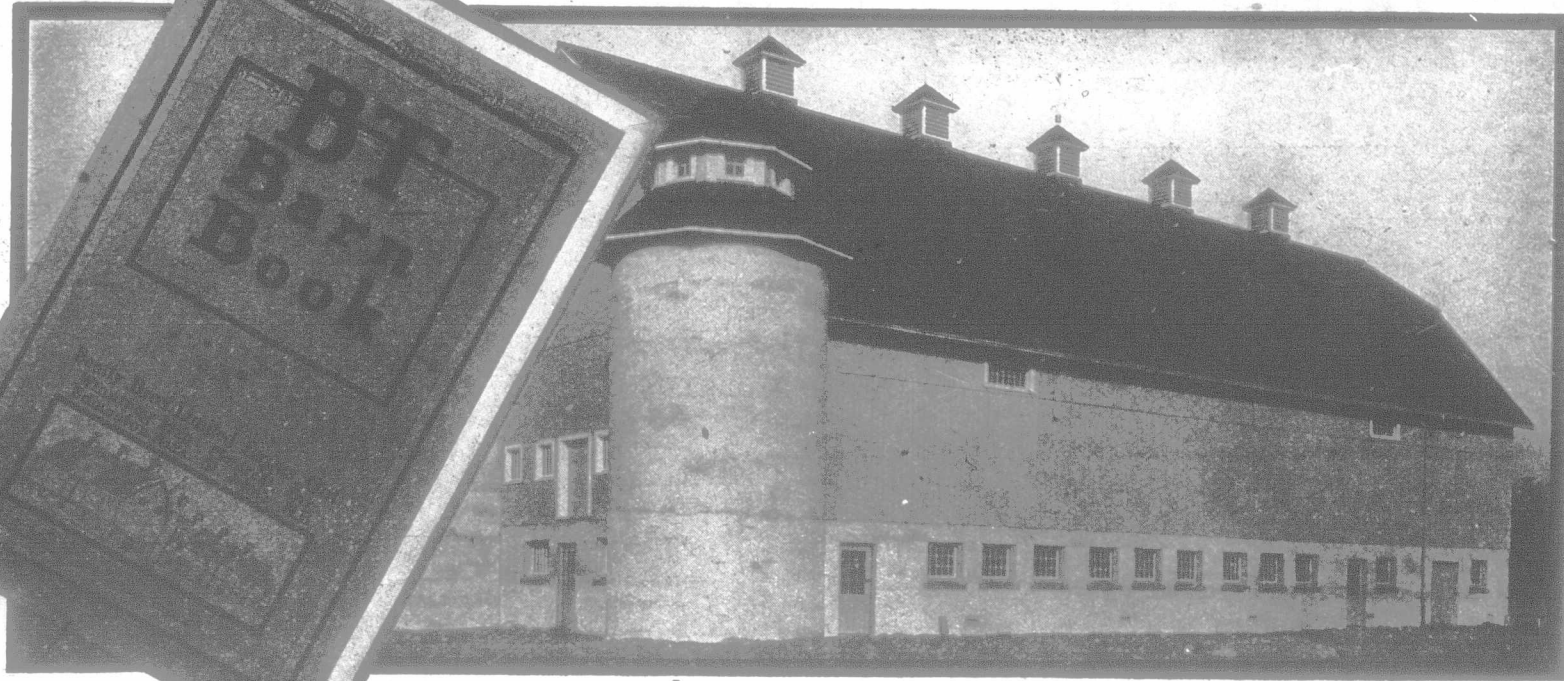
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You will get practical ideas from this book that will save you many a dollar in building or remodelling your barn. It is printed in colors and bound with hard covers. It is not a mere catalogue. It is a work of reference which you will prize and keep for years.

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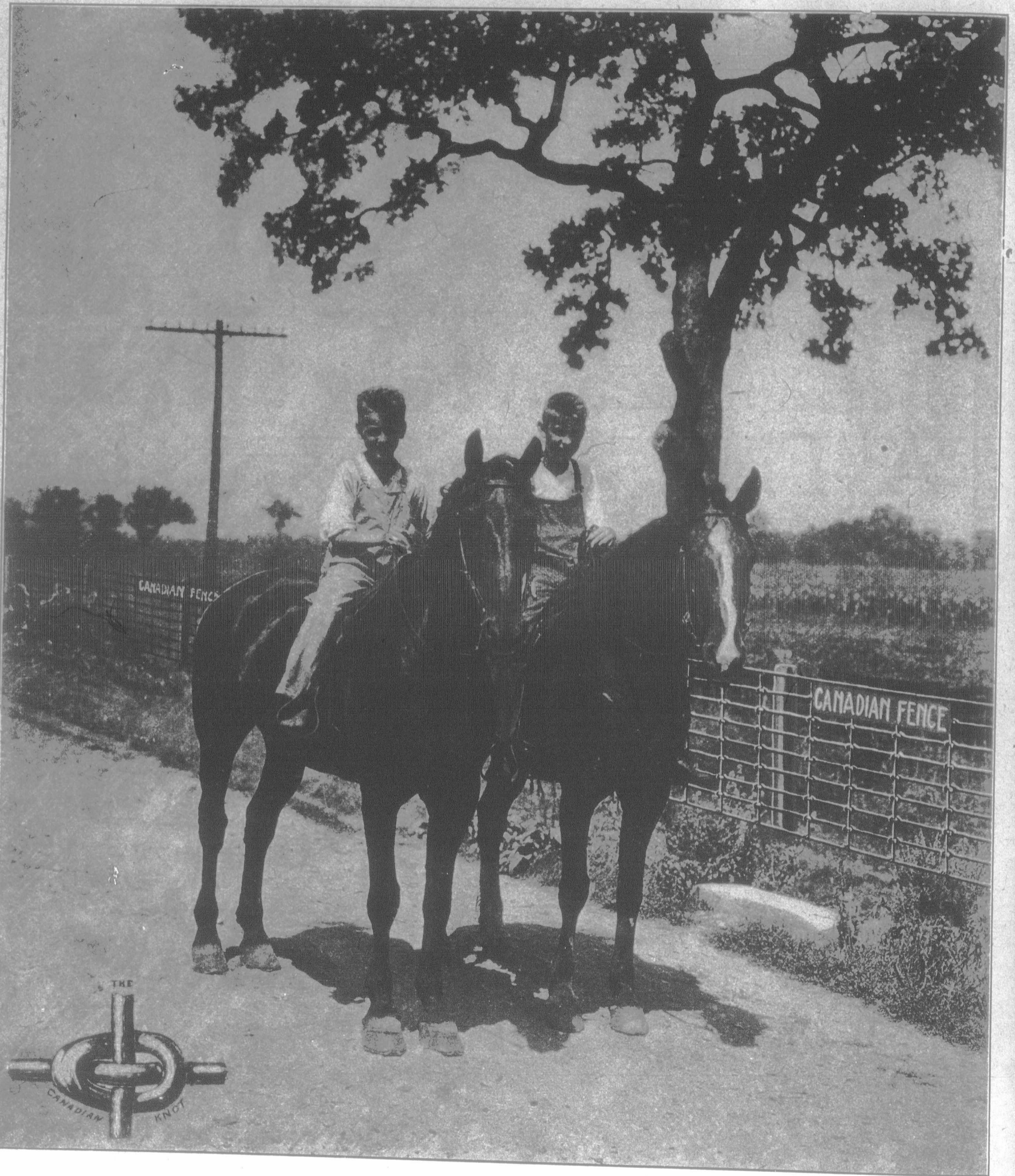
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LONDON, ONTARIO, FEBRUARY 24, 1916.

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EDITORIAL.

The winter draws to a close. Are you ready or getting ready for spring?

Have you the summer's wood up? And remember that now is the time to cut it.

There will be some mild days soon—a favorable time to oil and repair the harness.

It has not been a very favorable winter for putting in ice, but every farmer should have enough stored to cool his milk next summer.

Plan your little neighborly co-operative associations for next summer now. They will be necessary if a big crop is to be harvested.

It is not time to plant corn, but it is time to think about it. Perhaps the special corn article in this issue may help you in your thinking.

What have the Farmers' Institute authorities been doing to develop home talent and promote a co-operative spirit in your community?

Anybody about Ottawa who does not happen to be engaged on a Royal Commission might be enlisted for the approaching spring farm campaign.

It is a mistake to offer unfinished cattle to the butcher. The feeder is always forced to accept a smaller price than the cattle are really worth where such is the case.

It is time to clean the seed grain now. Read how in this issue. It will be time to treat it for smut a little later, and we will describe various treatments for our readers.

The Canadian farmer should aim to help offset the danger of smaller production this year by sowing better seed than ever before. The seed may be prepared now while there is time.

The Minister of Militia is down on "snobbish" officers—and rightly so. There is no place for "snobs" in Canada, whether in the Army or out of it. A Canadian is a Canadian.

"THE FARMER'S ADVOCATE is getting bigger and better all the time." So writes a subscriber who has taken it over thirty years. More accounts of readers' practical experience will help it to grow still faster.

Many a promising co-operative association has failed because an attempt was made to start on too large a scale. In any business it is generally advisable to begin in a small way and grow as the business is learned.

When wool approaches the half-dollar mark and lamb sells from 10 cents to 12 cents per pound on foot, farmers should not despise the sheep. Read the article dealing with ewes and lambs at the yearling season in this issue.

In planning new buildings be sure to allow for running water. The water supply, when properly installed, is one of the most valuable labor-saving and comfort-promoting accessories to the farm home and the farm stable.

Is Universal Service Coming?

A correspondent in this issue gives our readers some strong views on the conduct of the present war, and goes so far as to favor conscription in Canada. He is a practical farmer, grappling with the increasingly difficult problems with which the Ontario farmer is now face to face. At many of the farmers' meetings recently held in this country resolutions have been passed suggesting that something be done to save a few of the men of military age for farm work during the coming summer, and at one of these meetings the resolution passed favored the appointment of committees upon which should be some men who understand the farming situation, to go over the country, and to those young men considered by these committees as indispensable to the best interests of our country give badges indicating that they were doing their duty at home. There are many thinkers in this country who believe that the only fair way to fight a war of this magnitude is by some system of universal enrolment. This resolution, if put in operation, would be a step in that direction. It certainly seems, to the man who has followed the war as closely as possible from the beginning up to the present stage, who has watched with interest the development of recruiting schemes in the United Kingdom, and who is cognizant of the fact that only about one in every ten of population is available for military service, that the present call for 500,000 Canadians to join the army, presents a situation serious enough to warrant some action toward universal enrolment, or something of that nature. Under it every available man could be placed in that form of service to which he was best adapted, and if it were considered necessary that young men remain on the farms to aid with the farm work, these young men would then be in a position to justify their remaining at home, and would not be the objects of scorn or ridicule on the part of over-zealous recruiting speakers. When it comes to taking one in fourteen of our population, we believe that something a little beyond the voluntary system is necessary, that certain patriotic men of more value to the country at home than at the front, be kept at home while certain other men, young men if you like, doing little or nothing for the country at home, and not having the sense of honor strong enough within them to enlist voluntarily, should be forced to go in their proper order. Under such a system no man would be waiting for his neighbor. It would practically be Lord Derby's scheme applied to Canada. It seems certain that something must be done, and in justice to all men of military age the sooner the better.

A Live-stock Ready Reckoner.

How often it occurs, at auction sales, that the disposer of the stock does not know the exact date of service of some of the animals offered, and consequently is unable to give the buyer the date that offspring may be expected. In many cases, too, the farmer who is not selling out keeps a very unsatisfactory record of dates of service and dates of expected parturition. The kitchen calendar generally serves as the only guide, and as the leaves are torn off from month to month, and are used to light the morning fires, the record is very often lost, and consequently there is some danger of loss amongst the live stock through not being acquainted with the exact dates of service, and expected parturition. Any farmer if he does not know when to expect his colts, calves, pigs or lambs, as the case may be, may lose some of his stock, which if saved would pay him many times over for the little trouble of keeping strict tab on the breeding dates of all his live stock. To make it easy for farmers to do this, we are publishing in this issue, all compiled on one page, in the handiest form possible, a complete list of possible dates

of service and probable dates of parturition for the four prominent classes of farm stock, viz., horses, cattle, sheep and swine. We would advise every reader to keep this paper, or to remove the page containing the gestation table, paste it on a cardboard of proper size, and keep it in a convenient place where all records of the live-stock breeding operations may be kept thereon. For those who do an extensive business in pure-bred stock, it is necessary to have books in which more details may be given; but, for the average farmer, this gestation table should prove very handy and valuable.

Three Things Your House Should Be.

In this issue we publish some house plans, which should interest our readers, particularly those planning the re-modelling of their old houses or the building of a new structure to take the place of the house which has done its duty and served its time on the farm. Many mistakes are made in building, and few are they who would not change something about their house, had they the opportunity of building a second time. The first farm houses in the country were too small; the second generation of farm houses, however, have been in many sections altogether too large. When the farmer accumulates money enough to replace his old frame, or log house, with a modern frame or brick structure, he very often puts too much of the money into the size of the house and not enough into modern conveniences, such as are common in our city homes, and which would save many steps for the hard-worked women of the farm. The first thing which should be considered in the building of a house is comfort. The house should be so constructed as to be warm in winter, and cool in summer. This means that plenty of material put together by good workmen is necessary, and provision must be made for proper ventilation. It always pays in a cold country to build a house which will be warm in winter, and to add to the comfort no modern farm house should be built without a furnace, and in putting in a furnace always get one plenty large enough to heat the amount of air space in the house. No twentieth-century farm house should be built without running water in the cellar, kitchen, and bathroom, at least. More farm women have their health injured through carrying wood and water, and other like work, than in any other way. Plan a laundry in the basement, a fully equipped bathroom, the waste from which runs to a septic tank, and plans for which have been described several times in this paper; put a good sink in the kitchen and add greatly to the comfort of the home, as well as lessening the work in the house. We said in the beginning that many houses are too large. There is no use of planning for several rooms which will not be looked into only on sweep-days and at house-cleaning time. The real value of a farm house, as of most things, is its utility, and no rooms should be provided which are not necessary. They all make extra work and worry. Above all things, make the cellar and kitchen handy, for it is in these two parts of the house, or back and forth between them, that most of the work is done. Put in a fair-sized pantry, handy to both dining room and kitchen, and, above all things, arrange the kitchen with a dumb waiter and other conveniences, intended to save steps. Do not forget to put in a clothes closet off every bedroom. If living where there is any chance of ever getting electrical energy, have the house wired for lighting purposes. But, above all things, remember in building a house to build it warm, to build it small, to build it handy.

The work of our brave men at the front should encourage all to greater effort at home.

The Farmer's Advocate AND HOME MAGAZINE.

THE LEADING AGRICULTURAL JOURNAL IN THE
DOMINION.

Published weekly by
THE WILLIAM WELD COMPANY (Limited).

JOHN WELD, Manager.

Agents for "The Farmer's Advocate and Home Journal,"
Winnipeg, Man.

1. THE FARMER'S ADVOCATE AND HOME MAGAZINE is published every Thursday. It is impartial and independent of all cliques and parties, handsomely illustrated with original engravings, and furnishes the most practical, reliable and profitable information for farmers, dairymen, gardeners, stockmen and home-makers, of any publication in Canada.
2. TERMS OF SUBSCRIPTION.—In Canada, England, Ireland, Scotland, Newfoundland and New Zealand, \$1.50 per year, in advance; \$2.00 per year when not paid in advance. United States, \$2.50 per year; all other countries, 12s.; in advance.
3. ADVERTISING RATES.—Single insertion, 25 cents per line, per week. Contract rates furnished on application.
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London, Canada.

The Accusing Cartoon.

The "Court Jester," long a recognized functionary in royal households, while providing jaded tyrants or dissolute rulers and their satellites with buffoonery, often ventured to give them thrusts of wisdom and warning. Beneath the fool's cap stood a prophetic philosopher. In modern journalism illustrated cartoon publications achieve a corresponding purpose. Under the guise of satire or humor rapier-like blows of unpalatable truth are launched that cut to the vitals not less effectually than heavier blows by the regular newspaper. "Life," the outstanding United States periodical of the former class, in a recent issue, scores without mercy, as it has done before, the hyphenated neutralism of the Republic, which one artist depicts as "New Prussia," Canada to the north being designated "Barbarians." All that is left for Uncle Sam is a little desert plot near the Province of Mexico, styled "American Reservation," with Florida as "Turconia." New York becomes "New Potsdam"; Albany, "Kruppsburg," and other noble towns "Hindenberg," "Hohenzollern," "Schlauerhaus," "Hoch," "Kulturplatz," "Boy-Ed," "Neitzche," "Goose-step," "Bagdad Corners," and so on through the whole geographical list. With biting irony this map-maker writes at the foot of the page, "My Country, 'Tis of Thee." Over the page, under the heading "National Policy," two languid officials discuss cocktails, the passing girls, Steel stocks and "National Plumbing"—a good-buy—"Got a contract to put hot and cold water in the British trenches." The Hymn of the Hyphenated concludes:

"My Kaiser, 'tis of thee
I owe all loyalty;
To thee I sing:
May this land know the blight
Of thy all-conquering might
And everything."

In the midst of a smoking Europe, with murdered millions about him, Kaiser William proposes peace to a couple of other rulers, with the words: "my mistake, boys; let's make up and forget all about it." Standing before the ruins of the Capitol, at Washington, Uncle

Sam can only say: "Let us reserve comment, however, and maybe everything will blow over." Farther on Teddy R. is showing two boys, "Army" and "Navy" through a museum and stops at "Pisces Scribens" to explain: "This is the largest weakfish (President) ever kept alive in captivity." Over the page another picture shows the lightnings of the war-cloud looming near, while a kiddie in stars and stripes on the sand plays with his bag of gold:

"Rain, rain, go away;
Little Sammy wants to play."

Another conceit is "Mrs. Armourswit's Bridge Party," where, instead of steel shares being distributed as prizes to the winners, a lacky in uniform carries in a nicely beribboned, dressed hog. The piece de resistance of the issue is the double page cartoon portraying Uncle Sam as a bloated reveller, glass in hand, toasting fat Miss Columbia across the table, loaded with gold and bills, the accumulation of war profits. Beside a dark curtain to the right looms the grim menace of a Bismarckian figure, while to the left rise the spectres of bygone American heroes of freedom, exclaiming, with horror, "We died for this!"

Nature's Diary.

A. B. KLUGH M.A.

Now that we have dealt with the factors of the different environments and with the characteristics of the plants of the various formations we are in a position to discuss the most vital and fundamental fact in plant ecology. This fact is that formations are constantly changing; that one formation is continuously succeeding another. These changes are often so extremely slow as to be hardly perceptible; again they may be so rapid as to be plainly noticeable within a period of a few years. This idea of change is termed ecological succession. Exactly what is meant by succession and the manner in which it operates can be made clear by considering a particular case. Let us take the case of a pond and consider a point some little distance off shore where we have an aquatic environment consisting of typical Water Plants such as the Pondweeds, Water Millefoils, Wild Celery, Water Lilies, etc. We find that very gradually the Marsh Plants—the Rushes, Cat-tails, Sedges, Marsh grasses, etc., extend their range out from the shore, and as they do so their remains, and sediment caught among these remains, build up the bottom until the point which was formerly inhabited by the Water Plants is a typical Marsh. Gradually into this marsh come the Willows and other shrubs, and from a marsh the point we are considering is changed to a dry-land habitat. Trees next come in growing up among the shrubs; first the species, such as the Ashes, Elms and Red Maples, which live in a rather moist habitat, and later the Sugar Maples, Beeches, and other species. Now we have a forest, a mesophytic formation, where once we had a water plant formation.

In the case of lakes surrounded by a boggy margin we can see succession taking place. The Sphagnum moss (Peat moss) advances out over the thin, watery, mud at the margin; then among the Sphagnum various herbs and shrubs, such as the Labrador Tea, Leather leaf, Cranberry, Kalmia, Shrubby St. John's-wort, Shrubby Cinque-foil, etc., grow up, and later the Tamarac and Black Spruce come in. We can find lakes in all stages of succession—some with only a narrow margin of bog; others with a wide margin, and others in which the Sphagnum has come out from the margin all round, until it has met in the middle, thus completely covering over the open water, in which last case we call the habitat a lake no longer, but a bog. This layer of Sphagnum is often very thin towards the middle of the lake, and while the bog is safe enough to walk on round the margins, it is decidedly unsafe towards the centre. In older bogs the Sphagnum has completely filled in the lake with a deep bed of peat. Nor is the bog the last stage in the succession, for as it becomes drier, the bog plants give way to mesophytes, and gradually the old lake basin is covered by a forest. In this case again we have a mesophytic formation where once we had an aquatic environment.

Where sand is washed up on a shore exposed to strong prevailing winds the fine sand is carried inland for a little distance. When this sand strikes an obstacle it is deposited and forms a little dune. More sand is carried up the gentle windward slope of this dune and rolls down the steep lee slope. Thus the dune grows and travels inland until it reaches some point where the strength of the wind is diminished so that the rate of progress of the dune is sufficiently slow to allow plants to grow on it. We then have a formation of Sand Plants. These plants tend to hold the dune in place, and gradually add humus to the sandy soil, so that in time other plants are able to grow on these dunes, which are now called "fixed dunes." In time a forest springs up—first of White Pine, Birch and Oak; and this forest is, as the soil becomes more moist by the humus formed from its debris, succeeded by a Beech-Maple forest.

In the three cases which we have considered we see that the final stage in the succession is the Beech-Maple forest. This formation is then, as far as Southern Ontario is concerned, what is called the climax formation. A climax formation, under natural conditions, is not succeeded by any other formation, but is self-

perpetuating. Where several formations, such as the aquatic habitat, the marsh and the sand dune in the cases we have considered, all tend towards one formation, we use the term convergence to designate this particular type of succession. Over most of the Dominion the climax formation is the forest, in the southern portions of the East the Beech-Maple forest, in the northern parts of the East the Spruce forest, on the Pacific Coast a coniferous forest of giant Cedars, Fir and Spruces. In the West the climax formation is the prairie.

An interesting case of succession occurs where a Pine or Spruce forest is destroyed by fire. In this case we find that the first tree growth on the burnt-over area is not Pine or Spruce, but Poplar. Later, if sufficient conifers still remain to furnish seed, the Poplar is replaced by conifers. The reason for this is that the conifers are not able to develop successfully on the open ground, that the light seeds of the Poplars carried great distances by the wind, come in, germinate and develop into trees. The Poplars act as a nurse-crop for the conifers, the young conifer seedlings developing in their shade. The Poplars are comparatively short-lived, and when the first generation of Poplars die, the young conifers have developed sufficiently to make a dense shade in which young seedlings of the Poplars cannot grow.

THE HORSE.

Lameness in Horses. X BROKEN KNEES.

"Broken knees" is a term applied to an injury, more or less severe, on the anterior aspect of the knee, usually caused by a horse stumbling and the knee coming in contact with the ground. Horses with sores, scabs or scars on their knees are considered unsound, as, while the blemish may be slight and not in the least degree interfering with the animal's usefulness, it indicates a tendency to stumble, and a stumbler is very undesirable and unsafe. Many are the explanations given by dealers to probable purchasers of horses with such marks. They are said to have broken through a stable floor, a bridge, a culvert, etc., or to have been struck or injured in various ways; but we must always look upon such blemishes as suspicious, and unless we know the dealer's veracity to be unquestionable, we are justified in doubting his explanation, and, on general principles, should not purchase a horse with such marks, as, although the seller's explanation may be quite correct, we find, when we offer the animal for sale, that our word will probably be doubted when we explain the cause of the injury. The term BROKEN KNEES is used to express even a slight injury to this part. It is not necessary for a bone or even the skin to be broken. Broken knees are of several kinds, or, in other words, the injuries vary greatly in degree. First: When the skin is bruised, but not cut. Second: When the skin is cut. Third: When the skin is cut, and more or less lacerated, the tendon passing over the front of the knee exposed and the sac that contains the synovial fluid or joint oil opened. Fourth: When the wound penetrates the tendon and exposes the bones of the joint. Fifth: When there is a fracture of one or more bones.

Treatment must, of course, depend upon the degree of the injury. Excepting for the first kind, the principal point to be observed is to keep the patient as quiet as possible, and it is usually wise to tie so that he cannot lie down.

First form.—When the skin is merely bruised, the hair having been removed by the force of contact with the ground, and a little blood oozing, there is little cause for alarm. It is good practice to give rest, with low diet, and, as in most cases when an animal is given complete rest, it is good practice to give a laxative of 6 drams of aloes or a pint of raw linseed oil. The wound should be well bathed three or four times daily with cold water, and after bathing, a cooling lotion, as the ordinary white lotion, composed of one ounce each of acetate of lead and sulphate of zinc to a pint of water, should be applied. In a few days the inflammation will subside, when the animal may be put to work.

Second form.—When the skin is cut, the same constitutional treatment should be adopted. The patient should be tied so that he cannot lie down, the wound thoroughly cleansed, and all foreign substances, as sand, gravel, etc., removed; partially detached tissue that will not be likely to heal should also be removed. It is not good practice to stitch wounds in this locality (unless the limb can be kept straight by use of splints, which is very difficult) as the bending of the knee will surely tear out the sutures, and probably some skin with them, and thus increase the ultimate blemish. The wound should be bathed regularly, and the white lotion or a 4 or 5 per cent. solution of carbolic acid or other good disinfectant used, and the skin kept in position by bandages or plasters.

Third form.—When the skin is cut, and more or less lacerated, exposing the tendon, and the synovial bursa punctured, there will be an escape of synovia, generally called joint oil—a thin, oily-looking, somewhat straw-colored fluid. This escape of synovia need not cause alarm, as it is not open joint, the bursa that has been punctured being that which supplies synovia for the tendon where it passes over the bone, and is not in direct connection with the joint. Cases of this kind often present alarming symptoms, the limb swelling from the foot to the elbow, the knee joint becoming greatly enlarged and the discharging of synovia profuse.

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Constitutional disturbance is often greater than in the cases cited, but still recovery usually takes place. In addition to the constitutional treatment already mentioned, it is well to give diuretics and febrifuges, as 3 dram doses of nitrate of potassium three times daily. Local treatment is much the same as for the second form, but the application of cold water should be more continuous for a few days. It is good practice to arrange a rubber hose, attached either to a hydrant or to an elevated barrel containing cold water, so that there will be a small stream continuously running over the joint, until the acute inflammatory stage has passed. Some recommend the application of splints extending from the fetlock to the elbow, and bandaged so as to prevent flexion of the knee. This practice is good in theory, but hard to carry out in practice.

Fourth form.—When the tendon has been penetrated, the capsular ligament of the joint punctured and the bones of the articulation exposed, the case is a very serious one, and the best recovery that can take place will result in a stiff joint. Hence, unless the animal be very valuable for breeding purposes, it is better to destroy him. The constitutional symptoms are severe, and local pain excessive. If treatment is attempted, the constitutional treatment already mentioned should be followed, the patient placed in slings, the limb splinted as before described, but the wound left open. Constant application of cold water, with frequent dressings of carbolic or other antiseptic lotions, should be given. If treatment succeeds in checking the synovial discharge, the constant irrigation may be discontinued and the ordinary treatment continued. Any of these forms of broken knees, except the first, will leave more or less of a scar or blemish to indicate the fact that the condition has at some time existed.

Fifth form.—When one or more of the bones of the joint are fractured, treatment is useless; hence the animal should be destroyed. WHIP.

LIVE STOCK.

With the Sheep When the Lambs Arrive.

BY WOOLLY WILLIE.

Each spring presents problems in the sheepfold, but to the practical shepherd it is the most interesting, and altogether the most enjoyed season of the year. Because every day, where the flock is at all large, adds a few more lambs, and consequently more interest to the work of looking after the flock. Canada has not kept pace with what it should have done in the number of sheep raised upon the farms. Dogs have been a source of worry to the owners of even small flocks of sheep in Ontario, and comparatively low prices for wool and mutton in years gone by, have caused farmers to turn their flocks of breeding ewes away to the butcher and to rely upon the other classes of stock. There is money in sheep, particularly at the present prices. Yearling lambs have been selling from \$10 to \$12 per cwt., live weight, and right now washed wool is quoted at 44c. per pound on the Toronto market. We have heard sheep breeders express the opinion that before this year is out, wool will be selling in Ontario at 65c. per pound. Such prices bring back the good old days of many years ago, when a load of wool was about the most valuable cargo the farmer transported from his farm to the market. In those days 50c. per pound for wool was not an uncommon price, and the sheep breeder made money. But even when wool sold as low as ten and twelve cents per pound, unwashed, and when the market for lamb and mutton was correspondingly slow, the farmer who had a good flock of breeding ewes, and who managed them well, made something out of them. True, there was not a great deal of net profit when cost of production, and the gross sales price were balanced up, but everything considered, the sheep paid. They require less work than any other class of stock on the farm, and they kill more weeds than all the other classes put together. But we are wandering from our subject.

FEEDING AND CARING FOR THE EWES.

It has been said, and truly, as every good shepherd knows, that if the best success is to be had at weaning time, the ewes must be in good condition at the time of being bred, or at least they should be gaining in flesh at that time, and from then up to the present they should be carefully fed, and given exercise every day. By careful feeding is not meant that the sheep should run to the straw stack, getting nothing else, nor yet that they should be stuffed with roots, oats, and clover hay. It means, however, that the ewes should get enough feed to keep them from losing flesh, or better to keep them gaining slightly in flesh, but not enough to fatten them. Too many roots are not advisable because they tend to cause an overgrowth of the foetus, and consequently lambing troubles may be frequent and losses unusually high from the fact that the lambs when dropped are weak, and lacking in vitality.

To get plenty of exercise ewes should be induced to go from place to place for their feed. Troughs from which they get oats, and racks in which the hay is fed may be situated at opposite sides of a fairly large yard, and it will surprise those not accustomed to watching sheep feed to see how often they will go back and forth in the course of a day's feeding. The writer remembers a flock of ewes which gave, each year, a high-percentage lamb crop, of which nearly all the lambs lived, and this flock each day travelled back and forth three or four times between two barns situated at least thirty rods apart. Every breeder cannot have conditions such as these, nor would he want them, for the barns were too

far apart to be handy, yet they insured plenty of exercise for the flock. Exercise is absolutely essential right up to lambing time.

The lambing season is the busy season for the shepherd. He must be on hand, practically day and night, if he has a large flock to look after. There is nothing very difficult about caring for the sheep at this season, particularly for the practical shepherd, but he must be there, or occasionally a lamb may be lost through inability to rupture the foetal membranes, or from a case of long-protracted parturition, which may also be dangerous to the ewe. It is not necessary that the breeding ewes have a warm pen until lambing time commences. The ideal arrangement is to have the pen so constructed that the sheep may go in and out at will, and they will generally be found outdoors on fine days, and inside when the weather is bad. Of course, when the ewes begin to lamb, unless the attendant is on the job all the time, it is safer to have them closed in a fairly warm pen particularly those which show signs of approaching parturition.

WHEN THE LAMB ARRIVES.

When the young lamb arrives, if it is strong and vigorous, it will generally shift for itself in a very short time. It is not wise to bother very much with a lamb that shows signs of being able to look after itself. However, it is generally conceded to be good practice where the attendant is on hand when the lamb arrives, to aid it in getting its first feed of its mother's milk, which, as is the case with the cow, is known as colostrum, and which is essential to the health of the newly-born lamb. Once the lamb has had a feed of this, and is on its feet and smart, it is not, as a general thing, necessary to do anything more than feed the ewe and watch the lamb grow.

When a lamb shows weakness, from some cause, it is well to pay a little special attention to him for a few days. We have seen lambs that had been chilled revived by giving them a spoonful of whiskey or other liquor in a little milk, the shepherd rubbing them carefully with a wisp of straw to help start circulation; and sometimes we have saved badly chilled lambs by taking them to the house, wrapping them in paper and putting them in the oven of the kitchen stove

The ewes and lambs will always do better if not placed in too large flocks together. For dividing the pen a few hurdles come very handy. As soon as the lamb is strong, the ewe's ration should be increased. Roots may be safely fed in large quantities after the ewe has lambed. In fact, all the sheep will eat will not hurt them. The grain ration should also be increased. Oats should always form the basis of a grain ration for breeding ewes. To them may be added a little oil cake, or sometimes a few peas, but the sheep should do very well on a liberal feeding of roots, oats, and clover hay.

SOME OF THE TROUBLES.

Lambs require some attention, even after they are a week or two old. Sometimes they go sick, because of the vent being clogged. To remedy this, remove all the adhering dung and oil or grease the parts well. Occasionally lambs have sore mouths. This trouble may be remedied by using a mixture of sulphur and lard, or a mixture of glycerine and borax, rubbed into the sores. If lameness should be noticed, due from sore feet, or foul in the foot, a little powdered bluestone should be dusted into the sores. If a lamb is noticed to be leaking at the navel, formalin should be applied. The ordinary formalin purchased from a drug store should be diluted with ten parts of water to one of the formalin, and should be applied three times a day with a white cotton rag, allowing the solution to soak into the opening. Occasionally ewes will have sore teats, and sometimes they get so bad that they will not allow the lambs to nurse. A good preparation to apply in such cases is a mixture of olive oil and glycerine. It should be applied three times daily.

As soon as the lambs begin to eat, they should have access to feeding troughs, placed where the old ewes cannot get to them, and in these troughs oats, preferably rolled, or some finely pulped oats with chopped grain on them, should be fed to the young lamb, and they should also have in this creep small feeding racks, from which they may get all the choice clover hay they can eat. It is necessary that the ewe's milk be supplemented in this manner if the lambs are to make their best possible growth.

DO NOT NEGLECT DOCKING.

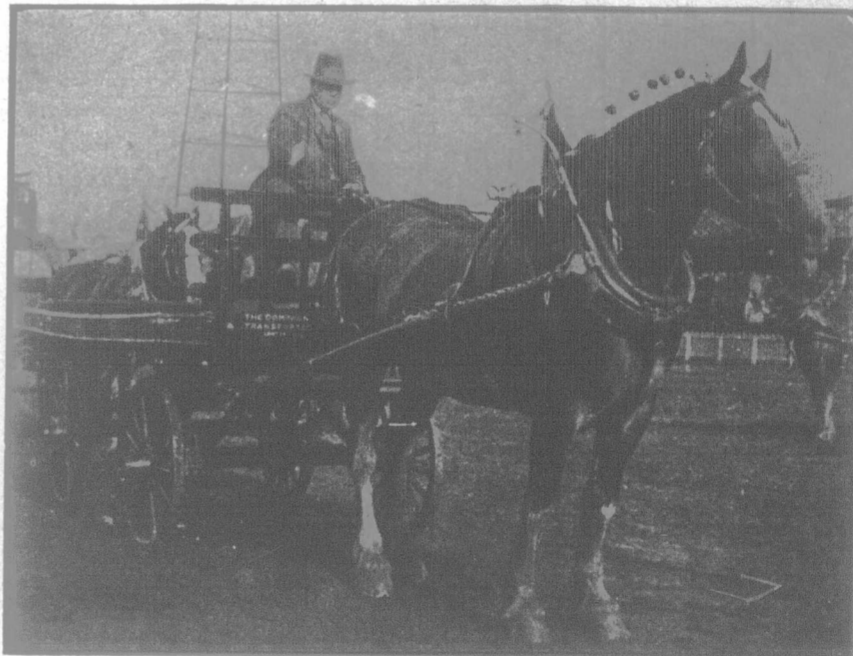
All lambs should be docked. Breeders differ slightly as to what is the best age for docking, but it is generally believed that somewhere between one week and two weeks of age is the best time. Probably at about ten days is the best age because at this time the lamb has gained strength enough to withstand the shock, and has not grown so large and fat that danger from bleeding to death is very great. Besides, the shock is not so great for the comparatively young lamb as it is to an older lamb. No difficulty should be experienced in docking. One man can do it, but it is better to have an attendant to hold the lamb. Stand the lamb squarely on his feet, and with a sharp knife cut the tail from below upward and outward, severing the vertebrae at the second or third joint, preferably the second, from the body. Lambs should not be docked, leaving too long a stump. When cut in this manner, the knife slips between the joints of the vertebrae, unjointing them rather than cutting straight

through them, as is often the case where the old-fashioned method of placing the tail on a board and severing with a chisel by hitting the chisel a sharp blow with a hammer is practiced. This latter method should never be used. The lambs should not be chased around very much before the operation, and the work should be done as quietly as possible. If any of the lambs show signs of severe bleeding, a cord should be tied tightly around the stump until the flow stops, or sometimes it is well, before letting the lamb go, to dust a little flour, or some such substance on the raw surface, to aid in arresting the flow of blood.

All grade lambs, and pure-breds not suitable or intended for breeding purposes, should be castrated at two weeks of age. Very often the shepherd does this at the same time as the docking operation is performed, the lambs being castrated before being docked. This is a simple operation and there is very little danger of loss from it. The best method is to remove the end of the scrotum altogether. It is necessary if the highest price for finished lamb is to be obtained on the market that no bucks are sent in the shipment, and while the lambs are young is the time to take precautions.

When the lambs have reached the age of three or four weeks and are doing well, all the ewes with the older lambs may be turned together and fed together, provided the lambs have access to a creep in which to feed. It is well when the lambs have reached this age to allow them to run with their mothers of a good-sized outside yard. They will do much better than if kept inside all the time. The shepherd must feed his ewes heavily; otherwise they will lose in flesh, and the lambs will not do as well as they should. It must be remembered also that if any ticks are present on the old ewes a goodly number of them will crawl off on to the

Continued on page 300.



A Good Draft Gelding.
A winner at Toronto, 1915.

GESTATION TABLE

Directions for use of Tables.—Find the date of service in the first column; then, on the same horizontal line, and under the heading of "mare," "cow," "sow," or "ewe," whichever it may be, write the name or number of the animal. The date next to this is the date of the expected birth.

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SEPT. MARE Aug. COW June SOW Dec. EWE Jan.

FEB. MARE Jan. COW Nov. SOW May EWE June

JUNE MARE May COW March SOW Sept. EWE Oct.

OCT. MARE Sept. COW July SOW Jan. EWE Feb.

MAR. MARE Jan. COW Dec. SOW June EWE July

JULY MARE June COW April SOW Oct. EWE Nov.

NOV. MARE Oct. COW Aug. SOW Feb. EWE March

APRIL MARE March COW Jan. SOW July EWE Aug.

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| 21 | 3 | 7 |
| 22 | 4 | 8 |
| 23 | 5 | 9 |
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| 25 | 7 | 11 |
| 26 | 8 | 12 |
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| 28 | 10 | 14 |
| 29 | 11 | 15 |
| 30 | 12 | 16 |
| 31 | 13 | 17 |
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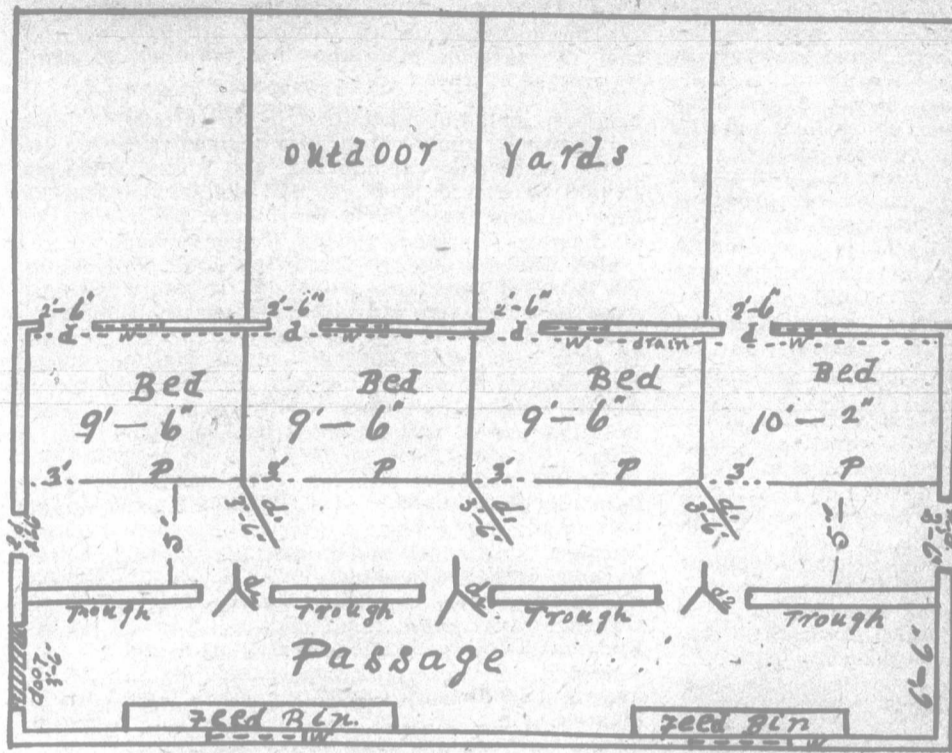


Fig. 1.—A practical plan for a small piggery.

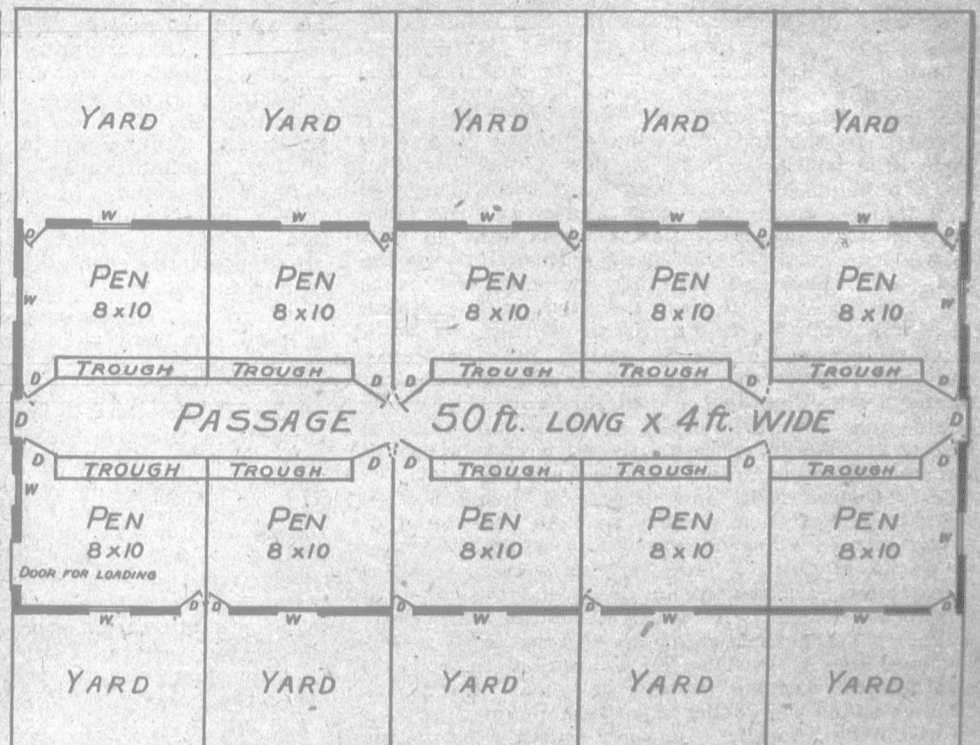


Fig. 2.—A plan showing two rows of pens.

Plans for a Piggery.

Several requests have been received of late for plans of modern piggeries. While it is not possible to publish a plan that would be suitable under all conditions, yet we hope, by presenting several, to offer suggestions that may prove useful. No one plan probably of those submitted will be adequate in every regard, yet they are all capable of being modified to almost any extent, and the desirable features of them can be adapted to suit various conditions.

A small piggery is illustrated in Figure 1. This plan, recommended by Prof. G. E. Day, in his "Bulletin on Swine," very largely explains itself. The building suggested in this illustration is 40 feet long and 20 feet wide. The pens, and outdoor yards, are on the south side. The important considerations in any building of this nature are ventilation, light, freedom from drafts, reasonable warmth, convenience, and dryness which might have been mentioned earlier, but this quality depends to a large extent upon the light and ventilation of the building. In order to provide light and sunshine and make the piggery dry, large windows marked (w) should be placed on the south side. In the centre of the building should be air-shafts to carry off the impure atmosphere, and at the sides should be inlets for pure air. It will be noticed by the drawing that the feeding pen and sleeping quarters are separated by a partition, marked (p). These should be approximately 3 feet 6 inches high, in order to prevent drafts and keep the bedding in place. The doors, marked (dl), are 3 feet 6 inches wide, and when opened back they close the passage between the sleeping quarters and feeding pen. This makes a continuous gangway, where manure can be taken out or bedding brought in. The loading chute can also be arranged at one end of this passage. The feed passage indicated in the plan would require a width of about 5½ feet. Less space would be sufficient were it not for the feed bins. There is a slight waste of space here for in a wider building the passage 5½ feet wide would be sufficient to serve for two rows of pens; one row on each side of the passage.

A modest building with two rows of pens is illustrated in Figure 2. In this building, 50 feet long, there is sufficient room for ten pens, with a row on each side of the feed passage. As will be seen in the illustration, there is no division set apart for sleeping quarters. However, a small platform could be arranged in the corner of each pen, and so constructed that it might be lifted up or removed altogether, when it was necessary to clean out or disinfect the building. Probably, with this number of pens, one might be used in which to store and mix feed, as the passage is none too wide for that purpose. A building of this kind would naturally be set east and west, and the majority of the light would enter from the south side. The pens on the north side would consequently be less comfortable than those on the south. This objection could be partially overcome in such a building as is illustrated in Figures 3 and 4.

If one desires a piggery with two rows of pens, and would have them uniformly lighted, the plan as set forth in Figure 3 might be adopted for use in a building of almost any size. This is a plan of a piggery on the farm of J. E. Brethour, Burford, Ontario. A cement wall 8 inches thick rises 3 feet above the floor, and on top of this wall the frame is built. The walls are built of two by four-inch studding, boarded on the outside with cheap lumber, covered with building paper, and tightly clap boarded on top of the paper. On the inside the walls are lined with matched lumber, so as to form a dead-air space inside the wall. The lining also extends over the lower side of the rafters, giving a dead-air space to the roof as well as the walls. The cross section of this building, illustrated in Figure 4, shows the general plan of construction. On the south side the frame wall is 5 feet high, and on the north side it is 8 feet high. The roof has the same pitch on both sides, so there is a drop of 3 feet from one section of the roof to the other. In this space between the two roofs

windows are inserted to throw light and sunshine into the pens on the north side. The windows are hinged at the bottom, and can be opened at any angle according to the amount of ventilation required. Windows are also placed in the south wall. The floor is cement throughout, and the part (a b) in Figure 4 is 6 inches higher than that part marked (c d). The pen (a b) is used as a sleeping pen, and (c d) for feeding. There is a fall from a to b and a fall from d to c. Thus concentrating all drainage at the one part of the pen. A slight fall in the building from one end to the other, along the line c would assist considerably in keeping the pens dry. The partition between the feeding pen and feed passage is of wire. The doors marked d in Figure 3 can be opened and closed in such a way as to

building dry. The straw should be changed once a year. If left longer, it would become laden with dust, and become a harbor for vermin or disease germs. Ventilation was discussed in our issue of January 27th. The principles therein laid down could be adapted to the piggery. Sunlight is a great health promoter. Many large-sized windows should be placed in the wall, especially on the south side. It is well to have the piggery warm, but ventilation should not be sacrificed for this purpose. A cool pen, but well-ventilated and free from drafts, would be more conducive to good health and thrift in pigs, than would a building in which the air was warm but stagnant and polluted.

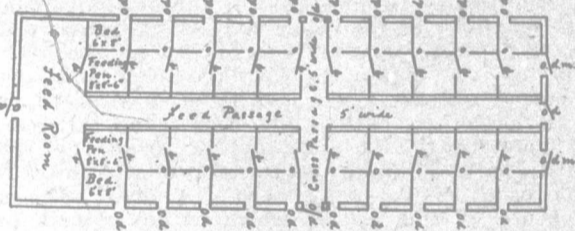


Fig. 3.—A design for a large piggery. A narrow building could be erected on a smaller scale. That is, with less length.

confine the hogs in the sleeping quarters and make it convenient to change pigs from one pen to another, or clean out the building. They are 4 feet wide. The doors marked (o) are 2½ feet wide.

The feed passage is 4 inches lower than the feeding pen. It was arranged in this way in order to show the pigs to better advantage.

From these few drawings and sketches farmers should be able to gather sufficient ideas in order to construct a piggery suitable for their own requirements and conditions. Modifications could be made quite easily, and certain features of each one might be adapted in buildings of different designs.

For flooring, cement concrete is now almost universal. In farrowing pens it is wise to install a sleeping platform made of plank. In any case it is not good practice to

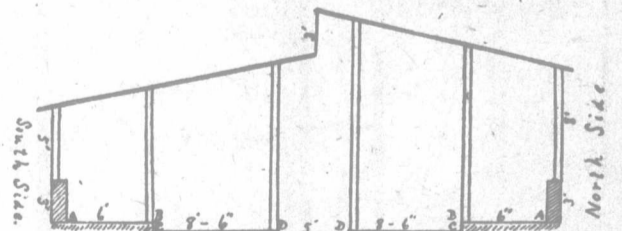


Fig. 4.—End view of a piggery. This is an end view of the building illustrated in figure 3.

have farrowing sows housed with other pigs in a large building. If this is necessary, the chief difficulties can be overcome by building a tight partition between the sows and other pigs. One can economize space and make the pigs comfortable by equipping the pen with an elevated sleeping platform. This is usually placed from 3 to 3½ feet from the floor, and leading up to it is a cleated board stairway. This fixture in the swine pen has given satisfaction in many cases. Rats or mice will not harbor under it as they sometimes do under the platform on the floor.

A good wall can be built of two-by-four-inch studding, stood on end, covered on both sides with lumber, and finished on the outside with tar or building paper and some kind of finished boarding. If a loft is desired, it should not be less than 8 feet from the floor. A loose flooring overhead would be sufficient, and straw placed in the loft would absorb moisture and tend to keep the

THE FARM.

Favors Conscription in Canada.

Editor "The Farmer's Advocate":

We have been as usual much amused and interested in Peter McArthur's description of his symptoms when suffering from La Grippe, not that he usually suffers from La Grippe, but that his descriptions of anything are usually amusing. On one question he seems to be quite serious, i. e., the heavy drafts upon the manhood of the country to support the drain of the war. When Canada entered upon such a war, in support of the Motherland, and knew that she was up against a foe who would bring every scientific invention to his aid, she might have known that in fear of what might happen, the sooner the whole power of the entire British Empire was brought to bear in the conflict, the better. Instead of that, as one paper puts it, "The British Empire went slouching along to defeat." Lord Kitchener among his first speeches said that 375,000 men, or 30 divisions, properly supported and kept at full strength would be sufficient as Great Britain's contribution to bring the war to a successful issue. That estimate has been quadrupled. According to Lloyd-George, the British military heads pinned their faith to rifles and shrapnel shells up till the spring of 1915. The Germans put theirs in high explosives and machine-guns.

Germany is fighting for her life and knows it, and with unlimited determination she makes a thorough investigation of the most effective means of destroying her enemies, and then without delay or hesitancy employs it with scientific effectiveness. The results we can see. Part of France and all of Belgium held; Poland overrun; Serbia conquered; Turkey relieved and England threatened in Egypt—all because the whole might of the German Empire was brought to bear on the business of war, as though ruled by the will of one man, as indeed was the case. In democratic countries not in immediate danger, it is impossible to make their strength tell so quickly. Every faction has to be placated. Even yet the labor men of England are discussing a strike in revolt against conscription; a large part of Ireland has to be left outside the operation of the compulsory law; while Lloyd-George can scarcely get the Union men of England to consent to work at munitions alongside of non-union men. It makes one question whether such a Democracy is worth fighting for. If they will not work and fight in the presence of an overwhelming danger, who can pity them if they go down under it!

The colonles, not being so directly interested, could scarcely be expected to spring to arms un-animously in behalf of peoples 3,000 or 4,000 miles away, and nothing but the most exalted attachment to the British connection, and deep resentment at the brutality and domineering attitude of the foe, could have made them go to the

assistance of the Motherland in such numbers as they have. But more than that is required. Whether to make or to mar, we are into the conflict now. Germany will never overlook what we have done, and we must certainly see it through to the end. We have taken the only honorable course so far; so has Great Britain. As a nation, we would not have done otherwise if it had all to be done over again, and the more quickly we bring every power we possess to bear to win the conflict, the cheaper it will be in the end, and that end will be brought the more speedily. If we fail, are defeated, will anything be worth while? Don't you think that we would support our public men in acting in a more determined manner in bringing forward the reserve strength of Canada? Should not the whole population be organized, similarly to that of France? The first thing to do would be to call for volunteers from among the women and the elderly retired men, and they will respond, I'll warrant. Let them qualify to take the places of young men in every occupation in which they can be at all efficient. Then let our statesmen boldly announce a conscription law, and put it into immediate effect. After all it is the only fair way. I know that right here in my own neighborhood one is waiting upon another to go, and another is waiting upon the one. Each one thinks that the other has as definite a call to go as he himself. One can scarcely escape the conclusion also that some are perfectly willing to let others go and do their fighting, while they stay at home and make money and prosper, and "The war will be ended somehow."

I asked one young woman, who was apparently not making the slightest patriotic effort, how she expected to keep the Germans out, and she replied, "The British will keep them out." If we won't fight for ourselves, let us "pull up stakes," and join the United States and quit calling ourselves a country. Another prosperous farmer said to me: "If you have any notion of going, cut it out; let the trash go, there's plenty of them; French, East Indians, etc." Honestly, I believe that notion is more widespread than we would suppose. If such becomes a ruling motive in any man, shame on him! Who made his life more valuable than his neighbors?

The great bulk of those who have joined in the country districts have been hired men. All honor to them. With less to attach them to their country than any other class, they are the first to volunteer to die for her. Let us honor them, love them, and care for those that they leave behind. The love of honor, adventure, good pay, etc., may be the motive with many, but, when they are right up at the front, such desires will disappear, like mist, under the terrific hardships and dangers which modern warfare brings to all who get into the thick of it.

In the event of compulsory service becoming law, I should think that a separate Department should be created to put it into effect. The head of the Department should be, if it were possible to find him, the most able and most patriotic man in the country: one who would enforce the law with the greatest discretion and discrimination, taking those whose plain duty it was to go, and leaving those who certainly appeared to be indispensable at home. I have no knowledge of our public men, only from hearing and reading their speeches, but I should suppose that Justice Riddell would be as well fitted for such a position as any man in Canada. If he was even head of a Special Committee having the matter of voluntary recruiting under its charge, I believe

he would prove very efficient. Sir Sam Hughes may think that volunteers will come forward in sufficient numbers to recruit an army of a half-million, but from what I have observed, and after watching the 93rd Battalion taking four months to recruit 500 men, in a county and city of 60,000 inhabitants, it seems somewhat doubtful. And in the meantime, precious time in training and getting them to the front is lost, with, it is reasonable to suppose, the enemy always getting more strongly entrenched and harder to drive out.

Of course, compulsory service at first thought is very repulsive to democratic peoples, but at second thought does it not appeal to everyone's sense of justice, as being the only fair way, providing always that it is enforced with discretion? More than that, I have heard several say that they would go willingly under compulsion, if it was fairly used, but would not volunteer, for it was manifestly unfair—the unselfish sacrificing themselves for the selfish.

If these free peoples will not use the means at their command to preserve their freedom, can they blame anyone but themselves if they lose it? And if their public men are unable to wisely direct the latent powers possessed by such peoples, it is a question whether either rulers or people deserve the freedom they possess.

Durham Co., Ont.

R. S. SUTTON.

[An Ontario County Farm Home.

Herewith we publish the plan of the ground and second floor of an Ontario county farm home. The house is 32 feet by 24 feet with a verandah 8 feet wide the full length of the east side. This house is a brick veneer, and between the sheathing boards and brick a ready-roofing material, with the laps cemented, is used. This is found to make a very comfortable house, believed by the owner to be much warmer than a solid brick, at about the same cost. The cellar wall is 7 feet high; the ground floor 8 feet 6 inches, and upstairs wells 8 feet.

The cellar is built in three compartments. The furnace room is separated by a cement wall, which aids in keeping the provision cellar cool. One compartment has shelves built in for storing apples, and a bin for potatoes. The remainder of the cellar is used for provisions, with a concrete shelf built in for fruit. The main body of the house is very compact and conveniently laid out. The pantry is so situated as to be handy to both dining-room and kitchen, and underneath the stairway, in front of the pantry, is a dumb-waiter to the cellar, which is a means of saving many steps. A small office is a feature of this house, which is not found in many farm homes. It is found to be a very handy place in which to keep papers, books and records, and the owner believes it is as essential for the farmer to have an office as it is for the business-man. The mantle in the living-room may be considered a luxury, but it is used a good deal. The upstairs has three large bedrooms with clothes closets attached, and one small bedroom. The bathroom, septic tank and sewage system was put in at small cost, the owner doing most of the work connected with installing the septic tank and fixtures himself. The house is heated with a hot-air furnace. The owner is so well pleased with the lay-out and convenience of his house that he cannot see where he could make much improvement were he building again.

The following is an itemized account of the cost of material and labor for building, as sent by our subscriber:

| | |
|--|-------------------|
| Lumber, including studding, joist, rafters, sheathing, window and door frames, window sashes, doors, flooring, etc..... | \$525.50 |
| 12,000 dark, red brick, @ \$18 delivered... | 156.00 |
| Lime, and plaster Paris for plastering..... | 60.00 |
| 60 barrels Portland cement (cement was also used for laying the brick) @ \$1.60. | 96.00 |
| 90 loads of sand and gravel, @ 15 cents. | 13.50 |
| Drawing sand and gravel, @ \$1 per load. | 90.00 |
| Glass and putty..... | 19.50 |
| 10 cwt. nails, @ \$2.20..... | 22.00 |
| Finishing nails, etc..... | 2.10 |
| Locks, hinges, and other hardware..... | 16.50 |
| Building paper, and labor in putting same on..... | 30.00 |
| Paint, varnish and oil..... | 60.00 |
| Painting and varnishing..... | 60.00 |
| Favetrothing..... | 22.50 |
| Furnace, wall pipes and boxes..... | 15.00 |
| Furnace installed complete..... | 135.00 |
| Carpenter work..... | 260.40 |
| Cement work..... | 57.00 |
| Excavating for cellar—5 days, 2 men and team..... | 25.00 |
| Laying 12,000 brick, @ \$7..... | 84.00 |
| Plastering..... | 88.00 |
| Extra work of our own men, team, etc., Team @ \$2 per day; man @ \$1.50 per day..... | 94.00 |
| Bath-room fixtures, 3 piece, complete..... | 47.50 |
| Piping, 40-gallon tank, connections to sewer, sewer pipes to septic tank, work done myself and charged at 20 cents per hour..... | 30.75 |
| Sink, pump, trap, suction and overflow pipes with connections..... | 9.00 |
| Total..... | \$2,019.25 |

Good Results from Winter Spreading.

Editor "The Farmer's Advocate":

Having noticed several letters in recent issues on spreading manure in winter, I would like to give my experience. In the spring of 1914 a part of a field was planted to a hoed crop of turnips, potatoes and corn, being well manured beforehand and plowed down. The remainder of the field was sowed to oats. That fall I covered a part of the oat stubble with manure and plowed it down, and plowed the remainder of the field. Through the winter I spread manure on the snow on the part of plowed stubble which hadn't been covered in the fall. In the spring, when the manure was sufficiently thawed and the ground fit to put the horses on, I harrowed the winter-spread manure a couple of times to spread it more evenly. Then I cultivated the whole of the field deeply both ways and seeded it to clover and timothy with barley as nurse crop. The barley on the winter-spread part, where manure had been simply cultivated in, was somewhat stronger and better than any other part, while the seeding was away ahead of that on hoed crop land or the fall-manured part. The clover was hard to beat on the winter-spread part, being thick and growing splendidly. It would have cut a splendid crop in the fall had the weather been fit for curing and if one was so minded to cut it. The fall-spread part came second and the hoed crop last, the turnip ground being the poorest.

The catch turned out so well that I am doing the same thing this year; that is, spreading the manure on the snow over fall-plowed land. I will harrow, cultivate and seed it in the spring. One correspondent speaks of the rich, dark liquid running off the field into the creek and being entirely lost. That may be so in some cases, but as I drive along the roads I have noticed several places where the manure is piled till spring, and the hollows and ditches along the roadside were full of this rich, dark liquid from the manure pile. Surely that was also entirely lost, and then there would come the drawing out, in the spring rush and hustle, of the remainder which had so deteriorated in value. If it had been leisurely drawn out in the winter when the horses were needing exercise, it very likely would not have been such a loss, or no more at least I believe in winter spreading unless the land is hilly.

Northumberland Co., Ont.

H. A. C.

Good Service for 28 Years.

Editor "The Farmer's Advocate":

"I have been a subscriber to 'The Farmer's Advocate' for 28 years, and would not like to be without it, as it is appreciated by every member of the family.

Durham Co., Ont.

D. J. GIBSON.



Layout of F. H. Westney's Ontario County Farm Home.

A Cement - Veneer Farm House.
 Editor "The Farmer's Advocate":

The house, of which I am sending photograph and plans, is different from most farm houses in at least two particulars. The walls and the water system. The walls are a cement veneer. The foundation, of course, is concrete, and on top of this was built a balloon frame just the same as for a brick veneer.

Then when starting to put on the cement veneer, I made two forms to go entirely around the house, something after the style of silo rings, only they were made of 6-inch dressed lumber, each one foot high. In making the forms we made each section the full length of the different sides of the house, breaking the joints with the lumber. We put cleats every three feet, allowing the top of the cleat to project past the upper edge of the form two or three inches. We used somewhere about 60 or 70 six-inch bolts, and put the cement on before we plastered the inside.

In starting the first form we put a row of bolts every 3 or 4 feet, both top and bottom of the form, boring the holes for bolts, not in the cleats, but in the one-inch lumber. We put the bolts in from the outside, and just put the nuts on about half way, thus leaving nearly four inches for concrete. After the first form was put on, we only need to bore one row of holes, at the top of the forms, in the same holes in the forms. The projection of the cleat held the bottom in place. My hired man and myself could move and fill the two forms, two feet high, in one day. We were only nine days putting the concrete veneer the full 18 feet high, the wall being somewhere about 120 feet around the house. We had an extra man one full day and part of another, when we were putting up the scaffold poles. It took an extra day filling in around the top joist for the two of us, so that for the veneer, altogether it took the time of one man, and that only a common workman, not skilled, nearly 22 days. Putting that at \$1.50 per day, and the cement (of which we used for the veneer about 37 barrels, mixing it one to five) made a total cost for the veneering of \$87.80. After finishing the veneer I had it plastered and blocked with the beading iron, which leaves a wall superior in appearance to ordinary brick, and positively air tight, therefore, much warmer.

I forgot to say we used about 200 lbs. 4 and 5-inch nails driven into the studding, with the heads sticking out 2 or 3 inches into the cement, to hold it to the wall. If the frame is built quite rigid it will never crack, and is both warm and dry.

So much for the wall, now for the water system. I have a windmill, seen in the illustration, at the well close to the house. I have had the windmill raised since the picture was taken, as it was too low for the house. I have a 40-gallon round tank, just the same style as the hot water tank, only larger, in the corner of the bath-room, and all the water for the barn is pumped into

of water for the closet or the sink. There is a pipe in the top of the hard-water tank running up into the attic—for air. This is necessary. We also have a square tank in the attic for soft water, and roof pipes on two sides, so we rarely have to pump water up to the attic.

We like the lay-out very well ourselves, as it is handy, compact, and quite suitable for a farm house.

Grey Co., Ont.

W. H. HUNTER.

Our Scottish Letter.

Since the year began we have had wretched weather and farming operations are far behind. New Year's Day, 1916, will be remembered as one of the stormiest experienced on the west coast for many years. The firth of Clyde was like a cauldron, and the river steamers had a lively time negotiating piers. The agricultural situation is much more serious than anyone would suppose from the bearing of people generally. The recruiting campaign has made a big draft on the ranks of agricultural labor, and the position of things at the moment is peculiar. The main classes employed in agricultural labor have been "starred"—that is, they have been declared exempt from military service—unless, of course, any member of a starred employment desires of his own will to join the ranks. But while the ploughman, the shepherd, the cattleman, the byreman and son have been "starred," the man who directs the whole operations of the farm, and on whom the successful working of the farm machine depends, has not been starred. He must be attested—which is equal to saying that he must enlist, and get his 2 shillings 9 pence for one day's service, and that he must submit a special case for exemption to his local tribunal. The extraordinary result is thus arrived at, that a farm might be left with a fair equipment of servants, and no master. Anyone with practical experience of farm work knows that the head which plans and organizes may be of more importance for the successful working of the farm than nearly all of the employees put



A Cement-Veneer Farm House—Home of W. H. Hunter, Grey Co., Ont.

it and runs by gravity to a big supply tank at the corner of the barn. The tank was ordered specially for my use, and the holes cut in it to suit me. The water is pumped in from the bottom, and the outlet is about six inches from the top, so that when the pump stops we have the tank left almost full. The pipe that comes in from the pump comes up past the sink, and has a tap into the sink, and also has a pipe running to the flushing box of the closet. We use the hard water for this, as it takes quite a lot, and we are practically never out

Itemized account of the labor for building, as sent

| | |
|---|------------|
| Roofing, joist, rafters, and door frames, windowing, etc. | \$525.50 |
| Plaster @ \$18 delivered | 156.00 |
| Plaster for plastering | 60.00 |
| Cement (cement was the brick) @ \$1.60 | 96.00 |
| Gravel, @ 15 cents | 18.50 |
| Gravel, @ \$1 per load | 90.00 |
| ..... | 19.50 |
| ..... | 22.00 |
| ..... | 2.10 |
| ..... | 16.50 |
| ..... | 30.00 |
| ..... | 60.00 |
| ..... | 60.00 |
| ..... | 22.50 |
| ..... | 15.00 |
| ..... | 185.00 |
| ..... | 280.40 |
| ..... | 57.00 |
| ..... | 25.00 |
| ..... | 84.00 |
| ..... | 88.00 |
| ..... | 94.00 |
| ..... | 47.50 |
| ..... | 30.75 |
| | 9.00 |
| | \$2,019.25 |

Letters from Winter Reading.

Advocate":
 letters in recent issues
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 down. The remainder of
 oats. That fall I covered
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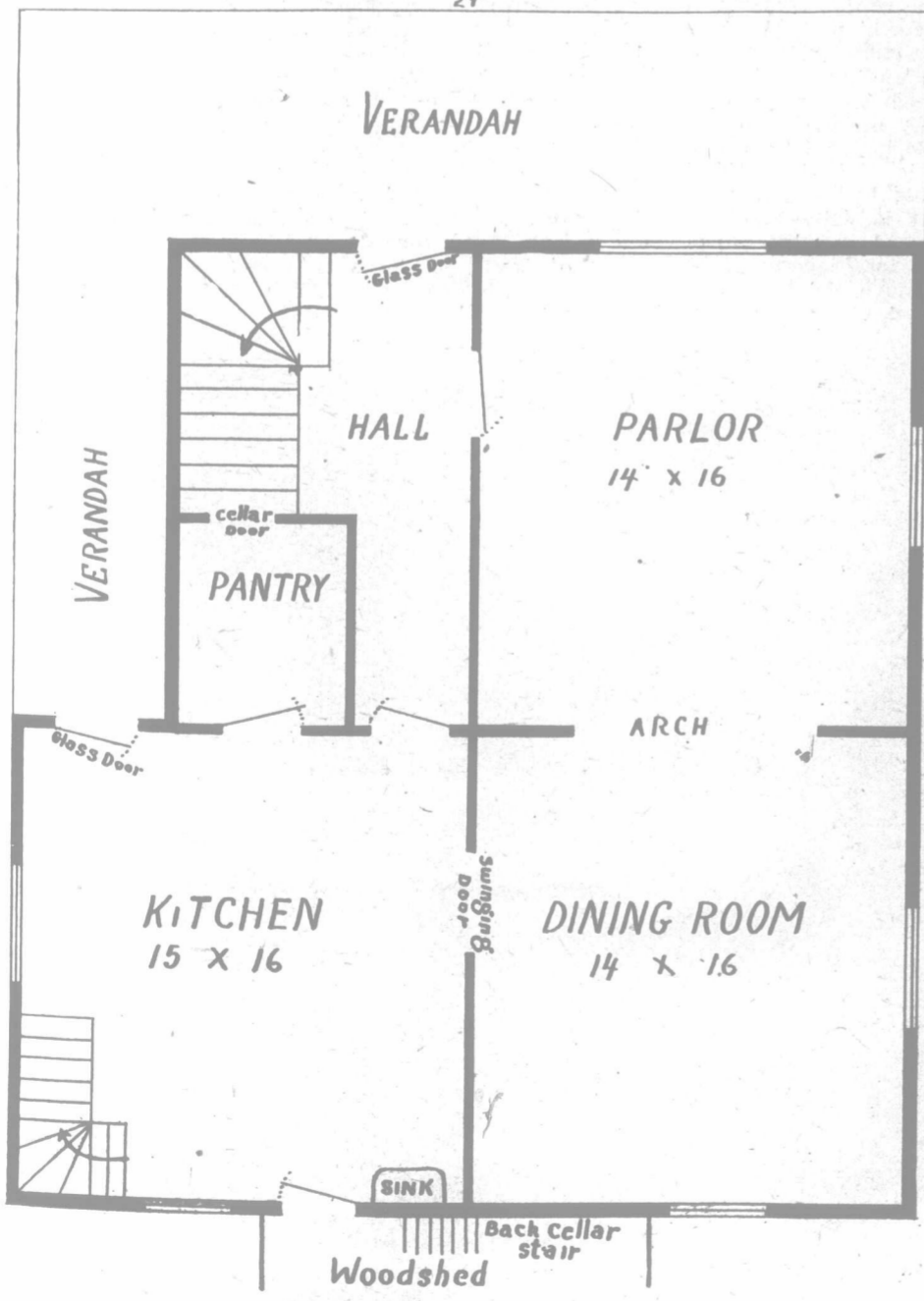
H. A. C.

For 28 Years.

Advocate":
 iber to "The Farmer's
 and would not like to
 appreciated by every mem-

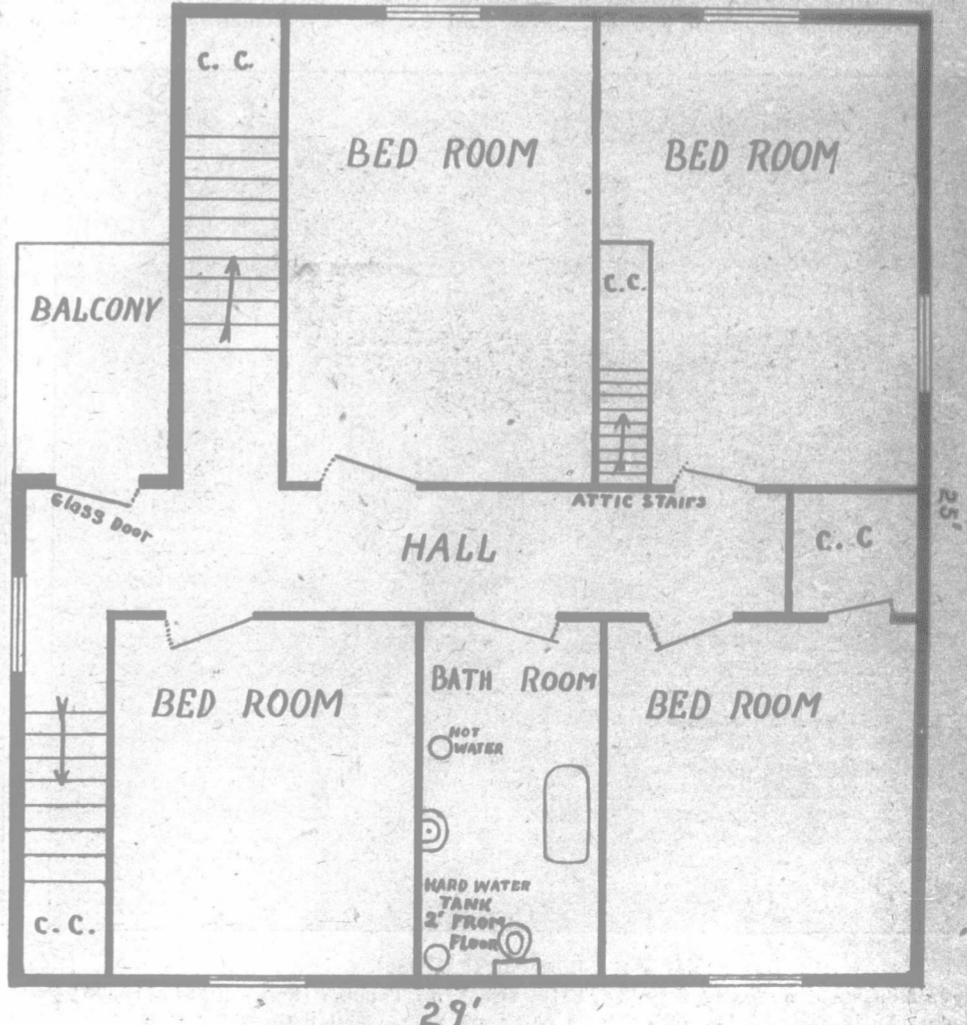
D. J. GIBSON.

GROUND FLOOR PLAN



Main Floor Plan of W. H. Hunter's House.

SECOND FLOOR PLAN



Second Floor Plan of W. H. Hunter's House.

together, yet the head may be serving in the ranks as a fighting unit and his servants only doing half work. Indeed, the whole business of recruiting and food production is at present in a state of confusion, and unless wiser counsels prevail than have been exhibited in some cases, there will be less increase in the production of food in 1916 than the necessities of the nation call for.

Farm work is at least three weeks behind, and unless the weather moderates and the land dries up very rapidly, the leeway, on account of labor scarcity, will not be made up. The huge munition factories which have sprung up over the country are a serious menace to agriculture. The wages offered alike to men and women in these are so excessive that it is simply impossible for the farmer to compete with them. Consequently farm labor within a twenty mile radius of these factories is severely handicapped. Even the lads whose duty it is to heat the cans for the laborers' meals are said to be getting one pound per week, and the most deplorable fact is that a full day's work is not being given for the large wages that are being earned. This is the serious factor in our national outlook. It meets us everywhere. In the munition factories, conscientious lads, such as students and eager, earnest women, who are keen to finish the war are being handicapped and hustled by the shirkers and the apostles of the cult of "ca canny." It is a deplorable fact that great numbers of our working men or artisan population will not put their shoulders to their tasks and give a full day's work of ten hours per day for six days a week in order to shorten the war and save the Empire. One almost despairs of a triumph for the Allies while the present condition of things continues. The difference between the output when every man gives an honest day's toil for ten hours each working day, and the output when he is a slacker and will neither himself work his best nor allow others to do so, is the difference between victory and defeat; between an enduring peace, and a desultory and wasting war. "Less talk and more work" was the keynote of a speech delivered in the London Mansion House lately by Lord Provost of Glasgow, and this ought to be the keynote of endeavor in every department of national life. We are still far from victory, because, speaking of the people of these islands generally, we are still far from unselfishness.

The scarcity of labor and the backward condition of farm labor have naturally whetted the demand for labor-saving implements on the farm. An inquiry has been instituted by the Highland and Agricultural Society as to the extent to which the mechanical milking machine and the oil engine might be employed. It would appear as if these two forms of mechanical aid were the most likely to be adopted. Milkers are and have been scarce, and indeed it must be recognized that the shortage of certain classes of labor in agriculture has not dated from August, 1914. The exigencies of the War have certainly intensified the difficulties, but they did not create them. The history of the use of mechanical milking machines in Scotland is a curious one. In it there has been an ebb and flow, and for a

time hand milking seemed to have re-asserted itself as the more economical. The general attitude of farmers to the use of the machine prior to the war was, it is a very good substitute for hand milking, and in some respects it is an improvement upon it; but it is unwise and uneconomical to introduce the machine when a sufficiency of labor can be secured for milking twice a day. The usual form of labor employed was that of the women folks in the families of ploughmen and other employees on the farm. The amount paid to them for an hour's work at both ends of the day was a substantial addition to the income of the cottage, and on every ground it was found desirable to encourage that form of labor. But the war has intensified the scarcity of labor more ways than one. Many women who formerly assisted farmers in milking and at other forms of seasonal labor on the farm, during the past season declined the duty. Through the enhanced wages of their male folks the family revenue had been found sufficient for its needs, and they, therefore, refused to work as of yore. Many dairy farmers have, therefore, again reverted to the mechanical milker. It has been greatly improved during the past two years, and the universal opinion is that when once installed now it will not be displaced. The unwisdom of introducing the mechanical milker when hand labor could be secured, lay in the lessening of inducements to the families of laborers to remain on the land. The more work there was for them all the year round the better. My impression, however, now is that the scarcity of labor has become so pronounced that the mechanical milker has come to stay.

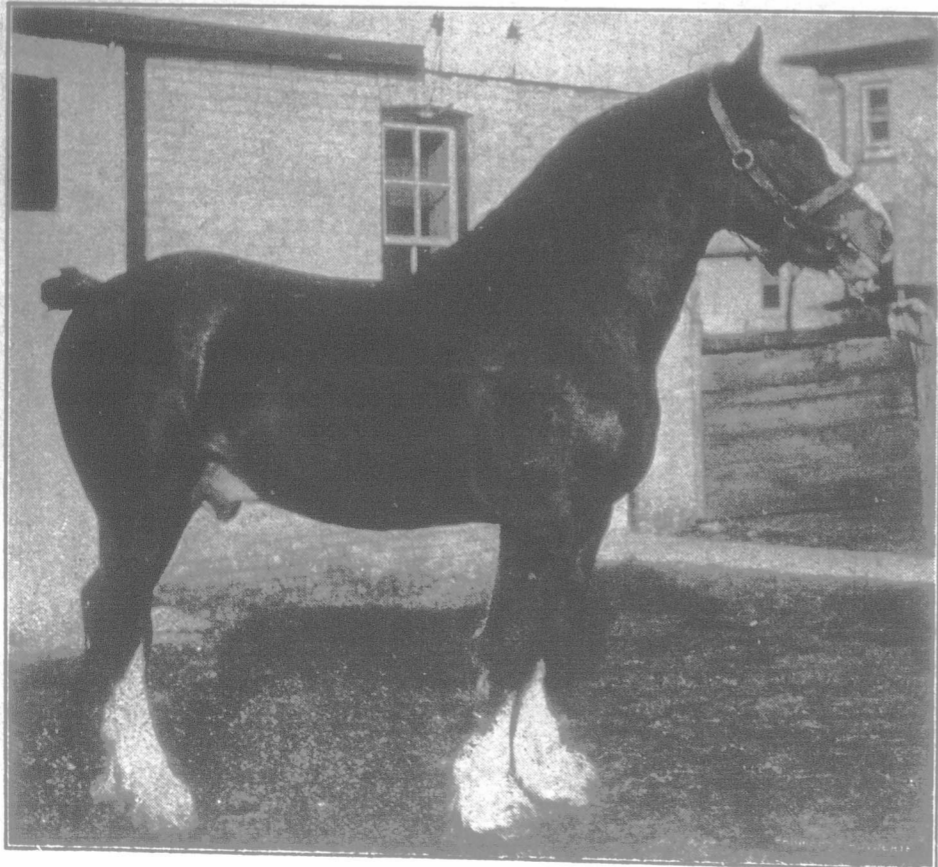
The oil engine is reported to have undergone such substantial improvements in America that it is likely to supplant all other forms of power on the farm. Farmers hitherto have rather favored steam than oil, mainly because of the dual purpose to which steam could be put. It supplied motive power, and it also could be utilized for cleansing purposes. The use of steam for cleaning dairying utensils has been widespread on well-appointed farms. Oil engines could not serve this dual purpose. But the lack of labor to work horses has led farmers to consider another side of the question, namely, the adaptability of the oil engine as a tractor. If it be the case that such improvements have been effected on these engines as will make them equally serviceable when stationary and when employed in traction, we are likely to see a great increase in their use among farmers.

Already the motor plough is in use on various farms, and an experiment is being made with Myles' motor plough in West Lothian. The idea is to see what use can be made of it by the ordinary farm hand. This is an important consideration. An implement which works all right in the hands of an expert may not be quite so serviceable when it comes to be handled by a man with no training as a mechanic. Whether Myles' plough will come through this test remains to be seen. Our opinion is that it will survive it all right, and give very good results when handled by a man of ordinary intelligence; if he has a taste for mechanics so much the better.

Farmers are greatly exercised about the sup-

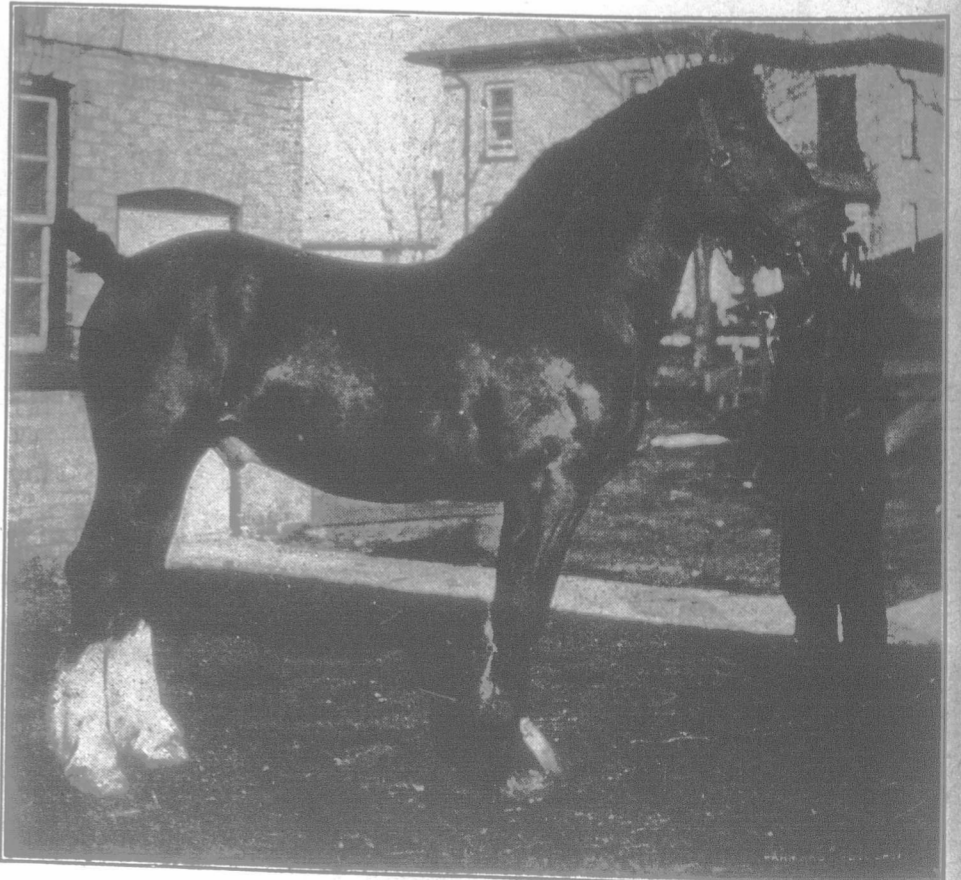
plies of light manures for spring application. Sulphate of ammonia is one of the most important of these. It is a source of nitrogen, and has, in Scotland, to be applied in the spring. Were it applied earlier it would be washed away with the winter rains. It is a by-product in the manufacture of shale, and to a large extent it is made in Scotland. A committee has been appointed under the presidency of F. D. Acland, M. P., to safeguard the agricultural interest in regard to this manure, and some of the actions led farmers to fear that it was being hoodwinked by the manufacturers. It goes without saying that neither among manufacturers, nor farmers, nor artisans are all patriots; there is a deal of selfishness in every section of the community, and the temptation to make money out of the war is strong. Ship-owners are simply lining their pockets with gold or its equivalent, and with a foreign demand for sulphate of ammonia, and also a demand from the munition works, the price went up about £5 per ton on its normal figure. That is to say, the normal figure may be anywhere round about £13, but the manufacturer's war price is £18 10s. He wants an open market price, that means a price which the war demand enables him to claim and enables him to get. The farmer would have little ground to complain of this if he was treated in the like fashion, and allowed to charge a war price for his hay. But he is not. He is forced to sell his hay to the Army at a price fixed by three parties, and until the War Office has said it has got all it wants he cannot sell to anybody else. He sold the best of his crop of 1915 to the War Office at a price round about £5 per ton. Recently the open market price for what he was allowed to sell after the War Office was supplied, was £7 10s., and so inferior was the quality of this stuff sold at the higher price that some men with consciences were ashamed to see it leaving their farms. The Government was slow to move, but last week they brought pressure to bear on the manufacturers of sulphate of ammonia by suspending licenses for export until the agricultural demand has been met. This suspension cannot be indefinitely prolonged, because it is admitted that agriculture cannot at the outside take more than about one-third of the entire British production of sulphate of ammonia, and it is in the national interest that as much as possible of everything we can spare should be exported, provided it does not reach the enemy. Farmers are, therefore, being urged to buy their sulphate of ammonia at once, and not wait until stocks have so accumulated that the price will be depressed. It may then be too late.

Transport difficulties are to determine many things for us here. Those who look a little below the surface see many grounds for disquietude. Railways are congested, and coasting shipping is being suspended. The one thing reacts on the other, and it may be weeks after a farmer places his orders for manures before they reach him. This arises from no lack of will on the part of the transport agencies or the merchants, but solely from conditions created by the war. All forms of transport have been commandeered for government service first. Train services are being curtailed all round, and the fact of the mat-



King of Chiselhurst [17320].

Clydesdale stallion; foaled June 14, 1913, sire King Thomas (imp.) (9254) [12625] dam Lady Florizel [18650]. This colt, weighing 1,660 lbs., is for sale at the stables of T. J. Berry, Hensall, Ont.



King's Own Prince [17501].

Another good colt by King Thomas (imp.), dam Cumberland Rose (imp.) (27712) [25573]. This one, also rising three, weighs 1,630 lbs., and is for sale, by T. J. Berry, Hensall, Ont.

knives on the cutting-box be kept very sharp, else good work cannot be done, and in putting the corn into the silo it is always well to have plenty of men inside to tramp. The tighter the corn goes in, the better will be the silage from it. We would rather have one man too many in the silo than one too few.

A good average crop of a heavy-yielding variety of silage corn, on a well-manured, spring-

ploughed, clover sod, grown from tested and selected seed, with the crop frequently and carefully cultivated throughout the growing season should give an average yield of fifteen tons per acre one year with another. A heavier yield than this is possible, but this is a good average. Corn is King and silage corn is King of all corn.

from Experiment stations can be maintained for many years by the method of selection recommended by the Association. At the Ontario Agricultural College about thirty varieties of farm crops have been grown continuously for a quarter of a century, without any change whatever from one farm to another. These varieties include oats, two-rowed and six-rowed barley, hull-less barley, winter wheat, common spring wheat, and potatoes. The results show that in many instances in recent years, instead of a decrease there has been an actual increase in yield of grain per acre. The soil has changed but little in fertility in all that time, and no plant selection was practiced. The selection of the seed and the growing of the crop were given due attention, and the test has shown that a variety suitable to the district and the soil on which it is grown, can be depended upon for a long number of years. A change of variety is, of course, quite in order, and will often effect a considerable increase in yield, but it appears unnecessary to change the seed simply for the purpose of rejuvenation, or whatever the belief is. Improvement through seed selection should be the aim of every farmer.

VARIETIES.

When one attempts to advise varieties for such a broad and varied field as Ontario, or Canada, the recommendations must be correspondingly broad. However, in almost every kind of grain there are one or more varieties that have demonstrated superior qualities when grown east of the Great Lakes. In oats, one must look for a small percentage of hull, a fair amount of straw that stands up well, and a good yield of grain per acre. For Eastern Ontario, Prof. J. H. Grisdale, Director Experimental Farms, Ottawa, favors the Banner, which is a tried and true kind, and one that has stood the test of time. No one will make a very bad mistake who sows a good sample of Banner oats. Another variety, the Siberian, will often out-yield the one previously mentioned, and under many circumstances it gives very satisfactory results. The Joannette, a black oat, is thin in the hull, and a good yielder. The O. A. C. No. 72 is of recent origin, but it stands up remarkably well with other oats, regarding quality and yield. Prof. C. A. Zavitz, who brought this oat into existence, has great hopes for its popular acceptance as the standard variety in Ontario. It has made rapid progress, it has given satisfaction, and has become prominent in field crop competitions and tests. Other varieties, such as Abundance, Ligowa, and New Sensation, are also worthy of mention. The Daubeney and O. A. C. No. 3 are early oats, suitable to be sown with barley in a mixture. They will be discussed in another paragraph.

In barley there are two leading varieties, namely, Mandscheuri, and O. A. C. No. 21. It is estimated that 95 per cent. of all barleys grown in Ontario consists of the two varieties named. They are both six-rowed, bearded, white, and good yielders. The O. A. C. No. 21 is probably making the most rapid progress. It is a safe variety to sow.

In spring wheat, used for the production of flour, the standard variety for many years has been the Red Fife. Marquis has been introduced, and on strong land has done very well. As a general thing, however, it will not give the same quantity of straw as Red Fife. Of the durum or hard wheats, the best known variety is Wild Goose.

For a long period the Common Gray buckwheat was the leading variety of this grain in Ontario. It has, of late years, been replaced to a considerable extent by the Silver Hull and some of the Japanese varieties. At the Ontario Agricultural College, Rye Buckwheat surpassed the kinds already mentioned in the average yield per acre, throughout a ten-year period of experimentation. The Rye Buckwheat has been grown extensively in the Maritime Provinces, especially in Nova Scotia.

Rye is not a popular farm crop in Ontario. However, it is often sown on light soils where other kinds of grain would not thrive. The spring varieties have yielded at the Ontario Agricultural College, in the order named: O. A. C. No. 61, 23 bushels; Petkus, 26.8 bushels; Common, 23.5 bushels; Prolific Spring, 23.4 bushels.

VARIETIES IN MIXTURES.

Perhaps the most popular mixture of grains grown in Ontario is that made up of oats and barley. An early variety of oats is necessary that the two different grains may ripen together. One bushel of Daubeney oats combined with one bushel of O. A. C. No. 21 barley have given excellent satisfaction as a farm crop. The O. A. C. No. 3 oat has proven itself a better yielder than the Daubeney, and, since it is just as early, it could be used in a mixture of this kind. In fact, it has proven itself to be very well adapted for this purpose.

Stockmen often resort to combinations, in order to provide suitable grain for fattening purposes. A very successful steer-feeder in Huron County sows a mixture made up of one bushel of oats, one-half bushel of barley, and one peck of Goose Wheat per acre.

The Preparation and Selection of Seed Grain.

Farmers of Canada will face a shortage of farm labor in 1916, such as has never been experienced in this country in the past. Many will find themselves alone on 100 or 150 acres of land, and this they will be expected to till, sow and reap, that the nation may have bread. The duties of a great number of land owners will be arduous in the extreme, and no doubt the women of the rural districts will volunteer their services in the fields. The wives, mothers, and sisters on the farms are the kind that do not shirk work; they are the kind that help. While an immense amount of work, and hard work, is in store for Canadian farmers this coming season, none, we trust, are faint-hearted enough to sit down on the job. Now is the time to speed up the fanning mill and get the seed grain ready for the ground. The man is not true to himself, or true to his family, who, in the spring of 1916, will sow poor seed and devote all labor at his disposal to the production of a mediocre or indifferent crop. After the land is dry enough, the seeding should be practically all finished inside of ten days. That leaves little time for cleaning, or selecting grain. Yet it is important that good, plump seed be sown in every case. This is one way of increasing the yield. There will probably be five weeks, and in some cases more, before the drill is backed out of the shed, oiled up and filled with seed. In that five weeks while the earth is still dormant, a farmer can clean and select his seed grain, prepare mixtures and perform other timely work that will alleviate the rush when seeding comes, and in many cases increase the yield five bushels per acre. This is worth while. The actual influence of seed selection is not appreciated as it should be. We have been too careless in the past regarding what we have sown. Efficiency is the watchword for 1916; let us apply it to the seeding.

THE INFLUENCE OF SEED SELECTION.

At the Ontario Agricultural College, Prof. C. A. Zavitz tested, for over twenty years, the results of sowing heavy and light oats of the same variety. The Joannette, which is a black oat, was chosen. Grains which were large, plump and black made up one test. Grains light in weight and grayish in color made up another test, and in a third plot were sown grains from which the hulls had been removed in threshing. For a three-year period before the results were published, the average yield of grain per annum per acre from the plump seed was 67.2 bushels; from the light seed it was 50.2 bushels per acre, and from the hulled grain it was 61.4 bushels. The difference between the results from the plump and light grain amounted to 17 bushels per acre, which is an outstanding argument for special seed selection. The average yield of oats per acre per annum for the whole period of twenty-one years was 63.7 bushels for the large, plump seed; 51.4 bushels for the light seed; and 60.8 bushels for the hulled seed. This indicates that the careful selection of the large, plump seed tended to increase the crop, and that the continuous selection of the light seed tended to decrease the crop in yield of grain per acre. In another experiment, grain was selected as it came from the thresher, and several classes were made of the same kind of grain. On the average there were seven tests made in each case. The last two columns in the accompanying table show the average yields per acre per annum. This was not a case of continuous selection, for the samples were taken separately each spring. The outcome or results are similar to what the practical farmer might expect from planting the different qualities of seed in various proportions.

COMPARATIVE RESULTS FROM SEED SELECTION.

| Selections. | Class of grain. | Tons of straw. | Bus. of grain by wt. |
|------------------------|-----------------|----------------|----------------------|
| Large seed..... | Oats..... | 1.9..... | 62.0 |
| Medium-sized seed..... | Oats..... | 1.8..... | 51.1 |
| Small seed..... | Oats..... | 1.8..... | 46.6 |
| Large, plump seed..... | Barley..... | 1.5..... | 53.8 |
| Small, plump seed..... | Barley..... | 1.5..... | 50.4 |
| Shrunken seed..... | Barley..... | 1.4..... | 46.0 |
| Broken seed..... | Barley..... | 1.3..... | 43.2 |
| Large plump seed..... | Spring wheat. | 1.4..... | 21.7 |
| Small, plump seed..... | Spring wheat. | 1.3..... | 18.0 |
| Shrunken seed..... | Spring wheat. | 1.2..... | 16.7 |

The average seed used will contain the undesirable kinds indicated in the table, along with superior seed. The yields will suffer in proportion to the percentage of small, shrunken or

broken seed put into the ground, and although the average farmer probably does not lose 7.9 or 15.4 bushels of oats per acre per annum, as indicated in the table, on account of sowing some medium-sized or small oats, yet he does lose in proportion to the percentage of these inferior grains that go through his drill in the spring. There is a splendid opportunity in seed selection to increase the sheaves and bushels of grain on every acre. Choose for the coming season the plump, healthy-looking sample, and the harvest will reward anyone for the extra trouble and expense.

THE FANNING MILL.

At this juncture it seems opportune to recommend the use of the fanning mill. Too often the seed grain is left till the land is harrowed, and then run speedily through the winnowing machines at a rapid rate. The wind, of course, will clean out the chaff and some light grains, but, to get a good sample, plenty of time is required, and a number of screens to take out weed seeds, shrunken and light kernels, and other kinds of grain. If the old-fashioned apparatus is the only one available, put the grain through several times, or until the sample for use is plump and as free from weed seeds and other kinds of grain as it is possible to get it with the machine at hand. The modern fanning mill is a vast improvement over the old type. There are sufficient screens to separate the wheat, oats, barley and other grains and remove the weed seeds. The light kernels are eliminated and the resulting stock for seed will be the best, if the grain was good and the mill was operated properly. Cleaning grain is not timely during seeding. It should be done in the late winter, or early spring, before the rush starts. In some districts a fanning mill is purchased by a number of farmers and used alternately by them. It can either be set up permanently in one place, and the grain brought to it, or it can be moved about to suit the convenience of those who have shares in it. Each 100 acres should afford a suitable mill for cleaning seed grain; failing this, farmers should endeavor to hire the use of one long enough to prepare their seed.

When speaking of cleaning seed grain, it would not be out of place to remind readers of the tremendous toll taken each year by weeds. This reminder, we believe, is sufficient, for farmers all know full well that noxious weeds are all too plentiful. The only way to remain their master is to rotate, grow hoed crops, and cultivate with the end in view that they be destroyed. In the proper system of rotation, grain would follow corn or roots, and if the seed grain or grass seeds should contain any appreciable amount of weed seeds, one season's labor in cleaning the ground would be nullified to a considerable extent.

In the spring of 1913 officers of the Seed Branch took samples, representing as accurately as possible the average seed used in the districts visited, from over 2,000 farmers throughout Canada. Nine hundred and seventy-eight samples of oats were analyzed at the Ottawa Seed Laboratory, and 547 of these or 56 per cent., contained an average of 76 noxious weed seeds per pound. The highest number being 4,838 in the pound. Eight hundred and sixty, or 89 per cent., contained other weed seeds. The highest number being 6,954 per pound. With this weed seed content, and the rate of seeding reported, an average of 6,400 noxious and 20,800 other sorts of weed seeds would be seeded on each acre of land in oats. Barley and wheat showed similar results. This is an indication of how weed seeds are disseminated. From these figures the significance of the weed pest can be partially realized.

CHANGING SEED GRAIN.

The question of changing seed grain is a moot one. Some practical farmers believe that to attain the best results, a change of seed is required. Other farmers, quite as successful, claim there is nothing in the idea that grain should be changed, and they base their hope for improvement on the annual selection of the best from the previous season's crop. By sowing only the quality they wish to propagate, they claim to be able to improve both on the yield and quality of the product. The work of the Canadian Seed Growers' Association is based on this principle. They believe that improvement can take place on the farm by a proper selection of seed from the best individual plants, and also that the superior qualities of the newly-bred varieties obtained

ations can be maintained for method of selection recommendation. At the Ontario about thirty varieties of grown continuously for a without any change what to another. These varieties and six-rowed barley, hulled, common spring wheat, and results show that in many years, instead of a decrease actual increase in yield of grain has changed but little in fertility, and no plant selection selection of the seed and the were given due attention, and that a variety suitable to the on which it is grown, can for a long number of years, is, of course, quite in order, at a considerable increase in unnecessary to change the purpose of rejuvenation, or is. Improvement through be the aim of every farmer.

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PREPAREDNESS.

Whether it is wise for neutral nations to inaugurate a campaign of "Preparedness" can be left for their politicians to discuss. We expect seeding will soon come again in Canada, for we have the assurance that "Seedtime and harvest shall not fail," and, seeing that every hour will be a precious one when that time comes, everything possible in a preparatory way should be done. The farmers' campaign of "Preparedness" will be a profitable one to him and his country. The farmers of Canada have a duty; they are expected to produce. We hope the harvest of 1916 will equal that of last season. Let us do all we can to bring it about.

THE DAIRY.

Ice Supply on the Dairy Farm.

During the summer months dairymen usually experience more or less difficulty in keeping the milk or cream from deteriorating in quality before it is delivered to the cheese factory or creamery. At ordinary summer temperature it entails a good deal of work to cool the milk sufficiently to prevent the lactic acid bacteria from multiplying and causing the milk to become sour before it is delivered. Especially is this the case when endeavoring to keep Saturday night's milk until Monday morning. It is difficult to cool the milk much below 70 degrees with ordinary well water. If milk is to be kept sweet, it should be cooled to 60 degrees or lower. Without a supply of ice it is almost impossible to maintain this temperature on the average farm. The better the condition in which milk is delivered to the factory the easier it is for the cheese maker to manufacture a high-class product. The same applies to cream—it should be cooled immediately after separating and prevented from becoming too sour before it is shipped, and while water may be used for cooling purposes, it takes longer and is not so efficient as ice. Seldom does a summer pass but one or more cans of milk are lost that might have been saved by having a supply of ice in readiness. There may yet be an opportunity this winter to secure a sufficient supply. Ice houses and methods of storing ice were fully discussed in a recent issue of this paper.

Value of the Curry Comb.

The value of the curry comb is universally recognized by horse-men, but, as yet, grooming of the dairy cow is not generally practiced on the average farm. With the scarcity of labor most farmers find other work occupying their time, they believe, to better advantage than currying the cows. The question arises: will it pay in actual cash to groom the cows daily? One dairyman recently stated that he believed grooming would increase the flow of milk per cow by two quarts per day when a cow was in full flow of milk, or, with a herd of twenty cows, the increase would be sufficient to pay a man fair wages. Taking five minutes per day to groom a cow or one hour and forty minutes for a herd of twenty, the remainder of the day would be free for other work. Grooming tends to keep the hide clean and the pores open; consequently the cows will be healthier than those not groomed. The dirt and loose hairs brushed off the body each day will naturally lessen the amount of dirt falling into the pail during milking, making it easier to keep the milk up to a high quality. A well-groomed cow is attractive to the eye, which has a cash value if the animal is for sale. Taking everything into consideration, using the curry-comb and brush on the cow is time well spent.

Cleanliness at Milking Time.

Twice each day dairymen draw from their cows a finished product, a food ready for use, or capable of being further manufactured into other valuable food products. No article of human diet is more susceptible to undesirable changes, due to the delicate nature of the milk itself and to conditions naturally surrounding its production and handling. Milk is readily affected by bacteria, found on the body of the cow and on hay, bedding or dust-laden atmosphere falling into the freshly-drawn milk. The extent of this source of contamination depends on the care cows receive, the cleanliness of the stable air at time of milking, the carefulness of the milker and the utensils used. Unless the udder is diseased, it is claimed that there will be few bacteria in the milk when first drawn, but it is subject to contamination from the moment it is drawn until removed from the stable to a place that is free from odors or dirt. The aim of the dairyman should be to reduce the sources of contamination to a minimum. This may be done with a degree of success through a little extra exertion. If the side of the cow and the udder are wiped with a damp cloth just previous to milking, the danger of bacteria getting into the milk from this source is lessened. In some stables the chores are not planned so that the stable will be free from dust at milking time, but just previous to milking, or while the milking is being done, the feeder puts straw or hay down from the barn and proceeds to feed the cows, thus filling the air with dust and making it impossible to keep the milk clean. By a little planning of the work, the stable can be kept practically free from dust for a short time morning and evening. After the milk is removed from the stable, feeds which cause a dust or strong odor may be fed. In stables where certified milk is produced every effort is made to keep the cows' bodies clean and the air free from dust while

the milk is being drawn. There is danger of bacteria lodging and growing in cracks or crevices of pails or cans that are difficult to wash. The pail with an open seam may be the cause of serious trouble. Few milkers take the time to put on a special coat and apron for milking, but apart from being more sanitary, they protect the everyday clothes from becoming spotted with milk.

Besides bacteria, there are taints and odors which affect the quality of milk and its products. These odors are absorbed by the milk after it is drawn from the cow. If milk is exposed to any strong odor, or foul air, resulting from lack of ventilation in the stable at milking time, these odors will be taken up quite rapidly. Or, if milk is being cooled by use of an aerator, it is liable to absorb any strong odor from the atmosphere. These "off" flavors are strongest when the milk is warm and are less pronounced as milk becomes older, especially if subjected to some form of aeration in a fresh, clean atmosphere.

Taints and bacteria affect all milk, more or less, and every dairyman should endeavor to lessen the sources of contamination, by taking extra care at milking time and in cooling the milk properly after it is removed from the stable. The market demands a high-class product, whether in the form of milk, cheese or butter. The man selling milk direct to customers in a town or city is obliged to keep the milk up to the standard in order to retain customers. The man supplying milk to a cheese factory or cream to a creamery is not affected directly, but indirectly he suffers sooner or later if poor quality milk or cream is delivered. The cheese maker cannot make first class cheese from second-grade milk, and the quantity of milk to make a pound of cheese is increased. Likewise with the creameryman—it requires good milk to produce good cream, and the proper care must be taken of the cream if the highest-priced butter is to be made. There is need for a uniform method of caring for milk and cream in order that a uniform product may be manufactured that will compete favorably with the products of other countries on any market. The solution begins with taking every precaution at milking time.

POULTRY.

Egg-Laying Contest.

The Philadelphia North American International Egg-Laying Competition conducted at the Agricultural Experiment Station, Delaware College, Newark, U.S.A., completed the fourteenth week of the fifth year of the competition on Saturday, February 5th, with a pen of White Wyandottes in the lead to date and a pen of White Leghorns laying the largest number of eggs for the week beginning January 29th. The number of eggs, gathered from the 100 pens of five birds each for the fourteen weeks, was 14,173, with 1,737 laid during the fourteenth week.

The pen of White Wyandottes from Valley Green Farm, Whitmarsh, Pa., leads with 308 eggs to their credit. They are followed by a pen of the same breed, owned by Tom Barron, Catforth, Eng., which laid 279 eggs. A pen of Buff Plymouth Rocks stands third, having laid 267 eggs in the time mentioned. Single-combed Rhode Island Reds, entered by Woodman and Smith of Wycombe, Pa., came fourth, with 266 eggs to their credit. A pen of White Leghorns, entered by the Diamond Egg and Poultry Farm, Wilmington, Del., laid 31 eggs for the week, beginning January 29th, or a little over 88 per cent. of the possible number. Several pens of the different breeds laid over 75 per cent. during the week.

Some Points in Incubation.

Editor "The Farmer's Advocate":

We are now at the season of the year when all good poultrymen are either getting ready to start, or have already started, their incubators, and are preparing brooders, etc., for the reception of the March and April chicks, which make the winter layers. There will probably be the usual number of beginners in the poultry business, may be more than usual; and perhaps a few words of advice and warning, re artificial incubation, to these would not be out of place, and possibly there may be a word or two which will be of use to the fully-experienced poultryman.

Poor incubator hatches are caused by a variety of circumstances, and we must not immediately blame the makers of the particular machine used, when we only get a few, mostly deformed, weak, live chicks out of a set of 200 fertile eggs, the majority of the eggs containing chicks dead in the shell at various stages of development. This is often the result of one of the following causes, and we should ascertain if any of them apply to our case:

1. Use of immature or weak breeding stock. Only birds of a vigorous constitution should be allowed in the breeding pens.

2. Purchase of cheap eggs or stock from some unreliable breeder. Do not forget that the best is none too good in the poultry business, as in any other.

3. Use of old eggs for hatching. Eggs that are old will not hatch well. The best eggs to use are those that are placed in the incubator the day they are laid; eggs are in good condition for hatching, if kept in a cool place, up to 10 days

after they are laid, after they are two weeks old one cannot depend on them.

4. Running of the incubator at too high or too low temperature with many variations. The fewer variations there are from 108 degrees in the incubator all through the period of incubation, the better will the hatch be. A uniform temperature is necessary for any degree of success. When the chicks are coming out of the shell pretty lively, the temperature will probably go up a degree or so, which will do no harm, provided it does not go above 105 degrees; when the lamp flame should be turned down in order to keep it at that.

5. Lack of moisture in the room in which the incubator is run. In the case of those machines which have no sand tray provided, and rely on ventilation alone for supply of moisture, this is one of the greatest causes of chicks dead in the shell, and, although it may not be absolutely overcome, much better results may be obtained if the directions sent out with the various machines are faithfully followed, and where we find, by the use of the wet and dry bulb thermometer, that there is a lack of moisture, then we must supply it by artificial means. Every machine has full directions sent with it for supplying moisture in case of necessity, and these must be followed.

6. Rough handling of the eggs in turning. It only takes really a very slight jar to kill the embryo within the egg; especially during the first week or ten days. The periods near the third, seventh, fourteenth, and nineteenth days are very critical, and a slight mishap at any of these times is disastrous to the life of the unhatched chick.

7. Turning the eggs with dirty or oily hands. As a very small drop of kerosene oil on the shell will prevent the necessary circulation of air in the egg, and thus kill the embryo chick, one should be careful that the hands are absolutely clean before turning is started.

8. Omitting to test the thermometer. None of the incubator manufacturers can guarantee the accuracy of the thermometer, owing to the peculiar nature of the glass, which will sometimes shrink after sealing, and thus run the mercury up half a degree or more. This variation sometimes takes place from season to season, and to make certain of accuracy the thermometer must be tested at the beginning of each season.

If we are sure that none of the above causes of failure apply to our particular case, then I would advise writing to the makers of the machine used, and give full particulars of how the incubator was run, etc., but, as I said at the beginning, do not blame the machine until all other possible causes of failure have been investigated.

Given any of the better known incubators, eggs from good, vigorous stock, and reasonable care and attention to the above points, and also the directions sent out with each machine, I venture to say that an 80 per cent. hatch of fertile eggs is comparatively easy to obtain, and 95 per cent. is quite possible.

N. S.

ERNEST GRAZE.

HORTICULTURE.

The Hot-bed and How to Make It.

The efficiency and usefulness of the garden can be increased wonderfully through the services of the hot-bed. There are some crops that cannot be brought to a satisfactory stage of ripeness without a start in some artificial manner, and there are plenty of garden plants that can be made fit for table use weeks in advance of their usual time of maturity, if the young plants are born under glass. The construction and care of a hot-bed do not require any particular skill, yet the operation of the bed will acquaint the one in charge with many details as little incidents arise. Ventilation and watering are the two operations requiring the most attention, yet with a knowledge of plant life, and the use of good judgment, the result should be satisfactory. In one sense of the word there is nothing difficult about hot-bed work, but the results above a certain standard are often in proportion to the experience and judgment of the one in charge. Farmers usually have everything required for a hot-bed at their disposal. A few hours' work about the first of March would make a great improvement in the garden, especially as regards the earliness of the vegetables and produce grown.

The hot-bed should be placed in a position exposed as much as possible to the sun's rays, and protected from cold winds. The bed should be handy, for during part of the time it is in use it will require considerable attention. On the south side of a high board fence or building is a suitable place to construct the hot-bed.

Hot-beds used under farm conditions are usually heated by the fermentation of manure. And for this purpose fresh horse manure is used. To prepare it, it is well to make a cone-shaped pile of fresh horse manure, containing some straw. This should be thrown together loosely, and allowed to remain for four or five days. In that