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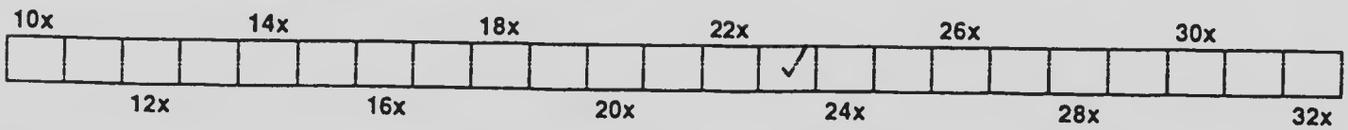

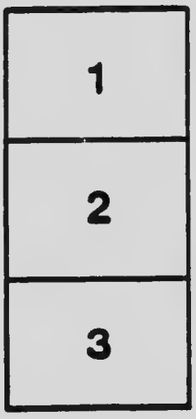

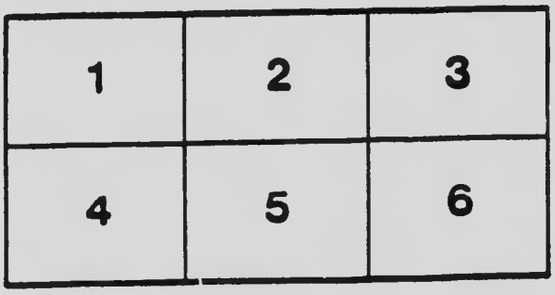

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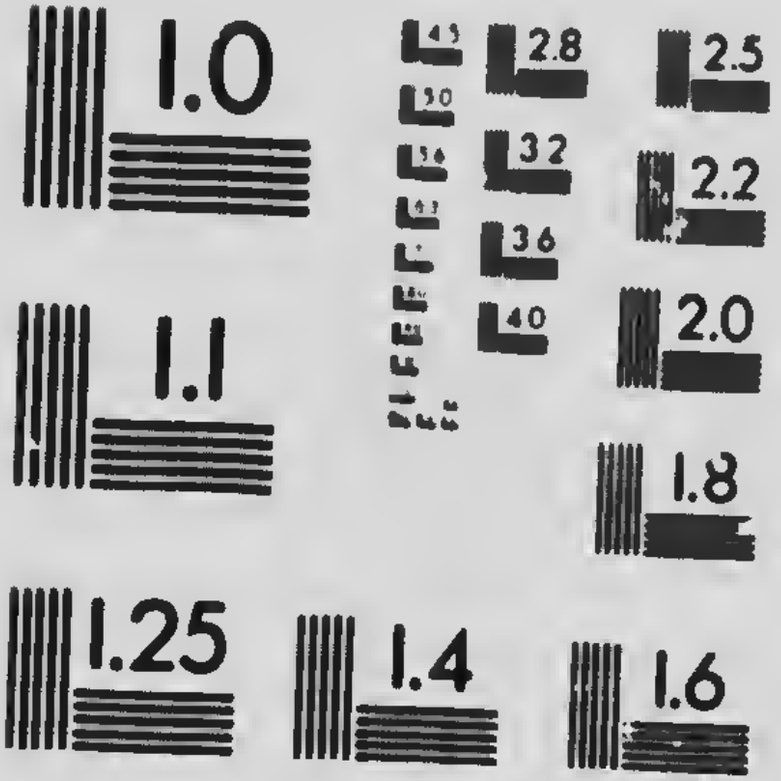

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SWINE

A BOOK FOR STUDENTS AND FARMERS

BY

GEO. E. DAY

Professor of Animal Husbandry, Ontario Agricultural College,

GUELPH, CANADA

Preface.

Having long felt the need of a book upon Swine, which would meet with the requirements of the college student and the busy farmer, I have at length been induced by my friends to attempt the work myself, and the result of this attempt is seen in the volume which is now placed before the public. In the preparation of this work, special attention has been given to present day problems, rather than to historic facts and speculations, and every effort has been made to condense the information into as small space as possible. No apology is offered for the manner in which the subject is treated, and the Public must be the sole judge as to whether the book is deserving of their commendation.

I wish to gratefully acknowledge the sympathy, encouragement, and assistance which I have received from friends in this and other countries. To mention each one would be out of the question, but my gratitude for their kindness is none the less sincere.

GEORGE E. DAY.

Ontario Agricultural College,
Guelph, Canada.
December, 1905.

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CHAPTER I.

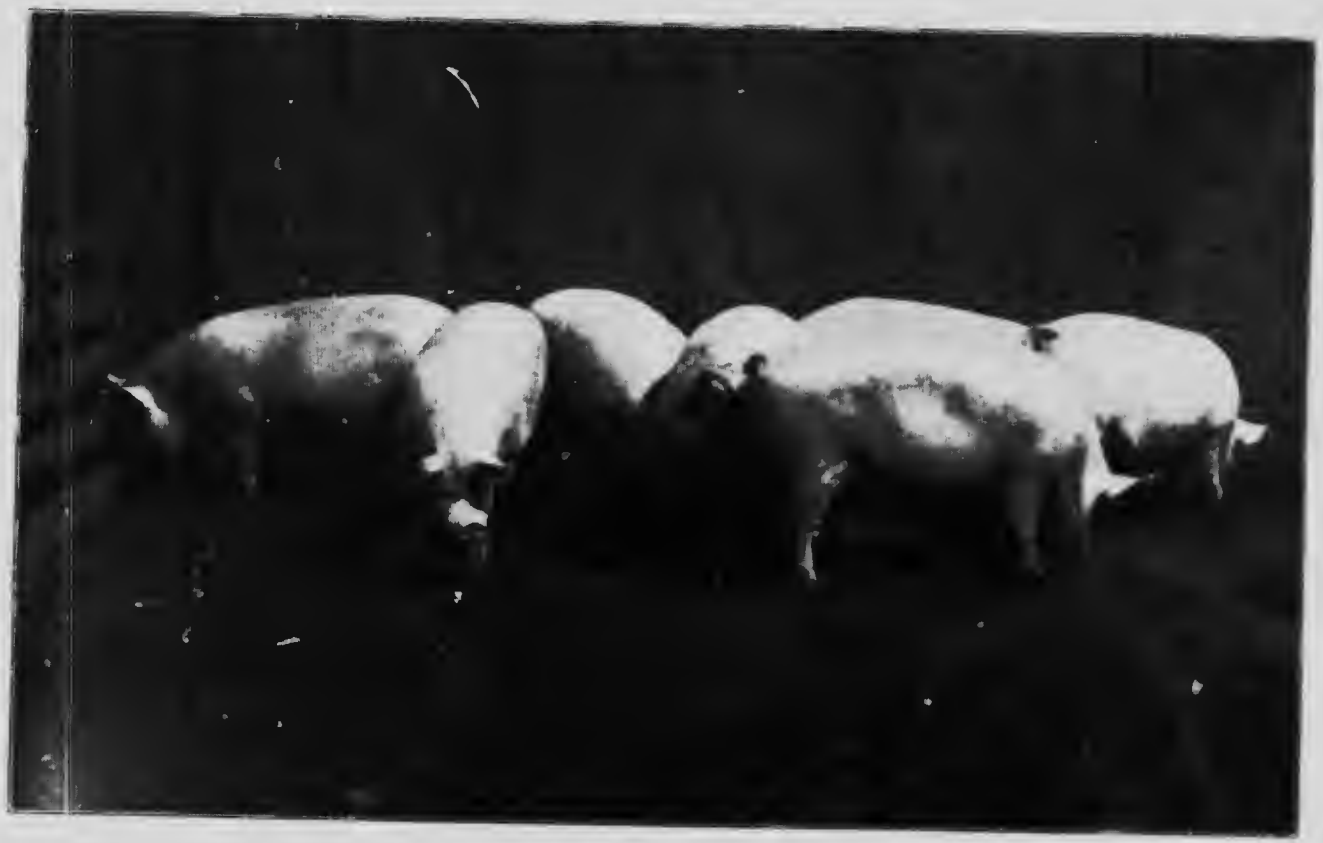
BREEDING.

An Ideal Necessary. The business of the stock-breeder is a peculiar one. He has to deal with life, and all those mysterious possibilities that exist in the living creature have to be reckoned with in his operations. Stock breeding is not a mere question of cunning hands, which model inert material to the whim of their owner; the really great breeder must possess an intuitive genius that can pierce the curtain of mystery surrounding living creatures, lay hold of those hidden forces, and so direct them that the result is a creature approaching very closely to the ideal he, himself, has set up. In short, the breeder is not a mere imitator, he is a creator. There can be no progress unless the breeder has a very clear ideal before him towards which he is working. He may never reach his ideal, but he must never lose sight of it. No matter how much money may be invested in the enterprise, it will come to naught if the breeder has not a clearly defined object in view. He will meet with many things to try his faith, but he must not waver; he will be frequently cast down, but he must not be discouraged. Difficulties, disappointments, and hope deferred are part of the heritage of the breeder, and he requires the highest class of courage to be able to stick to his guns and eventually bring victory out of what appeared to be certain defeat.

Utility. Every breeder should ask himself why he is breeding the animals of his choice. Is it to humor the whims of the few, or to meet the demands of the many? If his work as a breeder is to be a success, he must never lose sight of the requirements of the man who produces the market hog for the money that is in it. No matter how pure

the blood or how perfect the type from the breeder's standpoint, if the hog does not meet all the requirement of the packer, if it is not suited to paying the rent and lifting the mortgage when placed in the hands of the average farmer, of what avail have been all the efforts that have been put forth in producing this type of animal? In short, the watchword of the truly successful breeder must be *utility*. Utility is the touchstone upon which each breeder's work will be tested. If his work stands the test, it will surely meet with recognition; if it fails in the test, it will ultimately disappear and be forgotten. In setting up an ideal, therefore, utility is the first great requisite. In establishing a type, nothing must be admitted that will detract from utility. In selecting breeding stock, it must always be the main consideration. When he studies pedigrees, the breeder must ask himself how much the blood lines represented in the pedigree under consideration are likely to enhance the utility of the stock he is breeding. Every step in the breeder's operations must be dominated by this one great consideration, and if he ever loses sight of the importance of utility, he need never hope to achieve distinction in his calling.

Butcher and Feeder. Utility must be viewed from two standpoints. The butcher requires an animal that will give him the largest proportion of valuable meat, and the farmer requires an animal that will reproduce its kind in profitable numbers, and make rapid and economical gains. There would be little use in aiming to please the butcher if the animal did not meet the requirements of the farmer; neither must the butcher be left out of consideration if a really useful animal is to be produced. In breeding operations, therefore, both these men must be kept in view, and the breeding, feeding, and killing qualities must each receive a due share of attention. This point may be illustrated by a reference to the breeding of swine for bacon production. One important feature of a bacon hog is the length of side, but it is only one thing out of a number of requirements. Some men,



Group of young Large Yorkshire sows bred by J. E. Brethour, Burford, Ont. This group shows uniformity in type, quality and conformation to a marked degree.

Landrace sow. A type of sow common in Denmark. These sows are crossed with Large Yorkshire boars to produce the famous Danish bacon. Note the heavy bone, lengthy side, and light shoulder, neck, and jowl. Courtesy S. Jacobsen, Odense, Denmark.

however, have allowed this one point to run away with their judgment, and in their effort to secure length they have sacrificed constitution, feeding qualities, muscular development and general quality. It is regrettable, also, that there are judges who will hang the first-prize ribbons on these slab-sided, narrow chested, long-legged, coarse-boned, quality lacking brutes, simply because they possess length. Then, there are men who run to the other extreme, and think that in order to have an easy feeder they must have a fine-boned, short-bodied, fat-backed, heavy-shouldered, thick-necked tubby little pig, utterly useless for bacon purposes. It is not difficult to see how both these men have lost sight of utility. The first has sacrificed nearly all that the feeder requires, and a good deal of what the packer requires; whereas the other has sacrificed nearly all that the packer requires, and a good deal of what the feeder requires, because a really desirable bacon hog is also a good feeder's hog. There are breeders however, whose view is broad enough to take in both sides of the question, and who are producing hogs eminently well adapted to the requirements of the feeder and the packer. Such men are truly successful breeders and their work is bound to stand, because it is built up on a sound foundation, the bed-rock, utility.

SELECTION OF THE BOAR.

Pure Breeding. In these days when pure bred males are plentiful, and reasonable in price, there is no excuse for using anything but a pure-bred boar. The pure-bred boar will transmit his own qualities to his progeny with greater certainty, and thus produce pigs of more uniform character than will a grade or a cross-bred. It is only by using pure-bred males that progress can be made and success attained.

Character. Character is difficult to define, and yet the experienced breeder can recognize it at a glance and knows its importance. It implies conformation to the best type of the breed, but it goes still further. Character in the boar

implies a bold, impressive carriage and general appearance. He is a boar, and he shows it at every point and in every motion. The conformation of the boar is discussed in the chapter dealing with judging swine, but it may be said just here that there should be nothing effeminate about his general conformation.

Pedigree. A good many people are inclined to look upon pedigree as something distinct from utility. Nothing could be further from the truth. The question is frequently asked: which is of greater importance, individuality or pedigree? The question does not admit of a definite answer, for it is largely a question of degree, but neither is complete without the other; that is to say, the desirable breeding animal should possess individual merit as well as a good pedigree. If the pedigree of a given animal contains the names of a number of animals noted for the excellence of their progeny from a utility standpoint, then such a pedigree is a strong indication of utility in the animal in question, because the tendency is for "like to produce like." Unfortunately, however, there are always some degenerate offspring from the most noted parents, and to breed from a degenerate merely on account of its pedigree, would not be holding the proper balance between pedigree and individuality. It must be remembered that the immediate ancestors, such as the sire, dam, grandsire, and granddam, have a greater influence for good or evil than more remote ancestors, and therefore the first two or three generations, or, in other words, the top crosses, should receive special attention in studying a pedigree. The more remote the ancestor, the less important is its influence likely to be.

SELECTION OF THE SOW.

Character. In the sow, we look for very different character from that which is desirable in a boar. She should be dignified in her carriage, but there is a femininity about her general appearance and bearing, which indicates a prolific

and indulgent mother. As in the case of the boar, the question of conformation is discussed in connection with judging swine.

Pedigree. For the production of market hogs it is not essential that the sow should be pure bred. A grade sow of good type and parentage will usually produce very satisfactory pigs for market purposes, if mated with a boar of good breeding and quality. Though she is not pure bred, her parentage must not be overlooked in making a selection. Whether pure bred or grade, a sow selected for breeding should be from a prolific mother and by a boar that comes of a prolific family, because fecundity is hereditary to a very marked degree. It is safest to select a sow from a matured mother who has had a chance to demonstrate her usefulness. A sow selected for breeding should have at least twelve fully developed teats, set well apart, with the front ones well forward on the body. The remarks upon the relative importance of pedigree and individuality, and the influence of ancestors, which were made in discussing the selection of the boar, apply with equal force here.

IN-BREEDING.

In-breeding, or in-and-in-breeding, means the mating of animals that are closely related. There is no question that in-breeding has been a very important factor in the improvement of nearly all breeds of live stock. It concentrates the blood and makes animals more prepotent, that is to say, causes them to transmit their own qualities to their progeny with a greater degree of certainty. In this respect, therefore, in-breeding is beneficial, but it must not be forgotten that it will fix bad qualities as well as good ones, and, when carried too far, sterility and loss of constitution are likely to result. Unfortunately, too, no one can say how soon the danger point will be reached because it varies in individuals, and when bad effects are noticeable, the injury cannot be repaired. In addition to this, swine are more easily injured

by in-breeding than most other kinds of stock, so that, when everything is considered, it is safer for the average breeder to avoid the practice altogether. Some of the most experienced breeders practice a modified form of in-breeding, mating animals of somewhat distant relationship and bringing in the blood of certain favorite strains over and over again, but through various channels, thus avoiding undue concentration of blood. This plan is commonly called "line breeding," but it requires great skill on the part of the breeder to make it a success, and therefore it is entirely unsuitable for general use.

CROSS-BREEDING.

Cross breeding means the mating of animals of different breeds. It differs from grade breeding in that both the male and the female are pure bred, whereas in grade breeding, at least one of the parents is not pure bred. Though a good deal of cross breeding is practised, very little careful, systematic work has been done in the way of studying the relative merits of pure bred and cross bred hogs, and the best way of crossing in order to attain a given result. In breeding for bacon in Canada, it is a common practice to cross the Yorkshire and the Tamworth with the Berkshire or some other fat type of hog, it being commonly believed that the progeny from such a cross matures more quickly and feeds more easily than a pure-bred. Whether this is true or not has never been definitely established by careful and repeated experiments. It is also a question whether it is better to use the Yorkshire or Tamworth Boar on the Berkshire sow, or to use the Berkshire boar on Yorkshire and Tamworth sows. Since the Yorkshire and Tamworth are counted more prolific than the Berkshire, it would seem a logical conclusion that it would be best to use sows of the more prolific breeds, though many prefer to use the Berkshire sow. Where the Yorkshire and Tamworth have been bred in such a way as to maintain constitution and quality,

is doubtful whether anything is gained by crossing them with other breeds in order to produce a bacon hog; but in the case of unduly coarse types, there is little doubt that a cross with a finer breed improves the quality of the progeny. What is the best cross will probably never be known, as it is largely a question of individuality in the animals used.

CHAPTER II

JUDGING SWINE OF BACON TYPE

Canadian Export Trade. In order to treat the subject of judging in a satisfactory manner, it will be necessary to first explain the nature of the Canadian export trade. In the first place, the Canadian farmer cannot compete successfully with the American farmer in the production of the fat, or lard type of hog, because the American farmer has cheap corn at his disposal, and corn is the greatest of lard producing foods. Owing to the cheapness of the foods he uses, he can realize a profit at prices for his hogs which would be ruinous to the Canadian farmer. In the second place, the Canadian packer cannot compete with the American packer in handling the products from the lard hog, because he has not the immense home market in which to dispose of two very important products of the lard hog, namely, lard and oleomargarine (artificial butter). In other words, a much larger proportion of the hog must be consumed as meat in the case of the Canadian product than in the case of the American. There is only a limited demand for fat pork, and, therefore, in Canada, where there is no market for oleomargarine, and a comparatively limited market for lard, it follows that the fat hog cannot be used to advantage. As a result of these conditions, the Canadian breeders and packers have been forced into producing a class of hog which does not come so directly into competition with the American product in the British market. The kind of bacon of which Canadian packers make a specialty, is what is known as the "Wiltshire Side," a product which American packers, as yet, have made no attempt to produce. The Canadian product is taken by the large English cities, especially Lon-

don, and customers are found among the well-to-do classes who are willing to pay a premium for an article of superior quality. At the present time, Canada's most formidable competitor is Denmark. The Danes produce an article of higher average quality than that produced by the Canadian and obtain a higher average price on the London market. The only thing which can [illegible] Canada to compete with Denmark, is the fact that Canadian farmers can feed their hogs more cheaply than the Danes, and thus can afford to undersell them. The great drawback to Canadian bacon is its lack of uniformity. There are too many breeds of swine in Canada to have uniformity in the quality of bacon, and the sooner Canadians realize this fact, and make a special effort to produce exactly what the market demands, the better it will be for their trade; because there is no reason why Canada cannot produce as good bacon as Denmark, if her farmers go about their business with the same intelligence.

The Bacon Hog. To produce a good Wiltshire side of bacon requires a hog of certain definite peculiarities as to weight, condition, and conformation. The customers for this class of bacon are extremely fastidious, and if the bacon does not come up to the standard in every particular, it is very heavily discounted in price. As a rule, the weight limits are usually fixed at 160 pounds to 200 pounds live weight. It is true that a hog may weigh slightly more than 200 pounds and still make a very good Wiltshire side, but most hogs are apt to be too fat after they pass the 200 pound mark, and consequently this is fixed as the limit, though it is not strictly adhered to. The most desirable weights are from 175 pounds to 190 pounds live weight. As to condition, it is possible to have the hog too thin or too fat. When the carcass is split down the back, the layer of fat along the back should run from an inch to an inch and a half in thickness, and should be as uniform in thickness as possible from the loin to the neck. In conformation, the most noticeable features are length from shoulder to [illegible] light-

ness of shoulder, neck, and head, and trimness of belly. The conformation of the bacon hog will be discussed more fully in another place, but a study of the diagram showing the relative values of different parts of a side of bacon in the London market, will be found helpful to the study of the scale of points which follows. From the diagram it will be seen that the most valuable meat is the upper part of the side, from the back of the shoulder to the ham. The shoulder and neck are much cheaper. The under portions of the side are lower in value than the parts above them, and the ham, as a whole, is not equal in value to the side.

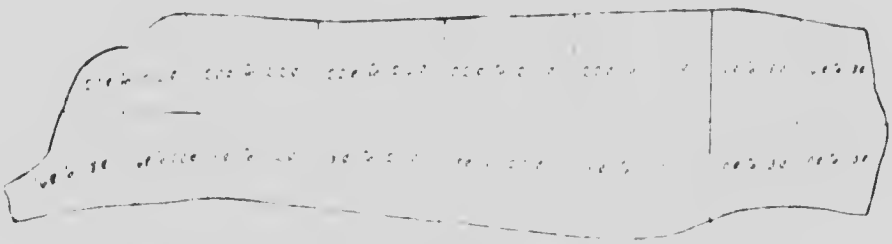
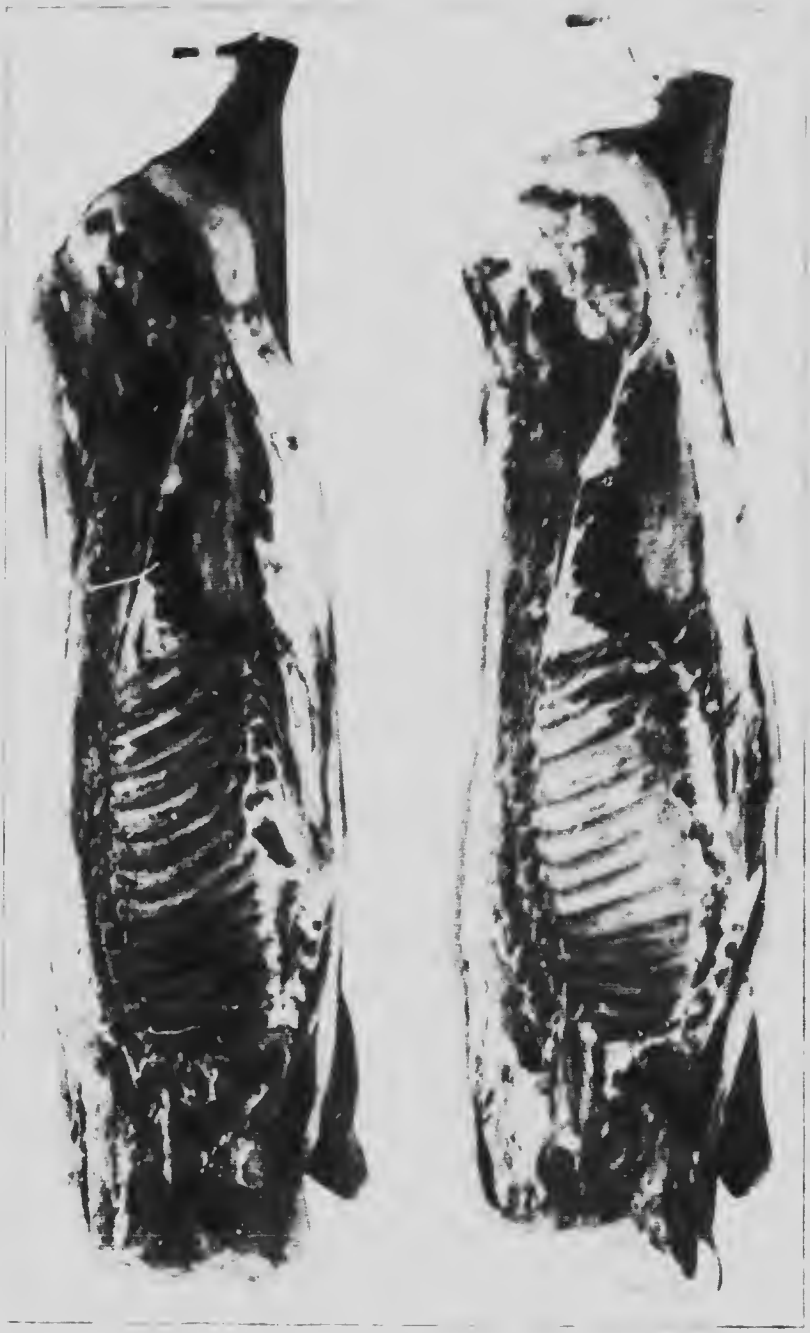


Diagram of a Wiltshire Side, showing actual dealer's method of cutting it, and also showing the cuts as they are made in Great Britain.

The illustration showing a No. 1 side, that is to say, a first-class side, and a fat side of bacon, is also useful. It will be seen that the No. 1 side has a much more uniform layer of fat along the back, and that it is much lighter in shoulder and neck than the fat side, and therefore furnishes less cheap meat in proportion to the more valuable parts. The illustration also shows the form in which Wiltshire sides are shipped to the British market.

Bacon Type. As a rule, when we speak of a bacon hog we mean a market hog, that is, a hog suitable for slaughtering and manufacturing into Wiltshire sides. Of course, such a hog possesses bacon type. Boars and breeding sows are entirely unsuitable for making Wiltshire sides, but they may be of a type suitable for producing progeny which would make good Wiltshire sides, and, therefore, such breed-



ing animals are said to possess bacon type. The man who would be a judge of this class of swine, must learn to recognize bacon type not only in the market hog, but also in the boar and breeding sow. The description which accompanies the scale of points is intended to apply to all hogs of bacon type, whether they are market hogs, boars, or breeding sows. In scoring, however, allowance would have to be made for the different classes of animals. Thus, the kind of bone required in a sow would be too light for a matured boar, and the kind of shoulder looked for in a boar would be too coarse for a market hog; and so, throughout the list, due allowance would have to be made. The explanations following the scale of points will perhaps make this clearer.

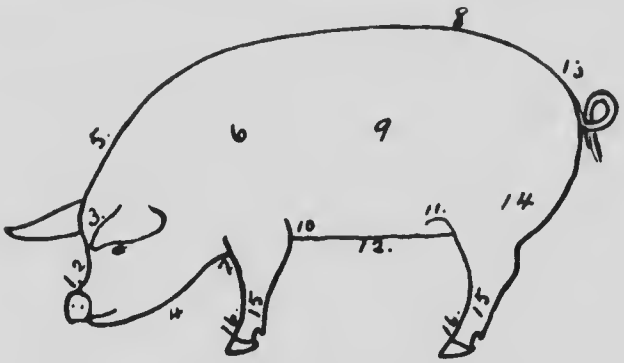


DIAGRAM SHOWING LOCATION OF POINTS OF THE HOG.

1. Snout.	5. Neck.	9. Ribs.	13. Rump.
2. Face.	6. Shoulder.	10. Fore flank.	14. Ham.
3. Poll.	7. Breast.	11. Hind flank.	15. Shank.
4. Jowl.	8. Loin.	12. Belly.	16. Pastern.

SWINE OF BACON TYPE.

Description and Scale of Points.

A. General Appearance:

Size—Well developed for age — 5

Form—Long, smooth, all parts proportionately developed so as to give the impression of a well balanced, strongly built animal. Top line, strong, under line, straight; belly, trim and neat — 10

Quality—Hair, fine, skin, smooth, showing no tendency to wrinkle, bone, clean and strong but not coarse; flesh, firm and smooth, with no flabbiness at jowl, fore flank, belly, or ham — 10

Condition—Well covered with firm flesh, especially along back and loin, but not heavily loaded with fat — 6

Style—Active and sprightly, walking without a swaying movement, and standing well up on toes. Breeding animals should show strong character — 4

B. Head and Neck:

Snout—Medium length and moderately fine — 1

Face—Broad between eyes; poll, broad and full — 1

Eyes—Good size, full and bright — 1

Jowl—Fair width and muscular, but very neat, showing no flabbiness — 2

Ears—Moderately thin, and fringed with fine hair — 1

Neck—Medium length and muscular, but possessing no tendency to arch on top — 2

C. Forequarters:

Shoulders—Smooth, somewhat rounded from side to side over top, and very compact; no wider than back, and not running back on side so as to shorten distance between shoulder and ham — 6

Breast—Good width and full — 3

Fore Legs—Set well apart, medium length and straight; pasterns, upright, bone, clean and strong; feet, medium size and strongly formed — 4

D. Body:

Back—Medium width, rising slightly above the straight line, and forming a very slight arch from neck to root of tail — 6

Loin—Wide as rest of back, strong and full, but not unduly arched — 5

Ribs—Good length and moderately arched — 4

Side—Fairly deep; long, smooth, and straight between shoulder and ham, a straight edge laid over shoulder point and ham should touch the side throughout — 8

Heart Girth—Full, but not flabby at fore flanks, filled out even with side of shoulder; there should be no tucked up appearance back of fore-legs, nor droop back of shoulder top — 5

Flank—Full and low — 5

E. **Hindquarters:**

Rump	Same width as back, long and slightly rounded from a point above hips to tail and somewhat rounded from side to side over top	4
Ham	Full without flabbiness; thigh tapering towards hock without wrinkles or folds, and carrying flesh well down towards hock	6
Hind Legs	Medium length, hocks set well apart, but not bowed outward, bone clean and strong, pasterns, upright, feet, medium size and strongly formed	4
Total		100

NOTES ON SCALE OF POINTS

Size. The feeder requires a hog which will attain market weight at an early age, and hence he requires breeding animals of good size. If a market hog is under consideration, all that is necessary is to decide whether it is within the weight limits set for hogs intended for bacon.

Form. In form, the bacon type of hog is very different from the lard type. It is longer in the leg, has less thickness and depth of body, and is lighter in shoulder, neck, and jowl. Length, especially from the back of the shoulder to the ham, is very important. From the back of the shoulder to the snout the hog should be comparatively short. Some hogs are long from snout to rump, but they have such a long, deep shoulder that they are short from the back of the shoulder to the rump, as compared with the distance from the same point to the snout. Such hogs carry too much weight at the cheap end of the side of bacon, and hence are very objectionable, and the judge must be careful that he is not deceived by this conformation. But, along with length, the hog must possess sufficient depth and thickness of body to denote constitution. No matter how long a hog may be, if it has long, coarse legs, and a narrow, cramped chest, it is an undesirable type to breed from. The breeder must secure reasonable depth and thickness of body in order to have a hog of strong constitution, even though he may have to sacrifice a little length. This point must not be lost sight of in judging breeding animals. A trim belly is required,

because the belly meat is cheaper than the part above it, as indicated in the diagram. Allowance would have to be made in this connection for a sow that had produced several litters of pigs. It would not be desirable to have her as light in the belly as a boar or a market hog.

Quality. A fine, smooth coat of hair denotes thriftiness and good quality of flesh. A "swirl" or "rose" in the hair on the back is objected to mainly on account of appearance. Wrinkles on the skin, if at all marked, indicate coarse grained flesh. Softness and flabbiness of flesh, denote too much fat in proportion to lean. The bone is an extremely important indication of quality, and is judged by the appearance of the bone in the legs. The bacon type of hog has heavier bone than the lard type, because there is a relation between the development of bone and muscle. Very fine bone is usually associated with an excessive development of fat, and, therefore, it is undesirable in a bacon hog, where a large amount of lean in proportion to fat is the object sought. On the other hand, very coarse, puffy bone denotes poor quality of flesh, and is often associated with hard feeding qualities and late maturity. The right kind of bone is somewhere between these two extremes. It should have good weight, but the legs should present a very clean cut appearance. A round, puffy looking leg should not be tolerated. In the boar, it is difficult to have too heavy bone, so long as it is clean cut, that is, not covered with a coarse puffy skin. The sow, however, should have much finer bone than the boar, but it should be in proportion to her size and frame.

Condition. To be able to judge of the proper condition for a market hog, requires considerable practice in examining animals both before and after they are slaughtered. It is customary to show breeding animals in considerably higher condition than would be desirable in a market hog, but the over fitting of breeding animals for show should be discouraged by the judge.

Style. The bacon type of hog is an active animal and if it is properly formed and has the desired development of muscle, it will be able to walk off without apparent effort. Some hogs walk with a writhing movement which is a sure indication of some serious weakness. Character has already been defined under selection of boar and sow.

Snout. Length of snout varies with breed. Very often, however, a long snout is associated with a narrow chest, and a very short snout is often associated with a heavy jowl and neck.

Face. A broad face, and a broad poll which comes well forward indicate good constitution and feeding qualities. The poll is the upper portion of the skull.

Eyes. Large, full, bright eyes indicate good health and constitution.

Jowl. The jowl has very little market value. A heavy, fat jowl denotes a tendency to put on too much fat. Good width across the jowl is desirable, but it should be trim and neat. A narrow jowl is often associated with a narrow chest and poor feeding qualities.

Ears. The ears are an indication of the general quality of the animal. Thick, coarse ears indicate coarseness and thickness of skin, which, in turn, is associated with coarse-grained flesh. Size of ear varies with breed, and a large ear is not necessarily coarse.

Neck. A long, scrawny neck, indicates weak constitution and slow feeding qualities. On the other hand, a short, thick neck, with an arch, or crest, of fat on the top, will cause the side of bacon to be heavy at the shoulder and neck end and, as was pointed out, thus i the cheap end of the side of bacon. Of course, a mature boar has a heavier neck than a sow or barrow, and it is desirable that he should have a strongly muscled neck. An excessive development of crest, however, is undesirable.

Shoulder. The shoulder of a bacon hog is somewhat upright, makin the animal comparatively short from th

back of the shoulder to the snout, and long from the back of the shoulder to the rump. Owing to its being a comparatively cheap part, it should not be largely developed. It must be remembered, however, that a little extra width of shoulder is not nearly so objectionable in a breeding animal as a narrow chest. In the boar, the shoulders are heavier than would be desirable in a sow or a market hog. Not as he grows older, "shields" develop on the sides, which give the appearance of roughness. The shoulders should be very compact on top, however, and should blend well with the top line and the rib at this point.

Breast. The breast should be wide to indicate a large chest cavity, and hence plenty of room for heart and lungs.

Legs. Strong, upright pasterns indicate good quality and strength of bone. The bone has already been discussed under quality.

Back. A sagging back, or an unduly arched back, indicates a weakness of muscling, and consequently a lack of lean meat along this valuable part. The arch in the back should be very slight, the highest point being over the loin. A very wide back denotes excessive fat, and a very narrow back, a lack of flesh, or lean meat.

Loin. The loin is the most valuable part of a side of bacon, and therefore should be strongly developed and well packed with flesh.

Rib. The spring of rib in a bacon hog is very characteristic. It should arch out boldly from the back bone, then suddenly drop in an almost vertical direction, giving a flat, straight side. This point should receive especial attention in judging, as it is a sure indication of a large development of muscle along the back.

Side. From a packer's standpoint, a pig cannot have too long a side. Extremely long hogs, however, are inclined to be narrow and shallow bodied, and to lack constitution. The breeder, therefore, must exercise care in this matter, and while he wants good length, he must be careful not to

secure it at the expense of constitution. It is well to avoid extremes of all kinds.

Heart Girth. A large heart girth indicates constitution. The judge must be careful that he is not deceived by a padding of flabby fat in the region of the fore-flank, which will give the impression of a greater thickness through the heart than the animal really possesses.

Flank. When the flank is reasonably well let down, the flesh is usually well carried down on the ham. Fullness of flank indicates thick, fleshy belly meat.

tapers towards the hock. The flesh should be carried well

Rump. The rump affords a valuable cut. A flat, broad rump indicates the presence of too much fat. It should be the same width as the rest of the back, but no wider.

Ham. Great, broad, bulging hams are not wanted in the bacon hog. Such hams carry a great deal of fat, and require severe trimming in preparing the side of bacon for market. The ham of the bacon hog is smooth and firm, and around the bone, leaving no bareness of bone on the inside of the thigh. A ham which bulges on the outside, but is bare on the inside of the thigh, is very objectionable.

CHAPTER III.

JUDGING SWINE OF FAT OR LARD TYPE.

The Fat Hog. The fat hog is the product of the corn belt of the United States. Cheap corn enables the feeder to produce his hogs more cheaply than can the Canadian feeder, and the American packer devotes his energies towards supplying those markets which demand something cheaper than the fancy bacon which comes from the so-called bacon hog. It will not require much study to convince any intelligent person that it is wise for the Canadian farmer to keep out of the fat hog business, and thus avoid, as far as possible, competition with the American farmer, who has cheaper feed at his disposal. Unlike the bacon hog, the most valuable parts of the fat hog are the hams, back, and shoulders. Length of side is of minor importance, and hence we find the fat hog comparatively short in the body, but very broad and deep, with heavy hams and shoulders and the heavy neck and jowl which characterize this type of hog.

The American market hogs are divided into a large number of classes with an extremely wide variation in weights. On the average, hogs weighing from 200 to 300 pounds are in greatest demand, though sometimes much heavier hogs command the highest price, depending upon how the supply of a given class happens to meet the demand for that class.

Demand for Leaner Meat. Though the fat type of hog dominates the American market, there is a growing demand in the United States for something approaching the quality of Canadian bacon, and at the present time strong efforts are being made by some packing houses to encourage farm-

ers to produce leaner hogs, and to introduce into the United States those breeds of swine which are noted for producing high class bacon. There is little doubt that the production of the bacon hog is bound to increase in the United States, especially outside of the corn belt.

Scale of Points. The scale of points which follows is intended to apply to either breeding or market hogs. In using this scale of points, due allowance must be made for age and sex, as in the case of the scale of points for swine of bacon type.

SWINE OF FAT, OR LARD, TYPE.

Description and Scale of Points.

A. General Appearance:	
Size—Well developed for age	5
Form—Deep, thick, smooth, low set, good length but compactly built, standing on well placed legs. Top line straight, or slightly arching; under line, straight; belly, trim and neat	10
Quality—Hair, fine; skin, smooth, showing no tendency to wrinkle; bone, clean and fine; flesh, smooth and mellow, but showing no flabbiness	10
Condition—Deeply and evenly covered with flesh, but not overdone for the purpose for which the animal is intended	6
Style—Active and sprightly, walking without a swaying movement, and standing well up on toes. Breeding animals should show strong character	4
B. Head and Neck:	
Snout—Moderately fine	1
Face—Broad between eyes; poll, broad and full	1
Eyes—Good size, full, and bright	1
Jowl—Full, broad, deep, smooth, and firm, carrying fulness back near to point of shoulder	2
Ears—Medium size, fine, and soft	1
Neck Short, thick, and deep. Rounding and full from poll to shoulder top	2
C. Forequarters:	
Shoulders Broad and compact on top, deep, well fleshed, blending smoothly with neck and body	6
Breast Wide, deep and full	3
Fore Legs—Set well apart, short, tapering, and straight; pasterns, upright; bone, clean and fine; feet, medium size and strongly formed	3

D. Body:	
Back Broad, straight or very slightly arched, medium length, moderate width from shoulder to ham, thickly fleshed, even, and smooth, without creases or prominences	8
Loin Broad, strong, full, and thickly and smoothly fleshed	5
Ribs Long and well sprung	4
Side Medium length, deep, smooth, even between shoulder and ham	6
Heart Girth Large, full back of shoulder, and deep and full at fore flanks	5
Flank Deep and full	2
E. Hindquarters:	
Rump Same width as back, long, smooth, slightly rounded from loin to base of tail	4
Ham Broad, deep, heavily fleshed, plump, and reasonably smooth, flesh carried well down to hock on inside as well as at rear	8
Hind Legs Short, straight, set well apart and squarely under body, bone, fine and clean; pasterns, strong; feet, medium size and strongly formed	3
Total	100

NOTES ON SCORE CARD.

Size. The feeder wants an animal that will attain sufficient weight to go on the market at an early age, and hence weight for age is an important consideration.

Form. The lard hog is about as different from the bacon hog as it possibly could be. In the American market, hams shoulders, and backs are the important parts, and therefore the length of side receives much less attention than it receives in the Canadian market. The deep, thick, massive body is best adapted to supply the American packer with the class of meat which his customers demand. With this substance, however, there must be smoothness, and a proportionate development and harmonious blending of the different parts to comprise what is called a compactly built animal.

Quality. As in the case of the bacon hog, fine hair and smooth skin denote good quality of flesh. Fine bone and absence of flabbiness, denote the good "yielder," or an animal which dresses a large per cent. of its live weight.

Grade Shorthorn heifer — Chicago International Live Stock Exposition, Chicago, 1901. Exhibited by the Iowa Agricultural College, Ames, Iowa. Note the short leg, rather low, broad, deep body, and the general smoothness exhibited in this animal.

Front view of the heifer pictured above, showing smooth, moderately broad shoulders and well sprung rib.

Prime heavy butchers," as classified in the Chicago Stock Yards. Weight, 250-350 pounds. The picture shows the type and finish required for this market class. (Courtesy Illinois Agricultural Experiment Station.)

Prime medium butchers, weight, 190 to 250 pounds, very smooth and highly finished. "Light butchers" are of the same general type but lighter weight, 180 to 200 pounds. Butcher hogs comprise about 70 per cent of the hogs coming to the Chicago market, and are commonly used for the packing trade. Prime butcher hogs, whether heavy, medium, or light, represent the highest quality of fat hog. (Courtesy Illinois Agricultural Experiment Station.)

"Prime heavy hogs," weight 300 to 400 pounds, the extreme of the fat or lard type. At one time these hogs were much more numerous on American markets than they are today, the decrease being due to the decreasing demand for fat pork. (Courtesy Illinois Agricultural Experiment Station.)

required for this market class. (Courtesy Illinois Agricultural Experiment Station.)

"Choice bacon" as classified by Chicago packers. These hogs are not used for Wiltshire sides. They are simply light hogs of the fat or lard type, as the illustration very clearly shows. They help to supply a growing demand for leaner meat. (Courtesy Illinois Agricultural Experiment Station.)

Pair of Middle White Barrows, prize winners at the Smithfield Show, England.

Condition. In market classes, condition is all important, and no lard hog can class as "prime," unless it is fattened to a high degree. Higher fitting of breeding stock is permissible in this type of hog than would be thought desirable in the bacon type.

Style. The lard type of hog is not so active an animal as the bacon type, nevertheless the animal should be able to move off freely, and there should be no indications of breaking down. Character was discussed under selection of boar and sow.

Snout. The snout is an indication of the general quality of bone. It should be rather fine, and there should be an absence of wrinkles about the snout and face generally.

Face. Width between eyes, and a broad, full poll, denote constitution and feeding qualities.

Eyes. Large, full, bright eyes denote good health and feeding qualities.

Jowl. A broad jowl is usually associated with width of chest and general thickness of body. The development of fat on the jowl is an indication of the general condition of the hog. A firm, neat jowl, showing no flabbiness, is an indication of general quality.

Ears. The ears are an indication of the thickness of the skin and the quality of bone, hence the objection to thick, coarse ears.

Neck. The neck of the lard hog is shorter and much thicker than that of the bacon hog. The crest, or arch on the top of the neck, which is so undesirable in a bacon hog, is an indication of finished condition in the fat hog. The neck should blend very smoothly into the shoulders.

Shoulders The shoulder of the fat hog is an important consideration from the American packer's standpoint, therefore it should be well developed and thickly fleshed. Though largely developed, it should show no coarseness, but should be smooth and compact.

Breast. Width and depth in this region denote constitution.

Legs. Common defects in the legs are coarseness of bone, weak pasterns, crooked knees, and unduly bent hocks. The legs of the fat hog are shorter and the bone finer than in the bacon hog, but clean cut bone, and straightness and strength of legs and pasterns are equally important in both classes.

Back. A sagging back is an indication of weakness. A back which rises very slightly above the straight line is stronger and usually more heavily muscled than a perfectly straight one, though a high arch in the back is even more objectionable than a depression. The back should be the same width as the shoulder, and should be uniform in width, and deeply covered with flesh throughout.

Loin. This is a valuable cut, and should be broad, full, and thickly covered. A low loin, or one which is unduly arched, or which is high in the center and falls away to each side, is extremely objectionable.

Ribs. The rib of the fat hog makes a more circular arch than that of the bacon hog. The rib should be long, and should spring in such a way as to not merely give the animal width on top, but also good thickness through the lower part of the body.

Side. Though length of side is not emphasized in the fat hog to the extent that it is in the bacon hog, it is desirable for the hog to have good length, provided that depth and thickness of body are maintained. The side should come out even with the shoulder and ham, and should be deep and smooth.

Heart Girth. Large heart girth indicates constitution. There should be no depression back of the top or side of the shoulder, and the animal should be thick and well let down at the fore flanks. A tucked-up appearance back of the fore legs is very objectionable.

Flank. A deep flank is associated with good depth of body and fullness of flank denotes thick, fleshy belly meat.

Rump. While the rump rounds slightly from the back of the loin to the tail, it should not have a steep slope, because

such a conformation detracts from the weight of the hind quarter. The rump should be wide and full, and carry as much flesh as possible.

Ham. The ham is of greater relative importance in the fat hog than in the bacon hog. It has not the tapering appearance of the ham in the bacon hog, but is wide, deep, and thick, carrying much more fat on its surface. Heavy folds or wrinkles above the hock are objectionable, and there should be general smoothness and plumpness.

CHAPTER V.

BREEDS OF SWINE.

Before the breeds are dealt with individually it will be best to study the breeds in comparison with one another in order to form some estimate of the importance of breed as a factor in feeding swine.

Relation of Breed to Economy of Production. Probably the most extensive experiments with breeds of swine have been conducted by the Ontario Agricultural College and the Iowa State Experiment Station. At the Ontario Agricultural College, five experiments were conducted in which six breeds of swine were compared as to the cost of producing 100 pounds gain live weight. The average amount of meal consumed for 100 pounds gain live weight in the five experiments is given below. In the table the meal is considered [illegible] and green feed, which were fed [illegible] for all breeds, [illegible] comparison.

MEAL CONSUMED [illegible]

Breed	Average
Berkshire	[illegible] lbs.
Yorkshire	[illegible] lbs.
Tamworth	[illegible] lbs.
Duroc Jer[illegible]	[illegible] lbs.
Chester W[illegible]	[illegible] lbs.
Poland Chi[illegible]	[illegible] lbs.

Averages, however, [illegible] ample in a certain [illegible] some unfavoural[illegible] [illegible] or unthrifty [illegible] [illegible] of this

circumstance may seriously affect the standing of the breed in question. It is much more satisfactory, therefore, to take each experiment individually, and see whether there is any constancy in the standing of the breeds. The table given below shows the breeds ranked in order of economy of gain in each experiment.

ONTARIO EXPERIMENTS.

Breeds Arranged in Order of Economy of Production.

1st Experiment	2nd Experiment	3rd Experiment
1 Berkshire	1 Berkshire	1 Yorkshire
2 Tamworth	2 Tamworth	2 Berkshire
3 Poland China	3 Poland China	3 Duroc Jersey
4 Duroc Jersey	4 Chester White	4 { Tamworth, Chester White
5 Chester White	5 Yorkshire	6 Poland China
6 Yorkshire	6 Duroc Jersey	

4th Experiment	5th Experiment
1 Berkshire	1 Berkshire
2 Tamworth	2 Yorkshire
3 Yorkshire	3 Duroc Jersey
4 Chester White	4 Chester White
5 Duroc Jersey	5 Tamworth
6 Poland China	6 Poland China

Before any comment is made upon these results, it will be better to examine the Iowa experiments, where three tests were made with the same six breeds.

IOWA EXPERIMENTS.

Breeds Arranged in Order of Economy of Production.

1st Experiment	2nd Experiment	3rd Experiment
1 Duroc Jersey	1 Duroc Jersey	1 Yorkshire
2 Yorkshire	2 Yorkshire	2 Poland China
3 Tamworth	3 Berkshire	3 Berkshire
4 Poland China	4 Tamworth	4 Duroc Jersey
5 Chester White	5 Poland China	5 Chester White
6 Berkshire	6 Chester White	6 Tamworth

The results of these eight experiments make interesting reading. A careful study of the case can result in but one conclusion, viz., that economy of production is not a question of breed, but is merely a matter of individuality. The hog which has constitution and quality will make economical use of the food it consumes, no matter what breed it belongs to,

Relation of Breed to Market Requirements. In each of the five Ontario experiments, the hogs were shipped to the Wm. Davies Co., Limited, Toronto, where they were carefully examined by experts, and judged as to suitability for making Wiltshire sides. In addition to the five experiments already noted, a sixth one was conducted with a larger number of hogs of each breed, in which the object was not to compare the breeds with regard to economy of production, but in which the breeds were compared for market purposes as they were in the other five experiments. There were, therefore, six experiments, in which the six breeds were compared as to suitability for making Wiltshire sides.

BREEDS ARRANGED IN ORDER OF SUITABILITY FOR THE MANUFACTURE OF WILTSHIRE SIDES.

1st Experiment.	2nd Experiment.	3rd Experiment
1. Yorkshire, Tamworth.	1. Yorkshire.	1. Yorkshire, Tamworth.
2. Berkshire.	2. Tamworth.	2. Berkshire.
3. Duroc Jersey, Poland China, Chester White	3. Berkshire, Chester White, Duroc Jersey, Poland China.	3. Poland China.
		4. Chester White, Duroc Jersey.

4th Experiment.	5th Experiment.	6th Experiment.
1. Yorkshire.	1. Yorkshire.	1. Yorkshire.
2. Tamworth.	2. Berkshire.	2. Tamworth.
3. Berkshire.	3. Chester White.	3. Berkshire.
4. Chester White, Duroc Jersey, Poland China.	4. Tamworth.	4. Duroc Jersey.
	5. Duroc Jersey.	5. Poland China.
	6. Poland China.	6. Chester White.

From the table given above, it will be seen that the Yorkshires had a very distinct advantage in this part of the experiment. The Yorkshire carcasses were characterized by good length of side, uniformity in thickness of fat along the back, a good general development of flesh (lean), thickly fleshed loin, fleshy belly, and a fleshy ham, which required little trimming. Their most serious faults ran in the direction of an undue weight of shoulders, coarseness of bone,

and thickness of skin, though these defects were noticeable in only a small proportion of the carcasses.

The Tamworths generally had a light shoulder and a very uniform layer of fat along the back; but, as a rule, they did not quite equal the Yorkshire in length of side, thickness of loin and belly, and development of ham. In many of them there was a marked lack of flesh over the loin, accompanied by a thinness of belly and a decided lightness of ham. They easily stood second to the Yorkshires, however, in the matter of suitability for the Canadian export trade. In fact, the Yorkshires and Tamworths were the only two breeds which showed marked suitability for the manufacture of Wiltshire sides.

The strong point of the Berkshire carcasses was their large muscular development, giving a fleshy carcass. The ham was well developed, but, in many cases, it carried too much fat and required considerable trimming. The main faults were the shortness of side and heavy shoulder and neck, with the fat running very thick over the shoulder top. There was, moreover, a marked lack of uniformity in the Berkshire carcasses, some of them making very good Wiltshire sides, while others were entirely unsuitable. The Yorkshire carcasses, on the other hand, were specially noted for their uniformity.

The Chester White, Poland China, and Duroc Jersey carcasses were very similar in character. Occasionally a good Wiltshire side was found among them, but it was a noteworthy exception. Shortness of side, a superabundance of fat, and a lack of lean meat, were generally characteristic of the group. While these breeds are eminently well adapted to the production of the lard hog, they are entirely unsuitable for the Canadian export trade.

In the Iowa experiments, the hogs were not compared on the basis of suitability for making Wiltshire sides. From the report upon the carcasses, it is evident that the hogs were fattened to a much higher degree than would be desirable for the Canadian export trade, and consequently the Iowa

market reports afford no basis for comparison with the Ontario results.

BRITISH BREEDS OF SWINE.

In 1904 only five breeds of swine were given classes at the Royal Agricultural Society's show in England. These breeds were the Large White, the Middle White, the Berkshire, the Tamworth, and the Large Black Pig. The breeds dropped from the prize list were the Small White and the Small Black. This fact indicates that the small breeds are losing popularity.

In the improvement of British breeds of swine, Chinese and Neapolitan swine were used quite extensively during the early part of the past century. The former, as the name indicates, coming from China, and the latter from Italy. Both these breeds were small and fine-boned, and possessed a marked tendency to fatten, and hence were well adapted to modify the large, coarse-boned, late maturing pigs which existed in Britain at that time.

LARGE YORKSHIRE.

The Large White breed of Great Britain is known in Canada and the United States as the Large Yorkshire, or Improved Large Yorkshire. The original Large White pig was extremely large and coarse, but the type has been considerably modified by selection, and possibly by the judicious use of other blood. Owing to the improvement effected in the breed, the term "improved" is commonly inserted in the name.

Large Yorkshires occupy a prominent place in Great Britain, where they are regarded as the leading bacon producing breed. In Denmark, they are used exclusively for crossing on the sows common to the country, and the very finest bacon brought into England comes from this cross. In Canada, they are more numerous than any other breed, and they are being imported into the United States in large numbers

Large White (Large Yorkshire) boar, winner of first prize at the English Royal Show, 1907. Bred by the Earl of Ellesmere. Note the length, the smoothness, and the strong top line of this boar, also his excellent quality of bone, which is strong and clean [illegible]. (Courtesy Wm. Cooper & Nephews, Berkhamsted, England.)

Large White (Large Yorkshire) sow, winner of first prize and championship at the English Royal Show, 1907. Bred by the Earl of Ellesmere. This sow is not standing well. The picture shows her a little weak in her hind pasterns, and not quite so clean in the bone as the boar [illegible]. (Courtesy Wm. Cooper & Nephews, Berkhamsted, England.)

[illegible] at the English Royal Show, 1904. Exhibited by R. [illegible] & Sons, Ltd., Wm. Cooper & Nephews, Berkhamsted, Herts.

Pair of Lincoln rams, London prize winners. Exhibited by Colwill Bros., Newton St. Cyres, Devon.

Berkshire boar. Pedigree not given. Winner of first prize and championship at the English Royal Show, 1904. Exhibited by J. Jefferson, Chester, England. (Courtesy Wm. Cooper & Nephews, Berkhamsted, Eng.)

Yearling Berkshire sow, a first prize winner. Bred by Wm. Wilson, Brampton, Ont. This sow represents the large, lengthy type of Berkshire.

Middle White boar — winner of first prize and championship at the English Royal Show, 1910. Exhibited by Sir Gilbert Greenall, Bart. (Courtesy Wm. Cooper & Nephews, Berkhamsted, Eng.)

Middle White sow — winner of first prize at the English Royal Show, 1910, exhibited by Sir Gilbert Greenall, Bart.

The above photographs are the large-boned type of the Middle White (typical very closely). (Courtesy Wm. Cooper & Nephews, Berkhamsted, Eng.)

Large Black boar, winner of first prize and champion cup at the English Royal Show, 1905. Exhibited by C. F. Martineau. (Courtesy of Wm. Cooper & Nephews, Berkhamsted, Eng.)

Large Black sow, winner of first prize at the English Royal Show, 1905. Exhibited by C. F. Martineau. (Courtesy Wm. Cooper & Nephews, Berkhamsted, Eng.)

Small White boar, aged over [illegible] months, at the English Royal Show, 1905. Exhibited by Hon. D. P. Bouverie. (Courtesy Wm. Cooper & Nephews, Berkhamsted, Eng.)

Small White sow, winner of first prize at the English Royal Show, 1905. Exhibited by Hon. D. P. Bouverie. (Courtesy Wm. Cooper & Nephews, Berkhamsted, Eng.)

Aged Chester White boar, "Peter I," [illegible] prizes including first at Ohio State Fair, 1904. Owned by W. H. Chorey, Nenna, Ohio. (Courtesy Prof. C. S. Plumb, Columbus, Ohio.)

Three year old Chester White sow, "Rarget C." winner at numerous prizes. Owned by W. H. Chorey, Nenna, Ohio. (Courtesy Prof. C. S. Plumb, Columbus, Ohio.)


THE NATIONAL

Three year old Duroc Jersey boar — Matchless [illegible] numerous prizes, and counted a choice specimen of the breed — Owned by Watt & Forest, Xenia, Ohio — (Courtesy Prof. C. S. Plumb, Columbus, Ohio.)

Yearling Duroc Jersey sow, "Cedarville Queen 7th," a frequent prize winner — Owned by Watt & Forest, Xenia, Ohio — (Courtesy Prof. C. S. Plumb, Columbus, Ohio.)

Head of Hampshire sows, winners of first prize at Louisiana Purchase Exposition, St. Louis, 1904. [illegible] Property of [illegible], Illinois.

Characteristics. Large Yorkshires are one of the largest breeds of swine. They vary considerably in type, and it requires skill in selection to breed them of uniform character. When intelligently selected, they are profitable feeders, growing rapidly, and becoming ready for the packer at an early age. As previously noted, they are well adapted to produce bacon for the English market, as they furnish a long side, and a good proportion of lean to fat. They are reasonably hardy and very prolific. Being more than ordinarily prepotent, they are exceptionally valuable for crossing on the fatter types of hogs, giving to the progeny greater length and less tendency to excessive fatness. They are rather better adapted to pen feeding than to grazing.

Hints on Selection. Large Yorkshires vary considerably in type and general qualities. The more old fashioned strains frequently possessed extremely short, turned up snouts, with the lower jaw projecting beyond the upper. While many good hogs possess this peculiarity, it is too commonly associated with very undesirable qualities to deserve popularity. Animals with this peculiarity of snout often have a heavy jowl, neck, and shoulder, a short side, and a general lack of quality. Then there is another extreme: the long, scrawny neck, narrow chest, long, coarse boned, puffy legs, and bristly coat. This type is even more objectionable than the other. Hogs of this type frequently have good length, but they are not a good bacon type, because they lack quality, which is essential to the production of the best bacon. They are also hard feeders, and a good bacon hog is an economical producer. Coarseness is more objectionable in the sow than in the boar, but care must be taken not to get the bone too fine. The bone of the sow should be strong, but should be very clean cut in appearance, and the legs should be of only medium length. In addition to the things looked for in an ideal of bacon breed the Large Yorkshire boar should possess a large ear, and heavy bone,

though the bone should be clean, and give evidence of strength and quality combined. A Large Yorkshire boar with light bone and a head resembling that of a Berkshire, will seldom prove a satisfactory sire. Black hair on a Large Yorkshire should disqualify. Blue or black spots on the skin are objectionable, but are difficult to avoid, and the aim must be to reduce them to a minimum.

TAMWORTH.

This large, useful breed derives its name from Tamworth in Staffordshire, England. It is regarded by many as one of the oldest and purest breeds in great Britain. Tamworths are quite numerous in Canada, though they are not quite so popular as the Yorkshires and Berkshires. They are also bred to a considerable extent in the United States, but it is difficult to say just how far their popularity has extend in that country. Their long snout is apt to prejudice the average farmer against them at first sight, but a glance over the results of feeding experiments will show that they hold their own with other breeds in the feed lot.

Characteristics. Tamworths are well adapted to the production of export bacon. Though they have a long snout, the jowl is light, making the head lighter than that of any other breed. The neck also is light, and the shoulder, as a rule, is light and smooth. They also have a fair length of side, and their carcass contains a large proportion of lean to fat. They are quite hardy, and the sows are prolific. They are inclined to be defective in the ham, and do not possess quite the length of side or the strength of bone of the Yorkshire. They are quite extensively used for crossing purposes, the cross between the Tamworth and Berkshire being quite popular in Ontario. Golden red is the standard color, though dark chestnut is frequently found, especially in older animals. Black spots in both hair and skin quite frequently occur, though they are counted very serious objections.

Hints on Selection. Being a bacon breed, of course, bacon type must always be kept prominently in view in selecting this breed. Though a light jowl is popular with the packer, it is well to remember that a very narrow jowl is frequently associated with lack of constitution, and a little more width of jowl than is usually found in the Tamworth would be rather to the advantage of the breed. Strength and soundness of bone, and fuller development of ham, should receive special attention in this breed, and an effort should be made to lengthen the side without losing strength of constitution.

BERKSHIRE.

Berkshires, so named after the county or shire of Berks, in England, are one of the most widely distributed and best known of the breeds of swine. They are widely bred in Great Britain, and are very numerous in Canada and the United States. They also find a place in many other countries, and seem to retain popularity to a marked degree wherever they are known. It is claimed by some that the Berkshire is descended from the same ancestry as the Tamworth. Improvement was made by using Chinese blood, and probably Siamese and Neapolitan as well.

Characteristics. Berkshires are a hardy, easy-feeding, and fairly prolific breed. A tendency on the part of some breeders to breed them extremely fine, has reduced their fecundity in many instances. As bred in Canada, they may be classed as intermediate between the bacon and lard types; though, as a rule, they are nearer the latter. In the United States, however, they are bred strictly to the lard type, and usually run smaller in size and finer in bone than the Canadian representatives of the breed. For bacon production, they are greatly improved by crossing with the Yorkshire or Tamworth. They are not so large as the Yorkshire or Tamworth, but attain heavy weights when selected with a view to maintain size. The standard color is black, with white on feet, face, and tip of tail, and occasional splash on

arm. Canadian breeders, on the whole, are a little more liberal than American breeders with regard to markings.

Hints on Selection. As before noted, there is a considerable variation in the type of Berkshires. In Canada, there would seem to be good reason to select towards the bacon type, reducing the jowl, neck, shoulder, and width of back, and aiming to strengthen the bone and lengthen the side without losing constitution and quality. Even where the Berkshire is to be used for crossing with the Yorkshire and Tamworth, it is all the better to possess good length, and strong bone. American breeders are running to the extreme, in many cases, with regard to fineness, and have reduced the size and lessened the general utility of the breed. It is much easier to produce quality in a small animal than in a large one, and the highest skill is shown by the breeder who can maintain both size and quality. Some Berkshire breeders are attaining this end, and it would make for the best interests of the breed if all its admirers appreciated the importance of size.

MIDDLE WHITE.

The Middle White, or Medium Yorkshire, is almost unknown in Canada and the United States. It is supposed to have originated from a combination of the blood of the Large and Small Whites. Many of the breeders of the Large Whites in England also breed the Middle White, and there is little doubt that many pigs brought to this side of the Atlantic and called Large Yorkshires, possess more or less of the blood of the Medium breed. If Middle White blood has been recently introduced, boars of this breeding are apt to be very unsatisfactory sires, and hence it is important, in selecting a Large Yorkshire boar, to see that he is true to the Large White type and shows no evidence of Middle White characteristics.

Characteristics. The Middle White is more of the Berkshire type than of the Large White, having shorter snout, heavier jowl, thicker neck and body, and finer bone

than the latter. It is scarcely likely to ever occupy a prominent place on this continent.

LARGE BLACK PIG.

The Large Blacks are the latest addition to the registered pure breeds of swine in England. Little appears to be known regarding their origin, but they have been bred for many years in the South and East of England. They are practically unknown on this continent, though a few of them were brought to the Central Experimental Farm at Ottawa, a few years ago.

Characteristics. They are a large breed, all black in color. The ears are large and drooping, and the general type of the animal inclines to coarseness. In their native counties they are highly valued as scavengers. They are a prolific breed, and it is claimed that they excel as bacon producers, though the representatives brought to Ottawa proved very much inferior to the Yorkshire and Tamworth in the matter of bacon production.

SMALL WHITE.

At one time there were numerous strains of Small White pigs in England, but they are now all included in what is known as the Small White breed. The modern English Small Whites are known in America as Small Yorkshires. The breed known in America as the Suffolk is an offshoot of the English Small Whites, but is maintained in America as a distinct breed. Thus, the American representatives of the English Small Whites are the Small Yorkshire and the Suffolk. In the production of the Small Whites, it is quite certain that Chinese blood was largely used.

Characteristics. Small Whites represent the extreme type of small, fine-boned, early-maturing, fat pigs. Their lack of size will always be a barrier against their taking a prominent place in any country, though in the past they have played an important part in the improvement of some of the coarser breeds.

SMALL BLACKS.

This small, all black breed resulted from crossing the Neapolitan upon the original Essex breed. They are not quite so numerous in America as the Small Whites, and are known as improved Essex swine. They are used to a considerable extent in the Southern States for crossing on the native "razor back."

Characteristics. Though Essex swine are of the same general type as the Small Whites, modern breeders are making an effort to secure more bone, greater length and larger size than is usually found among the Small Whites. Some breeders are achieving considerable success along this line, and it is quite probable that a few more years will witness a marked change in the American type of Small Black, or Essex swine.

AMERICAN BREEDS.

The United States deserves credit for originating and improving a considerable number of breeds of swine, several of which have attained great prominence in that country. As would naturally be expected, these breeds have been developed along the line of producing the fat hog, in which industry the United States leads the world.

CHESTER WHITE.

This popular breed originated in Chester county, Pennsylvania. It is counted among the oldest of the American breeds, and has for its progenitors several of the white varieties of pigs originally imported from England. By intelligent mating and selection, the present type has been evolved. The breed is widely distributed over the United States, and is bred to a limited extent in Canada. It has made little progress, however, in the latter country during late years.

Characteristics. Chester Whites are among the largest of the breeds of American origin. By careful selection they can be made to approach the bacon type, and they cross

very well with the Yorkshire and Tamworth. They are anything but a bacon breed, however, though the better class of them are rather lighter in the jowl and longer in the side than the average American breed. They possess a drooping ear, which, though of fair size, should not be coarse. No black hair is admissable, but blue spots in the skin are common. These blue spots constitute an objection, but do not indicate impurity.

POLAND-CHINA.

The Poland-China originated in the State of Ohio. The foundation stock consisted of pigs of mixed breeding common in the state, upon which were crossed the Big Chinas, the Russia and the Byfield. Subsequently, Berkshire and Irish Grazier blood was used, but it is claimed that no outcrosses have been made since 1845. Poland-Chinas are extremely popular in the United States, and are very extensively fed in the corn belt. A few are bred in Canada, but, if anything, the breed has lost ground in Canada of late years, owing to its unsuitability for the Canadian export trade.

Characteristics. The best representatives of the Poland-China breed may be classed as almost the ideal lard type. They are rather short bodied, but very thick and smooth. In the effort to secure quality, some breeders have unduly reduced the bone and size of the breed. In some cases, the effort to secure fineness has resulted not merely in the loss of size, but also in reduced fecundity. It is quite probable that the almost exclusive use of corn as a ration has also had an influence in bringing about this result. Fortunately, the best breeders realize the danger of going to extremes in the matter of fineness, and there is little doubt that the breed will continue to be one of the most popular in the United States. A few years ago, it was quite common to see animals of this breed freely spotted with white. At the present however Berkshire markings are the most pop-

ular, though a few spots of white on the body are not objectionable.

DUROC-JERSEY.

Duroc-Jersey swine resulted from the union of the Durocs of New York State and the Jerseys, or Jersey Reds, of New Jersey, the former being a finer-boned and smaller breed than the latter. The origin of these two breeds is not known, but they have been bred in their respective states since early in the past century. The first organization in the interests of Duroc-Jersey swine was formed in 1880. The breed is widely distributed in the United States, but there are comparatively few herds in Canada.

Characteristics. It is difficult to discuss the characteristics of Duroc-Jerseys, because there is considerable variation in type. Professor Shaw describes them as "not quite equal to the Berkshire or Poland-China in size." In some herds, however, we find them rather larger than the Berkshire and Poland-China as ordinarily bred, and noticeably heavier in the bone. In some districts they are highly esteemed for crossing with the Poland-China and some other fat breeds for the production of fat hogs. By their admirers, Duroc-Jerseys are claimed to be more prolific than other American breeds

HAMPSHIRE (Thin Rind).

The Hampshire, until recently known as the Thin-Rind, is the latest addition to the recognized pure-breeds of swine in the United States, the American Thin-Rind Record Association not being organized until 1893, with about a dozen herds eligible for registration. According to the Hon. H. F. Work, Secretary of the Association, the Hampshire traces to hogs brought from Hampshire in England, and hence the origin of their present name. The name "Thin-Rind" was discarded and the name "Hampshire" adopted in 1904. The breed, as now known, originated in Kentucky,

and the original hogs from which it sprung, were taken to Kentucky from the Eastern States in 1835. Being a new breed, the Hampshire is not, as yet, very generally known, and there are no breeders of Hampshires in Canada.

Characteristics. According to Mr. Work: 'Hampshires have small heads, ears medium length and slightly inclined forward, light jowl, broad back of nearly uniform width, slightly arched; heavy hams, standing very erect on feet, with legs set well apart, active and muscular, denoting great carrying capacity, and devoid of excess of bone, jowl, and belly." According to some of its admirers, the Hampshire is of approved bacon type, but it will be seen that, with the exception of the head, jowl, and belly, the description given above is exactly the opposite of what is recognized as bacon type in Canada. There is no doubt, however, that the Hampshire is a useful hog for the United States, being active, hardy, thrifty, and prolific, though the claim that they excel all other breeds in these respects must be accepted with a good deal of reservation. Mr. Work states: "In color they are either listed or blacks, the most fashionable color consisting of black extremities with a white belt from four to twelve inches wide, encircling the body and including the fore-legs, which should also be white." The term "listed" means that the white belt is present.

VICTORIA.

Two breeds of swine bear the name of Victoria. One of these breeds originated in New York and the other in Indiana. The Indiana breed has apparently made more progress than the other, and its interests are looked after by an association. It is claimed that four breeds were used in producing the Victorias, viz., the Berkshire, Poland-China, Chester White, and Suffolk. They are not very widely distributed, though they are given classes at a number of state and county fairs. Very few representatives of this breed have been taken into Canada.

Characteristics. Victorias may be said to belong to the extreme type of fat hog, and are of only medium size. They are useful hogs for certain classes of trade, but are not likely to increase in numbers very materially, owing to their somewhat limited adaptability.

CHESHIRE.

The Cheshire had its origin in New York State, and was formed by crossing the Large Yorkshire and Suffolk upon the white hogs in the locality where they originated. Cheshires are bred principally in the Eastern States, especially in New York, and are not known in Canada.

Characteristics. Cheshires also conform to the fat type. They are of medium size, and are a hardy, vigorous breed. They appear to be well adapted to conditions prevailing in the Eastern States, but do not seem to be able to push themselves into the front ranks of American swine.

CHAPTER V.

STANDARDS OF EXCELLENCE AND SCALES OF POINTS.

In this chapter, no attempt has been made to give all the scales of points which exist for each breed, but care has been taken to select those which give as clear an idea as possible of the requirements of the breeders. In the case of Large Yorkshires and Tamworths, the descriptions and scales of points marked "Original," represent the ones preferred by the author.

LARGE YORKSHIRE.

Description and Scale of Points.

(Original.)

A. General Appearance:

Color White, free from black hair, and, as far as possible, from blue or black spots on the skin	2
Size Well developed for age. Matured boars in show condition, should weigh at least 700 lbs., and matured sows, 650 lbs. Pigs 6 months old in show condition, at least 200 lbs.	5
Form Long, smooth, all parts proportionately developed, so as to give the impression of a well balanced, strongly-built animal. Top line, strong; under line, straight; belly, trim and neat	8
Quality Hair, fine; skin, smooth, showing no tendency to wrinkle; bone, clean and strong; flesh, firm and smooth, with no flabbiness at jowl, forelink, belly, or ham	8
Condition Well covered with firm flesh, especially along back and loin, but not heavily loaded with fat	5
Style Active and sprightly, walking without a swaying movement, and standing well up on toes. Should show strong character	4

B. Head and Neck:

Snout Medium length, straight, or nearly so, moderately fine	1
Face Slightly dished, broad between eyes, poll, wide and coming well forward	2

Eyes Large, full, and bright 1
Jowl Good width and muscular but very neat, possessing no accumulation of flabby fat 2
Ears Large, moderately thin, slightly inclined forward, and fringed with fine hair 1
Neck Medium length, muscular, but possessing no tendency to arch on top —

C **Forequarters:**

Shoulders Smooth, somewhat rounded from side to side over top, and very compact, no wider than back, and not running back on side so as to shorten distance between shoulder and ham 6
Breast Good width and full 3
Fore Legs Set well apart, medium length, and straight; pasterns, upright; bone, clean and strong; feet, medium size and strongly formed 4

D. **Body:**

Back Medium width rising slightly above the straight line and forming a very slight arch from neck to root of tail 6
Loin Wide as rest of back, strong and full, but not unduly arched 5
Ribs Good length, and moderately arched 5
Side Fairly deep; long, smooth, and straight between shoulder and ham; a straight edge laid over shoulder point and ham should touch the side throughout 8
Heart Girth Full, but not flabby at fore flanks, filled out even with side of shoulder; there should be no tucked up appearance back of fore legs, nor droop back of shoulder top 5
Flank Full and low 2

E. **Hindquarters:**

Rump Same width as back, long and slightly rounded from a point above hips to tail, and somewhat rounded from side to side over top 4
Ham Full without flabbiness; thigh tapering towards hock without wrinkles or folds, and carrying flesh well down towards hock 6
Hind Legs Medium length; hocks set well apart, but not bowed outward; bone, clean and strong; pasterns, upright; feet, medium size and strongly formed

Total 100

LARGE YORKSHIRE.

Standard of excellence and scale of points adopted by the American Yorkshire Club in 1890

Points

(1) **General Outline** Long and deep in proportion to width, but not massive, slightly arched in the back, symmetrical and smooth, with body firmly supported by well placed legs of medium length 5

(2)	**Outline of Head**—Moderate in length and size, with lower jaw well sprung and considerable dish toward snout, increasing with advanced maturity	4
(3)	**Forehead and Poll**—Wide	4
(4)	**Eye**—Medium size, clear and bright	4
(5)	**Jowl**—Medium, not carried too far back toward neck, and not flabby	4
(6)	**Snout**—Turning upward with a short curve, increasing with age	4
(7)	**Ear**—Medium in size, standing well out from the head, of medium erection and inclining slightly forward	4
(8)	**Neck**—Of medium length, fair width and depth, rising gradually from poll to withers, muscular, but not gross, evenly connecting head and body	3
(9)	**Outline of Body**—Long, deep and of medium breadth, equally wide at shoulder, side and hams; top line slightly arched, under line straight	7
(10)	**Back**—Moderately broad, even in width from end to end; strong in loin, short ribs of good length	10
(11)	**Shoulder**—Large but not massive, not open above	6
(12)	**Arm and Thigh**—Broad and of medium length and development	2
(13)	**Brisket**—Wide and on a level with under line	3
(14)	**Side**—Long, deep, straight and even from shoulder to hip	8
(15)	**Rib**—Well arched and deep	5
(16)	**Heart Girth and Flank Girth**—Good, and about equal	8
(17)	**Hindquarters**—Long, to correspond with shoulder and side, deep, with moderate and gradual droop to tail	5
(18)	**Ham**—Large, well let down on thigh and twist and rear outline somewhat rounded	10
(19)	**Twist**—Well down and meaty	4
(20)	**Tail**—Medium, not much inclined to curl	4
(21)	**Legs**—Medium in length, strong, not coarse, but standing straight and firm	5
(22)	**Hair**—Abundant, long, of medium fineness, without any bristles	4
(23)	**Skin**—Smooth and white, without scales, but dark spots in the skin do not disqualify	2
(24)	**Color**—White on every part	4
(25)	**Movement**—Active, but not restless	5
	Total	100

LARGE WHITE—(LARGE YORKSHIRE).

Standard of excellence adopted by the National Pig Breeders' Association of Great Britain.

Color—White, free from black hairs, and as far as possible from blue spots on skin.

Head—Moderately long, face slightly dished, snout broad, not too much turned up, jowl not too heavy, wide between ears.

Ears—Long, thin, slightly inclined forward, and fringed with fine hair.

Neck Long and proportionately full to the shoulders.
Chest Wide and deep.
Shoulders—Level across the top, not too wide, free from coarseness.
Legs Straight and well set, level with the outside of the body, with flat bone.
Pasterns Short and springy.
Feet Strong, even, and wide.
Back Long, level, and wide from neck to rump.
Loin Broad.
Tail Set high, stout and long, but not coarse, with tassel of fine hair.
Sides Deep.
Ribs Well sprung.
Belly Full, but not flabby, with straight under line.
Flank—Thick and well let down.
Quarters Long and wide.
Hams—Broad, full and deep to hocks.
Coat—Long and moderately fine.
Action—Firm and free.
Skin Not too thick, quite free from wrinkles.

Large bred pigs do not fully develop their points until some months old, the pig at five months often proving at a year or fifteen months a much better animal than could be anticipated at the earlier age, and vice versa; but size and quality are most important.

Objections Black hair, black spots, a curly coat, a coarse mane, short snout, inbent knees, hollowness at back of shoulders.

TAMWORTH.

Description and Scale of Points.

(Original.)

A. General Appearance:

Color—Golden red and free from black spots in hair or skin. 2

Size Well developed for age. Matured boars in show condition should weigh at least 700 lbs., and matured sows 650 lbs. Pigs 6 months old in show condition, at least 300 lbs. 5

Form Long, smooth, all parts proportionately developed, so as to give the impression of a well-balanced, strongly-built animal. Top line, strong; under line straight; belly, trim and neat. 8

Quality Hair, fine; skin, smooth, showing no tendency to wrinkle; bone, clean and strong; flesh, firm and smooth, with no flabbiness at jowl, foreflank, belly, or ham. 9

Condition Well covered with firm flesh, especially along back and loin, but not heavily loaded with fat. 5

Style Active and sprightly, walking with [illegible] swing movement and carriage of [illegible] Stamp [illegible] strong character 3

B Head and Neck:

Snout Rather long, straight and fine 1
Face Slightly dished, broad between eyes, [illegible] well coming well forward 2
Eyes Large, full and bright 1
Jowl Light and neat, but [illegible] loose
Ears Rather long, pointed at tips, lightly [illegible] set on and hanging well to the front
Neck Medium length, muscular, but [illegible] tendency to arch at top 1

C Forequarters:

Shoulders Sloping, [illegible] to allow of [illegible] not too open and very compact, in order to hold the [illegible] running back over [illegible] to [illegible] between shoulder and loin 6
Breast Good width and full 3
Fore Legs Set well apart, medium length and [illegible] pastern upright [illegible] and strong, not [illegible] down to feet and [illegible] 4

D Body:

Back Medium width, strong, [illegible] above the straight line and forming a very slight arch to the [illegible] of tail 6
Loin Wide, [illegible] of back, strong and full, but not unduly arched 5
Ribs Good, [illegible] and moderately arched 5
Side Fairly deep, long, smooth and [illegible] between shoulder and [illegible] straight edge [illegible] point and loin, [illegible] 8
Heart Girth Full, but not [illegible] or [illegible] cut even with [illegible] of [illegible] Girth should be [illegible] appearance [illegible] fore legs, not [illegible] back of shoulders 3
Flanks Full and [illegible] 2

E. Hindquarters:

Tail Set [illegible] Strong and [illegible] point about [illegible] carried [illegible] to side [illegible] 3
Ham Full without [illegible] thighs [illegible] hock without [illegible] and [illegible] down [illegible] 6
Hind Legs [illegible] set well apart but not [illegible] [illegible] 3

TAMWORTH.

Standard of excellence adopted by the National Pig Breeder Association of Great Britain

Color Golden red hair on a light colored skin, free from black
Head Fairly long, snout moderately long and quite straight, face slightly dished, wide between ears
Ears Rather large, with fine fringe, carried erect and inclined slightly forward
Neck Fairly long and muscular, not coarse in boar
Chest Wide and deep
Shoulders Fine, strong and not coarse
Legs Strong and fine, with plenty of bone and set well out side body
Pasterns Strong and sloping
Feet Strong and [illegible]
Back Long and straight
Loin Strong and broad
Tail Set on high and well tasselled
Sides Long and deep
Ribs Well sprung and extending well [illegible] to flank
Belly Deep with straight under line
Flank Full and well filled in
Quarters Long [illegible] from hip to tail
Hams Broad and full, well filled with [illegible]
Coat Abundant, fine, straight and free
Action Free and true
Objections Black hair, very light [illegible] coarse hair, curly coat, coarse mane, [illegible] in boar, [illegible] short and sloping shoulders, wrinkled [illegible], short legs, [illegible] saddle or shoulders

BERKSHIRE.

Standard of excellence adopted by the American Berkshire Association

	Counts
Color Black with white [illegible]	
Face and Snout [illegible] broad between eyes	4
Eye [illegible]	7
Ear [illegible]	2
Jowl [illegible]	4
Neck [illegible]	4
Hair [illegible]	4
Skin [illegible]	3
Shoulder [illegible]	4
Back [illegible]	7
Side [illegible]	8
	6

Flank Well back and low down on leg making nearly straight line with the lower part of side	5
Loin Full and wide	9
Ham Deep and thick, extending well up on back, and holding thickness well down to hock	10
Tail Well set up on back, tapering and not coarse	2
Legs Short, straight, and strong, set wide apart, with hoofs erect and capable of bearing good weight	5
Symmetry Well proportioned throughout depending largely on good action	6
Condition In a good healthy growing flesh not overfed	5
Style Attractive general appearance, indicative of thorough breeding and constitutional vigor	5
Total	100

Description of Berkshire Swine.

Prepared by the National Association of Expert Judges of Swine

Disqualifications.

Form Very large and heavy at shoulder, small cramped chest, crease back, paddy and over the back so as to cause a depression on back easily noticed, deformed or crooked legs, not broken enough so that the animal walks on pastern joint

Size Over seven months of age, if under [illegible] pounds, two years old and over eight hundred pounds

Condition Poor [illegible] thin, lacking finish, and scaly, or fat

Score Less than sixty points

Pedigree Not eligible to record

Detailed Description.

1 **Head and Face** Head [illegible] moderately long, [illegible] forehead [illegible] face [illegible] dished, [illegible] between the eyes, tapering to the nose, [illegible] face even

Objections Head [illegible] ears [illegible] face [illegible] nose [illegible] extending forward upper [illegible] eyes [illegible] between the eyes [illegible] face [illegible]

2 **Eyes** Very clear [illegible] gray

Objections [illegible] vision

Ears [illegible]

Objections [illegible]

4 **Neck** Full deep, heavy and slightly arched, broad on top, well connected with shoulder

Objections Long, flat, lacking in fullness and depth

5 **Jowl** Full, meaty and neat, carrying fullness back to shoulder and brisket

Objections Light, flabby, thin, tucked up or wrinkled

6 **Shoulder** Broad, deep and full, not extended lies and the line of sides and hams or extending above line of back and being as wide on top as back, carrying size down to line of belly and having lateral width

Objections Lacking in depth or width, thick beyond the line of sides and hams or extending above line of back, heavy shields on hogs under eighteen months of age.

7 **Chest** Large, wide, deep and full, with breast bone carrying well forward extended, full and well rounded up broad between fore legs

Objections Flat, narrow, shallow, lacking in width, lacking depth or fullness, breast bone crooked or tucked up

8 **Back** Broad and straight, carrying width from shoulder to ham, surface even and full, with a slight arch over loins, protected and not too long

Objections Narrow, swayed, dropping behind, not straight

9 **Sides and Ribs** Sides full, smooth, meaty and deep, carrying size down evenly to belly and evenly to hams and shoulders. Ribs long, strong, well sprung at top and bottom

Objections Flat, thin, flabby, too short, not full, lacking in depth. Ribs weak, not well sprung at top or bottom

10 **Belly and Flank** [illegible]

Objections [illegible]

11 **Ham and Rump** [illegible]

Objections [illegible]

Legs and Feet [illegible]

Objections [illegible]

12 **Tail** [illegible]

Objections [illegible]

13 **Coat** [illegible]

Objections. Hair [illegible] not evenly distributed [illegible]

15. **Color.** Black [illegible]

Objections. Sandy back [illegible]

16. **Size.** Large [illegible]

Objections. Undershot [illegible]

17. **Action and Style.** [illegible]

Objections. Dull [illegible]

18. **Condition.** Healthy [illegible]

Objections. Unhealthy skin [illegible]

19. **Disposition.** [illegible]

Objections. [illegible]

POLAND-CHINA.

[illegible]

	Counts.
Head	
Ears	1
Eyes	
Face	
Neck	
Fore Parts	7
Shoulders	2
Chest	
Back	11
Sides and Ribs	14
Rump and Tail	1
Hams and Thighs	
Legs and Feet	9
Belly	
Coat	1
Color	5
Size	
Action and Style	5
Constitution	3
Disposition	2
Symmetry and Finish	10
	100

Description of Poland China Swine.

Prepared by [illegible] Assistant Expert Judges of Swine.

Head—4. Head [illegible] broad over and well set between and above the eyes. Slight dish or hollow over eyes, gradually to head [illegible]. Head [illegible] head inclined to [illegible], but not enough to give the appearance of stubby nose. And [illegible] appearance and appropriate.

Objections. Head long, narrow between the eyes, nose uneven and coarse [illegible] nose, or the head too short; head [illegible] too much wrinkled around or above the eyes.

Eyes—2. Full, clear, prominent and expressive.

Objections. Dull expression, deep-set or obscure. Sight impaired by wrinkles [illegible] other cause.

Ears—2. Ears attached to the head by a light, neat knuck, giving free and easy action. Standing not lightly at the base to within two-thirds of the tip. Erect, or with a slight break or droop, should present an appearance of being neither too small, but even, fine, thin, leaf shape. Slightly inclined outward.

Objections. Large, clumsy, straight, upright, coarse, knuckled, set across the crown of the head, or too far back, and too much [illegible] the head, or [illegible] the eye.

Neck—2. Short, with a good, smooth, well-arched. Rounding and full at its junction with shoulder, well adapted to the characteristics of the sex.

Objections. Long, lean, or thin, with [illegible] in the shoulder to the head, with coarseness indicated by wrinkles or creases.

Jowl—2. Full, broad, deep, with full face, carrying fullness back to shoulder, [illegible], and [illegible] of face, so that the [illegible] when [illegible] head is carried up level.

Objections. Light, flabby, thin, and wedge-shaped, deeply wrinkled, or [illegible] face, or [illegible], and not carrying fullness back to shoulder and brisket.

Shoulder—6. Broad and even on the top, showing evenness with the back, not rough, with a full width on the top to the bottom, and even with the [illegible] well covered.

Objections. Narrow at the top, not as deep as the body, uneven, rough. Shoulder open, under eight months of age, or showing a crease back of the eye.

Chest—12. Large, well deep, full, even, moderate to the [illegible] shoulder, and [illegible], giving plenty of room for heart and other vital organs. [illegible] early, indicating good constitution. [illegible] full, ample to [illegible] [illegible] in front.

Objections

Back and Loin—

Objections

Sides and Ribs—10.

Objections

Belly and Flank—4

Objections

Ham and Rump—10

Objections

Legs and Feet—

without breaking down; bone firm and of fine texture; pasterns short and nearly upright. Feet firm, [illegible], tough and free from defects.

Objections—Legs long, slim, coarse, crooked; muscles small above hock and knee; bone large, coarse; as large at foot as above knee; pasterns long, slim, crooked or weak; the [illegible] above knee [illegible] hocks turned in or out of straight line; legs too close together; feet long, thin and weak; toes spreading or crooked, or unable to bear up weight of animal without breaking down.

Tail—1. [illegible] of medium length and size, smooth [illegible] and carried in a curl.

Objections—[illegible] without [illegible] crooked [illegible] [illegible] unequal [illegible]

Coat—3. [illegible] straight [illegible] lying close [illegible] covering the body well [illegible] evenly distributed over the body.

Objections—Bristles, hair coarse [illegible] thin [illegible] swirls, standing [illegible] distributed [illegible] of the body except [illegible]

Color—3. [illegible] white points [illegible] white [illegible] [illegible] [illegible] thumb [illegible] a few spots of white [illegible] body [illegible] objectionable.

Objections—[illegible] sandy spots. Speckled with [illegible] white and [illegible] appearance.

Size—5. [illegible] vigor and vitality to be [illegible] breeding [illegible] [illegible] at least [illegible] pounds [illegible] keeping and [illegible]

Objections—[illegible] appearance [illegible]

Action and Style—3. [illegible]

Objections Clumsy, slow awkward movement, low carriage, waddling or twisting walk. A seeming tired or lazy appearance, not standing erect and firm.

Condition—2. Healthy, skin clear of scurf, scales and sores; soft and mellow to the touch; flesh fine, evenly laid on and free from lumps and wrinkles. Hair soft and lying close to body, good feeding qualities.

Objections Unhealthy, skin scaly, wrinkled, scabby or harsh, flabbiness or lumpy flesh, too much fat for breeding. Hair harsh, dry and standing up from body, poor feeders, deafness, partial or total.

Disposition—2. Lively, easily handled and seemingly kind, responsive to good treatment.

Objections Cross, sluggish, restless, wild or of a vicious turn.

Symmetry or Adaptation of Points—3. The adaptation of all the points, size and style combined to make the desired type or model.

CHESTER WHITE.

Scale of points adopted by the Standard Chester White Record Association.

	Counts
Head and Face	4
Eyes	2
Ears	2
Neck	4
Feet	4
Shoulders	6
Chest	9
Back and Loin	17
Side and Ribs	8
Belly and Flank	6
Hams and Rump	10
Feet and Legs	10
Tail	1
Coat	2
Color	5
Size	5
Appearance of Style	1
Condition	1
Disposition	3
Total	100

Disqualifications.

Form Upright ears; small, crumped chest, crease around back of shoulders and over the back, causing a depression easily noticed, feet broken down causing the animal to walk on pastern joints, deformed or badly crooked legs.

Size Chiffy, or not two-thirds [illegible] age.

Condition Squabby fat, deformed, seriously deformed, barrenness, total blindness

Score Less than sixty points.

Pedigree Not eligible to record

Color Black or sandy spots in hair

Detailed Description.

Head and Face Head short and wide, cheeks neat but not too full; jaws broad and strong, forehead medium, high and wide. Face short and smooth, wide between the eyes, nose neat and tapering and slightly dished

Objections Head long, narrow and coarse, forehead low and narrow; jaws contracted and weak. Face long, narrow and straight, nose coarse, clumsy or dished like a Berkshire.

Eyes Large, bright, clear and free from wrinkles or fat surroundings.

Objections Small, deep or obscure; vision impaired in any way

Ears Medium size; not too thick; soft, attached to the head so as not to look clumsy; pointing forward and slightly outward fully under the control of the animal, and drooping so as to give a graceful appearance.

Objections Large; upright, coarse; thick; round; too small; drooping too close to the face, animal not being able to control them.

Neck Wide, deep; short and nicely arched

Objections Long, narrow; thin; flat on top; tucked up, not extending down to breast bone.

Jowl Full; smooth, neat and firm; carrying fullness back to shoulder and brisket when the head is carried up level

Objections Light, too large and flabby, rough and deeply wrinkled, not carrying fullness back to shoulder and brisket.

Shoulder Broad, deep and full, extending in a straight line with the side, and carrying size down to line of belly

Objections Narrow at top or bottom, not full nor same depth as body; extending above line of back, shields on boars too coarse and prominent

Chest Large; deep and roomy so as not to cramp vital organs; full in girth around the heart; the breast bone extending forward so as to show slightly in front of legs, and let down so as to be even with line of belly, showing a width of not less than 7 inches between fore legs of a full grown hog.

Objections Narrow; pinched, heart girth less than flank girth; too far let down between fore legs; breast bone crooked or too short.

Back and Loin Back broad on top; straight or slightly arched, uniform width, smooth; free from lumps or rolls; shorter than lower belly line, same height and width at shoulder as at loin, loin wide and full

Objections Back narrow, crested back or shoulders, sunfish shaped humped, swayed too long or humpy rolls uneven in width, loin narrow, depressed or humped

Sides and Ribs Sides full, smooth, deep; carrying size down to belly, even with line of ham and shoulder ribs long, well sprung at top and bottom, giving hog a square form

Objections Flat; thin flabby, compressed at bottom, shrunken at shoulders and ham, uneven surface ribs flat and too short

Belly and Flank Same width as back, full, making a straight line and dropping as low at flank as at bottom of chest, line of lower edge running parallel with sides, flank full and even with body

Objections Belly narrow, pinched; sagging or flabby; flank thin, tucked up or drawn in.

Ham and Rump Ham broad, full, long, wide and deep; admitting of no swells, buttock full, neat and clean, thus avoiding flabbiness, stifle well covered with flesh nicely tapering towards the hock rump should have a slightly rounding shape from loin to root of tail same width as back, making an even line with sides

Objections Hams narrow, short, not filled out to stifle; too much cut up in crotch or twist, not coming down to hocks; buttocks flabby, rump flat, narrow, too long, too steep, sharp or peaked at root of tail

Legs and Feet Legs short; straight, set well apart and squarely under body, bone of good size, firm, well muscled wide above knee and hock, below knee and hock round and tapering, enabling animal to carry its weight with ease, pastern short and nearly upright, feet short, firm, tough and free from defects.

Objections Legs too short, long, slim, crooked, too coarse; too close together, weak muscles above hock and knee, bone large and coarse without taper, pasterns long, crooked slim like a deers, hoofs long, slim, weak; toes spreading, crooked or turned up

Tail Small, smooth; tapering well set on; root slightly covered with flesh, carried in a curl

Objections Coarse, long, clumsy, set too high or too low; hanging like a rope.

Coat Fine; straight or wavy, evenly distributed and covering the body well, nicely clipped coats no objection

Objections Bristles hair coarse, thin standing up; not evenly distributed over all of the body except the belly

Color White (blue spots or black specks in skin shall not argue impurity of blood)

Objections Colors other than white

Size Large for age and condition. Boars two years old and over, if in good flesh, should weigh not less than 900 pounds. Sows same age and condition, not less than 750 pounds. Boars 18 months old in good flesh should weigh not less than 800 pounds. Sows 650. Boars 12 months old not less than 600 pounds. Sows 500. Boars and sows six months old not less than 150 pounds each and other ages in proportion.

Objections Overgrown; coarse, uncouth, hard to fatten.

Action and Style Action easy and graceful, style attractive; high carriage in males, testicles should be readily seen, same in case of carriage.

Objections Sluggish, awkward, low carriage; wabbling walk; in males testicles not easily seen, not of same size or carriage, or only one showing.

Condition Healthy, skin clear and bright, free from scurf and sores, flesh fine and mellow to the touch, evenly laid on and free from lumps, good feeding qualities.

Objections Unhealthy; skin scaly, scabby or harsh, flesh lumpy or flabby, hair harsh, dry and standing up from body, poor feeders, total deafness.

Disposition Quiet, gentle and easily handled, with ambition enough to look out for themselves if neglected.

Objections Cross, restless, vicious or wild, no ambition.

DUROC-JERSEY.

Scale of points adopted by the American Duroc Jersey Record:

	Counts
Head and Face	4
Eyes	2
Ears	2
Neck	2
Jowl	2
Shoulders	6
Chest	12
Back and Loin	15
Sides and Ribs	8
Body and Flank	6
Hams and Rump	10
Legs and Feet	10
Tail	1
Coat	2
Color	2
Size	5
Action and Style	1
Condition	4
Disposition	3
Total	100

Disqualifications.

Form Ears standing erect, small cramped chest and crease back of shoulders and over back so as to cause a depression in the back easily noticed, seriously deformed legs or badly broken down feet

Size Very small or not two thirds large enough as given by the standard

Score Less than fifty points

Pedigree Not eligible to record

Detailed Description.

Head and Face Head small in proportion to size of body, wide between eyes, face nicely dished (about half way between a Poland China and a Berkshire) and tapering well down to the nose, surface smooth and even

Objections Large and coarse, narrow between the eyes, face straight, crooked nose, or too much dished

Eyes Lively, bright and prominent

Objections Dull, weak and obscure

Ears Medium, moderately thin, pointing forward, downward and slightly outward, carrying a slight curve, attached to head very neatly

Objections Very large, nearly round, too thick, swinging or flabby, not of same size, different position and not under control of animal.

Neck Short, thick and very deep and slightly arching

Objections Long, shallow and thin

Jowl Broad, full and neat, carrying fullness back to point of shoulders and on a line with breast bone

Objections Too large, loose and flabby, small, thin and wedging

Shoulders Moderately broad, very deep and full; carrying thickness well down and not extending above line of back

Objections Small, thin; shallow, extending above line of back. Boars under one year old heavily shouldered.

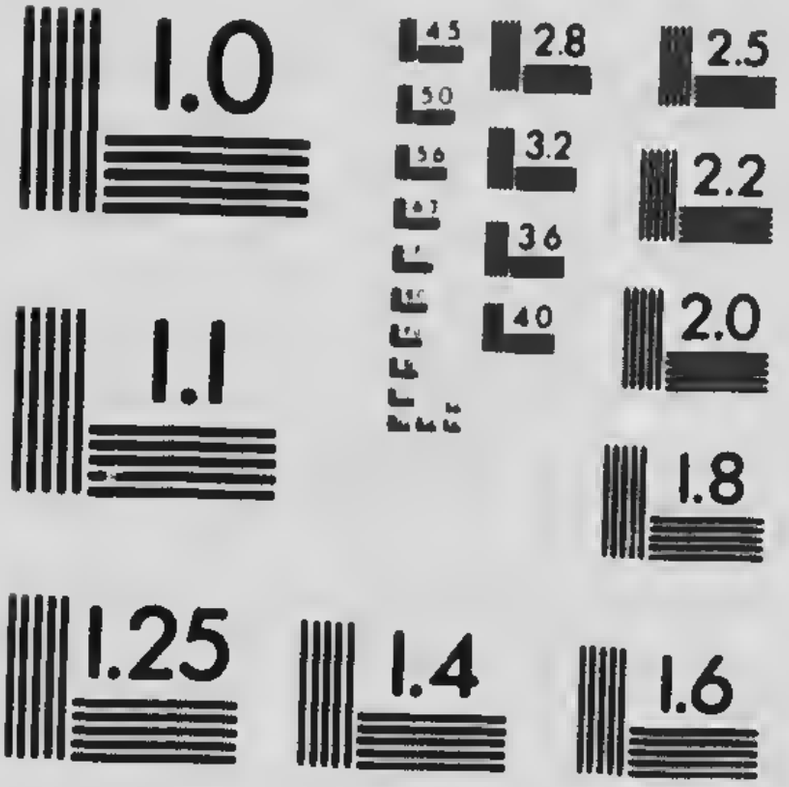
Chest Large, very deep, filled full behind shoulders, breast bone extending well forward so as to be readily seen

Objections Flat, shallow, or not extending well down between fore legs

Back and Loin Back medium in breadth, straight or slightly arching, carrying even width from shoulder to ham, surface even and smooth

Objections Narrow, crease behind shoulders, swayed or humped back

Sides and Ribs Sides very deep, medium in length, even between shoulders and hams and carrying out full down to



line of belly. Ribs long, strong and sprung in proportion to width of shoulders and hams.

Objections—Flabby, creased, shallow, and not carrying proper width from top to bottom.

Belly and Flank—Straight and full and carrying well out to line of sides. Flank well down to lower line of sides.

Objections—Narrow; tucked up or drawn in; sagging or flabby.

Hams and Rump—Broad, full and well let down to the hock; buttock full and coming nearly down and filling full between hocks. Rump should have a round slope, from loin to root of tail; same width as back and well filled out around tail.

Objections—Ham narrow; short; thin; not projecting well down to hock; cut up too high in crotch. Rump narrow; flat or peaked at root of tail; too steep.

Legs and Feet—Medium size and length; straight; nicely tapered; wide apart and well set under the body; pasterns short and strong. Feet short, firm and tough.

Objections—Legs extremely long, or very short; slim; coarse; crooked; legs as large below knee and hock as above; set too close together; hocks turned in or out of straight line. Feet, hoofs long; slim and weak; toes spreading or crooked.

Tail—Medium; large at base and nicely tapering and rather bushy at end.

Objections—Extremely heavy; too long and ropy.

Coat—Moderately thick and fine; straight, smooth and covering the body well.

Objections—Too many bristles; hair coarse, harsh and rough; wavy or curly; swirls; or not evenly laid over the body.

Color—Cherry red without other admixtures.

Objections—Very dark red or shading brown; very pale or light red; black spots over the body; black flecks on belly and legs not desired but admissable.

Size—Large for age and condition. Boars two years old and over should weigh 600 pounds; sow same age and condition, 500 pounds. Boar eighteen months, 475 pounds; sow, 400 pounds. Boar 12 months, 350 pounds; sow, 300 pounds. Boar and sow pigs six months, 150 pounds. The figures are for animals in a fair show condition.

Objections—Rough and coarse and lacking in feeding qualities.

Action and Style—Action vigorous and animated. Style free and easy.

Objections—Dull or stupid; awkward and wabbling. In boars testicles not easily seen nor of same size or carriage; too large or only one showing.

Condition—Healthy; skin free from scurf, scales, sores and mange; flesh evenly laid over the entire body and free from any lumps.

Objections—Unhealthy; scurfy; scaly; sores; mange; too fat for breeding purposes, hair harsh and standing up; poor feeders.

Disposition—Very quiet and gentle; easily handled or driven.

Objections—Wild, vicious or stubborn.

VICTORIA.

Scale of points adopted by the Victoria Swine Breeders' Association.

	Counts
Color—White, with occasional dark spots in the skin	2
Head—Small, broad, and face medium dished	3
Ears—Fine, pointing forward	2
Jowl—Medium size and neat	1
Neck—Short, full and well arched	3
Shoulders—Broad and deep	7
Girth Around Heart	6
Back—Straight, broad and level	12
Sides—Deep and full	6
Ribs—Well sprung	7
Loin—Broad and strong	12
Flank—Well let down	2
Ham—Broad, full and deep, without loose fat	12
Tail—Medium fine and curled	2
Legs—Fine and straight	3
Feet—Small	3
Hair—Fine and silky, free from bristles	3
Action—Easy and graceful	4
Symmetry—Adaptation of the several parts to each other	10
Total	100

Detailed Description.

Color—White, with occasional dark spots in the skin.

Head and Face—Head rather small and neat. Face medium dished and smooth; wide between eyes; tapering from eyes to nose.

Eyes—Medium size; prominent, bright; clear and lively in young, and quiet expression in aged animals.

Ears—Small, thin, fine, silky; upright in young pigs, pointing forward and slightly outward in aged animals.

Neck—Medium wide, deep, short, well arched, and full at top.

Jowl—Medium full, nicely rounded, neat and free from loose, flabby fat.

Shoulders—Broad, deep and full, not higher than line of back, and as wide as top of back.

Chest—Large, wide, deep and roomy, with large girth back of shoulders.

Back and Loin—Broad, straight, or slightly arched; carrying same width from shoulders to ham; level and full at loin; sometimes slightly higher at hip than shoulders.

Ribs and Sides—Ribs well sprung at top; strong and firm; sides deep, full, smooth and firm; free from creases.

Belly and Flank—Wide; straight and full; as low or slightly lower at flank than at chest. Flank full and nearly even with sides.

Hams and Rump—Hams long; full and wide; nicely rounded, trim and free from loose fat. Buttocks large and full; reaching well down to hocks. Rump slightly sloped from end of loin to root of tail.

Legs and Feet—Legs short; set well apart and firm; wide above knee and hock, tapering below. Feet firm and standing well up on toes.

Tail—Small; fine and tapering; nicely curled.

Coat—Fine and silky; evenly covering the body.

Size—Boars two years old and over when in good condition should weigh not less than 500 pounds; sow same age and condition, 450 pounds. Boars twelve months old not less than 300 pounds; sows in good flesh 300 pounds. Pigs 5 to 6 months old, 140 to 160 pounds.

Action—Easy and graceful, but quiet.

Condition—Healthy; skin clean, and white or pink in color; free from scurf; flesh firm and evenly laid on.

Disposition—Quiet and gentle.

Disqualifications.

Color—Other than white or creamy white, with occasional dark spots in skin.

Form—Crooked jaws or deformed face; crooked or deformed legs; large, coarse, drooping ears.

Condition—Excessive fatness; barrenness; deformity in any part of the body.

Pedigree—Not eligible for record.

CHESHIRE.

Standard of excellence and scale of points adopted by the Cheshire Swine Breeders' Association.

		Counts
1.	**Head**—Short to medium in length, short in proportion to length of body	8
2.	**Face**—Somewhat dished and wide between the eyes	8
3.	**Jowl**—Medium in fullness	3
4.	**Ears**—Small, fine, erect, and in old animals slightly pointing forward	5
5.	**Neck**—Short and broad	3
6.	**Shoulders**—Broad, full and deep	6
7.	**Girth Around Heart**	8
8.	**Back**—Long, broad and straight nearly to root of tail	10
9.	**Sides**—Deep and full; nearly straight on bottom line	7
10.	**Flank**—Well back and low down, making flank girth nearly equal to heart girth	3

11. **Hams**—Broad and nearly straight with back and running well down towards hock 10
12. **Legs**—Small and slim, set well apart, supporting body well on toes 10
13. **Tail**—Small, slim and tapering 3
14. **Hair**—Fine, medium in thickness and quantity 3
15. **Color**—White, any colored hairs to disqualify 2
16. **Skin**—Fine and pliable, small blue spots objectionable but allowable 3
17. **Symmetry**—Animal well proportioned, handsome, and stylish, and when grown and well fattened should dress from 400 to 600 pounds 8

Total 100

HAMPSHIRE.

Standard of perfection adopted by the American Hampshire Swine Record Association.

Disqualifications.

Color—Spotted or more than two-thirds white.

Form—Any radical deformity, ears very large or drooping over eyes, crooked or weak legs or broken down feet.

Condition—Seriously impaired or diseased, excessive grossness, barrenness in animals over two years of age, chuffy or squabby fat.

Size—Not two-thirds standard weight.

Pedigree—Not eligible to record.

Detailed Description.

1. **Head and Face**—Head medium length, rather narrow, cheeks not full; face nearly straight and medium width between the eyes, surface even and regular 4
   Objections—Head large, coarse and ridgy; nose crooked or much dished.
2. **Eyes**—Bright and lively, free from wrinkles or fat surroundings 2
   Objections—Small, deep or obscure, or vision impaired by fat or other cause.
3. **Ears**—Medium length, thin, slightly inclined outward and forward 2
   Objections—Large, coarse, thick, large or long knuck, drooping or not under good control of the animal.
4. **Neck**—Short, well set to the shoulders, tapering from shoulder to head 2
   Objections—Long, thick or bulky.
5. **Jowl**—Light and tapering from neck to point, neat and firm 2
   Objections—Large, broad, deep, or flabby.

6. **Shoulders**—Deep, medium width and fullness, well in line with back 6

Objections—Narrow on top or bottom, thick beyond line with sides and hams.

7. **Chest**—Large, deep and roomy; full girth; extending down even with line of belly 12

Objections—Narrow at top or bottom, small girth, cramped or tucked up

9 **Back and Loin**—Back straight or slightly arched; medium breadth, with nearly uniform thickness from shoulders to hams and full at loins; sometimes higher at hips than at shoulders 15

Objections—Narrow, creased or drooped behind shoulders; surface ridgy or uneven.

9. **Sides and Ribs**—Sides full, smooth, firm; carry size evenly from shoulders to hams; ribs, strong, well sprung at top and bottom 8

Objections—Sides thin, flat, flabby or creased, or ribs not well sprung.

10. **Belly and Flank**—Straight and full devoid of grossness; flank full and running nearly on line with sides 6

Objections—Belly sagging or flabby; flank thin or tucked up.

11. **Hams and Rump**—Hams of medium width, long and deep; rump slightly rounded from loin to root of tail; buttock full and neat and firm, devoid of flabbiness or excessive fat 10

Objections—Ham narrow; cut too high in crotch, buttock flabby; rump too flat, too narrow or too steep, or peaked at root of tail.

12. **Legs and Feet**—Legs medium length, set well apart and squarely under body, wide above knee and hock and rounded and well muscled below, tapering; bone medium, pasterns short and nearly upright, toes short and firm, enabling the animal to carry its weight with ease 10

Objections—Legs too long, slim, crooked, coarse or short; weak muscles above hock and knee bone, large and coarse legs without taper; pasterns too long to correspond with length of leg, too crooked or too slender; feet long, slim and weak; toes spreading, too long, crooked or turned up.

13. **Tail**—Medium length, slightly curled 1

Objections—Coarse, long, clumsy, swinging like a pendulum.

14. **Coat**—Fine, straight, smooth 2

Objections—Bristles or swirls, coarse or curly.

15. **Color**—Black, with exception of white belt encircling the body, including fore legs 2

Objections—White running high on hind legs or extending more than one-fourth length of body, or solid black.

16. **Size**—Large for condition; boar two years old and over, 450; sow, same age, 400; eighteen months boar, 350; sow, 325; twelve months boar or sow, 300; six months both sexes, 140 5

17. **Action and Style**—Active, vigorous, quick and graceful; style attractive and spirited 4

Objections—Dull, sluggish and clumsy.

18. **Condition**—Healthy, skin free from all defects, flesh evenly laid on and smooth and firm, not patchy, and devoid of all excess of grossness 4

Objections—Skin scurfy, scaly, mangy or otherwise unhealthy, hair harsh; dwarfed or cramped; not growthy.

19. **Disposition**—Docile, quiet and easily handled 3

Objections—Cross, restless, vicious or with no ambition.

MIDDLE WHITE.

Standard of excellence adopted by the National Pig Breeders' Association of Great Britain.

Color—White, free from black hairs, and blue spots on the skin.

Head—Moderately short, face dished, snout broad and turned up, jowl full, wide between the ears.

Ears—Fairly large, carried erect and fringed with fine hair.

Neck—Medium length, proportionately full to the shoulders.

Chest—Wide and deep.

Shoulders—Level across the top, moderately wide, free from coarseness.

Leg—Straight and well set, level with outside of the body with fine bone.

Pasterns—Short and springy.

Feet—Strong, even and wide.

Back—Long, level and wide from rump.

Loin—Broad.

Tail—Set high, moderate length, but not coarse, with tassel of fine hair.

Sides—Deep.

Ribs—Well sprung.

Belly—Full, but not flabby and straight underline.

Flank—Thick and well let down.

Quarters—Long and wide.

Hams—Broad, full and deep to hocks.

Coat—Long, fine and silky.

Action—Firm and free.

Skin—Fine and quite free from wrinkles.

Objections—Black hairs, black or blue spots, a coarse mane, in-bent knees, hollowness of shoulders, wrinkled skin.

LARGE BLACK PIG.

Scale of points adopted by the Large Black Pig Society of Great Britain.

	Points
Head—Medium length and wide between the ears	5
Ears—Long, thin, and inclined well over the face	6
Jowl—Medium size	3
Neck—Fairly long, and muscular	3
Chest—Wide and deep	3
Shoulders—Oblique, with narrow plate	6
Back—Long and level (rising a little to center of back not objected to)	12
Sides—Very deep	10
Ribs—Well sprung	5
Loin—Broad	5
Quarters—Long, wide, and not drooping	8
Hams—Large, and well filled to hocks	10
Tail—Set high, and not coarse	3
Legs—Short and straight	5
Belly and Flank—Thick and well filled	8
Skin—Fine and soft	4
Coat—Moderate quantity of straight, silky hair	4
Total	100

Objections.

Head—Narrow forehead, or "dished" nose.

Ears—Thick, coarse, or pricked.

Coat—Coarse or curly; bristly mane.

Disqualifications.

Color—Any other than black.

SMALL YORKSHIRE.

Description and scale of points adopted by the American Yorkshire Club.

	Points
1. **General Outline**—Wide and deep in proportion to the length, straight above and below, and short in head neck, body and limbs	5

2.	**Outline of Head**—Short, abrupt, inclining to fine, and possessed of much dish and downward spring under the jaws	4
3.	**Forehead and Poll**—Wide	1
4.	**Eye**—Medium size, clear and bright	1
5.	**Jowl**—Large, smooth and carried well back toward the neck	1
6.	**Snout**—Short, turning upward somewhat with a deep indenture or curve immediately above it	1
7.	**Ear**—Small, thin, erect, and inclining slightly forward rather than backward at the tips	1
8.	**Neck**—Short, wide and deep, the width slightly increasing towards the shoulders	3
9.	**Outline of Body**—Short, broad, deep, and straight above, below and on the sides	7
10.	**Back**—Very broad, of even width and straight from withers to tail head	10
11.	**Shoulder**—Large, smoothly and evenly developed, and blending perfectly with neck and crops	6
12.	**Arm and Thigh**—Moderately wide, tapering nicely down and inclining to short	2
13.	**Brisket**—Wide and on level with underline	3
14.	**Side**—Deep, thick in every part, straight and even from shoulder to hip	8
15.	**Ribs**—Widely and deeply sprung	5
16.	**Heart and Flank Girth**—Excellent in proportion to the length of body and about equal	8
17.	**Hindquarters**—Relatively long; broad in every part and deep, with but little lowering toward the tail head	5
18.	**Ham**—Large, well let down at thigh and twist and inclined to straight behind	10
19.	**Twist**—Well down and full	1
20.	**Tail**—Fine, short and inclined to curl	1
21.	**Legs**—Short, fine rather than coarse, strong, straight and placed well apart	5
22.	**Hair**—Abundant, fine, even in quality	4
23.	**Skin**—Smooth and white and free from creases and scales	2
24.	**Color**—White on every part	1
25.	**Movement**—Gentle and easy but not sluggish	5
	Perfection	100

ESSEX.

Scale of points adopted by the American Essex Association.

	Counts
Color—Black	2
Head—Small, broad and face dished	3

Ears	Fine, erect, slightly drooping with age	2
Jowl	Full and neat	1
Neck	Short, full, well arched	3
Shoulders	Broad and deep	7
Girth Around Heart		6
Back	Straight, broad and level	12
Sides	Deep and full	6
Ribs	Well sprung	7
Loin	Broad and strong	12
Flank	Well let down	2
Ham	Broad, full and deep	12
Tail	Medium, fine, and curled	2
Legs	Fine straight, and tapering	3
Feet	Small	3
Hair	Fine and silky, free from bristles	3
Action	Easy and graceful	4
Symmetry	Adaptation of the several parts to each other	10
	Total	100

SUFFOLK.

Scale of points adopted by the American Suffolk Association

		Counts
Color—	White	2
Head	Small, broad, and face dished	3
Ears	Fine, erect, slightly drooping with age	2
Jowl	Full and neat	1
Neck	Short, full and slightly arched	3
Shoulders	Broad and deep	7
Girth Around Heart		6
Back	Straight, broad, level	12
Sides	Deep and full	6
Ribs	Well sprung	7
Loin	Broad and strong	12
Flank	Well let down	2
Ham	Broad, full, deep	12
Tail	Medium, fine and curled	2
Legs	Fine, straight, and tapering	3
Feet	Small	3
Hair	Fine and silky, free from bristles	3
Action—	Easy and graceful	4
Symmetry	Adaptation of the several parts to each other	10
	Total	100

CHAPTER VI.

FEEDING AND MANAGEMENT.

Feeding and Management of the Boar

There are few animals about the average farm which receive less consideration than the boar, and yet he should receive more attention than the average male animal in order to obtain the best results. Among the most common mistakes, we find over-feeding, keeping in small, filthy quarters, where exercise is impossible, or allowing to range about the farm in a half-starved condition. While the over-fat boar does not make a satisfactory sire, the half-starved boar cannot transmit vigor and constitution to his progeny to the same degree that he would if properly managed. To get the best results, the boar should be in fair flesh, but should be allowed sufficient exercise to keep him in a hardy, vigorous condition.

The age at which a young boar may be first used, depends largely upon his development. Some young boars may be used to a few sows when not more than seven months old without apparent injury. As a rule, it is safer not to use a boar before he is eight months old, and to use him as sparingly as possible until he is a year old. No hard and fast rule can be laid down, and the owner must use his judgment in the matter.

The quarters for the boar should be roomy, clean, and well ventilated, and he should have an outdoor lot in which to take exercise. Some boars are very active, and will take plenty of exercise in a comparatively limited space. Others are lazy, and inclined to become too fat. With such boars, it will be found beneficial to force them to gather a

good part of their living from pasture. In fact, any boar will do better if he has a pasture lot with plenty of shade available during the summer.

The food for the boar should be varied, nutritious, and moderately bulky. Succulent foods, such as roots in winter and green food of some kind in summer, should always be fed with his meal ration. Succulent foods are necessary to keep him in good health. Finely ground oats are very suitable for the main part of his meal ration. An equal weight of middlings, or middlings and bran, added to the oats, makes a good combination. Small proportions of other kinds of meal may be added if desired. Second crop clover or alfalfa hay, cut up finely, steeped in water, and mixed with the meal, makes a good mixture to give variety to his ration. He should be fed only what he will eat up clean; and if he is inclined to become fat and lazy, the amount of food should be reduced.

The boar should not be permitted to serve a sow more than once, and should not be allowed to run with sows to which he is to be bred. These practices tend to exhaust the boar and are likely to result in small, weak litters if persisted in. The aim should be to save the boar from all unnecessary service, especially during the heaviest part of the season.

Feeding and Management of the Sow.

A sow should not be bred before she is eight months old, and in many cases it is better to delay breeding two or three months longer. The development of the sow will influence the breeder in this matter.

During the period of gestation, sows of all ages should have abundant exercise. In summer, pasture should be provided for them in which there is plenty of shade. They should also be given plenty of water, especially during hot weather. For pasture, alfalfa and clover are among the best. At certain seasons, rape is excellent. A permanent pasture of mixed grasses, especially if it contains numerous

shade trees or in pasture lots would make an excellent run for sows.

Winter management is more difficult than summer. The greatest difficulty is to give the sows sufficient exercise, without which good litters cannot be expected. In many cases they can be given the run of the barnyard, where they will take exercise, rooting among the manure, or working among scattered straw or chaff, to find what little grain it may contain. If a dry, well bedded sleeping place is provided, which is free from draughts, the conditions are almost ideal for the best results. When it is impossible to use the barnyard, a roomy shed with earth floor and a sleeping pen arranged in one corner, can be made answer the purpose. By littering the shed with cut straw or chaff, and sprinkling a very little whole grain among the chaff every day, the attendant can get the sows to take considerable exercise. Another method is to make use of small portable pens set in outside lots. These pens may be made 8 feet wide, 10 feet long, 7 feet high in front, and 3½ feet high at the back, with shanty roof. The pens may be made of a single thickness of inch boards with battens over the cracks. In the front is placed a window, and an opening near one corner large enough for the sows to go in and out. No door is required for the opening. These pens should be placed facing the south, and about fifty yards from the feeding place. If kept well bedded, and banked about the bottom on the outside with horse manure, they afford quite comfortable sleeping quarters. The sows are forced to take exercise in walking backwards and forwards between the pen and the feeding place. A pen such as described, will accommodate nine or ten sows, though it is better, as a rule, not to have more than five or six sows together. Care should be taken to provide plenty of trough room; and the troughs should be located on high, dry ground, or a platform should be made on which to place them.

A record should be kept of the date of service of each sow, so that the date of farrowing will be known in advance.

The normal period of gestation for sows is 112 days, though they very frequently run a day or two over this time. A week or ten days before she farrows, the sow should be placed in the farrowing pen, so as to become accustomed to changed conditions before farrowing. She should still be encouraged to take a moderate amount of exercise, however.

The pen should be provided with guard-rails, made of 2x8 inch planks fastened with the edges against the side of the pen about ten inches from the floor. These prevent the sow from lying against the partition, and lessen the danger of injury to the little pigs, which often find the space under the guard-rail a very convenient refuge. A little cut straw makes the best bedding, as the little pigs are apt to become entangled in long straw, and find difficulty in keeping out of the way of the sow when she moves about. The sow should be handled, more or less, before she farrows, so that she may become accustomed to the presence of the attendant in the pen. A sow treated in this way is less likely to become irritable and excited when the attendant enters the pen after she farrows. If everything goes well, she will require but little attention after farrowing, and the less she is interfered with, the better, except when it is absolutely necessary.

Many sows will take the boar a few days after farrowing. To breed a sow at such a time is bad practice. No sow can do justice to herself and two litters of pigs at the same time. Usually, the sow may be bred again a few days after her pigs are weaned, if not too much pulled down in condition by nursing. If she has raised a large litter and is very much emaciated, the chances are that she will produce a very small litter the next time, if she is bred immediately after the pigs are weaned. In such instances, she should be given three weeks or a month of liberal feeding to enable her to regain her lost strength and vitality before she is bred. Many a man has been puzzled to know why his sow, which had raised a large litter, should drop down to four or five

puny pigs the next time. The reason is not difficult to find. To produce a large, vigorous litter, the sow must be strong and full of vitality at the time of service.

In feeding the breeding sow during the period of gestation, the feeder should aim to keep her in good, strong condition without having her become extremely fat. Many farmers go to the other extreme, and keep their sows thin; and the thin sow will either not do justice to her pigs, or will become a mere wreck herself during the time she is nursing her litter—in fact, the chances are that both these things will happen. A sow may be kept in fairly high condition and still produce satisfactorily, provided she takes plenty of exercise.

When on good pasture, sows require very little meal. In this matter the feeder must be governed by the condition of the sows, and if he finds that they are falling off in condition, it will pay him to increase the feed. Ground oats, mixed with wheat bran or middlings, make a good ration for sows. It is well to avoid the heavier and more heating kinds of grain, especially during hot weather. In cold weather, when the sows take a good deal of outdoor exercise, more heating foods, such as corn, peas, or barley, may be used more freely, but always in moderation. In those sections where corn is abundant and cheap, there is a temptation to use it almost exclusively, a practice which cannot produce the best results. Wheat bran and middlings are available in nearly every district, and will be found profitable to mix with corn for breeding sows. The liberal use of pasture or green feed in summer, and of roots and clover or alfalfa hay in winter, as described under the feeding of the boar, is always in order, and will help to ameliorate the injurious effects of corn feeding. When sows are fed outdoors in cold weather, it is better to feed the meal dry. They will require very little water outside of that supplied by the roots. If roots are not available, water must be supplied, and the meal may be soaked before feeding if desired.

In warm weather, an abundant supply of water is very important.

When the sow goes into the warm farrowing pen, it is advisable to feed the meal in the form of a thick slop, and a moderate ration of roots should be continued if she has been receiving roots before she is taken in. This system tends to prevent constipation, and a more or less fevered condition, which may result from changing from outdoor life to confinement. A small amount of oil cake or ground flaxseed added to the ration is also helpful in preventing constipation. After the sow farrows, there should be no hurry about feeding her. If she lies quiet for ten or twelve hours, so much the better. At first, she should have little more than a drink. A very thin slop of water and middlings, given in small quantities, will answer very well. If the weather is cold, tepid water should be used. The food should be gradually increased, and in the course of a week or ten days she will be on full feed. A good mother with a large litter requires very liberal feeding. If the litter is small, it may be necessary to reduce the feed.

Many different rations are used for nursing sows. A very good ration can be made by mixing two parts of finely ground oats with one part of bran and one part of wheat middlings, and allowing the food to soak between feeds. A few roots are beneficial, and sweet skim milk is good. The heavier grains should be used sparingly, and should be largely diluted with such foods as bran, middlings, or ground oats.

After the pigs are weaned, the food should be cut down to check the secretion of milk. Dry oats are a safe food for the sow for a few days after the pigs are weaned. If the udder gets very full, it is a good plan to turn the sow in with the pigs once a day for a few days.

Feeding and Management of Young Pigs.

When the little pigs are born, the attendant should be on hand to see that everything goes well. If the pigs are

strong, and the sow lies quiet, it is better not to interfere. If the pigs seem somewhat weak, or the sow is restless, it is safer to place them in a well bedded box or basket to keep them out of the way until all are born. If the pen is chilly, a bottle of hot water placed in the bottom of the box and covered with a blanket, with another blanket over the top of the box, will help keep up the vitality of the pigs. The little pigs should be placed on the mother to suck as soon as possible. As soon as the sow appears to have settled down quietly, it is best to put the little pigs with her and leave them together. It is not well to interfere except when it is absolutely necessary.

By the time the pigs are about three weeks old, they will have learned to eat. If at all possible, they should be given access to another pen, in which is kept a small trough. Here they can be fed a little skim milk with a very little middlings stirred into it. The quantity of middlings can be gradually increased as the pigs grow older. If they can be taught to nibble at roots during this time, all the better. A little whole wheat, or soaked corn, scattered on the floor of the pen, will cause them to take exercise while hunting for it. If it is not possible to provide an extra pen, it will be necessary to shut the sow out of the pen while the little pigs are being fed. Exercise is very important for young pigs, and every possible means of securing it should be adopted. If they are kept in a small pen with the mother, some of the best of them are apt to become too fat, and are likely to sicken and die. Pigs that come in the spring and early fall, are more easily managed than winter litters, as they can be given outdoor exercise. If the sow is turned out with her pigs, it is not well to give her a large range, as she is likely to travel too far and tire the pigs too much.

There is a great deal of difference of opinion as to the age at which pigs should be weaned. Some breeders advocate leaving the pigs with the sow for ten or twelve weeks, in fact, the sow is practically allowed to wean her own pigs. For producing show pigs, this method is, no doubt, a very

good one, but it practically means only one litter a year; at any rate, it does not admit of two litters a year. A good sow, properly cared for, should produce two litters a year, and the average farmer will find it more profitable to wean his pigs early enough to permit two litters to be raised. If the young pigs have been taught to eat as described, and skim milk is available, they may be weaned successfully when six weeks old. If skim milk is not available, it is better to defer weaning two weeks longer. Skim milk and middlings make about the best food for young pigs at this time. The middlings are better soaked for a few hours before feeding, or, better still, scalded. If fed freshly mixed, they are likely to cause indigestion. Scalding the middlings is especially useful when no skim milk is to be had, as it makes the food more palatable. To scald the middlings, it is best to pour boiling water on them, cover the vessel, and allow to stand several hours, or from one time of feeding until the next. A few finely ground oats added to the middlings, will be found beneficial. If the oats are not very finely ground, it is better to sift out the coarsest hulls. When the pigs are first weaned, they should be fed at least four times a day, being allowed only what they will eat up clean before leaving the trough, and great care should be exercised in keeping the trough clean. When well started, they may be changed to three feeds a day.

When the pigs are three months old, a little ground barley, or small quantities of other grain may be added to the ration. At first, the barley, or other grain, should constitute not more than one-fifth of the total ration: and it can be gradually increased as desired. Barley is one of the very best kinds of grain upon which to start young pigs, though other grains may be used. The almost exclusive use of corn, cannot be too strongly condemned, as corn is a poor bone and muscle former. It is important to teach young pigs to eat a few roots as early as possible: or, if it is too late in the spring for roots, some form of green food should be supplied every day.

If the young boars are not intended for breeding purposes, they should be castrated before they are weaned.

FINISHING FOR MARKET.

1. Finishing the Bacon Hog.

If Canadians are to maintain and develop their trade in bacon with Great Britain, it is of the greatest importance that they pay strict attention to quality. Not only must their hogs be bred to give the desired conformation, but they must be fed and managed in such a way as to give the desired quality. One of the greatest defects in quality with which Canadian packers have to contend is a tendency of some of the sides to turn soft during the process of curing. Softness has nothing to do with fatness; in fact, a thin side is more apt to develop softness than a fat one. In a soft side the fat is soft and spongy, and sometimes even the lean is affected. There are all degrees of softness, shading all the way from sides which are decidedly soft up to those which show only a slight tenderness; but any degree of tenderness detracts very much from the value of a side, and a really soft side is practically worthless. The percentage of soft sides is sometimes very high, even as high as 15 per cent. of the total at certain seasons of the year. It will be readily understood that such a condition represents an enormous shrinkage in value; and this loss is bound to be reflected in the prices paid the farmer for his hogs, to say nothing of the injury to the reputation of Canadian bacon in Great Britain. This is not a matter, therefore, which affects merely the packer. It affects the bacon industry as a whole, and the farmer, sooner or later, must shoulder the loss. This being the case, it is important that the farmer should pay more attention to the question of quality.

Causes of Soft Bacon.

A great deal of experimental work has been performed by the Ontario Agricultural College, Guelph, Ontario, and the

Central Experimental Farm, Ottawa, Ontario, for the purpose of finding out the causes of softness in bacon. The conclusions which follow represent the principal points brought to light in these investigations.

Exclusive Meal Feeding. This is perhaps one of the most common causes of softness, especially when hogs are confined in pens from birth to time of marketing. Some kinds of meal are more injurious than others; but wherever exclusive meal feeding is practiced and the exercise is limited, more or less softness is almost sure to result.

Corn. Of the grains in common use, corn has the greatest tendency to cause softness. Its injurious tendency can be modified by mixing it largely with other meal and by feeding skim milk, green foods, and roots, but its tendency to produce softness is so strong that it must be regarded as an undesirable food for bacon hogs.

Beans. This food appears to have a similar effect to that produced by corn, and is possibly even more injurious.

Lack of Exercise. Lack of exercise has a tendency to produce softness, but this tendency can be largely overcome by judicious feeding.

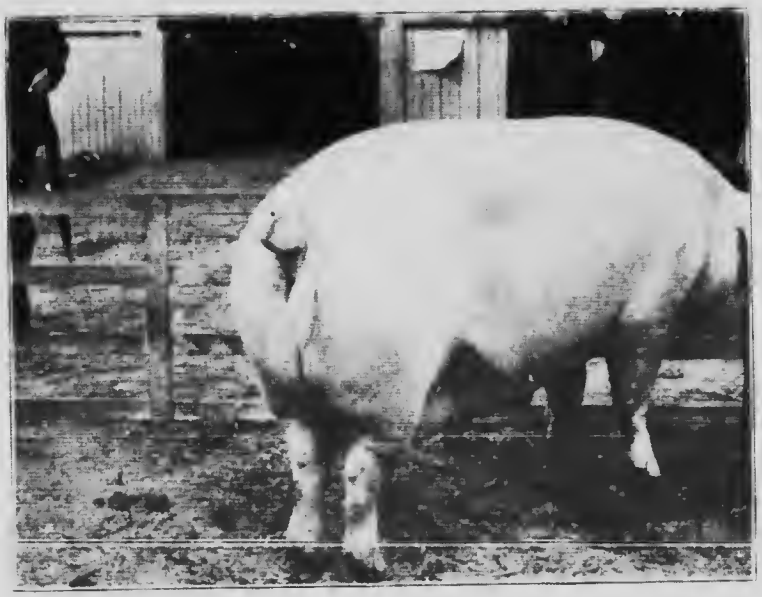
Unthriftiness. Unthrifty hogs, no matter what the cause may be, almost invariably produce soft bacon.

Lack of Finish. Thin hogs have a marked tendency towards softness. Marketing hogs before they are properly finished, is, no doubt, responsible for a good deal of softness.

Holding Back. When a hog is finished it should be marketed at once in order to produce firm bacon. If the feed is cut down so that the hog makes no gain in weight for some time, or loses in weight, the bacon from such a hog is almost sure to be soft.

Lack of Maturity. Generally speaking, the more immature a hog is, the greater the tendency to be soft. Almost invariably the largest percentage of softness occurs among the light sides of bacon. The practice of unduly forcing

Improved [illegible] boar, owned by [illegible] Featherston & Son, Streetsville, Ont. This boar is a good representative of the medium type of the breed.

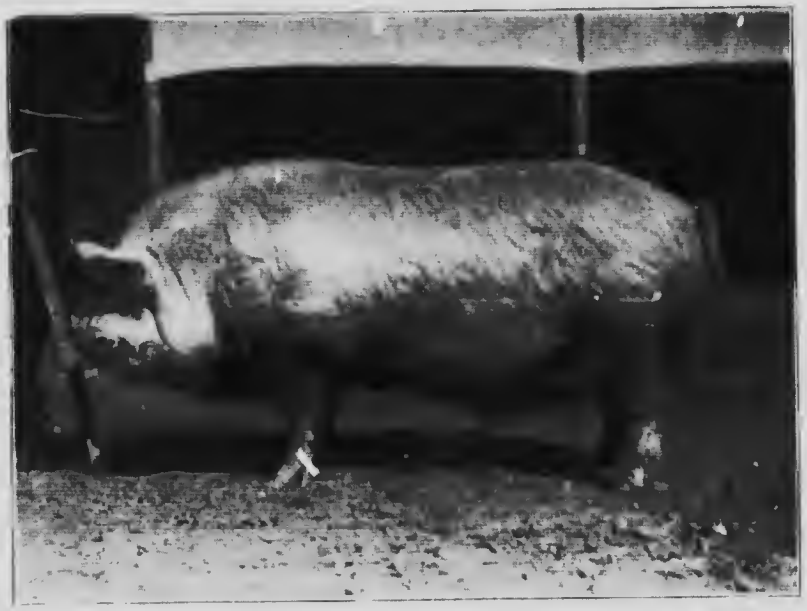


Large York boar, winner at numerous fairs, including first prize and championship at the Provincial Exhibition, London, 1903. Owned by D. C. Flatt & Son, Millgrove, Ont.

Lancaster bull, [illegible] at the National Exhibition, Toronto, 1904. Bred by Wm. Duck, Orillia, Ont.

Lancaster heifers, owned by D. Douglas & Son, Mitchell, Ont.

Chester White sow, winner of first prize at the National Exhibition, Toronto, 1907. Bred by W. T. Wright, Glenwoath, Ont.



Berkshire sow, "Lady Victoria Lass." Winner of first prize at Ohio and Illinois State Fairs and first prize and sweepstakes at Wisconsin and St. Louis Fairs, 1904.

Chester White boar, "Expert." Winner of first prize and sweepstakes at St. Louis Fair, 1904. Owned by E. W. Dorsey & Sons, Perry, Ill.

Yearling Poland China boar "Royal Duke." Winner of first prize and sweepstakes at St. Louis Fair, 1904. Owned by E. M. Metzger, Fairfield, Iowa.

Champion and reserve champion Large Yorkshire sows at Louisiana Purchase Exposition, St. Louis, 1904. "Summer Hill Topsy 8th" and "Summer Hill Dal[illegible] Empress 41st." Owned by [illegible]. (Courtesy P. C. Flatt & Son, Melbourne, Ont.)

hogs so as to have them up to the required weights at a very early age has a tendency to injure the firmness of the bacon. In this connection, however, it must be remembered that some hogs are more mature at six months than others may be at seven or eight months. If a hog is naturally growthy and thrifty, and reaches the desired weight at six months of age without excessive forcing, the chances are that the bacon from such a hog will be quite satisfactory. Good growthy hogs can easily be satisfactorily finished by the time they are from six to seven months old.

Production of Firm Bacon.

From what has been said, it will be seen that softness may result from a number of causes, and it is probable that there are causes outside of those mentioned. Enough has been said, however, to place the feeder on his guard against the most common causes, and below are offered a few suggestions regarding method of feeding and management which have been found to give good results.

As already stated, exclusive meal feeding is apt to injure the quality of bacon, and it does not give such economical gains as a mixed diet. Among the foods which may be used along with meal are skim milk, whey, roots, rape, vetches, clover, soja beans, artichokes, or almost any bulky, succulent food. Such foods, combined with a liberal meal ration, invariably give better gains than an exclusive meal ration, and produce a better quality of bacon. It is probable that much of the beneficial influence of these foods is due to the fact that they help to keep the animals healthy and thrifty, a condition necessary to the production of the best quality of bacon.

But while these succulent foods have an important place in hog feeding, they may also be abused. If an attempt is made to feed hogs almost exclusively upon them, the chances are that the hogs will not be properly finished and soft bacon will likely result.

Unlimited exercise during the fattening period is not conducive to cheap production. At the same time, exercise has a good effect upon the firmness of the bacon produced. At the Ontario Agricultural College, the cheapest gains, and an excellent quality of bacon, were obtained by allowing the hogs only a limited amount of exercise in small outside yards adjacent to the pens, and feeding a limited ration of mixed meal, accompanied with all the green food they would eat. By a limited meal ration is meant an allowance slightly less than the hogs would eat if given the opportunity. This method was found to be more economical than feeding meal on pasture, though it required more labor. It is a notable fact, however, that hogs which have run at large until they weigh about 100 pounds in thin condition, may be finished on almost any meal mixture and still produce firm bacon. This fact illustrates the marked influence of exercise upon firmness of bacon.

2. Finishing the Fat Hog.

The general principles which apply to feeding bacon hogs apply to feeding all classes of hogs. The aim must be to keep the animal in a healthy, thrifty, growing condition from start to finish. The main difference between feeding the two classes of hogs lies in the fact that the fat hog is usually fed to a greater weight and made much fatter than the bacon hog, which means a longer period of feeding. The feeding of corn does not appear to produce the injurious effects in the case of the fat hog that it does in the case of the bacon hog. In the United States, corn is regarded as a food which produces a firm quality of fat, and the feeding of corn is recommended by some Experiment Stations for the express purpose of making the meat firm. It is a little difficult to account for this apparent discrepancy between American and Canadian experience with corn feeding, but a reason for this difference may exist in the fact that American hogs are fed for a greater period of time than Canadian hogs, and that they are more highly fattened. It will be

remembered that in the investigations regarding the causes of soft bacon, it was found that softness was more common among the sides from immature and unfinished hogs than from those which were fattened to a higher degree. When we remember that even the best finished bacon hog would be considered entirely unfinished as a fat hog, and when we place this fact alongside of the fact that the fat hog is usually an older and more mature animal than the bacon hog, we can probably understand the reason why corn feeding is not so injurious in the case of the fat hog. The difference in the methods of curing may also have an influence upon the texture of the bacon.

NOTES ON FOOD STUFFS.

It will invariably be found that a mixture of foods gives better results than a single kind. In the notes which follow, the principal foods which have been used for hogs are briefly discussed, and suggestions offered regarding their combination with other foods.

Peas. Whole peas are very palatable but entirely too wasteful, as hogs do not digest them thoroughly. Pea meal is a valuable food but should never be fed alone. The heavy, close nature of the meal renders it difficult to digest, and the pigs are very apt to sicken. It combines well with barley, or barley and wheat middlings. A few well ground oats may also be added. Peas are noted for the excellent quality of bacon which they produce.

Barley. This is a noted hog food in Europe, but some feeders on this side of the Atlantic do not look upon it with favor. In experiments at the Ontario Agricultural College, excellent results were obtained from barley, both in the amount of gain made by the hogs and the quality of bacon. For young pigs, it should be mixed with wheat middlings, a very little barley being used at first and the quantity gradually increased. For older pigs almost any other kind of grain may be added if desired. Some succulent food, such

as roots, or green food, should always be fed with it, and skim milk makes a great improvement. It is not generally regarded with favor as a food for breeding sows, and when used for this purpose, it should constitute only a small proportion of the ration

Wheat. This grain has a higher feeding value than barley, but requires mixing with other meal to get the best results. It combines very well with barley, or barley and middlings.

Oats. Owing to the amount of fibre in this food, hogs cannot digest it so well as can cattle. Oats are more suitable for matured breeding stock than for young or fattening pigs, though a few finely ground oats may be used in a mixture to give variety and to lighten heavier meal, such as that from peas, wheat or corn. A few finely ground oats combined with middlings make a very good food for young pigs, though it is better to have any coarse hulls sifted out.

Rye. Rye has a food value a little lower than wheat, and a little higher than barley. It may be used in practically the same way as wheat.

Corn. This is a fattening food and is not conducive to the development of bone and muscle. It is entirely unsuitable, therefore, for use as the main part of a ration for young growing pigs or for breeding stock. When fed alone, it gives poor results in producing gain in weight, and its bad influence upon the quality of bacon has already been described. If fed at all, it should be mixed largely with barley or middlings, or both, and some form of succulent food or skim milk should always be fed with it. Owing to its tendency to produce soft bacon, it should be used as little as possible when bacon is the object.

Middlings. This by-product is also called shorts, though some millers make a distinction between shorts and middlings. It is almost universally used for young pigs, and mixed with skim milk when such is available. If very floury, it is safer to mix some finely ground oats with it, or

even a little bran when used for very young pigs, otherwise it sometimes causes indigestion. Soaking for a few hours, or scalding, improves it for young pigs. It combines well with almost any kind of meal and makes a good food for pigs of all ages.

Bran. The use of bran in pig feeding is rather limited. It contains too much fibre and is rather too bulky to be fed in large quantities to pigs. Sometimes a little of it can be used to advantage for the purpose of diluting or lightening other foods, as has been indicated. It can be used in larger quantity for matured breeding stock, where the object is to hold the animals in light breeding condition.

Oil Cake. As a rule, hogs are not particularly fond of oil cake. A very small quantity may be used in the ration of nursing sows or young pigs after they are weaned. As much as one-fifth of the total ration may be composed of oil cake, if the pigs can be induced to eat it. Where skim milk is available, the use of oil cake is of doubtful advantage.

Gluten Meal. Gluten meal is similar in value to oil cake and may be used in about the same way.

Cottonseed Meal. This food has been largely experimented with in the United States, but, up to date, no really satisfactory reports have come to hand. There seems to be something in it which acts as a poison to pigs and frequently causes death. Further investigation is necessary before it can be classed among the desirable foods for swine.

Tankage. This is a by-product from the large slaughter houses and varies considerably in composition. Very good results were obtained with this food at the Ontario Agricultural College, especially in cases where skim milk was not available for young pigs. It seems to be well adapted to feeding with corn, as it apparently furnishes a good deal of the material in which corn is deficient.

Blood Meal. This by-product of the slaughter house is commonly recommended for feeding along with corn. At the Ontario Agricultural College, where it was fed with

mixed grains; it proved too expensive for general use, and did not give as good results as did the tankage.

Skim Milk. With the exception of whole milk, there is perhaps no food better suited to pigs of all ages than skim milk. It is especially beneficial in the case of young pigs, and tends to promote the development of bone and muscle. For fattening purposes, milk has been found to have the greatest food value per 100 pounds when not more than three pounds of milk are used for each pound of meal. Fed in this way, as low as 327 pounds of skim milk have proved equal to 100 pounds of mixed meal. This is an exceptionally good showing, however. In Danish experiments, it required, on an average, about 600 pounds of milk to equal 100 pounds of meal; but in this case a very much larger proportion of milk to meal was used than the proportion mentioned above. In feeding skim milk, therefore, the feeder must take into account the relative cost of milk and meal in deciding what proportions to feed. A strong point in favor of skim milk is the excellent quality of bacon it produces. It tends to correct the evil influence of corn when fed in conjunction with that food, and at the Ontario Agricultural College, hogs fed skim milk in connection with meal produced firm bacon though kept in comparatively close confinement. The excellence of Danish bacon is no doubt largely due to the fact that Denmark is a butter making country, and nearly all hogs are fed more or less skim milk or buttermilk.

Buttermilk. This product varies considerably in composition, depending upon the methods of the butter-maker. In some cases, large amounts of water find their way into the buttermilk tank, and consequently reduce the value of the buttermilk. Where it is not diluted with water it is practically equal in value to skim milk.

Whey. Though unsuitable for very young pigs, a limited amount of whey gives very good results after the pigs are three or four months old. The Ontario Agricultural

College obtained the best results from whey feeding by using only enough whey to make the meal into a thick slop. When fed in this way, it was found that it required from 12 to 14 pounds of whey to be equal in feeding value to one pound of mixed meal. This is a very much higher feeding value for whey, however, than can be expected when it is fed in large quantities. Its influence upon the firmness of bacon was very satisfactory, and it appeared to correct the bad influence of lack of exercise.

Sugar Beets. Hogs seem to prefer sugar beets to almost any other kind of roots. Some difference of opinion exists regarding the amount of roots which may be fed with profit to hogs. Roots should be fed in limited quantity to small pigs, but pigs weighing over 100 pounds, live weight, will, in some cases, take five or six times as much roots as meal, by weight, and make very good gains. As a rule, however, a much smaller proportion of roots to meal will be found preferable. About equal parts by weight of roots and meal makes a very good combination. The proportion of roots may be increased considerably if thought advisable as the hogs advance in weight. In all experiments at the Ontario Agricultural College, and at the Central Experimental Farm, Ottawa, very satisfactory results were obtained from root feeding so far as firmness of bacon was concerned.

Mangels. Though not quite so high in feeding value, mangels compare very favorably with sugar beets for hog feeding. If the hogs have not been fed sugar beets, they will eat mangels very readily. Their influence upon the firmness of bacon is the same as that of sugar beets.

Turnips. Hogs are not so fond of turnips as of mangels and sugar beets, but if they do not know the taste of either mangels or sugar beets, they will eat a considerable quantity of turnips. Turnips are made more palatable by cooking, though it is doubtful whether cooking increases their actual feeding value, which is very similar to that of mangels. It has been found that the feeding of turnips along with a meal

ration, gives a firmer quality of bacon than when meal is fed alone.

Potatoes. Cooking is essential in order to get the best results from potatoes. If they can be cooked so as to leave them dry and mealy, hogs will eat them much more readily. The cooked potatoes make a very palatable food when mashed and mixed with meal. Their influence upon the quality of bacon is also beneficial.

Artichokes. In some sections this crop is very popular as a hog food. It is most suitable, however, for somewhat light, sandy soils. Artichokes may be planted in the late fall or early spring in rows 21 to 24 inches apart, and from 12 to 18 inches apart in the rows. They are usually ready to feed about September 15th, and the hogs are turned in to dig the tubers for themselves. Frost does not injure artichokes, and usually enough are left in the ground for another crop, if it is thought advisable to leave them. When it is desired to eradicate them, the hogs may be turned on them again in the spring, and the plot subsequently sown with turnips or some other hoed crop. Artichokes have a little higher feeding value than potatoes, and hogs are very fond of them.

Sugar Beet Pulp. Some experiments have been conducted with this food for swine, and it was found that when it did not contain an excessive amount of moisture, its feeding value was very similar to that of sugar beets. It is not so palatable as the beets, and some difficulty was experienced in inducing the hogs to eat it freely.

Pumpkins. These have a feeding value very similar to that of turnips, and they may be used in practically the same way.

Beet Molasses. This by-product from the beet sugar factory has been experimented with as a food for swine quite extensively in Germany, and to a limited extent in the United States. In the American experiments, and also in some of the German experiments, beet molasses proved

poisonous to the hogs, though some German experimenters succeeded in feeding a moderate quantity with milk. In the light of our present knowledge, however, this food cannot be recommended for swine.

Feeding Value of Roots. As has already been intimated, much of the feeding value of roots consists in their effect upon the general health of the animal. They tend to prevent indigestion and constipation, and to promote general thrift. The results of tests at experiment stations indicate that from 6 to 8 pounds of sugar beets, mangels, or turnips are equivalent in feeding value to one pound of mixed meal; and that 4 to 4½ pounds of potatoes are equivalent to one pound of mixed meal. The meal equivalent of roots varies considerably, depending upon circumstances, but the figures given will serve as a general guide.

Rape. This is an exceptionally valuable food for swine, and may be pastured or cut and fed to the pigs in the pens. For fattening hogs, best results were obtained by the Ontario Agricultural College from feeding about a two-third meal ration and all the rape the hogs would eat. The hogs were kept in pens with small outside yards, and the rape was cut and carried to them. This method of feeding gave more economical gains than fattening on pasture, and the bacon was of equally good quality. For breeding sows, however, pasturing rape is preferable, owing to the exercise the animals receive. When on rape pasture, mature sows require little other food, but young, growing sows require a moderate meal ration in addition to the rape.

Vetches. Hogs will eat vetches even more readily than rape, but the vetches do not furnish so much food per acre. Vetches are ready for pasture a little earlier than rape, and if a part of the pasture lot is sown with vetches early in the spring, it can be sown with rape after the vetches have been eaten off, and thus the ground will give two pasture crops during the one season. Vetches may also be used as a soiling crop, as described under rape.

Hairy Vetch. The seed of this crop is very expensive. There is no doubt, however, that it makes an excellent pasture crop for swine. If not pastured too closely, it grows up quickly when the hogs are removed. For early spring pasture, it should be sown during the latter part of August so that it can make a considerable growth the preceding fall. About one and one-half bushels of seed per acre are required.

Red Clover. This crop is best suited for pasture, and the hogs should be given quite a large range or the clover will likely be killed out. It is especially useful for breeding sows.

Alfalfa. Where the soil and other conditions are suitable, alfalfa makes an almost ideal pasture for swine. Care must be taken, however, not to pasture too closely or the crop may be destroyed.

Soja Beans. This crop makes a valuable soiling crop for swine, but is not suitable for pasture. It has a high feeding value and hogs eat it readily. The crop is usually sown at the rate of one-half bushel per acre in drills two feet apart. The medium green varieties is quite satisfactory for this purpose. It is usually sown in the early part of May. Though the soja bean has a higher feeding value than rape, it does not yield so much fodder per acre, and is rather more trouble to plant.

Green Rye. Fall sown rye will make a very early spring pasture, and after it has been eaten off, the ground may be sown with some other crop such as rape. It has not a very high feeding value and its main recommendation is the fact that it gives very early pasture.

Alfalfa Hay. As a food for swine, the second or third cutting of alfalfa is the most satisfactory, the first cutting being somewhat coarse. Numerous experiments have been made with alfalfa as a substitute for part of the meal ration for hogs, and while it will not entirely substitute meal, at the same time it gives bulk and variety to the food and ch

fects a considerable saving in the amount of meal required for maintenance. According to some experiments, it did not effect so great a saving of meal as did sugar beets. When steeped in water and mixed with the meal ration, it is excellent for breeding stock, and makes a very fair substitute for roots.

Red Clover Hay. Second crop red clover may be used in the same way as alfalfa, though it has scarcely so large a feeding value.

Corn Silage. There is very little feeding value in average corn silage so far as hogs are concerned. When used at all, it may be utilized simply to give variety, especially when other bulky foods are not available. It is a mistake, however, to attempt to force hogs to eat large quantities of this bulky, fibrous material.

CHAPTER VII.

MISCELLANEOUS.

Cooking Food for Swine.

A great many experiments have been conducted with cooked food for swine at various experiment stations. The results of tests from different stations show many contradictory results; sometimes the cooked food scoring an advantage, but oftener the uncooked food taking the lead. So far as can be made out from the results, it would seem that cooking meal does not increase its digestibility and feeding value, and the weight of evidence is in favor of the theory that cooking tends to decrease the digestibility of meal. Potatoes, however, appear to be improved by cooking. Turnips are rendered more palatable by cooking, but it is doubtful whether their feeding value is increased thereby. If it is desired to feed a large quantity of turnips, no doubt cooking is an advantage. In the case of sugar beets and mangels, which the hogs eat readily in the raw state, it is very doubtful whether cooking pays. On the whole, therefore, cooking apparently tends to make foods more palatable, but its effect upon digestibility appears to be injurious rather than beneficial, with the exception of potatoes. The feeder, therefore, will have to be governed by circumstances in deciding whether it will be advisable for him to cook the food or not.

Soaked, Wet and Dry Meal.

So far as can be gleaned from experiments to date, soaking meal for several hours before feeding appears to be beneficial. It is doubtful, however, whether wetting the food just before feeding has very much influence. One of

the difficulties in feeding dry meal is the prevention of waste, particularly in outside feeding, where a large number of hogs are fed together. In such cases, considerable meal is thrown out of the troughs and trampled into the earth. Where only a few hogs are fed together, especially where they are fed in a pen with a cement floor, there is very little waste. When the meal is fed wet during cold weather, there is danger of forcing a hog to take more water than it requires. This is most important in the case of breeding sows, especially where they are fed outdoors. For outdoor feeding in winter, dry meal is preferable. There may be a waste of meal but this waste will be more than paid back in the beneficial influence this method of feeding has upon the sows. The whole matter after all is largely one of judgment, and calls for careful study of the conditions under which the feeding is done. For ordinary winter feeding, very satisfactory results can be obtained from mixing the dry meal with pulped roots and allowing the mixture to stand from one feeding time to another. Both roots and meal seem to be made more palatable in this way. In warm weather there is much less danger of supplying more water than is required, and the chances are the hogs will require considerable water in addition to that supplied with their food.

Ground and Unground Grain.

American experiment stations have made a large number of experiments with whole corn versus ground corn. Results have been anything but uniform. As a rule, the ground corn has had a slight advantage over the unground, but in many cases not sufficient to pay for the grinding. The smaller grains, such as peas, barley, etc., appear to show a greater advantage from grinding and there is little doubt that the grinding of ordinary grain is advisable, especially when prices for grain are high. If it is ever deemed advisable to feed whole grain, it will be found an advantage to soak it thoroughly before feeding.

Relation of Live Weight to Economy of Gain.

In various experiments, it has been shown that the amount of meal required for a pound of gain in weight steadily increases as the pig becomes heavier. The experiments with pure-bred swine at the Ontario Agricultural College brought out this point quite clearly, as the following statement shows.

Live Weight of Hogs.	Meal Required for 100lb. Increase in Weight
54 to 82 pounds	310 pounds
82 to 115 pounds	375 pounds
115 to 148 pounds	438 pounds
148 to 170 pounds	455 pounds

Prof. W. A. Henry in his book, "Feeds and Feeding," gives a very interesting table under this head which he compiled from the results of many experiment stations. This table indicates that hogs weighing from 150 to 200 pounds require 482 pounds of meal for 100 pounds gain in weight; from 200 to 250 pounds, 498 pounds of meal; and from 250 to 300 pounds, 511 pounds of meal. It will be seen from these figures that the weight at which the Canadian packer wants the hog is just about the limit of profitable feeding.

Correctives.

Swine appear to have a craving for what might be called "unnatural substances." This is especially true of hogs that are kept in confinement, which will eat greedily such substances as charcoal, ashes, mortar, soft coal, rotten wood, etc. It is probable that some of these substances are not good for hogs, but there is no doubt that charcoal and wood ashes have a beneficial effect, the former being greatly relished. It is good practice to supply charcoal, especially during the winter months. If charcoal is not available, a very good mixture to keep constantly before the pigs in small troughs made for the purpose, can be made up of one part of sulphur and about ten parts of wood ashes. If ground charcoal is used instead of the ashes, it is rather

preferable. It is dangerous, however, to withhold salt from hogs for a long time and then give them a large amount. If a supply of some such mixture as that described is kept constantly before the pigs, there is no danger that they will take too much. Sods make a very fair substitute for charcoal. A wagon-load or two of sods placed conveniently near the piggery so that the feeder can throw one or two into each pen occasionally, will be found very beneficial during the winter. Pigs that are outdoors in summer and have access to earth and vegetable matter, have little need of other correctives. The term corrective is used for want of a better, but such substances as those described appear to correct or prevent derangement of the digestive organs and play a very important part in pig feeding.

VERMIN.

Lice are a common source of loss to the hog raiser, and are especially injurious to young pigs. They are most commonly found around the ears, inside the legs, and in the folds of the skin about the jowl, sides, and flanks. A two per cent solution of creolin (2 parts creolin to 100 parts water) makes a very good wash for lice. Most of the standard sheep dips are also effective, but treatment of any kind must be repeated several times to eradicate these pests. Coal oil is very effective, but is liable to blister, or remove the hair. A very good wash can be made as follows: Thoroughly mix 4 ounces of soft soap with 6 quarts of soft water; then add 8 ounces of naphtha and mix again. This wash makes a good insecticide, and is also beneficial to the skin. Thorough cleaning of the pens, and spraying them with a good disinfectant, such as the creolin solution, will be found helpful. Occasional whitewashing also tends to keep vermin in check.

SANITATION.

The hog is an extremely difficult animal to treat when anything goes wrong with him, and, unless it is some very

simple ailment, treatment is seldom effective. Owing to this fact, prevention of disease should receive special attention, and the proverbial ounce of prevention is worth a great many pounds of cure when dealing with swine.

Cleanliness. Filth is an excellent harbor and breeding ground for disease germs. Care should be taken to have pens frequently cleaned, and the frequent use of disinfectants about the pens and sleeping quarters will be found profitable. In case any hog should die in the pen, the pen should be thoroughly cleaned and sprayed with disinfectant. A 5 per cent solution of crude carbolic acid or creolin (5 parts crude carbolic or creolin to 100 parts water), will be found effective. There are also some patent disinfectants on the market, which give satisfaction. If a hog should die of some contagious disease, the carcass should be burned, or buried beyond the reach of dogs.

Light. Sunlight is one of the best disinfectants, and every effort should be made to admit plenty of light into all pens. It must be remembered that disease germs flourish best in the dark.

Ventilation and Dryness. To the difficulty of securing adequate ventilation in the piggery, may be traced a great many of the ills which the pig is heir to. Rheumatism, bronchitis, and pneumonia are some of the commonest winter troubles of swine.

Rheumatism is caused by dampness. When moisture appears on the walls in winter, which is most likely to occur where the walls are of stone or concrete, it is a pretty reliable danger signal. Injudicious feeding may predispose towards rheumatism. When a pig becomes badly crippled with rheumatism, it is difficult to do much for him, and the chances are that he will never return a profit for the food he consumes. About all that can be done is to place him in dry quarters and feed upon nourishing and laxative food. Prevention of dampness, and hence the prevention of the disease, is the feeder's main hope.

Bronchitis most commonly occurs in young pigs, or pigs under six months old. Matured pigs are seldom troubled with it. If it attacks very young pigs, it is often fatal, but pigs two or three months old will generally survive, though their growth and thrift will be seriously interfered with. The disease is accompanied by a distressing cough, which usually disappears with the advent of warm weather and outdoor exercise. Little can be done in the way of treatment. Dry pens free from draughts, nourishing food, and as much exercise as possible, are the principal points to be observed. Damp, chilly pens are the most common cause of this trouble.

Pneumonia is more serious, and is generally fatal. Sometimes the presence of a dead pig in the pen is the first intimation of anything wrong. Some will drag along for a considerable time, coughing at frequent intervals, and others will make a recovery, though they are seldom profitable property. There is practically no treatment other than that described under bronchitis. The feeder who once has experience with pneumonia, will realize the importance of striving to prevent the disease, which usually comes from damp, chilly pens. Some forms of the disease are contagious, and it is always safer to isolate affected pigs.

Damp quarters are also a frequent cause of indigestion and scouring in sucking pigs. This trouble will frequently wipe out the whole of a promising early spring or winter litter.

Though the list of troubles given above may not be complete, it will serve to impress upon the feeder of swine, the importance of ventilation and dry air in the piggery.

Feeding. Mistakes in feeding are responsible for a number of ailments. Partial paralysis, thumps, and some forms of coughs are perhaps the commonest troubles of this class. The unnatural appetite which causes a sow to eat her pigs is also believed to be caused by derangement of the digestive organs; and many skin diseases are due to the same cause, or to a combination of causes.

Partial paralysis resembles rheumatism in its symptoms. The back seems to be specially affected, however, and there is not the marked soreness of the joints that is found in rheumatism. Constipation accompanies the paralysis, when it is due to digestive difficulty. Paralysis usually comes from liberal feeding and lack of exercise, or the feeding of foods of a constipating nature. Judicious feeding will generally prevent the disease, but when it occurs, it is necessary to produce purgation, followed by a limited ration of laxative food. Purgation can be caused by giving from two to eight ounces of epsom salts, according to the size of the animal. It is also a good practice to give in addition, ten to twenty grains nux vomica three times daily. The latter may be given in the food, if the animals will eat. If the disease is noticed in its first stages, that is, when constipation is noticed, and the hogs appear slightly stiff, it frequently can be overcome by giving the animals a complete fast for twenty-four hours, and then giving them a drink of skim milk which contains a liberal dose of salts. When necessary to give medicine in the form of a drench, great care must be exercised or the hog may be suffocated. By pulling the cheek away from the teeth, and pouring the medicine in very slowly, the drenching can be done with very little risk. The hog should not be turned on its back when drenched. Prevention is better than cure, and the skilful breeder is not likely to be troubled by this disease.

Thumps is a trouble which usually attacks little pigs before they are weaned, and is caused by lack of exercise and a liberal supply of the mother's milk. The result is an accumulation of fat about the heart and lungs, which interferes with the action of these organs. The finest and fattest pig in the litter is usually the first to go. The breathing is quick and apparently difficult, and the jerking movement of the flanks of the pig gives rise to the name "thumps." A well developed case of thumps is practically incurable, and if preventive measures are not taken, the whole litter

may be lost. The disease rarely occurs when the little pigs can get outdoor exercise, but is quite common among winter litters which are kept confined in pens. Exercise is essential, even if the feeder is compelled to spend a few minutes several times a day with a whip, to force the little pigs to run about in the pen. The question of exercise is dealt with under Feeding and Management of Young Pigs.

A sow will very rarely eat her pigs when she has been fed and managed as described in a previous chapter. If she acquires the habit, there is a danger that she will continue to eat her pigs, no matter how she is managed. Unless she is a very valuable sow, it will be found safer to fatten her and sell her to the butcher after her first offense.

Skin diseases of various kinds are quite common, and some of them are very obstinate. If taken in time, they can usually be cured. Washing the pigs with a two per cent. solution of creolin, or with some one of the well known dips, will usually be found beneficial, especially if followed by the application of an ointment made of equal parts, by weight, of benzoinated lard and flowers of sulphur.

Diarrhoea, sometimes called "white scours," in sucking pigs, may come from damp pens as already noted, or it may come from a too liberal supply of the mother's milk. Usually when it comes from the milk, the difficulty can be rectified by changing the feed of the sow. Changing from sloppy food to dry food will sometimes help, and the feeding of sulphur to the sow is also beneficial. A teaspoonful in the sow's food, three times a day for a few days, will often help to remedy matters. Sometimes it is necessary to give the young pigs castor oil, a teaspoonful being a fair dose for a sucking pig. Maintaining healthful conditions is the great secret of preventing these troubles.

Sometimes the tusks of the little pigs grow very long and sharp and so irritate the sow that she either refuses to allow the pigs to suck, or the irritation causes an injurious change in the milk. When this cause is suspected, the mouths of

the pigs should be examined, and the offending tusks broken off with a pair of small pinchers

Isolated Houses Where a large number of hogs are kept, it is safer to use a number of small, portable pens, and divide the herd up into small groups, so that in the case of a contagious disease breaking out in the herd, all the hogs will not be exposed

Quarantine. Provision should be made in large herds for quarters where hogs that have been purchased, or brought home from shows, can be kept entirely separate from the rest of the herd for at least three weeks.

CHAPTER VIII.

BUILDINGS.

The question of buildings for swine is such a complicated one that it seems almost a hopeless task to attempt a discussion of the subject. Almost every piggery that is built, possesses certain features peculiar to itself and rendered necessary by the circumstances which it is intended to meet. All that can be attempted in a book of this kind is to discuss the most desirable features of a piggery, for the general guidance of those who wish to build, but every man will have to adapt his building to his own peculiar requirements.

The most important qualities of a piggery are dryness, ventilation, light, freedom from draughts, reasonable warmth, and convenience.

Dryness. Dryness is closely associated with ventilation, but is also influenced by the material of which the building is constructed. Good results cannot be obtained in a damp pen, and dripping walls are a pretty sure indication of impending disaster. Stone and cement walls are very cold in winter and chill the air of the pen, causing it to deposit its moisture upon their surface. In a short time the wall becomes quite wet, and trouble is stored up for the pigs. A hollow cement wall is much less objectionable than a solid one, but there is little doubt that wooden walls constructed in such a way as to form a complete dead air space in the center are the best. The floors and foundation may be constructed of cement concrete, and the foundation may rise about two feet above the surface of the floor. This will preserve the wood of which the walls are constructed and is

not likely to prove at all injurious to the pigs. A very good wall can be made by setting two-by four scantlings on end, and first boarding inside and out with rough lumber. This rough lumber should then be covered with tarred paper, and then the walls should be tightly boarded up with matched lumber. If preferred, the outside of the pen may be clap boarded, or boarded up and down with good lumber and battens placed over the cracks. Matched lumber is best for the inside of the pen. If it is thought desirable to have a loft over the pen, the ceiling can be made of poles, placed a few inches apart, and well covered with straw. The straw absorbs moisture and helps to keep the pen dry. Where this is done the straw should be renewed at least every year, otherwise it becomes a harbor for dust, and, possibly, disease germs.

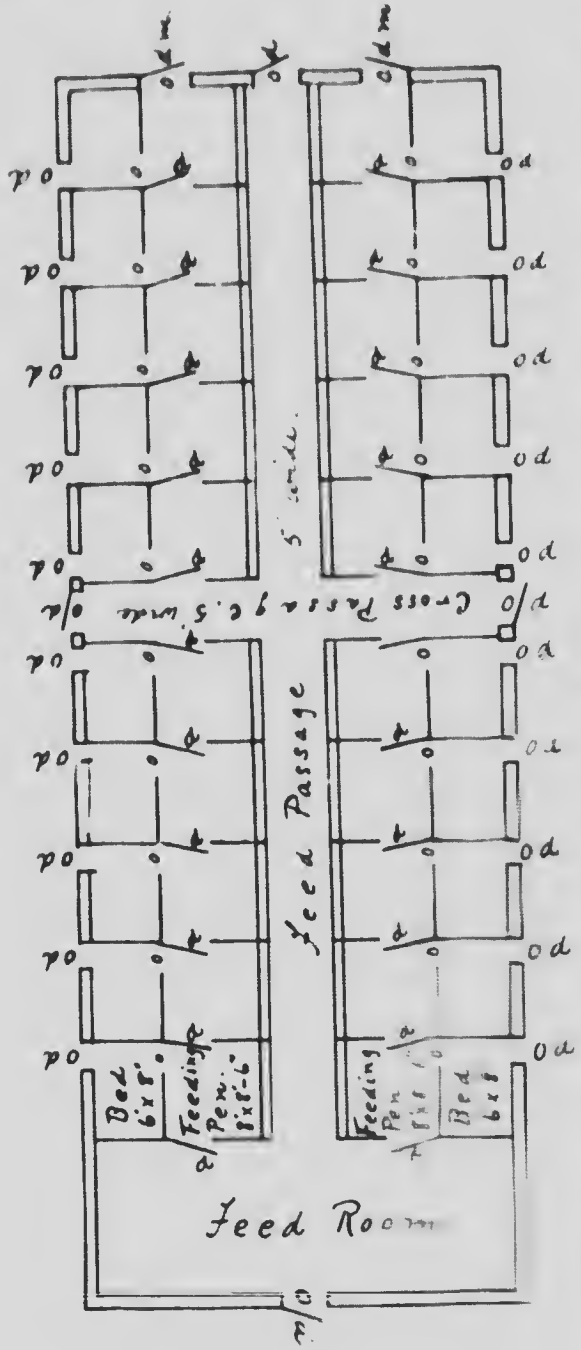
Ventilation. Thorough ventilation is a great help in preserving dryness, but it is a difficult thing to secure in a piggery without unduly lowering the temperature. It is an aid to ventilation to provide a large air space; in other words, to have a high ceiling. The tendency at present is to do away with the common loft over the piggery, and to have the space above the pigs extend to the roof. This gives more air space and makes ventilation a simpler problem, but it necessitates lining the under side of the rafters with matched lumber in order to prevent the pen from becoming too cold. The admission of fresh air can be provided for by constructing shafts in the walls at intervals of fifteen or twenty feet. These shafts should not be more than about four by six inches in size, and should open outside near the ground, and inside at the ceiling. Provision should be made for closing, or partial closing, of these intakes when cold air is admitted too rapidly. The outlets may consist of shafts about eight inches square extending through the roof and equipped on the top with a device for preventing the wind from blowing down the shafts. If a feed cooker is used, it could be utilized to great advantage in assisting ventila-

tion. If the building is not a very long one, the chimney may be constructed at the opposite end of the building from the feed cooker, and the pipe from the feed cooker run the whole length of the building before it enters the chimney. In a long building the chimney may be placed about the centre, so as not to have too great length of stove pipe. The heat from the stove pipe has a wonderful influence in aiding the circulation of the air in the pen, as well as moderating the temperature and helping to keep the air dry. In fact, where winter litters are raised in large pens, some such device as this is absolutely necessary.

Light. Light, especially sunlight, has a wonderful influence in promoting health. So far as possible, the windows should be on the south side of the building, because the south side gets the most sun and is least exposed to cold winds.

Draughts. While ventilation is necessary, draughts are extremely injurious, and their prevention should be kept in view when building.

Warmth. Warmth is a good thing, but it should not be secured at the expense of ventilation. A somewhat cold pen, well ventilated but free from draughts, is preferable to a warm pen where the air is damp and foul, and the pigs will suffer less discomfort in the former than in the latter. Very young pigs require warmer quarters than older ones, and when a sow farrows in winter, special pains should be taken to secure warmth and freedom from draughts. If she is in a large piggery, it is often a help to lay poles across the tops of the partitions over the bed, and then cover these poles with straw.


Feed Passage
Cross Passage 2'-5" wide
Bed 6'x5'
Feeding Pen 5'x5'-6"
Feeding Pen
Bed 6'x5'
Feed Room

North Side
8'-6"
5'
3'
South Side.

Plan of Piggery.

The plan which is given here is taken from a piggery on the farm of Mr. J. E. Brethour, Burford, Ontario. Its construction is comparatively cheap, and it possesses many desirable features. It is capable of many modifications, and a careful study of the plan will be helpful to those who intend to build. Of course, the building can be made any length desired.

The building is 36 by 100 feet, outside measurement. A cement wall, 8 inches thick, rises three feet above the floor. 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 the 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.

From the cross section, it will be seen that the total height of the wall on the north side is 11 feet, and of that on the south side 8 feet. The roof has the same pitch on both sides, so that there is a drop of three feet from one section of the roof to the other at the center of the building. In this space windows are inserted, to throw light, and a certain amount of sunshine, into the row of pens along the north side of the building. These windows are hinged at the bottom and can be opened at any angle, according to the requirements of ventilation. A ratchet device, similar to that used for opening the ventilators in greenhouses, would be very convenient for this purpose.

The floor is cement. Cement is so durable and so easily cleaned that it seems to be about the only satisfactory floor. The part A B (see cross-section) is six inches higher than C D. There is a fall of one and one-half inches from A towards B, and a fall of three inches from D towards C. Thus all the drainage is towards C the lowest point, and the

bed, being on top of A B, is always dry. There should be a fall from one end of the building to the other along the line at C, so that the drainage would be towards one end of the building, and a suitable outlet could be provided.

There is a partition three and a half feet high between the bed and the feeding pen, and the opening from the bed to the feeding pen is two and a half feet wide. The partition shelters from draughts and also economizes bedding by holding the straw in place. The other partitions are four feet high. The partition next to the feeding passage is made of No. 9 coil steel wires, two inches apart at the bottom, and grading to about three inches apart near the top. They are stiffened by heavy upright wires in front of each pen, fastened to the horizontal wires by means of washers designed for that purpose. The wire partition is set in about two and a half inches from the side of the trough next to the feed passage, thus allowing room to pour feed into the troughs.

The troughs are cement, and are eight inches high next to the feed passage, four inches high next to the feeding pen, and ten inches wide, inside measurement.

The feed passage, which is five feet wide, is four inches lower than the feeding pen. This is merely a device to show the pigs to better advantage.

The purpose of the doors in the partitions between the pens is easily understood. They can be swung back, closing the pigs in the back apartment and leaving a continuous passage for cleaning out the pens. The bedding is also taken in and distributed from this passage. These doors are also used in moving pigs from one pen to another, since there are no doors from the pens into the feed passage. The absence of doors from the pens into the feed passage is a somewhat inconvenient feature of the building, but is hard to avoid where a wire partition is used. The wire partition however, is more sanitary than wood, and gives a much better view of the pigs.

It will be noticed that the sleeping quarters have cement floors. When bedding is plentiful this may give no trouble, but it would be safer to place a portable wooden platform on the cement.

The roof is supported by four lines of posts to which the partitions are fastened. Each row carries a line of plates which support the rafters.

There are six windows, each five feet long and two and a half feet high, in the south wall, and the same number in the roof, placed as previously described. The north wall has only two windows.

The dimensions given for the small pens include partitions.

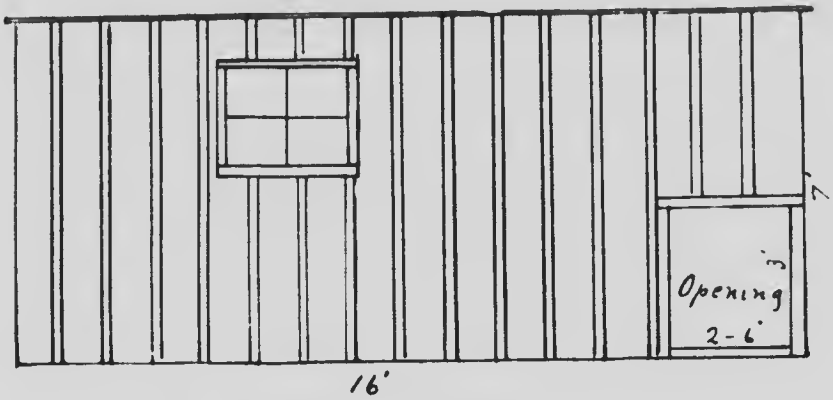
The pens as described are not suitable for farrowing pens. As stated in another place, it is better to have the sows in a building away from other pigs, especially during cold weather, when the building must be kept pretty well closed up. The air of a piggery where a large number of pigs are kept does not agree well with little pigs. If a part of the large piggery is to be used for farrowing pens, it should be closely partitioned off from the rest of the building. The same style of pen could be made suitable for sows with little pigs by making the sleeping apartments two feet wider, thus giving beds eight feet square.

The absence of a loft for storing straw will be a strong objection in the eyes of many. The ventilation of the building, however, and the health of the animals are of vastly greater importance than the inconvenience occasioned by the absence of a loft. It is generally possible to locate the building so as to make it comparatively easy to obtain straw for bedding. If it is not possible to have the building situated with one end adjoining a straw shed, a loft for straw could be constructed over that part of the building used for farrowing pens and feed room.

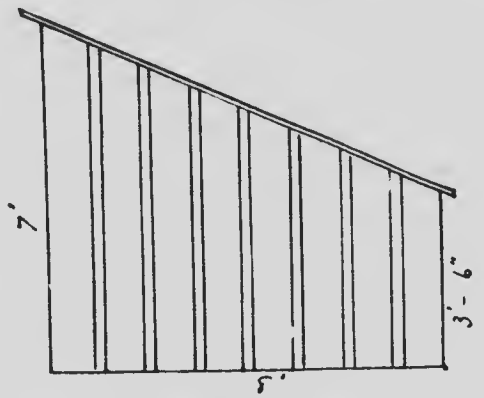
It is, of course, impossible to give plans which would likely meet all requirements, and possibly the plan submitted could not be adopted in its entirety by many breeders. At

the same time, the plan submitted possesses so many excellent features that it is presented with the hope that it will prove helpful to those interested in the housing of swine.

PORTABLE PENS.



Front view of portable pen.



End view of portable pen.

The accompanying sketches show a very cheap and easily constructed pen suitable for winter quarters for breeding sows. The pen is sixteen feet long by eight feet wide. It is seven feet high in front and three and a half feet high at the rear. It is boarded with cheap lumber, but all cracks are securely battened. It should be practically wind and

rain proof. The opening is at one corner, and the pen should be set with the opening towards the south. A door is not necessary. Plenty of bedding should be supplied and the pen should be banked up outside with fresh horse manure to a depth of about two feet, in order to prevent draughts about the floor. This method of housing sows is better than close confinement in warm pens, and will be found to answer very well when other means to provide shelter and exercise are not available.

Some breeders use these small pens for farrowing pens For this purpose the pen should be about eight feet square, and would require to be lined on the inside. A good sized window facing the south to admit light, a ventilator, and a door would be necessary in such pens. In cold weather, while the pigs are very young, a coal oil lantern hung in the pen will help to raise the temperature.