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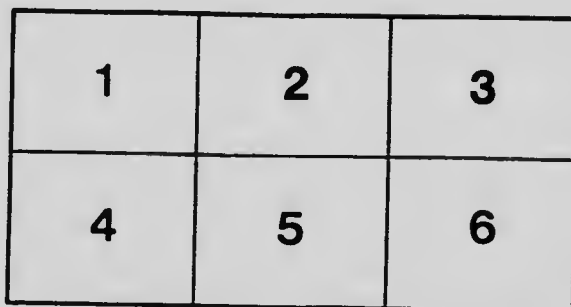
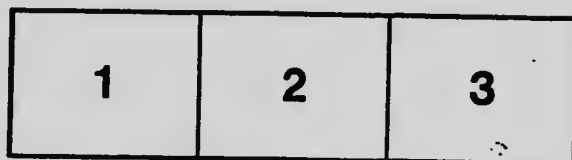
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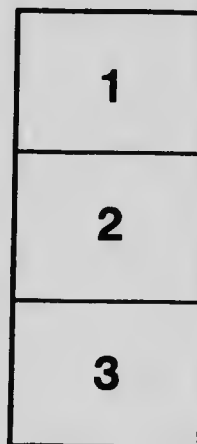
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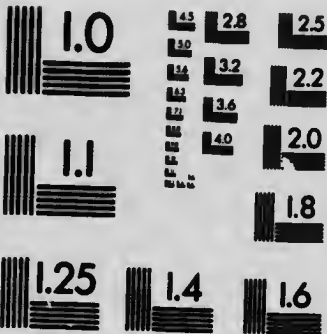
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PROVINCE OF BRITISH COLUMBIA

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DEPARTMENT OF AGRICULTURE  
(LIVE STOCK BRANCH)

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HOG-RAISING  
IN BRITISH COLUMBIA

BULLETIN No. 60

*By* S. H. HOPKINS



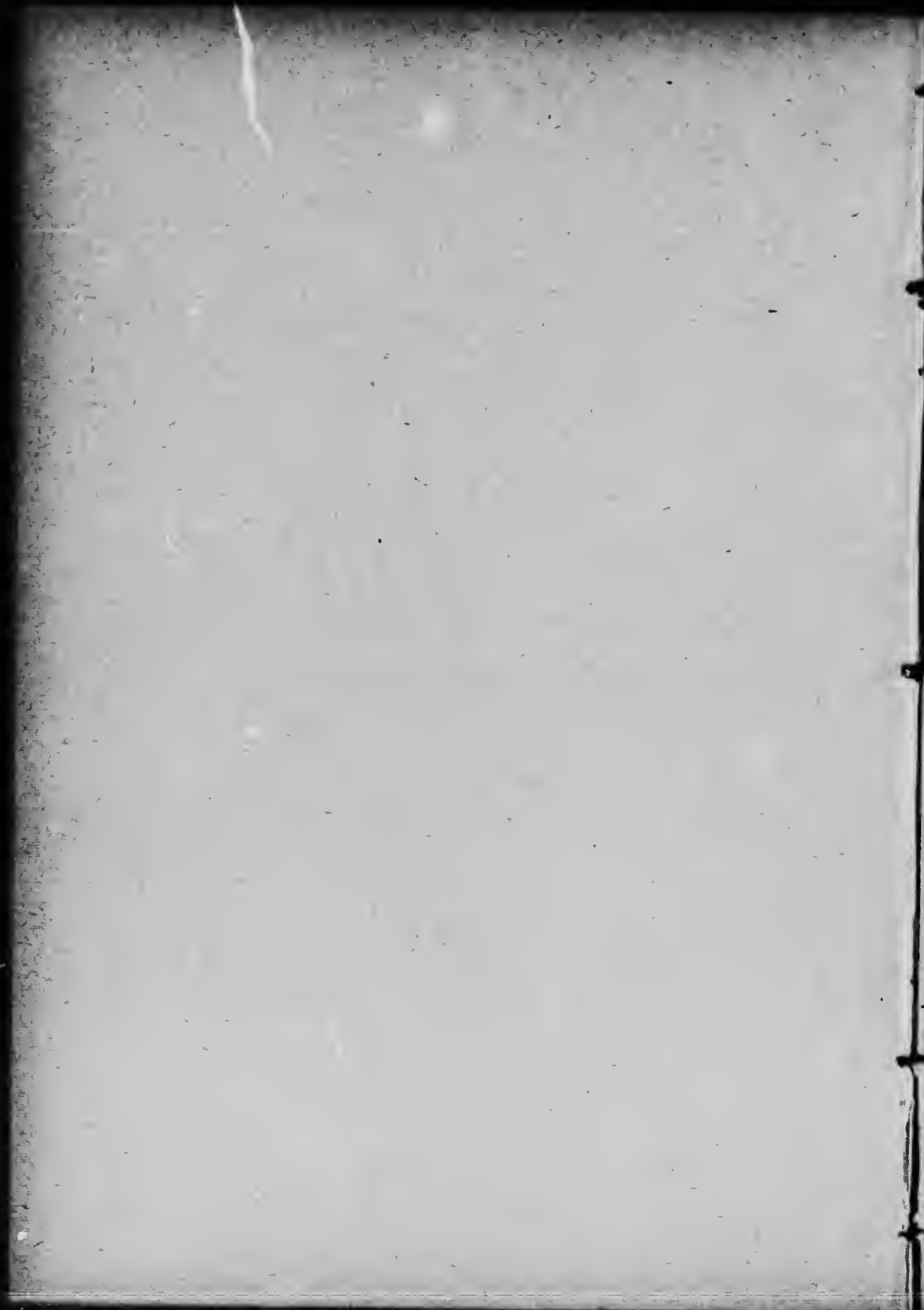
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DEPARTMENT OF AGRICULTURE,

VICTORIA, January 15th, 1915.

*Hon. Price Ellison,*  
*Minister of Finance and Agriculture,*  
*Victoria, B.C.*

SIR,—I have the honour to transmit herewith Bulletin No. 60, entitled "Hog-raising in British Columbia," compiled by S. H. Hopkins, B.S.A., Assistant Live Stock Commissioner.

The information contained therein on different breeds, summer and winter care of hogs, feeding rations, buildings, diseases and remedies, curing, etc., should prove of interest and value to those engaged in this lucrative branch of farming.

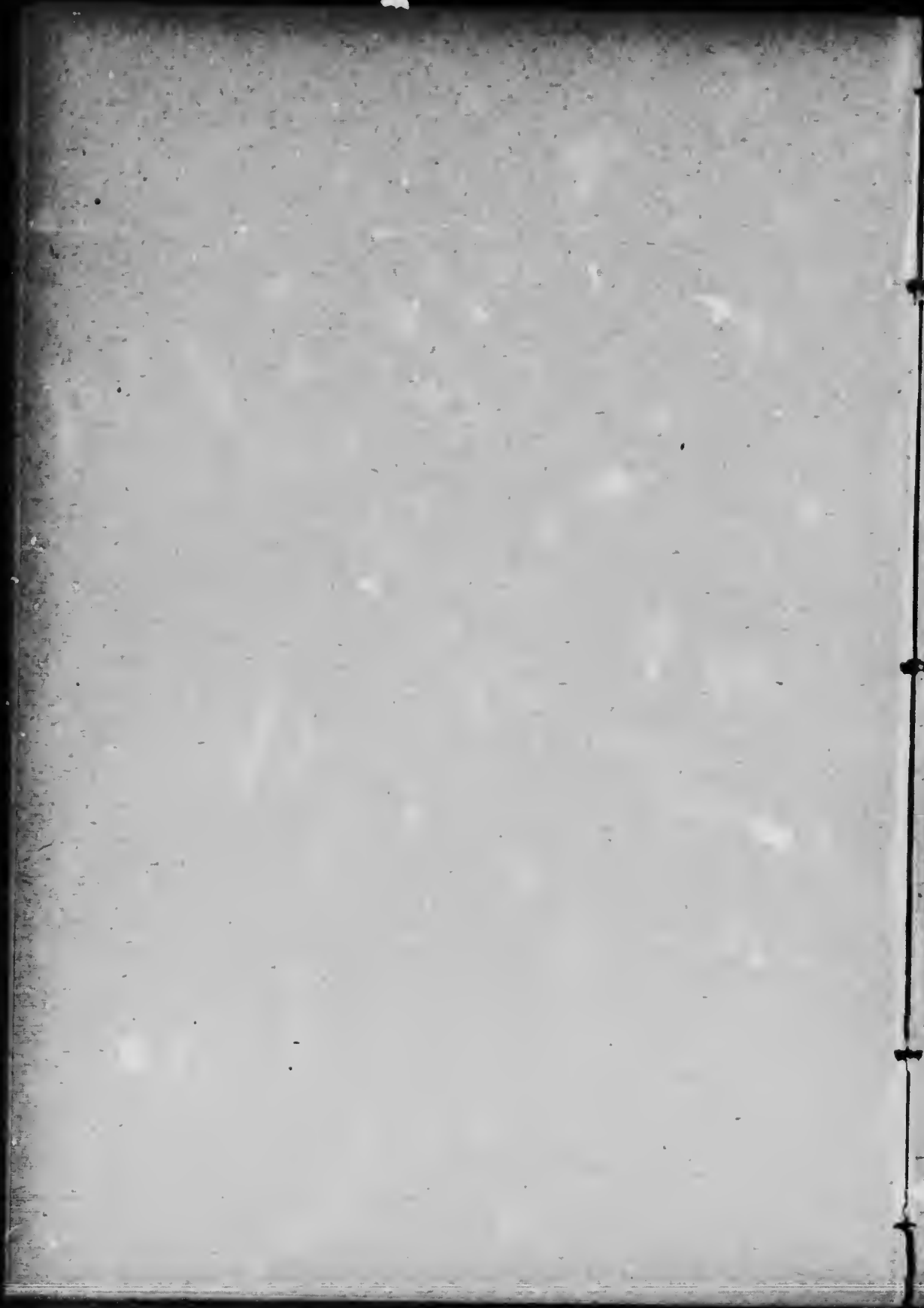
I have the honour to be,

Sir,

Your obedient servant,

WM. E. SCOTT,  
*Deputy Minister of Agriculture.*





# HOG-RAISING IN BRITISH COLUMBIA.

By S. H. HOPKINS, ASSISTANT LIVE STOCK COMMISSIONER



**HIS PROVINCE** is a large importer of hogs and hog products at the present time. In recent years we have produced only about one-third as much pork as we have consumed. Yet British Columbia has largely the same natural advantages as Denmark, famous for its high-quality bacon exports. Clover, alfalfa, rape, kale, and roots flourish on our fertile soils. These, together with a fast increasing supply of dairy by-products, tend to economical pork production. A largely increased supply of home-grown pork and bacon is assured if our farmers will but take advantage of their opportunities. With such markets as our cities and lumbering and mining camps afford, there need be little fear of overproduction. One note of warning may, however, be sounded. The history of the hog industry, like that of every other, has been a succession of periods of high and low prices. Consequently, many beginners have bought stock at high prices and had to sell at low; then they have given up in disappointment. The universal testimony is that the man who has made money in the hog business is the man who has stuck to it systematically. The hog-raiser has to decide on the number he can raise economically, according to his conditions, and then keep in the business.

## TYPE OF HOG REQUIRED.

There are two extreme types of swine—the lard type, noted for the production of thick fat; and the bacon type, noted for producing fine “streaky” bacon, or what are known as “Wiltshire sides.” Between these two there are intermediate types. Examples of the bacon type are found in the Large Yorkshire and Tamworth breeds, while the Poland-China and Duroc-Jersey breeds are representative of the lard type. The Berkshire and Chester White, as bred in Canada, stand between these extreme types.

The lard-hog is a product of the United States corn belt. The packers there and an immense quantity of lard, and corn furnishes the means. Here in British Columbia the market for lard is limited. Moreover, we cannot produce corn to such an extent as in the corn belt. This explains why the Yorkshire, Berkshire, Tamworth, and Chester White breeds are most in demand in this country. All the lard required for local consumption can be obtained from hogs of these breeds in the trimming process. A streaky bacon, with a large proportion of lean meat, is most desired in city and lumber camp, and is supplied by this type of hog.

The kind most sought after by hntchers is what is known as a “light hog,” weighing alive 140 to 200 lb., and “dressing out” a carcass weighing 100 to 150 lb., not too fat. This means that such a hog must be kept in good growing condition almost up to killing time, and not confined to pens steadily for a long period, as this tends to too much fat.

The most valuable part of the carcass is, of course, the upper part of the side from the back of the shoulder to the rump, hence good length is desirable in this quarter. Some hogs are long-bodied, but they have such a long, oblique shoulder that it makes the side comparatively short in the side. Such hogs carry too much weight at the front—the cheap end. Length is important, but not all-important. A hog must possess sufficient depth and thickness of body to ensure a good constitution and feeding capacity. A sway back, long coarse legs, and a narrow chest, with slab sides, are to be avoided.

## SUITABLE PURE BREEDS.

On the average, one breed of hog will make no good gains as another on a given amount of food. The difference in breeds lies in the kind of carcass produced. It can be readily seen, therefore, that the question so often asked, "Which is the best breed?" cannot be answered. Each breed satisfies different requirements, and a man must make his own choice.



Yorkshire Boar.

It is not necessary for the ordinary farmer to use pure-bred sows for raising hogs for slaughter, but, at any rate, he should use a registered boar of the breed he prefers. Pedigree breeding has been the means of improving all our modern breeds of live stock, so that every farmer owes it to himself to use registered sires to keep his stock up to standard. A pedigree, however, is not always a criterion. A sire must be a good individual in himself. The possession of a pedigree alone will not make him a satisfactory breeding animal.

A short description of the breeds most suitable for British Columbia follows:—

**Large Yorkshire.**—This white breed is the chief bacon-producer in Great Britain, and has been largely used by the Danes for crossing on native sows to produce their famous bacon. They are more numerous in Canada than any other breed. The sows are docile and good milkers, and are noted for large litters. Being prepotent, they are valuable for crossing on the fatter types of hogs, giving to the progeny greater length and less tendency to excessive fatness. The Yorkshire makes an ideal bacon-hog. It is a rapid grower, but its white skin is sometimes apt to blister on dewy pasture. The snout should be of medium length and the face dished, with ears carried erect.

**Berkshire.**—In the United States the Berkshire is classed as a lard-hog. But as bred in Canada the breed has retained more or less of the bacon type, together with large size, and is a favourite with many. It is more inclined to fatten than the Yorkshire, and is not quite as large. It is a hardy, easy-feeding, and fairly prolific breed, though usually not equalling the Yorkshire in this latter respect. Berkshires are very suitable for pasturing.

The standard colour is black, with white face, feet, and tip of tail. The snout is short and the face dished—that is, the snout turns up rather abruptly. In selecting Berkshires, care should be taken to get animals of good size and length, with strong bone.

**Tamworth.**—This is one of the oldest and purest of British Breeds. It is of pronounced bacon type. The breed is about as prolific as the Yorkshire. The sows make good mothers, and are excellent milkers. The Tamworth is a good rustler, and therefore a good grazing hog. The colour is red or chestnut, varying in colour from light to dark. In form this hog is large, lean in type, and long in head, body, and leg. The head is notably long of snout, tends to be narrow, with straight snout, and the face but slightly dished, with erect ears. In the carcass the sides are long, and in good specimens deep, with a large proportion of lean meat. The forequarters are seldom inclined to be heavy, but the hams are inclined to lack fullness. Tamworths cross well with Yorkshires and Berkshires.

**Improved Chester White.**—In the United States this breed is regarded as of the lard type. By Canadian breeders, however, it is bred to an intermediate type, and many splendid animals of a smooth and lengthy sort are to be found here. They are excellent feeders, grow rapidly, and their breeding qualities rank high. They do well on pasture. The colour is white, like the Yorkshire, but, unlike that breed, the face is straight and the ears droop over. The legs have a tendency to be weak at the pasterns, and this point should be watched. They are not as numerous as the other breeds mentioned.

#### CO-OPERATIVE BREEDING.

The ordinary farmer has not enough sows to warrant him keeping a boar for use on his own herd exclusively. However, there is nothing to prevent three or four farmers combining together to purchase a better animal than any of them could afford individually, at small cost to each. Fees from other sow-owners would pay for the keep of the boar.



Large Yorkshire Sow and Litter.

#### SELECTING BREEDING ANIMALS.

Both breeder and feeder have requirements that must be met. For instance, chest capacity must not be sacrificed for undue length of body. Nor must a short, fat, heavy-shouldered pig be chosen because it seems to promise good feeding qualities. Foundation stock should be chosen from a herd showing uniformity of type.

This ensures good parentage—a very important point. It requires experience to pick out the good ones while still young, so that a good plan for the beginner is to buy sows safe in young from a reputable breeder. All stock bought should be well grown for its age. A six-months-old pig should weigh around 175 lb. if well grown, and at one year 325 lb. It should be remembered that, while light hogs are wanted for slaughtering, they should be the progeny of large, well-grown parents to ensure



Mature Tamworth Sow.

rapid growth. A mature sow should weigh 400 lb. at least, and a mature boar considerably more. Large specimens of the Yorkshire and Tamworth breeds have gone over 1,000 lb. each. All animals should show reasonable activity of movement.

Docility and prolificacy are qualities to be looked for in the sow. They mean large, well-nourished litters, and profits for the owner. Do not forget that these qualities are hereditary.

*The Sow.*—A careful mother with a good milk-supply is a great asset, and should not be parted with in a hurry. In selecting young sows, they should be from dams whose usefulness has been proven. Kindness and a little individual attention while young will make them docile mothers, and will be amply repaid.

The sow should be feminine in appearance. The head and neck should be fine, but with good width between the eyes and across the forehead. The neck should not be arched, nor the shoulders wider than the rest of the body. A depression behind the shoulders, giving a tucked-in appearance about the heart, is very undesirable. A nice arch in the back at the loin is desirable, indicating strength in that region. A good length of side from the shoulder backward, with well-sprung, deep ribs, is an important feature. Many sows are so smooth that a straight-edge from shoulder to ham will touch all along the side. The hams should be full and well fleshed to the hocks, although in this quarter, as in the rest of the body, we do not look for as much width as we would in the lard-hog. The legs must be strong, with hocks squarely set, indicating ease of farrowing. The pasterns especially must be upright, with no tendency to break down. If weak, the sow would soon be walking on her dew-claws, or perhaps not able to walk at all. At least twelve large teats should be visible, and it may be stated here that ten or twelve offspring are all that can be raised properly by one sow, and she must be a good sow at that.

*The Boar.*—The boar has far more influence on the herd than a sow, hence he should be a good one. The meaning of "masculinity without coarseness" is hard to explain, but that should be the aim in selection. Coarseness is apt to be shown in the neck and shoulders. The neck may be slightly arched, but the shoulders should be smooth, allowance, of course, to be made for shields in mature animals. Rough,

heavy-shouldered animals are not countenanced in other classes of live stock, and there seems to be no reason for using hogs of this type. A broad face with well-muscled jaws, without flabbiness, indicate feeding qualities. Allowing for difference of sex, the features desirable in the sow apply to the boar. Animals must show vitality and activity, and a ruptured hog should not be used for breeding.

#### SUMMER CARE OF SWINE—PASTURING.

Breeding stock should have as natural conditions as possible. Where pasture is available, it will pay to graze hogs as well as other stock. The ordinary grasses, however, are not satisfactory, as they will barely support the hog. Rape, kale, and the legumes, such as clover, alfalfa, vetch, and peas, give much better results, being more nutritious. They more than sustain the animal, so that the grain feed all goes to make increase in weight. This is the most economical basis for feeding hogs. It has been proved many times that not only are the cheapest gains made on pasture, but that hogs raised on pasture and afterwards pen-fattened make better gains than those raised without green feed.

Where pasturing is not possible, crops should be cut green and fed in the pens. At the same time, sufficient exercise should be enforced to keep stock healthy. Even when on pasture, a breeding sow getting too ample a grain ration will get too fat and lazy and have weak litters.

As a supplement to pasture or green feed, one-third of the grain ration should consist of muscle-building foods like wheat middlings, bran, oats, skim-milk or butter-milk, and the rest of more fattening foods, such as corn-meal or barley-meal.

Hog-growers differ as to the amount of grain to be fed on pasture. Some feed a full ration; i.e., all the grain the hog will eat, about 4 or 5 per cent. of the live weight of the animal per day. Others feed a half-ration, between 2 and 3 per cent.; while others prefer a light ration, one that is equal to only 1 per cent. of the live weight of the hog. Occasionally men are found who run young hogs on pasture without other feed. They make a big mistake, because invariably the animal will



Yearling Berkshire Boar.

be stunted. A young, growing animal requires some concentrated food. The quantity of grain to be fed must be left to the individual feeder, and will depend upon (1) the age at which the hogs are to be marketed; (2) the price of grain; (3) the amount and quality of pasture available.

If hogs are to be marketed when six to eight months old, they should get about all the grain they will eat, as well as pasture to make them reach the desired weights,



150 to 200 lb., but it should be pointed out that a half-ration of grain (as above) has given the most economical gains for growing hogs on pasture.

Some hogs are carried on pasture without grain to be marketed at nine or ten months. This is seldom economical, because it must be remembered that the older the animal, the more food is required for a given amount of gain in weight. Young pigs should be kept in a thrifty, growing condition at all times. It never pays to



Yearling Berkshire Sow.

allow them to cease growing or to get stunted. Brood sows, too, must be kept in good flesh, without getting too fat, if large litters of strong pigs are to be expected.

The most successful pork-raisers are those who feed liberally to gain early maturity, while those who feed little grain are generally those who find little profit in the hog business. Skim-milk and huttermilk are valuable flesh and muscle-building foods when fed with grain. A thin slop of milk, with a little bran or middlings, is excellent for brood sows. Sour skim-milk has given as good results as sweet. Buttermilk, however, if not fed fairly fresh, develops too much acidity.

#### WINTER CARE.

It is often difficult to make hogs take sufficient exercise in the winter. For breeding stock this is essential. Brood sows and boars can be exercised by having a tight board or cement feeding-floor provided with litter in which whole oats or other grain is scattered. They will hunt for the grain for hours if not too well fed otherwise. Unthrashed oat or wheat sheaves may be fed in this way, but the beards of barley are apt to prove troublesome, and the grain is hard. The ration for breeding stock should certainly include some fine well-cured clover or alfalfa hay and roots. A cheap winter daily ration for a mature sow or boar is as follows:—

Bran or oats .....	1½ lb.
Shorts .....	½ "
Roots .....	10 "
Clover-hay .....	½ "

As high as 20 lb. daily of mangels may be fed dry sows, but as pregnancy advances this amount should be reduced and the grain ration increased. The grain may be mixed with pulped roots or fed in the form of a slop. The hay may be fed in a low rack on the feeding-floor, or if the leaves are picked up off the barn-floor when hay is thrown down, they may be fed in the slop.

Hay and roots are very useful for young, growing pigs also. They help to develop a strong, roomy digestive system. Root-fed pigs develop larger vital organs than those winter-fed on dry rations, and are therefore better able to make use of

food supplied. Clover and alfalfa hay contain a good deal of lime, which forms bone. In addition, the young pigs intended for the hatcher should receive an increasing amount of grain, such as barley-meal, corn-meal, linseed-meal, pea-meal, shorts, and skim-milk or buttermilk. A full meal ration, as before stated, is about 5 per cent. of the live weight of the animal per day. Skim-milk should be fed at the rate of three of milk to one of meal. Where skim-milk or buttermilk is very limited or unavailable, old-process linseed-meal will be found very useful for young, growing pigs. One part of linseed-meal to four of shorts has given good results. Tankage and blood-meal, nitrogenous by-products of the packing-houses, and well-made hay tea are also skim-milk substitutes. The main part of the fattening grain ration should consist of starchy foods such as barley and corn. Barley-fed bacon is noted for its quality. As the fattening period progresses, the amount of hay and roots should be gradually reduced and the grain ration increased. A good ration for fattening pigs, composed mostly of the common home-grown grains, may be made up of equal parts of barley, oats, and shorts, with a very little oil-meal. As the fattening period progresses, the amount of barley could be increased or some corn fed with advantage.

*Care of the Sow and Litter.*—Sows thin in flesh should be brought up in condition before farrowing. The feed should be sloppy and succulent to keep the bowels open and allay feverishness. A feverish or costive sow may eat her new-born young. The bedding should be short-cut straw, so that the young pigs will not be entangled and crushed. A scantling nailed 8 inches from the wall and 8 inches from the floor, as shown in the figure, will prevent the sow from crushing the little fellows against the wall. Some sows are just as careful as others are clumsy in this regard. A disposition to eat her young ones is probably the result of improper feeding.

After farrowing, the sow should lie quietly for a long time to gain strength. She will eat little the first day, but needs a warm drink. The milk-supply does not need to be forced at the start. Increase her feed gradually, so that when the piglets are two or three weeks old she will be getting fed most liberally. It pays



Chester White Sow.

to feed her well at this time, so that the litter gets a good start in life. Skim-milk made into a thin slop with oat and barley meal, middlings, bran, and a little linseed-meal, is excellent.

When the pigs are two or three weeks old they will start to eat slop themselves, and should be encouraged by the provision of a separate trough away from the sow, as shown in the illustration. Skim-milk mixed with middlings and ground oats, with



most of the hulls sieved out, and a little linseed-meal is good. Corn and barley meal may also be used with the milk. If thus treated they do not receive a check when weaned. In fact, they will wean themselves at about seven weeks. The males should be castrated at three or four weeks of age. Young pigs must be fed often—four or five times a day. Green feed or roots should be given them. At weaning-time the sow's feed must be gradually decreased to dry her up. If the sow is a heavy milker, allow her in to the pigs only once a day for a while, and she will soon be dry.



The type of pig the butcher wants. These are young Yorkshire Sows. They show quality and uniformity.

**Breeding.**—A sow should have her first litter at about one year old. The period of gestation is sixteen weeks. If in this condition after weaning, a rest should be given before breeding again, but a sow should produce two litters a year, if possible.

A boar is ready for service at seven or eight months. He should get the same food as a brood sow, with lots of exercise in a large yard by himself.

**Breeding-crate.**—A breeding-crate will soon make its usefulness known, and a simple one similar to the one illustrated can be easily knocked together. It will obviate many difficulties connected with mating unequal-sized or refractory animals. It can be made of 2- x 4-inch pieces, and a bar is slipped through the holes in the hinder part above the sow's hocks. The boar's feet rest on the inclined strips. These can be made wider if desired by attaching a flap by hinges to them. A good size for such a crate is 6 feet in length, 2 feet 4 inches inside width, and 3 feet high.

#### FEEDS AND FEEDING.

The hog yields over 75 per cent. of dressed carcass—over 10 per cent. more than the sheep or ox. The digestive organs of the pig, when full, are only 7½ per cent. of its total weight, compared to over 14 per cent. in the case of the ox. This explains why the hog's stomach cannot handle as large quantities of coarse fibrous food. The pig's alimentary tract is similar to the human, and is adapted to a similarly concentrated and omnivorous diet. It is an interesting fact that domestication has increased the length of the intestinal tract of the hog to twice the length of that of the wild hog. In nature the hog lives close to the earth, and in gathering roots and grubs a good deal of earthy matter is swallowed. The intelligent swine-breeder takes note of this fact. Hogs need mineral matter. A mixture of ashes, salt, charcoal, and bone-meal will supply this need, and will be appreciated by the hogs.

#### NOTES ON FEEDS.

**Oats.**—Oats have a very nutritious inner kernel, but the outer hull is fibrous and indigestible. The hulls should be sifted out when feeding ground oats to young pigs. Oats may be fed whole to breeding stock amongst the litter, but are more digestible if soaked forty-eight hours before feeding.

**Barley.**—Barley produces a fine quality of bacon; but is not so suitable for young pigs as the more nitrogenous middlings or sifted oats.

**Middlings or Shorts.**—Middlings should contain a good proportion of white floury material, as the brown outer flakes of the wheat-grain (bran) contain much fibre.

**Bran.**—Bran is too fibrous for young or fattening pigs, but is good feed for breeding stock and sows in milk.

**Corn.**—Corn is starchy and fattening, and should be fed with other grains or with skim-milk at the rate of one of corn to three of the other foods.

**Linseed-oil Meal.**—This highly nitrogenous food is valuable for sows in milk or for young pigs, but if used for fattening it should not constitute over one-fifth the grain ration, as it is apt to produce an oily fat. Oil-meal has a very beneficial effect on the digestive organs.

**Wheat.**—This grain alone makes a good ration for swine of any age, but, as with the other foods, it is better mixed with other grains, as it is somewhat constipating in its effect. Frozen wheat is also good, and is more nitrogenous than plump grain.

**Peas.**—Peas are a very rich food. Pea-meal mixed with ground oats, barley, corn, bran, or shorts produces an excellent quality of pork. It is one of the best feeds for hogs of all ages.

**Ensilage.**—Ensilage containing clover or alfalfa is very good for swine. They will eat pure corn ensilage also, but it is rather fibrous for them.

**Clover or Alfalfa Hay.**—Well-cured, early-cut hay should be fed regularly to hogs in winter. The tea made by soaking in boiling water, fed warm, is valuable as a substitute for skim-milk for young pigs. Clover-leaves gathered from the barn-floor should be used in this way.

**Skim-milk or Buttermilk.**—These dairy by-products are equally valuable for all classes of hogs, but especially for young weanling pigs. They should not be fed alone, but mixed with meal. They are best in the proportion of one of meal to three parts by weight of milk.



Duroc Jersey Sow.

#### PASTURE AND GRAIN—CROPS FOR HOGS.

**Alternate Pasturing.**—One of the best and most economical ways of managing pasture is to have about equal areas pastured alternately for about a week or ten days at a time. With clover or alfalfa, the growth is allowed to become 3 or 4 inches high before the hogs are turned in. Such crops as rape, kale, or vetch should grow to a height of 10 inches or so. Rapid growth during a period of rest, and clean, fresh, tender pasture is secured by this method. More hogs can also be carried on a given area. Generally speaking, ten to twelve hogs are enough on an acre of

forage. Hogs weighing 50 lb. and over produce better results on pasture than smaller pigs.

To keep down weeds and make the growth come on evenly, the pasture is clipped as soon as the hogs are removed. In the irrigation belt the water should be turned on as soon as the hogs are taken off. The surface of the ground then dries, and the hogs are not so much inclined to root as when it is wet.



A-shaped Portable House.

**Pasturing the Meadow.**—By another method the hay meadow can be utilized for hog pasture and still grow hay at the same time. In this case the number of hogs must be limited and have a large area to run over, so as not to injure the stand. When the growth begins to get coarse an area near the feeding or watering place should be mowed, and when the young shoots on this piece start up the hogs will leave the rest of the field alone.

**Hogging off Crops.**—This means turning the hogs into a standing field of ripe, or nearly ripe, wheat, barley or peas. This is perhaps a wasteful practice, but under good management it has given good results, as the labour of caring for the hogs and the cost of harvesting and feeding the crops is saved and the manure well distributed. A steep hillside unsuited for the binder has returned \$18 per acre through hogging off barley.

**Field-peas** are one of the most satisfactory crops to harvest with hogs. Peas are excellent feed, and the hogs are very fond of them. They gather them with but little waste under good management. The hogs should be turned in as soon as the last pods are pretty well matured. They are better confined by movable fences to small areas to last two or three weeks at a time. They may have rape or kale at the same time to balance the ration.

**Wheat** is ready to hog down from the stiff-dough stage onwards for from four to six weeks. A soft variety of wheat with a beardless club-head is most suitable. It does not shatter so readily, and there are no beards to make the hogs' mouth sore.

**Clover.**—Red clover for well-drained soils and alsike clover for wet lands will be found very satisfactory pasture crops in the rainy districts of the Province. This crop makes its maximum growth during April, May, and June, and after hay-time the meadows can be used.

**Alfalfa.**—In the Upper Country and in all districts where the rainfall is scanty this perennial will supply an abundance of forage more nutritious than clover. It grows during the entire season, producing an abundance of feed from early spring till late fall, year after year. The Department of Agriculture will send a bulletin

on the culture of alfalfa free on request. An acre of alfalfa or clover will produce 500 to 600 lb. of pork when fed with a proper grain ration.

**Woodland Pasture.**—In a rich, moist woodland, mature hogs will probably use enough roots and tender vegetation, together with grubs, to support them in summer. But young pigs will do badly under these conditions without other food. Pigs are apt to run wild unless fed a little at home.

**Kale and Rape.**—Thousand-headed kale and Dwarf Essex rape are closely related. For summer and autumn pasture few crops are more satisfactory. Land for rape or kale should be well manured. For early summer use the seed is sown as soon as the ground is warmed up well in the spring. For later use the seeding may be delayed, and this gives the opportunity for many weeds to be destroyed by cultivation before the seed or plants are put in. This is a big advantage.

Both these crops may be sown broadcast on clean land, or drilled in rows 32 inches apart, but kale is better grown in beds and transplanted after the field is thoroughly cleaned, thus saving much hand-hoeing. A bulletin on kale-growing is issued by the Department.

By pasturing and cultivating two or three times the crop may be kept growing all summer. After the fall rains come both rape and kale make a vigorous growth. They stand a great deal of frost, and can be used until December, or later in a mild climate. A good deal of waste occurs in the pasturing, and to prevent this some cut the crop and feed it in racks to the hogs.

Kale is less likely to be injured by plant-lice in late summer than rape. Small hogs can be turned on about two months after planting, but before grown hogs are turned on the growth should be large enough, so that they will feed on the leaves instead of biting off the stem or pulling up the plant. The stem will then keep sprouting new leaves. One acre of rape or kale can save 2,000 lb. of grain, fed along with a half-grain ration.

**Rape and Oats.**—One bushel of oats and 4 lb. of rape-seed is recommended as a mixture for summer pasture. It can be used from the time the growth is 5 or 6 inches high until fall. The oats are not eaten as readily as the rape, and this gives the oats a chance to head out. In eating the ripe grain considerable is dropped.



Small Shed-roof Portable House.

This sprouts during the fall rains, and together with the rape grows vigorously, making fine late pasture—in mild climates until spring.

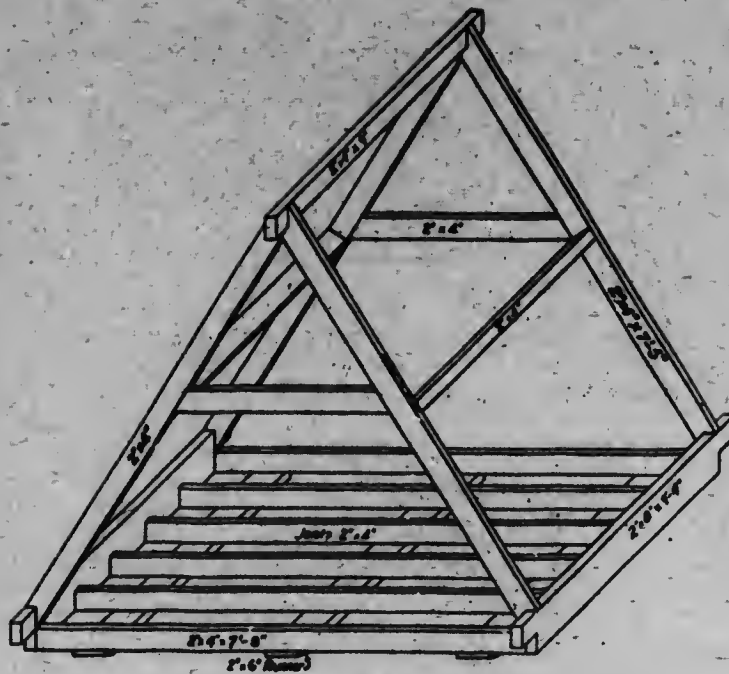
**Rape and Clover.**—A most satisfactory summer pasture can be secured by sowing 3 lb. of rape-seed and 10 lb. clover together in late spring.

**Kale and Rape in Corn.**—About 4 lb. of kale or rape seed per acre sown at the time of the last cultivation of the corn will grow well after the corn is cut, and provide good winter pasture in the milder climates.

*Vetch and Wheat, Vetch and Oats, or Vetch alone.*—These crops may be sown in corn at the last cultivation for late pasture. If sown later they are used in the spring months.

*English Rye-grass.*—Where the winter rains are excessive, a close, tough sod is very desirable for winter pasture to prevent the soil being puddled by the tramping of the hogs. It is one of the first grasses to start growth in the spring, and one of the last to cease in the fall. It does not grow much in the summer drought, however, but in a mild climate the close sod can be pastured all the rainy season.

*Winter Wheat.*—This crop furnishes excellent pasture for hogs. If the autumn rains begin early enough in the fall to seed during the first part of September, it may perhaps make some pasture the same year. It may be sown among the standing corn at the time of the last cultivation. In any case, it makes a very early spring pasture. It is used from the time the ground is settled until the grain begins to head or until the hogs begin to chew the heads.



Frame for A-shaped House.

*Grain-stubble.*—No matter how favourable the conditions during harvest much grain will still be left on the ground, and hogs should be turned in to make use of this.

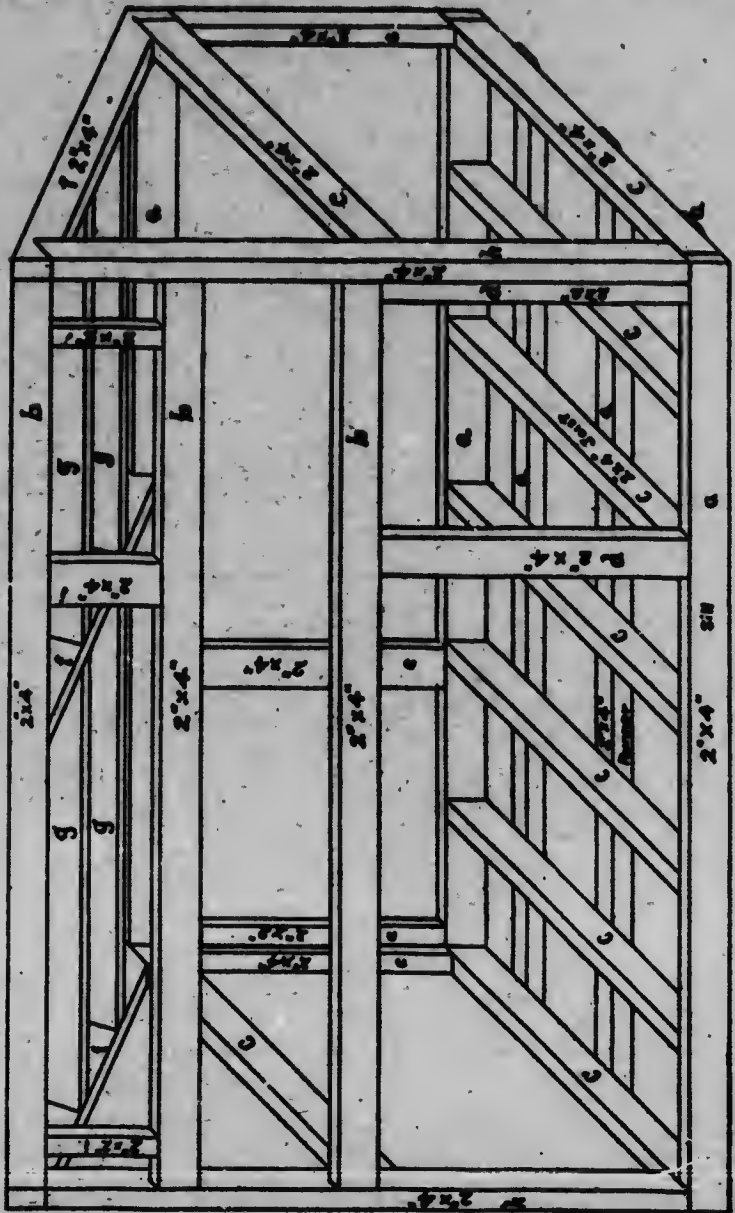
#### WINTER FEEDS.

*Alfalfa and Clover Hay.*—If cut at the right time and well cured, these furnish a most economical winter feed. The hay must not be coarse and woody, and the leaves are the important part. If they are shattered off the hay is useless for hogs. Hay may be fed to hogs in racks. But a better way is to chop it fine, mix it with meal, and moisten the whole with as much water as it will absorb, allowing it to soak for twelve hours. In cold weather the mixture should be heated, or hot water used to warm it, with roots as noted below.

Brood sows are able to winter well on good alfalfa or clover hay and roots, with a very little grain. Fattening hogs make rapid gains on a ration of one-fourth hay to three-fourths grain.



**Roots and Tubers.**—Potatoes, artichokes, sugar-beets, mangels, carrots, turnips, cabbage, and ensilage are valuable in the order named. They are conducive to large vital organs and vigorous growth. Five pounds of roots will replace 1 lb. of grain, if fed with grain in the proportion of one of meal to three or four of roots. Potatoes and turnips are better cooked, but the others can be fed raw.



Frame for Small Shed-roof House.

**Jerusalem Artichokes.**—These tubers are similar to the potato, and are grown in the same way, in rows about 2 feet apart, and cultivated. In the fall, when the tubers have multiplied, the hogs are turned in to do the harvesting. They root out the artichokes with great gusto. If some tubers are left in they will furnish

a crop the next year. In mild climates the patch can be used all winter unless too wet. In Oregon the yield has gone over 700 bushels per acre. All roots and tubers should be fed with grain, as noted above.

**Unthrashed Grain.**—Roots and unthrashed peas make an excellent winter ration for hogs. In hunting over the feeding-floor for the peas the hogs obtain needed exercise. Unthrashed grain of any sort may be fed in this way if desired.

**Portable Trough.**—A good trough for outside feeding for five or six pigs can be made by securing: One 2-inch plank, 1 foot wide, 4 feet long, for bottom; two 2-inch planks, 6 inches wide, 4 feet 4 inches long, for sides; two 2-inch planks, 1 foot wide, 20 inches long, for ends; three 1-inch boards, 6 inches wide, 4 feet long, for false upper trough. Nail the planks together to form a flat-bottomed trough with ends longways up. Between these end pieces, near the top, nail two of the inch boards to form a V-shaped trough, but keep the bottom edges about 3 inches apart. Then nail the other inch board in a vertical position in the middle, with its upper edge an inch below the open bottom of the false trough, and its lower edge 3 inches above the bottom plank. The feeder can pour feed into this trough easily, in spite of hogs struggling to get at the feed.

A barrel slung on a pair of wheels is a handy contrivance for carrying slop or skim milk.

## HOUSING.

The portable style of house offers a good many advantages. It is easily and cheaply built by any one handy with tools, and odd lumber can be worked in. It can be easily moved by a horse from place to place as desired. It is adapted to the needs both of the general farmer and the breeder of pure-bred stock, and is the most natural and sanitary system of housing. When moving off the farm, portable houses are retained by the hog-owner as his own property.

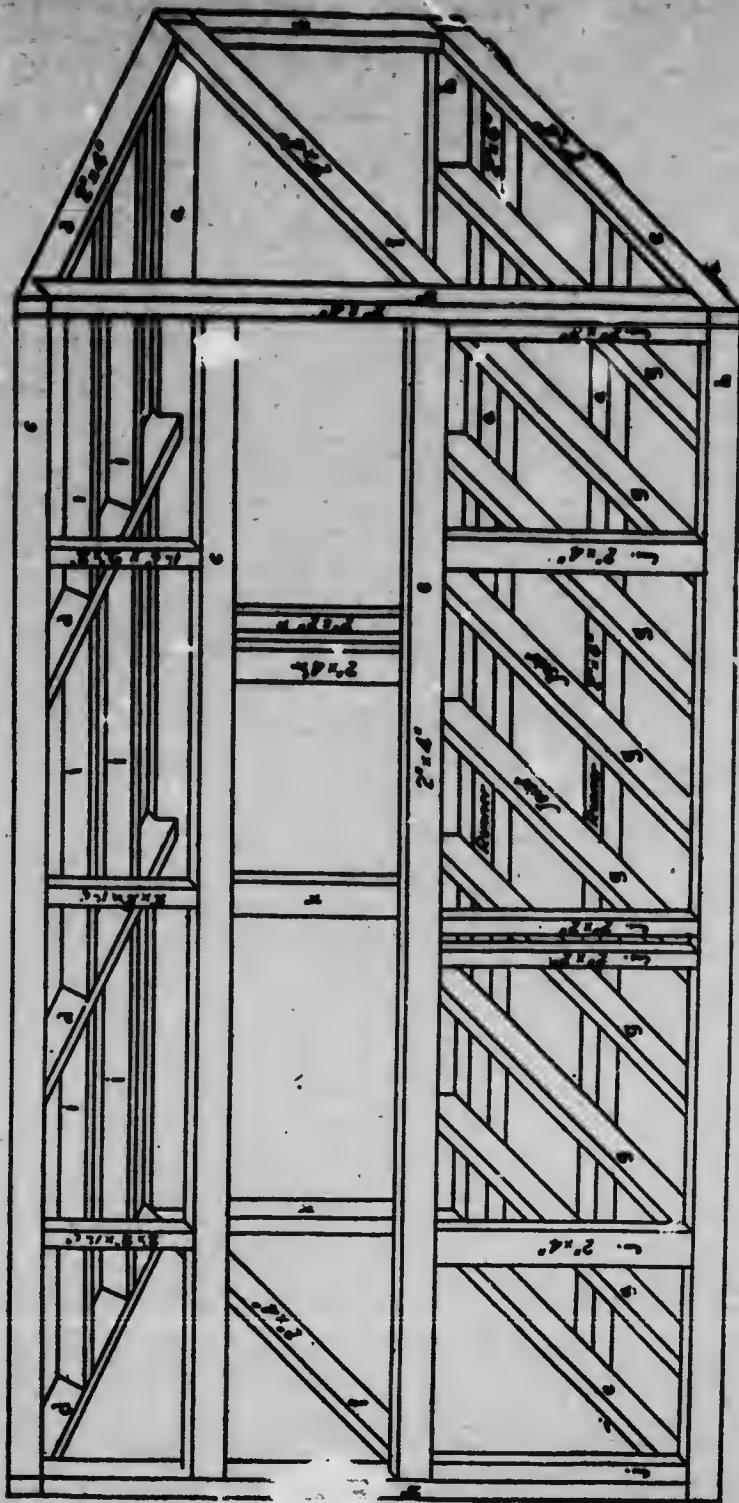
Wherever the pasture is situated, these houses can be moved on to it. Where a large number of hogs are housed and fed in one house continually, the surroundings cannot help but become more or less filthy. By using portable houses and moving them occasionally on to high, dry ground, one avoids unsanitary conditions. Diseased animals can be more readily isolated by the use of these houses. In addition, portable houses are far less expensive than a permanent house.

The two houses about to be described are built to accommodate ten to twenty young pigs, or four to six mature hogs. Choice may be made between the A-shaped house and the shed-roof house.

**The A-shaped Portable House.**—The construction of this house is readily seen from the illustrations, showing a good-sized house about 8 feet square. The ventilator covers an open space in the roof made by sawing off the ends of two roof-boards. There should also be a small movable window in the rear. The door may be higher if desired to procure readier entry for cleaning out. Eye-bolts with rings inserted in the front are for attachment in moving the house.

The following is the bill of lumber for such a house: Nine pieces 1 x 12 inches, 16 feet long, and eleven battens 16 feet long, for roof; five pieces 1 x 12 inches, 14 feet long, for ends; one piece 2 x 4 inches, 10 feet long, for ridge; two pieces 2 x 8 inches, 10 feet long, for plates; seven pieces 2 x 4 inches, 16 feet long, for rafters and braces; three pieces 2 x 6 inches, 8 feet long, for runners; and four pieces 2 x 12 inches, 16 feet long, for flooring.

**The Shed-roof Portable House.**—The illustrations show a type of house somewhat referred to the A-shaped house. The upper door can be fixed in any desired position to keep out the storms or the hot sun and still provide ventilation. The hinges are at the top. The smaller opening at the top is a window. Light and ventilation are important features to secure, and should always be provided. With all the openings thrown open in summer, such a house will be quite cool. In winter, with door and window closed and the ventilator slightly open, it makes a very warm house. The door can be hung from the top to open either way when nosed by the hog, so that it will always swing shut.



Frame for Large Shed-roof House.



The key to letters shown on frame is as follows: (a) Pieces 6 feet long; (b) 7 feet 8 inches long; (c) 6 feet long; (d) 2 feet 8 inches long; (e) 2 feet 8 inches long; (f) 7 feet long; (g) 2 feet 8 inches long; (h) 5 feet 4 inches long; (i) 11 inches long.

The following amount of lumber is necessary to construct the house described: Six pieces 2 x 4 inches, 16 feet long; five pieces 2 x 4 inches, 12 feet long; two pieces 2 x 4 inches, 14 feet long, for frame; three pieces 2 x 12 inches, 16 feet long, rough, for floor; eleven pieces 1 x 12 inches, 12 feet long, dressed one side, for sides and ends; five pieces 1 x 12 inches, 16 feet long, dressed one side, for roof; and four pieces O.G. battens 16 feet long, eleven pieces O.G. battens 12 feet long, for roof and sides.

A larger house of the shed-roof type may be built if desired. The plan is given for a house 8 x 12 feet. This house will accommodate eight to ten mature hogs, or twenty growing pigs. By partitioning off the house in the middle, the house can be used for two different lots of hogs, or two sows at farrowing-times. In this case it should be provided with two doors, windows, and ventilators in the front.

The illustration shows the framework of the 8 x 12 house. The runners are shown underneath the joists, the same as is shown in the smaller house, and the method of construction is practically the same. The two 2 x 2's shown at the centre in front and also the place in the rear opposite them is arranged to provide for putting in a plank partition. The planks for the partition may be sawed diagonally at one end in order to release them easily on being removed.

The key to the letters which are shown on the frame is as follows: (a) Pieces 11 feet long; (b) pieces 11 feet 10 inches long; (c) 11 feet 8 inches long; (d) 9 feet long; (e) 7 feet 10 inches long; (f) 7 feet 6 inches long; (g) 7 feet 8 inches long; (h) 6 feet 6 inches long; (i) 8 feet 9½ inches long; (j) 2 feet 7 inches long; (k) 2 feet 4 inches long.

The amount of lumber necessary to construct the above-described house is as follows: Eight pieces 2 x 4 inches, 12 feet long; three pieces 2 x 6 inches, 12 feet long; two pieces 2 x 4 inches, 16 feet long; six pieces 2 x 4 inches, 16 feet long; three pieces 2 x 4 inches, 14 feet long, for frame; eight pieces 2 x 12 inches, 12 feet long, rough, for floor; eight pieces 1 x 12 inches, 14 feet long; six pieces 1 x 12 inches, 12 feet long; two pieces 1 x 12 inches, 10 feet long; one piece 1 x 12 inches, 16 feet long, for sides and ends; one piece 1 x 6 inches, 12 feet long, for braces and cross-pieces for doors; thirty-six pieces O.G. battens 10 feet long, for sides; and thirteen pieces 1 x 12 inches, 10 feet long, for roof. For a shingle roof it will require 150 feet of rough lumber 14 feet long and six hundred of shingles 4½ inches to the weather. A shingle roof is preferable.

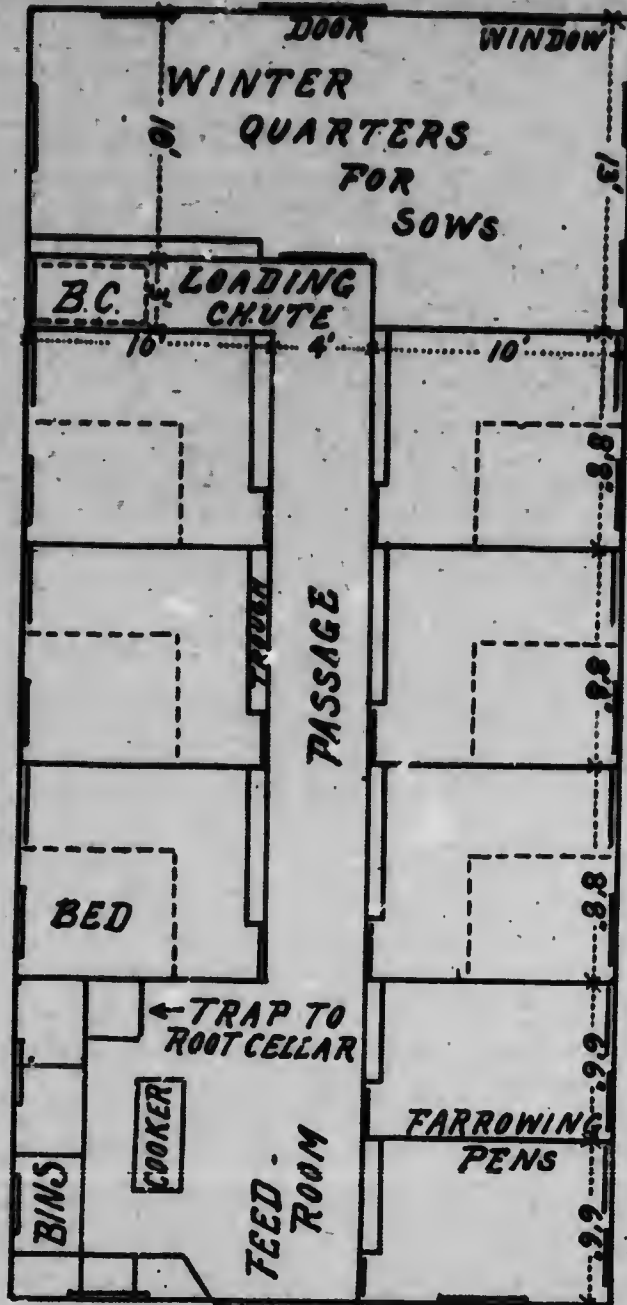
In winter the portable houses may be brought up near the farm buildings, and located on high, dry ground. A feeding-floor with troughs should be provided in a handy place near by. The houses should be well bedded at least once a week; oftener in wet and muddy weather. They are made warmer and draughts prevented by banking round the outside with earth or straw manure. With good care, hogs will winter well in these houses.

**Straw House.**—In Manitoba hogs have wintered well in straw houses made by piling straw thickly over a pole structure, with a low passage to the middle. In any dry, cold climate this house will answer well, provided the straw is thick enough to keep out draughts and absorb the moisture from the animals' breath.

**Large Permanent Hog-house.**—A large permanent house is more expensive than the portable-house system, but has advantages connected with it, especially in winter. The hog is sensitive to cold, and in severe weather needs cozy quarters to do well. Hogs winter well in portable houses, but cost more to feed, because such quarters are often colder than a permanent hog-house.

In erecting a permanent house five things should be especially considered—light, ventilation, warmth, ease of cleaning, and dryness. The house should be on a north and south line, so that the sides facing east and west will get equal amounts of sunlight. In the house shown in the figure the feeding may be done either in the inside sleeping-pens or outside in the yards, whichever is preferred.

*Floor*.—Concrete makes the best and most durable floor, both for inside and outside pens. If the floor of the house is of wood it should be raised a couple of feet off the ground on posts for the sake of ventilation and to avoid creating a harbor for rats, which are always troublesome about a pig-pen. Concrete is more sanitary than any other material, but is cold for pigs to sleep on. For



Floor-plan for Permanent House.

sleeping-quarters, boards should be laid either directly on the cement or on cleats, with interspaces for drainage, as illustrated. Brick makes an excellent floor also, but is expensive.

Hogs cannot stand damp beds, and drainage should always slope away from the sleeping-quarters. A sleeping-pen may be built several feet off the floor, with an inclined approach for climbing up, but it is apt to be draughty.

**Walls.**—Wood is the best material for the walls. A good tight wall is made thus: Matched lath lumber, tar-paper, studding, tar-paper, matched lath lumber. The dead-air space in the middle insulates the building against heat or cold, and the tar-paper prevents draughts.

**Floor-plan.**—The floor-plan submitted is not expected to suit everybody, but it combines several useful features. The hogs can be moved readily or loaded on to a wagon; the house can be easily cleaned out and bedded. The large pen at the end provides an ideal place for wintering brood sows. B.C. is a breeding-crate, described elsewhere. The fitting-up of the pens is also illustrated.

### THE MOST COMMON DISEASES OF SWINE.

**Hog-cholera—Symptoms.**—Signs of fever, shivering, unwillingness to move, loss of appetite, the hog appears dull and stupid, and tries to hide in the bedding. Later a fetid diarrhoea sets in, and the breathing is rapid and becomes oppressed. The animal gets weak and stands with arched back. After death, blood-clots are found throughout the body, with nicers on the large intestines.

**Cause.**—This disease is spread by germs which are very hardy and vigorous. They may live in the soil for at least three months, and in straw and litter for longer. The water and feed is sometimes infected, especially the garbage from kitchens, which sometimes contains pieces of infected pork—harmless to man, but deadly to hogs eating them.

**Prevention.**—As cholera is exceedingly infectious, no time must be lost in isolating diseased animals in an effort to prevent its spread. An outbreak must be immediately notified to the Dominion Health of Animals Branch, Victoria, B.C.

**Tuberculosis.**—A hog may appear perfectly healthy and still have this disease. The tubercles may be found in any part of the body. Tuberculosis is difficult to diagnose. A cough may indicate it, or may simply indicate lung-worms. Glands may be enlarged, especially in the neck, accompanied with diarrhoea and swelling of the joints. In the case of a rapid loss of flesh the animal will soon die.

The main source of infection is skimmed milk from tuberculous cows, so that pasteurization of the milk, or milk from healthy cows, is a preventive. The disease cannot be treated except by supplying dry, comfortable quarters and good food.

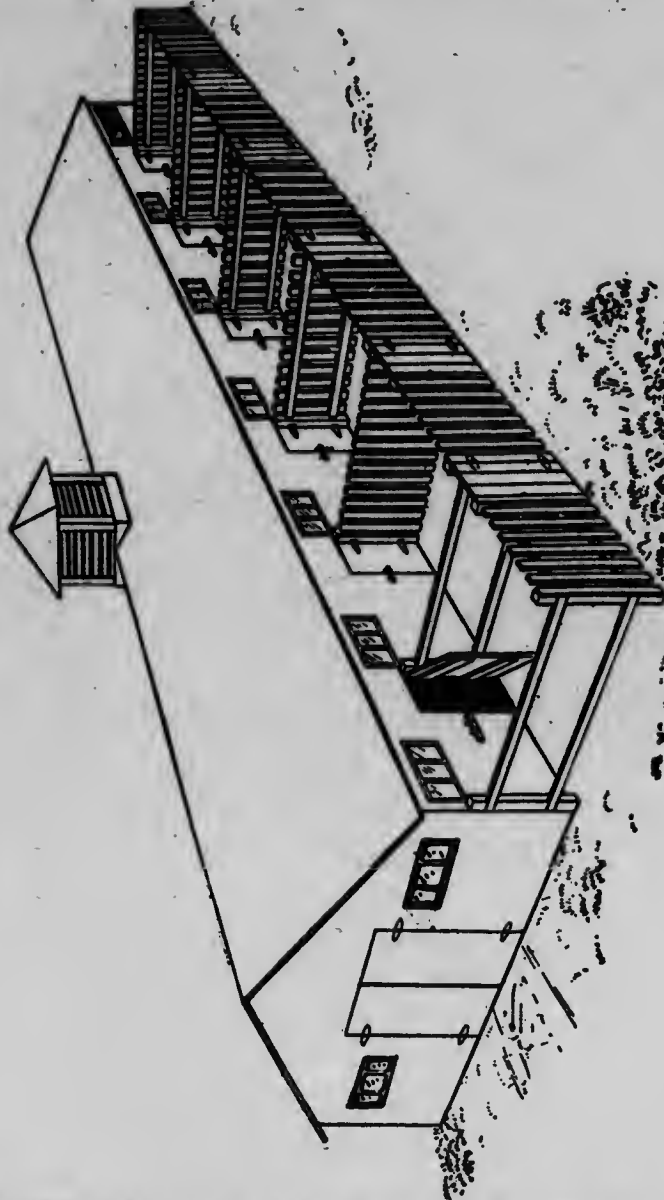
**Worms.**—These parasites may exist in the intestines or in the lung-passages. For intestinal worms give on an empty stomach 2 oz. of pumpkin-seeds, beaten to a pulp, with sugar, followed by a dose of Epsom salts. A teaspoonful of turpentine three times a day for every 100 lb. live weight of hogs is also a remedy.

Lung-worms cause the pigs to cough violently, and the cause is often put down to a cold. Treatment for lung-worms is not easy, but turpentine given by the mouth in teaspoonful doses three times daily will be of use, as it is exhaled by the lungs. The main remedy is to build up the system by ample food and warm quarters. Thoroughly disinfect the quarters to prevent a recurrence.

**Mange and Lice.**—No profit can be made out of hogs that spend half their time scratching and the rest of the time thinking about it. A good coal-tar dip will prevent this trouble. In the summer a little dip in the water of a broad, shallow trough will provide a hog-wallow in which the hogs will disinfect themselves. In winter the dip can be applied warm with brush or spray-pump. Coal-tar dip does not irritate the skin. Dipping-vats may be used where a large number of hogs are handled.

**Scours.**—Sucking-pigs often get scours or diarrhoea as a result of cold, or a change in the mother's milk, or damp quarters. The remedy is a teaspoonful of castor-oil for the young pigs and a tablespoonful of sulphur for the sow twice a day for two days, with a reduction in her food. Lime-water is also a good remedy.

*Rheumatism and Lameness.*—Damp or draughty quarters are often a cause of this ailment. The hog is hardy, but he cannot stand these conditions. Sometimes the cause is lack of mineral matter in the food. In this case coal-slack or the mixture previously mentioned may be given. A teaspoonful of sulphur three times a week will benefit greatly when a hog is out of condition. Salicylate of soda is



Permanent Hog-house.

the most useful drug to give in cases of rheumatism. The dose is 20 to 30 grains in the feed, or as a drench, three times a day.

In the hog's natural habitat he can obtain lots of rich, succulent food, dry sleeping-quarters or moist wallow, sunshine or shade, at will, and to get the best out of him we must give him what he wants.

*Thumps* (or palpitation of the heart) sometimes occurs among sucking-pigs. It is caused by too much food and lack of exercise.

*Infectious Sore Mouth.*—This disease is caused by a germ living in filthy quarters. When affected, sucking-pigs refuse to feed and the disease is hard to treat. The sore mouths may be washed out regularly with a 4-per-cent. solution of permanganate of potassium—a cheap and safe disinfectant.

*Sharp Teeth; Black Teeth.*—Black teeth are not the cause of any disease; they are just freaks. Sometimes when pigs suckle a long time their growing teeth injure the sow's udder. The remedy is to break off the long teeth and heal the udder by rubbing in lard or vaseline.

*Inflammation of the Udder.*—The sow must be milked frequently and a physic of Epsom salts given. A sloppy diet must be fed. An ointment of 3 oz. vaseline and 1 drachm each of belladonna extract and gum camphor can be used.

#### KILLING AND CURING PORK AT HOME.

*Killing.*—Hogs should be excited and bruised as little as possible in catching for slaughter. Before bleeding, the hog should be first stunned, using a 22-calibre rifle with short cartridge for a 200-lb. hog, and aiming at a point in the centre of the forehead half-way between the eye-line and the top of the head.

When stunned, the hog is immediately turned squarely on his back. First make an incision about 2 inches long in the middle of the throat just in front of the breast-bone. Then pass the knife obliquely in, directly towards the kidneys, and not to the right or left. At a depth of about 8 inches the knife is given a sharp turn, which severs an artery.



Sleeping Pen with Sectional Wood Floor.

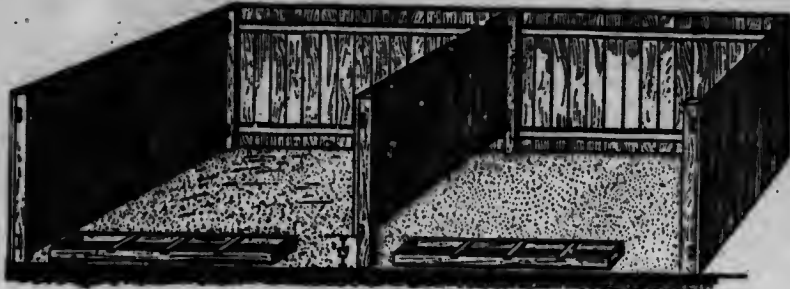
*Scalding.*—For scalding, the water should be at a temperature of 180° Fahr. By the time boiling water has been carried from the fire and emptied it will be about 190 degrees. If hotter than this, scraping and cleaning the skin is made difficult. A tablespoonful of concentrated lye in the water will help. A barrel propped in a leaning position against a table or bench is usually found handy for scalding pigs. A well-sharpened knife is a necessity both for killing and scraping.

*Hanging.*—The carcass is hung up by inserting a pointed stick or gambrel under the cords of the hind legs. These gambrel cords lie at the back of the leg just above the pastern-joint. There is an outer one just under the skin, and an inner one next the bone. The skin should be slit down the centre of the back of the hind leg to release these cords, but care must be taken not to cut them. The hoisting is done preferably by block and tackle. After the carcass has been hung it must be thoroughly rinsed and shaved and all the scruff and hair removed.

*Removing the Viscera.*—A shallow cut is made down the centre of the belly from the groin to the neck. This incision is then deepened into the groin and the opening extended down to the ribs. The intestines and stomach and liver are then removed. The gall-bladder comes away with the liver and should be taken off and thrown away. The breast-bone may now be cut through down the centre with a strong knife. The lungs and heart are removed next, and the lungs are usually thrown away. The heart is opened, the blood removed, and it is then placed in water until wanted.



*Cutting up the Carcass.*—When selling pork the aim is to sell the bones with the meat, so in that case they are not removed. But for home use it is convenient to get rid of the bones. The carcass is not split down the centre, but down each side of the backbone, cutting the ribs where they join the vertebrae. The ribs and pelvic bone are severed with a sharp axe or cleaver. The rest is done with a knife.



Showing Raised Partition for feeding Little Pigs away from the Sow.

It is well to leave the rind of the back uncut until the carcass has well cooled. The head is then cut off after being split in two lengthwise and placed in salty water.

*Cutting up a Side of Pork.*—The legs should be cut off above the knee and hock. The kidneys are found in the leaf-lard and are taken out. The leaf-lard is then removed by pulling away backwards. The ribs are taken away next with the knife, and they should be cut away with as little flesh as possible. These are then cut up into pieces suitable for cooking. After the side has been separated into its natural divisions of shoulder, bacon, and ham, it will be found that these pieces are irregular in shape, and have quantities of flabby or fat meat attached, especially toward the under-sides. The thick layers of fat and the flabby part of the belly should be cut away. The short pelvic bone in the ham should also be taken away. It may be stated here that the shoulder is the hardest part to cure and keep and should be used first.

*Preparing the Trimmings for Use—Sausage.*—All the lean meat and a certain amount of fat goes into sausage. One-third fat to two-thirds lean, or two-fifths fat to three-fifths lean, may be used, according to requirements. The heart may also be used in making sausage, and also the cheeks or jowls. These latter, however, do not improve the quality of the sausage. All bones and rinds are removed from



Farrowing-pen arranged with Fenders to prevent the Sow crushing her Young.

the meat intended for sausage, and after cutting into strips it is run through a grinder—the finer the better. The amount and nature of seasoning depends on taste, but usually to every 30 lb. of meat is added  $\frac{1}{2}$  lb. of table-salt and 2 oz. of pepper. In addition, if for immediate use, 1 to 2 oz. of sage is added; if for keeping some time, the same amount of allspice is substituted for the sage.

After grinding, the meat must be thoroughly mixed by hand. Afterwards the sausage-meat may be packed in crocks or forced into casings. It may be kept several months by frying in little balls in a little water and then covered with melted lard. For grinding, an ordinary household grinder with tube attachment is used. Every farm home should have one.

**Rendering Lard.**—The finest part of the fat, or lard, can be obtained by cutting the coarse, fatty pieces into cubes about an inch square. These are then melted down in a thick iron or aluminium kettle. A soldered vessel should not be used, as solder may melt.

Start with a fire not too hot, and put a part of the meat in the kettle, so as to get a quantity of melted lard in the bottom to prevent scorching. As the pieces float, add more and stir frequently. The boiling should be kept up until the oil loses its milky appearance and becomes clear, the bubbles become small, and the cracklings become light and rise to the top. The object of this process is to remove the moisture from the lard, so that it will keep without getting mouldy.

**Head-cheese.**—For making head-cheese the head, feet, and other trimmings not used for lard and sausage are taken. They are thoroughly cleaned and shaved, all hairs being removed. The outer horn of the hoofs is pulled off, the jaws cut away from the head, the eyes and the inner part of the ears removed. The cartilages and membranes of the snout are also thrown away. The remainder of the head is then boiled until the meat can be easily separated from the bones. When this has been done the meat is run through a grinder. It must be seasoned and thoroughly mixed. For every 10 lb. of meat use 3 oz. salt, 1 oz. pepper, 1 oz. allspice,  $\frac{1}{4}$  oz. nutmeg. The meat is then packed in deep pans to set, and a little of the liquid in which it was boiled poured over it.



Pen with Movable Front to facilitate Feeding.

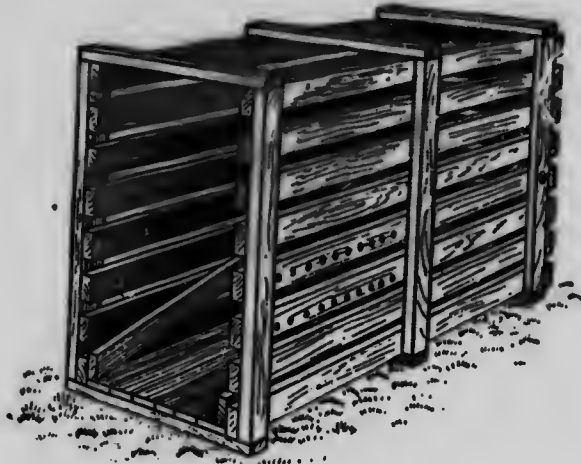
#### CURING BACON.

Unless there is danger of freezing, the carcass should hang until quite cold. If the surface is frozen before the animal heat is all gone it is detrimental to the meat.

**Dry-salting.**—After cutting up the carcass the pieces are laid on a table, with a thin layer of salt mixture underneath. For the first two weeks this mixture is used in the proportion of 10 lb. salt to 4 oz. of pulverized saltpetre. Each piece is well rubbed with the mixture for two or three minutes, and then covered with a thin layer of the same. After five days the rubbing is repeated and the meat again

covered. At the end of ten more days a new mixture is used without saltpetre, made in the proportion of 10 lb. of salt to 4 lb. of sugar. Some also use pepper. At this time (fifteen days) pieces under 10 lb. weight will be cured, but those over this weight are rubbed with the sugar-salt mixture and left covered for an additional two weeks, or longer in the case of hogs over 250 lb.

Particular attention should be paid to rubbing well the ends of the bones during the process. The temperature of the room should not be below 36° Fahr. or over 45 degrees.



Breeding-crate.

*Brine curing.*—For brine curing the same materials are used as in dry-salting, and the temperature should be the same for the meat to cure properly. After rubbing the meat with the salt mixture it is placed in a clean tin and covered with water. Salt is then stirred in until the brine will float a potato. Saltpetre and sugar are then added in the same proportion as in dry-salting. The brine should be changed at the end of five, fifteen, and thirty days, or else it may be boiled and the scum removed. Another formula for 100 lb. of meat is: 10 lb. salt, 5 lb. sugar, and 2 oz. saltpetre in 4½ gallons of water. In this pickle bacon cures in four to six weeks and ham in six to eight weeks, according to size.

*Smoking Bacon.*—The salt should be washed from the surface before smoking. An ordinary shed with outlets at the top for the smoke to escape will answer, or even two large boxes, one above the other, with a canvas cover, will do for a small quantity of meat.

The fire should be protected by metal to avoid danger of catching fire. If desired, the fire can be suak outside the smoke-house and the smoke be conducted inside by a stove-pipe. A maximum amount of smoke with a minimum amount of heat and flame is the aim. Green alder, oak, or partly rotten birch is good. Fir and pine impart a bad flavour to the meat. If the fire is kept going day and night, smoking will be done in two days, or the fire may be run every other day for two weeks. The meat should not be allowed to freeze during the process. Freezing and thawing hastens decomposition of the meat. After curing, the pieces are securely tied in cotton bags and hung by cords in some cool, dry place.

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