FORTY YEARS' EXPERIENCE OF A PRACTICAL HOG MAN

A. J. LOVEJOY

Yours Truly
A. J. Lovejoy

Forty Years' Experience of a Practical Hog Man

A practical book for the pure bred swine breeder and farmer. Written from actual experience of forty years in successfully handling a large herd of pure bred hogs

By A. J. LOVEJOY

Springfield, Illinois
The Frost Publishing Company
1914

A MAN WHO WILL BE REMEMBERED.

Andrew J. Lovejoy is one of the foremost benefactors of American agriculture. His constructive work as a swine breeder, his honesty and ability in public offices which he has accepted in the interest of the common good, his enterprise and contagious enthusiasm as a farmer, his competence and fairness as a judge of pedigreed swine, his simplicity and forcefulness as a speaker and writer upon practical questions relating to animal husbandry and farming, his wise and far-sighted counsel in the management of shows and agricultural organizations, his loyal friendship and good-will for an exceedingly large circle of acquaintances, and his big, warm heart that makes him a welcome and enkindling personality among men, are the outstanding qualities for which he will be long remembered. He has deserved the honor and the success which have come to him. From the role of a stout-hearted notion and dry-goods wagon peddler, upon the long roads of central Illinois in the days of his ambitious youth, he rose steadily and worthily to the dignified position of a farm owner and widely known breeder of pure-bred hogs. As a vendor of goods he specialized in quality. When he became a Swine breeder he held to his business ideals, and sought steadfastly to deliver Swine goods of the highest quality. The annals of the trade testify to his triumphs in this sphere. He is the author of an inspiring, useful and untarnished career, which is still in flower, and his wide and extended experience and unique abilities qualify him for the other kind of authorship which this book creditably represents.

DeWitt C. Wing.

INTRODUCTION.

The Author of this book has not undertaken to write a thesis on the swine breeding business, nor to give the history of the various breeds, but having commenced the business of swine breeding when quite a young man and following it for practically forty years, he has been requested to write this book, along practical lines of breeding, feeding, care and selling of hogs, both for the market and for breeding purposes.

Starting with a pair of young pigs way back in the dim distance, the business of breeding hogs was commenced by the writer. Knowing nothing whatever in the beginning, the only way anything has been learned has been by actual experience during all these years, finding out each day something that must be learned. This experience has been very costly, but that learned at the greatest expense one never forgets.

For many years the writer did all his own work in the business of swine breeding and feeding as well as showing, and he gained in knowledge as he gained in experience. I cannot recall any labor or duties connected with the feeding and breeding of swine that I have not carried on personally, and step by step have grown in the business from the smallest possible beginning until a trade has been built up that extends throughout the entire United States and many foreign countries. Being of a temperament that never gives up, and with a determination to stick to the business through thick and thin, I have never weakened one iota from my determination to make it a success and a permanent business in which there is practically no limit.

Early I decided to follow the pure-bred business, selling principally to breeders, and feeding for market those that did not come up to a certain standard of excellence that is

necessary to satisfy customers, and I have never had any reason to change my first decision. Of course in the early days it was a hard matter to find customers, but good care, feeding and advertising and the following of the show ring, gradually brought us to the attention of farmers and breeders, and as the years came and went I could see a gradual increase of business and the knowledge regarding it, and each year I went out a little stronger in the show ring, did a little more business over the circuit and found a larger correspondence at home, all of which was gratifying and encouraging. It was my good fortune also, to believe in system in all things, and to this cause I attribute much of my success later.

Careful records were kept of all animals, breeding dates, farrowing dates, marking of the litters, disposition of the same, showing to whom sold and prices received; correct accounts kept regarding expenses and receipts, until a thorough system of bookkeeping, breeding records, sales records, etc., has been worked out.

It has always been our custom to answer all correspondence promptly, keeping a carbon copy of the reply to every letter. Before typewriters were used, all letters were written with pen and a letter press was used in taking an impression in the copy book. It is no trouble for us today to turn to any year's business, or to find out if the question is asked, what animal we sold a certain man years ago.

Nothing has ever been done on this farm in the matter of breeding but what is on record, therefore we do not depend on our memory for anything connected with the business.

What I have learned during these many years is written out in this book, hoping that many a young man, new in the business, or perhaps older and also of experience, may find some subject that will interest him, and from which he can learn something that will be of use. It is for the benefit of my fellow breeders, feeders and farmers that I have attempted to write this book, and it was with great diffidence that I undertook it, even after urgent solicitation, and I only trust it may meet with the approval of those striving to make a success of the swine business.

In advising a beginner in this business, I can only say

—select the breed that you think you would like best no matter what color. After you fully decide on the one you will commence with, stick to it, and do not let anything cause you to waiver. You cannot make a success by using

Residence of Wyman N. Lovejoy on Lovejoy Farm.

first one breed and then another. Stick to the one you have selected and by every means possible get information regarding it, its origin, general characteristics, etc. Be honest and remember that it takes time to build up a business, and after it is once established one must be as careful to maintain it as he was in building it.

CHAPTER ONE.

THE IDEAL HOG FARM.

This is a hard subject to write on. The writer has never yet seen a hog farm that was ideal in every respect. While many of them are almost ideal usually they lack some one or two requirements. My idea for an ideal hog farm would first be one that would have a rich soil, full of fertility to grow grasses and other forage, as well as the grains needed for the best feeds for the proper development of the animals. After a good rich soil the next thing would be a slightly rolling well drained farm. If it was underlaid three or four feet down with gravel, as much of our soil in northern Illinois is, it would not require tiling to carry off surplus water. I have often noticed that a farm that lies quite level and of a rich black soil gets very muddy after rains and during the coming out of the frost in the spring of the year. This kind of soil is not best for ideal hog raising. Besides being extremely muddy at times, this class of soil does not come as near being ideal as does a dark sandy loam well drained with under ground drainage sub-soil. This class of soil is also better even during dry weather for the feet of the pigs. They are rather more inclined to keep in shape and wear down a little all the time instead of growing long and turning up at the toes as do many pigs kept on a soft mucky black soil.

If one wishes a central hog house for general use, rather than a feed house and half acre lots in which individual houses are placed, he should place his central house where pastures could be easily reached from either side, and the kind of a house he should use is one of the modern swine houses such as described on page 17, and should be situated so that a good pasture of well set grass or mixture of grasses could be reached from

either side. Pastures before being occupied in this manner should be well set in grass at least a year before being used as hog pasture.

A small pen the same width as those on the inside of the hog house should extend outward from the pen sixteen or more feet, just for convenience, and gates opening from these to the regular pasture, which may be acre lots, half acre lots or much larger according to whether the breeder cares to keep each sow and litter separate after they go on grass. If half acre lots are used each should have a sleeping house at the rear end, and artificial shade if there is not natural shade in

Pigs in rape, an important forage crop.

(Courtesy of Animal Husbandry Department, Iowa State College of Agriculture.)

each lot, for the comfort of the sow and litter during the hot weather. They should come to the general house for feeding.

A mixture of clover, alfalfa, orchard grass and other grasses makes the most ideal pasture. The lots should be situated on either side of the general hog house. Arrangements for watering should be made so that all could drink from the central house. Small fields of forage should be grown where a large number of sows or young hogs could be placed after weaning time, or those that had already weaned their litters, or animals being fitted for market that would not necessarily be obliged to

remain in the central house and lot, but could run in the larger lots and larger numbers together. I am quoting the value of forage crops for Swine from Bulletins Nos. 136 and 143, from the Iowa Agricultural Station.

"Probably there is no kind of pasture that becomes green and suitable for hogs as early in the season as a field of winter rye, sown early in the fall previous. This rye often furnishes good grazing through the late fall and early winter, or until it becomes covered with snow, then it is the first thing that will furnish a green bite in the spring, coming on much earlier than either alfalfa or clover.

Following the early rye comes alfalfa, which furnishes

A rye pasture affords excellent feed for hogs.

green pasture a little earlier than any of the clovers. By May 1st in the northern latitude red clover will furnish a splendid pasture until such time as it begins to dry and burn by the hot weather. By this time a field of rape should be ready which is probably as good pasture for making growth and gains as any other one kind of green forage. This should be sown in May and the pigs should be kept off of it until it becomes a few inches high, after which it will stand extremely heavy pasturing.

Where one wishes to "hog down" corn in the fall by turning in a large number to fatten for market, there is

nothing that will combine with this as well as Dwarf Essex rape drilled in between the rows just after the last cultivation of the corn. By the time the corn is ready to turn the hogs on you have an ideal ration in the same field; or rye sown with the rape also makes a good combination."

No greater opportunity exists for cheapening pork production than through the general adoption of a forage crop system for spring pigs.

Where alfalfa pasture is used in this climate it should not be pastured earlier than May 1st nor later than November, as it must have enough growth after pasturing to make a cover crop for the winter. Where rape pasture is used it will be found good at any time during the growing season and furnish abundant pasture after the clovers are dry and dead; in fact will furnish good pasture until freezing weather comes. It can be used either for pasturing or for "soiling," that is cutting and carrying to the lot where the pigs are kept if they are not turned into the field.

Young hogs can be pushed very fast by having this good rape pasture and ear corn, plus one-tenth of the corn in meat meal or best quality tankage. This meat meal or tankage is a great help in furnishing the necessary protein and has a tendency to stop the inclination for rooting that many pigs have when on clover or alfalfa.

When hogs and pigs are in winter quarters with no succulent feed such as pasture, the other feeds may be supplemented by using a good quality of third cutting alfalfa which is greener and better than that of former cuttings. This may be fed whole in racks made for the purpose to save waste, or it may be run through a cutting machine and chaffed, and then mixed 2 parts chaffed alfalfa, one part shelled corn and one part oats, thoroughly mixed and ground through a steel burr grinder, which is better than any other for this kind of a mixture. If desired a little middlings may be added and a little tankage to make a balanced ration and a complete one. This may be fed dry in troughs where there would be no waste, or can be steamed a little and thoroughly mixed so that all particles of the ground feed and alfalfa are well mixed. This makes an ideal feed in the winter for brood sows or growing sows.

A little of it for fall pigs is good but they should also have a feed once or twice a day of a warm slop containing skimmed milk if possible, or enough tankage to balance the other materials.

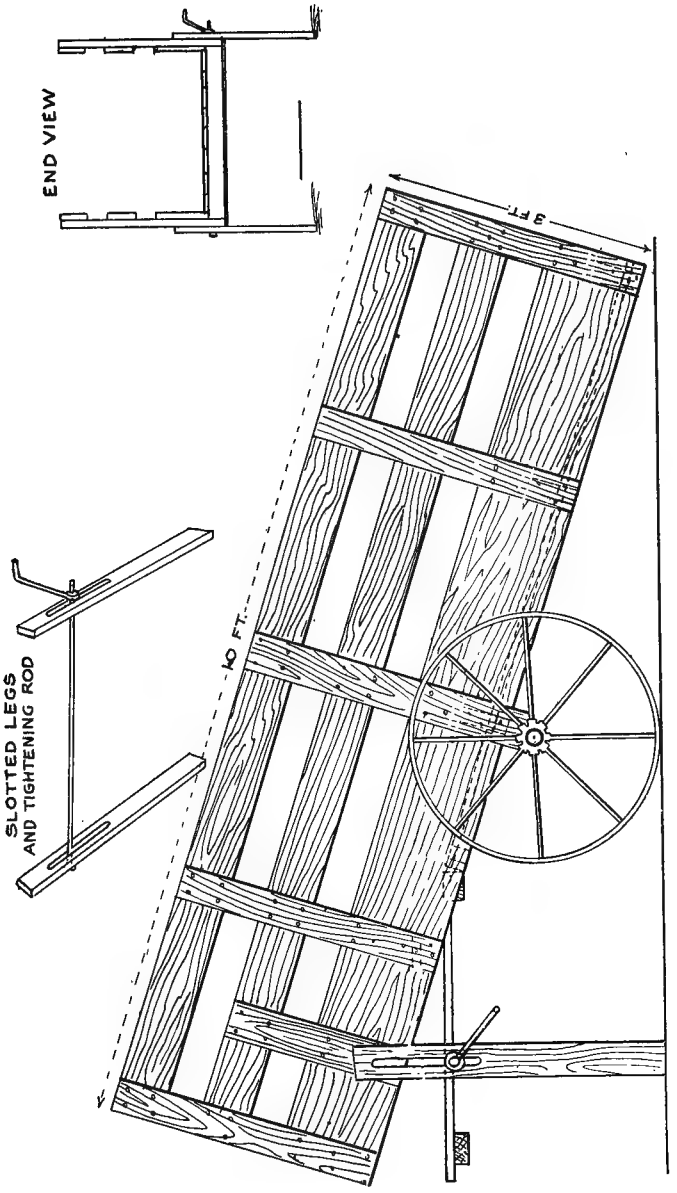
Further along the line of the Ideal Hog Farm, I wish to say that this farm should be located as near as possible to a good shipping point or on an Interurban line leading to some city where one or more railroads enter, the more the better. It should also be located on a good hard road rather than on muddy lanes or steep hills, so that pigs could be delivered at any time during the year rain or shine. It should also have some portion of the farm covered with a nice growth of trees where dry sows and young hogs could be carried along on good pasture between breeding seasons. This pasture for best results should have springs or running water of some kind, but springs would be preferable rather than a stream running through the farm. The farm should be large enough to furnish all the grain and feed that would be used in the business, as well as straw to make first-class bedding, and fields should all be rather small, say from 10 to 20 acres each and all fences both outside and division fences should be made of woven wire with steel or cement posts, so that when once built there would be no need of repairing for a generation. Suitable gates made of galvanized piping with woven wire should open into every field and pasture. These gates should not be less than 14 feet wide, so that teams could be driven in and out when necessary. Suitable barns, nicely painted and kept in good repair, should be of sufficient number to contain all the products of the farm, both grain, hay and straw. A small building used as a shop should by all means be on every well regulated breeding farm, where crates, hurdles and anything along these lines could be made as needed. This shop should be furnished with a complete set of tools, including carpenters tools, pump, tongs, various kinds of wrenches, etc., and all such tools as are constantly needed on a farm.

If the owner has any knowledge of blacksmithing a portable forge, a drilling outfit, etc., should also be in the shop. Also a good heating stove so that work could be done here

in cold or stormy weather. If the business was large enough to justify, a nice small office should be on every breeding farm, so that all comers would have a place where they could go and "talk hog" to their heart's content without being obliged to do this in the dwelling. All buildings should be built of good material, nicely painted and always kept in good condition. The various hog houses, as well as the smaller individual ones should all be nicely made of lumber and well painted and each should be numbered. A plat of the farm proper should also be made by a surveyor and each field numbered, so that a regular record can be kept of what each field produced and what its crop rotation should be each year. All convenient utensils should be kept on every swine breeding farm such as mixing vat, steam boiler or water heater, good well made galvanized pails and dippers, a set of scales in the feed house or some other convenient barn where pigs and feed for them can be weighed, so that one could keep his feed account and know how much feed he was giving each different lot of pigs or hogs. Water should be in every feed house, either pumped directly with windmill or engine or from a compressed air water system. A low down wagon should be had, with the bottom not over 12 or 14 inches above the ground large enough to hold three to five barrels, or in lieu of this a galvanized tank made to set on the wagon, with about 4 compartments holding a barrel or more each, with covers strongly hinged with iron hinges to cover openings, so there would be no slopping from the tank when hauled from yard to yard or from field to field. Feed house should be so arranged that this wagon could be driven into it, where feed and water could be mixed and where the steam could be turned into the feed in cold weather if desired.

If a central hog house is used a system of ventilation should be arranged so that the walls would not be covered with dampness or ice during cold weather.

A chute for loading pigs into wagon or into crates set on a platform wagon should be made and set on a pair of wheels, so that it would almost balance and could be wheeled from one place to another, a picture of which is on next page.



Sketch of Loading Chute Used on Lovejoy Farm.

This will be found much more convenient than to lift the crate from the ground whenever you wish to load a hog. A small pen in the swine house or other place where water is convenient should be made with a cement floor and outlet to sewer, where pigs could be sprayed or washed and cleaned ready for shipment. Pigs should always, especially during the warmer months, be nice and clean before being crated for shipment. In fact everything about the farm of the breeder should be attractive in appearance and general arrangement.

The Lovejoy A-shaped hog house.

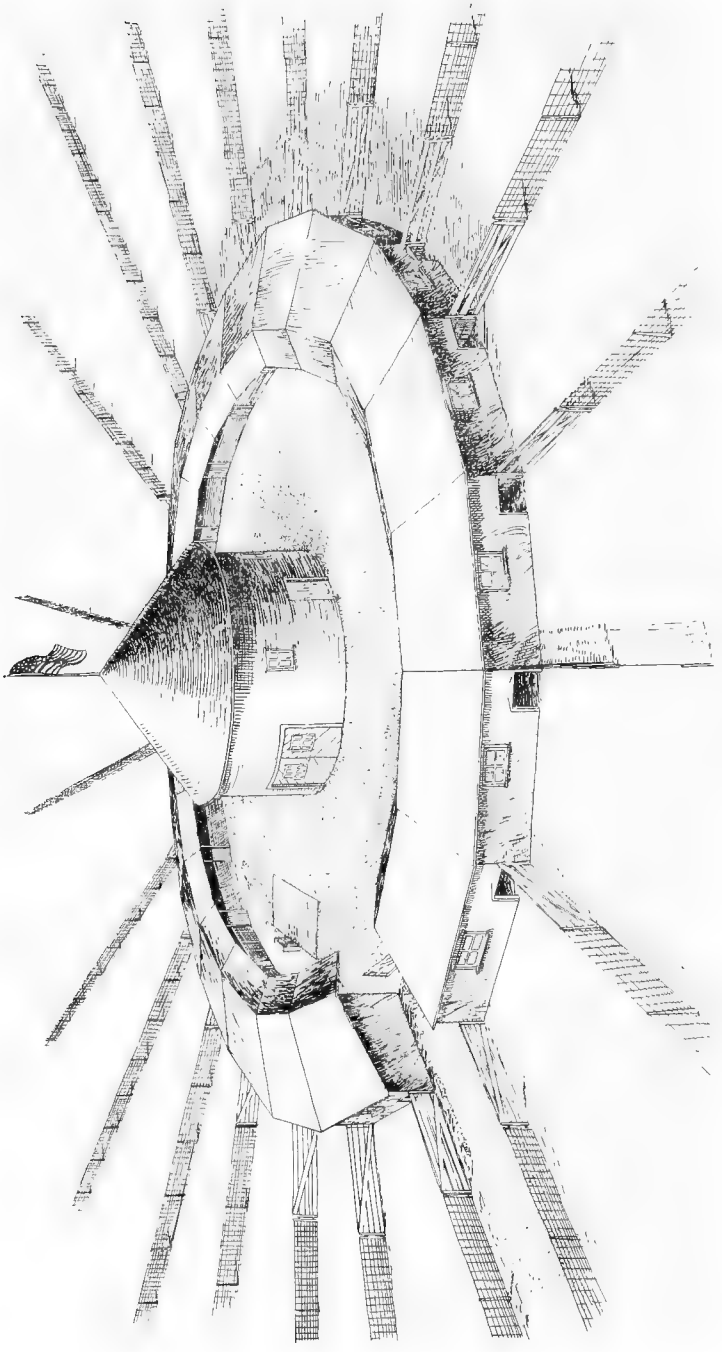
Pigs of about the same age and size should always be yarded or pastured together, as they show to much better advantage; in other words the herd should be divided up in as even bunches as possible, all yearlings together, under year sows or boars in separate yards each, early spring pigs and late ones in separate yards, and so on all along the line. It makes a better impression on a visitor than to see all ages and sizes running together.

CHAPTER TWO.

A VERY COMPLETE SWINE HOUSE.

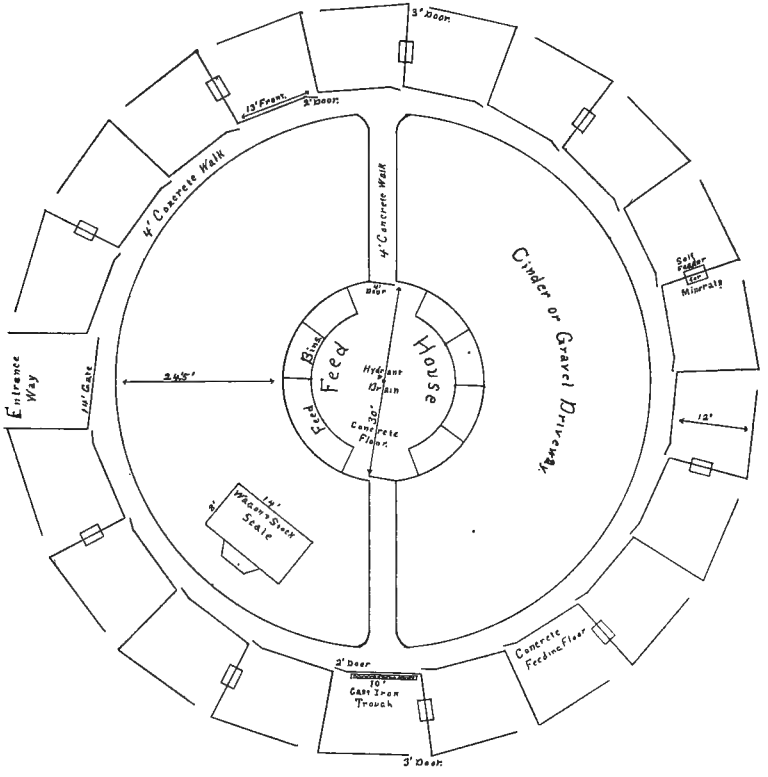
Where one is raising hogs on a large scale and does not have to skimp for money to build proper buildings, the building known as the Myers plan is probably the most convenient Swine house, with pasture and house attached, that could be built. The Swine House proper is built in a circle 87 feet in diameter with twenty pens around the outer circle, each pen being 13 ft. front by 12 ft. in depth and each opening to a one-half acre pasture, as shown in ground plan of building and pastures, with the sleeping house at the rear end of each lot, with additional larger pastures opening out from each of these half acre ones. You will notice also by the ground plan that each half acre lot has artificial shade along the fence between each two lots, thus accommodating the pigs in each yard.

The House proper which stands in the center of the circle is 30′ in diameter with feed bins around the circle. This part should be made with all concrete floor. You will notice an alley out each side of this feed house. Inside is located a hydrant or pump with a drain which runs to a sewer. A steel overhead track with carrier should be used in this building to carry the feed out to the cement walk around the front of the feeding pens, thus making an extremely convenient way of feeding, requiring no heavy lifting to feed in a trough as shown in the side view. These troughs should be made of cast iron or boiler iron. I would suggest in making these houses that a good article of prepared roofing other than galvanized iron be used. Galvanized iron draws too much heat and another thing it would have to be painted every year or would soon rust out. A wagon scale should be located in the circle outside of the feed house, this circle



The Myers Swine House.
(Courtesy of John F. Myers, Millersburg, Ohio.

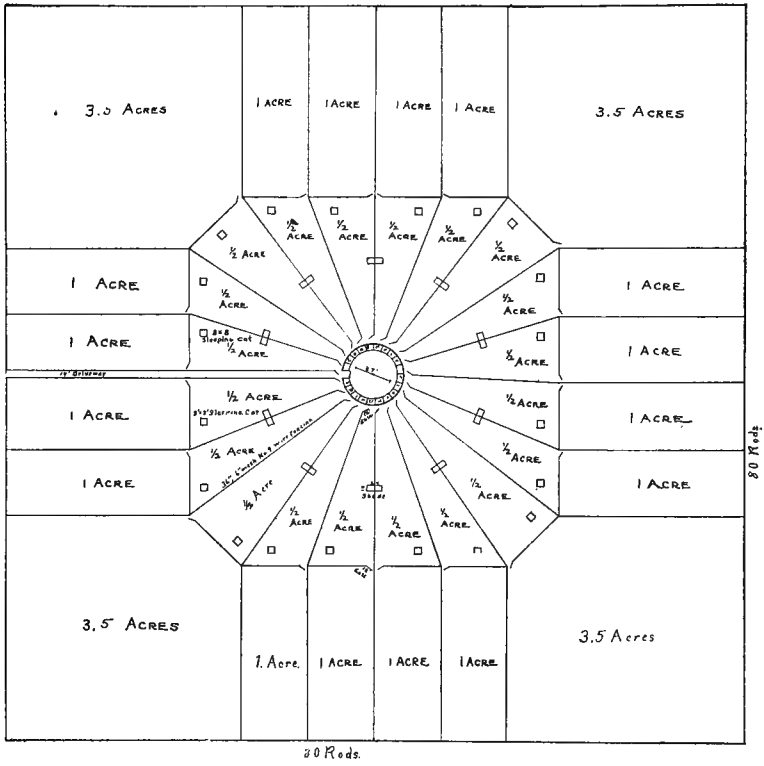
being 24′ 5″ in width between the concrete walk and the feed house all the way around and should be filled with cinders or gravel. This style of a house would be a delightful place to work in and care for the herd, as one would never have to be out in the weather during summer



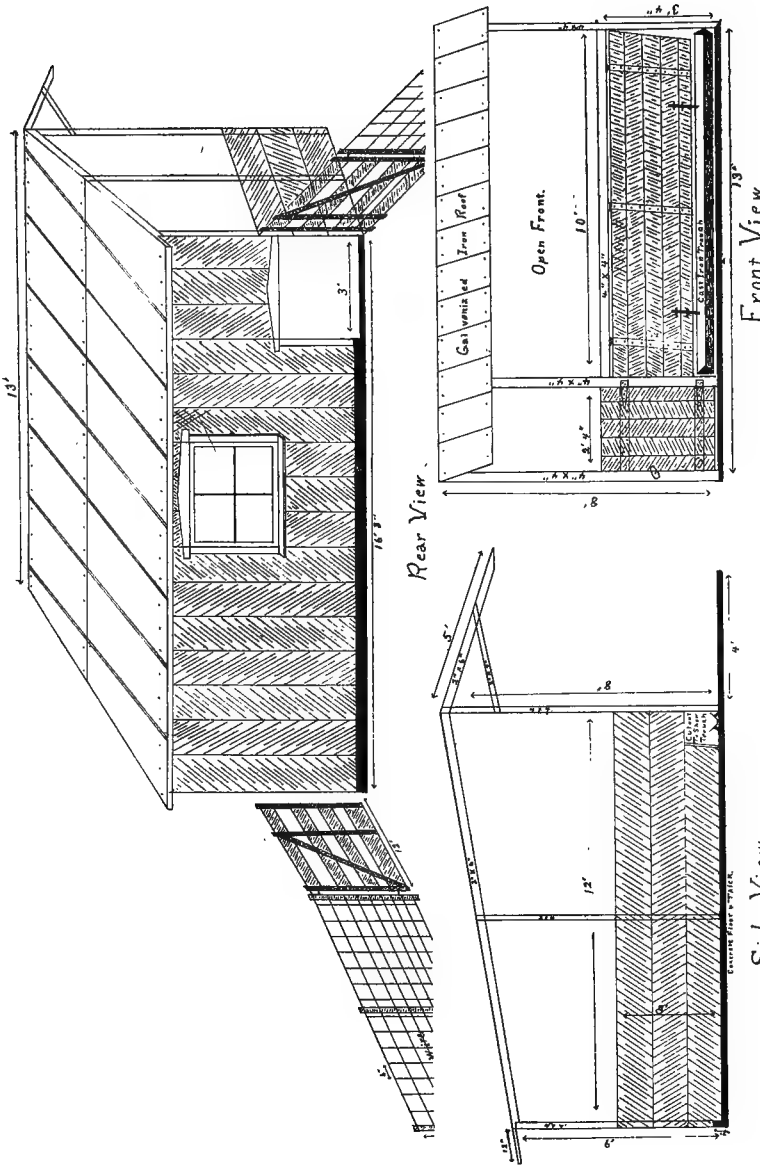
Feed House and Feeding Pens For Swine (Ground Plan)

or winter and all feeding would be done on concrete floor and the pigs could go out and in from the feeding floor to the pastures or sleeping quarters at will. I would strongly recommend this house where a breeder has a large enough herd and business to justify. It would require about 40 acres of land for the entire plant which should be well set in clover, alfalfa and other grasses before being occupied. To make an extremely nice job these yards could all be fenced with

what is known as the galvanized hollow iron post about 2″ in diameter which should be made 5′ in length and driven into the ground and the woven wire fence attached with proper brace, etc., etc. These posts usually come in 7′ lengths and cost around 30c each, but could be made 2′ shorter and driven into the ground 2′ which would leave



them only 3′ above ground which with a 33″ woven wire fence would make an extremely handsome job. They will last almost as long as cement posts; have little slots cut in them to hold each wire, which can be closed with a hammer after the wire is entered.



Sectional View of The Myers Swine House.

CHAPTER THREE.

GREAT IMPORTANCE OF GOOD PASTURE.

In forty years' experience as a breeder of swine, I have come to the conclusion that many breeders and growers of swine, whether for pure bred trade or the market, fail to realize the importance of good pasture at all times, and the use of succulent feeds at such times and in such parts of the country where snow or cold weather prevents pasture during a portion of the year.

Probably there is nothing more desirable as a pasture for pigs than some one of the clovers. Of course different States and different parts of the country grow different kinds of grasses, and the hog raiser should select such clovers or grasses as may be adapted to his locality. I would name the common red clover first. While no better than alfalfa, it will stand tramping and close cropping better. Of course the clovers in the colder States are not ready for the pigs quite as early as are some other kinds of green feed. Where this is the case, nothing is better than an early sowed field of winter rye that had a fair start the fall previous and also has been used as pasture when not covered with snow. This grain is the earliest to form a good green bite in the early spring, and will give an abundance of good pasture until such time as the clovers or alfalfa are of proper growth.

I believe it is generally acknowledged that while alfalfa is a splendid pasture, it will not stand close grazing, and it will die out sooner than other grasses; for this reason we have always kept our hogs off the alfalfa fields, and especially should this be done during the winter.

If there is any prospect in the spring of the pasture lot becoming short or danger of its becoming injured by dry weather it is desirable to prepare for this emergency by

sowing a field to dwarf essex rape which is the best substitute for clover or alfalfa that I know of. In fact every hog raiser should sow a field of rape as it is one of the best of all hog feeds. This should be sown as early in the spring as possible after the ground becomes warm, and should not be used as a pasture until it is six inches or more in height. After it once has a good start the pigs will never be able to keep it down, and this feed is good as a pasture feed even until freezing weather comes in the fall, and during the months of July and August when all other kinds of green food are withering and dried out this will furnish a very satisfactory green feed.

A scene on Lovejoy Farm.

We have fed more or less rape for years and have never had anything but good results. Occasionally I have read of some trouble with the pigs becoming scabby or sore about the ears and parts of the body that come in contact with the rape; especially when there was a dew or slight rain making the leaves wet. I understand, however, this trouble occurs only with the white breed of hogs; their skin seems a little more sensitive and inclined to blister in the sun, especially if wet.

An acre or two of rape, if a good stand and on good soil, will produce a surprising amount of first class pasture.

If it is desirable to sow a spring grain to be used before rape could become the proper size for grazing, a mixture of barley and oats and even field peas makes a desirable mixture to sow.

I believe a hog prefers green barley sown early in the spring to any of the other varieties of spring sown grain. Why this is I cannot explain, but if a patch of oats and another of barley are sown early in the spring, side by side, and pigs turned into the two lots when grain is a few inches high, they will eat the barley all off and give little attention to the oats, probably for the reason that the barley is more palatable.

SHADE NATURAL OR ARTIFICIAL.

The question of shade in the pastures or lots where pigs are kept during the summer, is of great importance. The pig being an animal that does not perspire of course can not stand excessive heat and must have shade or suffer the consequences.

Where the hog pastures can be arranged in a wooded lot, that is all that can be desired. Where such is not the case artificial shade of some kind must be furnished. In lots on open sunny land where there are no trees, very satisfactory arrangement for shade can be had by setting posts along the division fence every sixteen feet with corresponding posts eight feet each side of the fence, about four or five feet high along the fence with the outer ones about two and a half feet high, thus forming a covered place sixteen feet square with the roof slightly sloping to the East and to the West, or even each of the four ways. The cover should be of good lumber and the ends of the boards projecting well over to prevent the sun shining under. This place should have no floor and the ground after being used will naturally become rooted up and often gets very dusty; this condition can be overcome by one or two liberal sprayings of crude oil, and in extremely hot weather if the pigs suffer with heat, water can be thrown on the ground under the shades each day.

Where many hogs are pastured in a large lot of several acres or more, and there is no natural shade, a long shed can be built with the sides left open for about two feet above the ground. This should also be kept free from dust in the above manner and well ventilated, and as dark as possible during the hot dry weather when flies are troublesome. But no shade equals that of a good tree with spreading branches in a woods pasture well set in white clover and blue grass. However, I do not recommend the use of a thickly set under brush or where the trees are so close together that the sun cannot penetrate to all parts some time during the day. Avoid such a place, as the direct rays of the sun are necessary for complete sanitation.

CHAPTER FOUR.

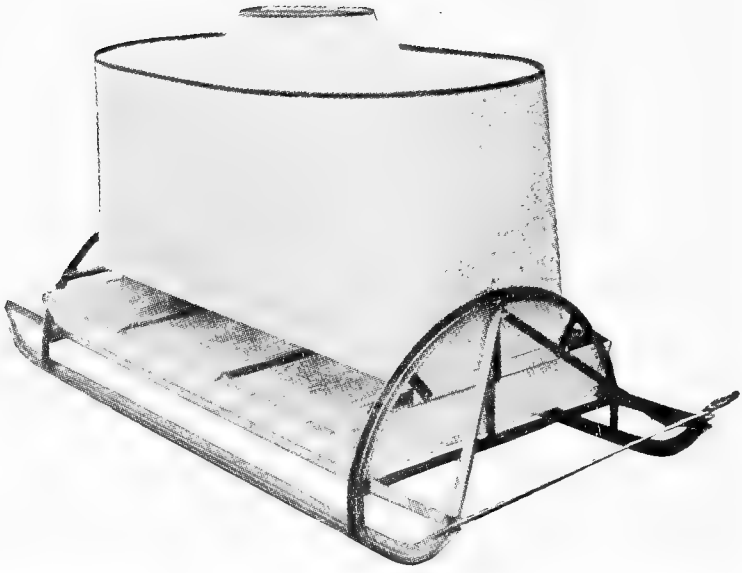
NECESSITY OF PLENTY OF PURE WATER.

The question of water for swine at all times, is one that I am afraid is not looked upon with as much importance as it should be. For instance, many feeders—men who are really good feeders too—seem to think that when feeding pigs or older animals on a mixture of wet feeds, containing more or less water, the animal is getting all the water it requires in eating a half pail or more of nicely mixed wet feed. To prove that this is not the case generally, let the feeder pour a little pure water into a separate trough and nine times out of ten the pig will take a drink of it while he is eating his wet feed. Of course it is sometimes rather discouraging to water a large number of hogs in separate troughs, and an hour or so after they have been fed a wet feed notice that in several of the lots or yards some of the pigs do not seem to drink any of it, but just remember some of them will drink heartily. For this reason it is far better, where possible, that a drinking fountain should be used where the pigs or hogs can go at will; this, of course, where there is no natural spring or water flowing through the yards or pasture lots.

I know personally that I drink and enjoy lots of good cold water and while it is claimed by some that the drinking of water during the meal is injurious, I have always drank all the cold water—and it is never too cold—with my meal that I wanted. I am now much over three score years and still drink water and have never felt any ill results, and weigh over 250 pounds. I have a very attractive stenographer who is helping me on this book—and a great help too—who never drinks any water to speak of. She weighs one hundred and six pounds, although not three score and ten, but I wish you to note the difference in weight, and that water is a valuable thing for producing flesh as well as satisfying the appetite.

There are many ways of furnishing water to the herd. If many are allowed to pasture together or are yarded in the same winter quarters, it is an easy matter by having self-watering fountains, as it would be necessary for only one such fountain to be used in a covered shed or place where forty to fifty animals were daily allowed to congregate. Where animals are kept, as has been our custom, in yards with only a few in each, it is quite a serious matter, as each lot must either have a drinking fountain, or the animals must be regularly watered each day, and during the cold winter months no water must be left over night in the trough to freeze. We have a self-watering fountain which is connected with a forty-barrel supply tank so arranged that a lamp can be safely set under the drinking cup and fountain, always keeping the water warm. This is a very desirable fountain but could not be used where there were forty or more lots with a few pigs in each, unless there was a regular system of water pipes running along through these lots and the cost would be so great that it could hardly be afforded; hence, outside of our one or two adjoining large lots, we are obliged during the extremely cold months to water each individual lot with water that has been warmed. In southern states it is probably not necessary to use water that has had the chill taken off—which is a much more desirable condition.

There are other watering fountains on the market, for use during the extremely cold weather, arranged with a fire box for heating the reservoir above, with openings along the drinking tank on either side; when perfected, they will be a very desirable fountain to use, but as yet I do not feel that they are really practical, and am waiting for greater improvements. In the case of breeders who use a central hog house, a pipe running along the troughs on either side of the alley and back to the water heater is very convenient to keep the chill off the drinking water, but these are not common. It is a small matter in *what way* water is furnished daily to every hog and pig on the farm, but it is of *much importance that it be furnished in some way.*



A sanitary and convenient watering device.

CHAPTER FIVE.

IMPORTANCE OF A GOOD SIRE.

It is an old maxim that "a good sire is half the herd." If a poor sire, he is all the herd, and that means failure. Whether this is true or not, it is of great importance that the sire at the head of the herd should be a good one, not only individually, but what is more, he should be bred along blood lines that have proven prepotent and have made good even though used on promiscuously bred sows; a strongly line-bred boar with an ancestry that is unquestioned in the ability to breed on.

Often one may breed an animal that has great individual quality, but without good ancestry, and such an animal should not be used as a sire. A prepotent sire never comes by chance. He must trace to good ancestry to be of much value to the breeding herd. There is no breed of swine without a few outstanding sires that have had great influence on the breed. This great value comes from inherited excellence through generations of good blood, and is the only reliable method of selecting the desirable sires in any breed.

In making a selection of a sire for a pure-bred herd, look first to individuality, then to the breeding back through several generations; see that his ancestors are right and what they have done for the breed. If you find all this to be of a high order and the boar suits you, is a high-class individual, showing true characteristics of his breed, rugged, full of vigor, masculine in appearance, and with all the size possible, not sacrificing quality; conformation as near the standard of excellence of his breed as possible, buy him.

Among the few great sires that have stamped themselves on the offspring of any breed, one can find their

characteristics cropping out even to many generations, and if you will go into almost any prominent herd, of the different breeds, you will at once notice a few outstanding pigs that show in many ways unusual excellence, and if you take the trouble to look up their breeding you will invariably find that they were either sired by some great sire or by a son or a grandson of his, or from a sow by some great outstanding sire; plainly showing the ability of such a sire to reproduce the excellent qualities so much in demand.

On a recent visit to our farm by an expert in pedigrees, it was found after we had selected some fifteen head of pigs, as being the tops of the litters, that every one of them traced to sires of great ancestry.

Once in checking up our card system we found a certain sow had produced a litter of only six pigs, two boars and four sows. The choicest boar was given to the party who had offered us an excellent sow if we would breed her to a certain boar and select him the best boar pig; we were to have the sow and balance of the litter for the service of the boar. The litter above was the result. We sold the four sows to prominent breeders for $1,250. All of the sows proved great producers. One had a litter of seven pigs one of which was used at the head of the herd for years. Three of this litter were made barrows for show at the International Exposition, where one of them was the Grand Champion over all breeds, and the others were winners in class. All this goes to prove the value of a great sire, which in this case gave a good record and brought us a great sow for the herd, and $1,250, for the service of the boar.

There are many such instances on record, which emphasize the value of the right kind of a pedigree as well as "some hog" which is certainly very necessary.

It is also of great importance that the same critical judgment be used in the selection of the brood sows on which the herd is founded that the future may be an assured success.

Every breeder should be constantly on the lookout for a sire which he has reason to believe would help to improve his herd. It is not likely that any man is so well fixed in regard to sires that he need not think of better

ones. Wise breeders are always open-eyed and open-minded in reference to new sires for their herds. They keep posted as to the performances of both boars and sows representing popular blood lines. Moreover, they correspond with or visit many of the less prominent breeders for the purpose of finding out how things are going. Such men make most of the so-called "lucky strikes." When they have the evidence that given blood lines are producing extraordinarily good things they are enterprising enough to secure boars or sows representing those blood lines. Sometimes they have to pay long prices; just as often they secure bargains.

A breeder who would steadily advance must pay studious attention to the operations of his fellow-breeders, and thus keep that breadth of mind which is essential to genuine progress. He must war against narrowness, and be big enough to see real merit wherever it exists.

In speaking of the influence of the sire, Prof. C. S. Plumb, University of Ohio, says:

"There is a great deal to learn regarding the reproduction of characteristics among animals. However, one thing is pretty well established, and that is, that what we know as well bred animals transmit their qualities with more certainty than do those of inferior breeding. It is unfortunate that the results of the most successful experience in breeding; are not studied more carefully, and made greater use of by the rank and file of breeders.

The average man, a breeder so-called, is not in fact a student of breeding at all. Far too many men are interested in simply getting their females in pig, without regard to the fitness of the sire. That methodless way has actually been the undoing of many an American herd. This illustration has been made use of by one author. Let two men start to breeding at the same time. One selects a sire with great care and mates him to a lot of females, with the view of remedying their defects in the offspring, and of systematically producing a type. The other buys a sire with no special plan in mind. He merely wishes a male and has no ideals to work toward. What is

the result? After a term of years one man has a herd that approaches uniformity and that gives results in a measure approaching his ideals. The other has bred a nondescript herd, and produced nothing of serious value. The stock produced by one is in constant demand. The other wonders why he cannot find buyers.

We have some breeders in America of a constructive sort, men who have done much for the breed. These men have had ideals, and have sought to mate with the view of making something better than they found.

The number of men who desire to purchase $12.00 to $15.00 boars is far in excess of what some might think. They want something pretty good at that. What they really need is a scorching education, by which they are made to comprehend the meaning of the breeding business and what it leads to. It is most unfortunate that so many men measure their needs by a definite price rather than a specific sort of animal.

Here is a man who has a lot of sows that are inferior in ham-development. They may be very good otherwise. With him, it should not be cost as a first consideration. Rather it should be the securing of a sire to improve their weakness. No man today holds the trade of the particular buyer, who does not recognize this fact, and governs himself accordingly.

Thus it becomes apparent, and successful breeders readily agree to it, that the man who expects to succeed, must mate his hogs to secure the most desirable form, through the use of the right sort of sires.

In my conversation with the best breeders of my acquaintance, they have very generally agreed that the most profitable animals they have owned were the highest priced ones. Remember I have specified *best breeders,* not promoters and speculators. A good many men have paid very high prices, and as we say, "been stung," but this has no application in this discussion.

In the purchase of breeding stock, and especially the herd headers, it is a big mistake for one to buy animals without previous inspection. If one will sit down and figure out how far reaching the influence of a boar may be felt in the generations, he may conclude that it will pay

to look into the subject pretty carefully before buying. Think what Longfellow meant in the Gentry herd! In more recent years what a wonderful benefit has come to the breed through the use of Masterpiece, one of the real high priced boars, in the herd of both Lovejoy and Corsa. Longfellow and Masterpiece are names to conjure with today, and they were the products of men who measured the real value of both pedigree and individual merit.

The young man, starting out in the development of a herd, will do well to secure high class animals, bred well. Better try one good female, a real topper, of both individual merit and with a popular pedigree, than half a dozen common ones. She will pay much the best in the end. That fact has been demonstrated time and again. And the cheap sire is to be avoided. Young men should be ambitious, and get sires that bid fair promise to reproduce offspring of the sort in demand. If one aspires to sell breeding stock, a cheap pedigree will be the heaviest handicap imaginable. The average man inquires about pedigree, and if he knows what it stands for, he will not want the animal represented by a poor pedigree, excepting at little above pork price. The intelligent discriminating buyer, will not want the stock, however, at any price. If one is not seeking the trade of the select sort, then he might as well step down and out, as a producer of pure-bred stock.

One should pattern after the successes, not the failures. If the breeder is to have inspiration, it must come to him through a knowledge of the results secured by the men who know how, and who have succeeded."

CHAPTER SIX.

THE SELECTION OF A HERD BOAR.

It is very necessary that the herd boar should be a good one, for the reason that, during his life, he may be the sire of hundreds of pigs, whereas a sow will only produce a limited number during her life time, and if the boar is good enough to improve the standard of the herd, his value as a breeder will be great beyond compare.

It is such sires that have made the breeds what they are, and it is such sires that command almost unlimited prices.

Generally speaking, the sire should be a little more on the compact order than the sow. By this I do not mean a chunky, short, thick boar, but one showing full development at every point, and of a strictly masculine type. There is nothing so unsatisfactory as to have the head of a herd show a feminine appearance. The boar particularly should be of the proper type of the breed he represents.

He should be large, without sacrificing quality; smooth and even in every part; a typical masculine head; eyes and ears wide apart; the crest short, full, smooth and free from any creases; the jowl reasonably full and well laid on to the shoulders, which should be smooth and free from creases; a full heart girth extending well down; and the bottom lines nearly or quite on a level, with as deep a flank as possible; rather short or medium length legs with bone of good size and quality; pasterns short and straight, and the hoofs well set; legs standing square and well under him, and straight like those of a Shorthorn, with long, deep ham, tail set well up and of good size.

This type and description would fit any of the lard breeds excepting that the head and ear should be characteristic of the breed he represents. In Poland-Chinas a medium sized ear with the proper setting and roll is desired; in the Duroc-Jersey practically the same type of head and ear

only a little more length of snout allowable, but shorter preferred. These descriptions should be insisted on in making selection, in order that the offspring may show an improvement each year.

Careful attention should be given to the blood lines of the sire. He should be what is known as an intensive breeder —one able to reproduce himself and improve the get.

Such a sire is more often than otherwise found in a strongly "line-bred" boar, carrying the blood of closely related ancestors. If of proper conformation he can be relied upon to prove a good sire.

Personally, I would never think of introducing a herd boar into my herd of brood sows, that did not carry much of the blood represented by the sows, and yet it is not uncommon for a breeder to receive letters from prospective buyers insisting that a boar be sent that is in no way related on either side to the sows to which he is to be bred.

CHAPTER SEVEN.

HANDLING OF THE HERD BOAR.

The disposition and good behavior of the herd boar depends much on how he is handled from pighood to maturity.

Docility is a great thing in a herd boar and he should be so handled that he will never cause any trouble in being driven from place to place. Kindness has much to do with this. The herdsman or owner should never under any consideration misuse the boar, but handle him with a light buggy whip and have him so trained that he can be driven as easily as a horse can be led. This training should commence when the pig is young, and by rubbing him a little at feeding time, he will become extremely gentle and look for these attentions, and as he grows up under this kind of treatment, will become a good natured, quiet, easily handled boar, and it will not require two or three men with a hurdle to bring him out of his yard to be used.

He should always be kept in a substantially fenced yard, with grass to graze on at will, a dry place to sleep in that is warm enough for comfort in winter months, and nice shade to lie under during the hot weather.

Where one has a large herd and keeps several matured herd boars, they can be so handled that they will run together like a bunch of barrows. This can be done by cutting off the tusks very closely, then on a cool day, turn them all together after thoroughly spraying them with good coal tar disinfectant, and stay with them until they have had their fight out at least once or twice, and the boss has been recognized, after which they will let each other alone. We did this recently with five aged herd boars, and by having their tusks closely cut and smooth, they could not make any scratches or cuts in their fight and after several good tussels they gave it up and afterwards fed together along the trough in perfect harmony.

During the breeding season the herd boar should be well fed and receive plenty of exercise. If the lot where the boar or boars are kept, is where they can see the sows, even though at some little distance, it will, generally speaking, cause them to take plenty of exercise walking up and down the lot along the fence, especially during the breeding season.

If they do not take this exercise it will be necessary to exercise them by driving, for they must be kept in prime vigor and perfect condition. It is never wise to use a boar just after being fed; better use him early in the morning before being fed, and after a short walk, so as to allow him an opportunity to empty out both bowel and bladder. During the heavy breeding season he can again be used toward evening after a little exercise and before feeding for the night.

Where one has only a few sows to breed, I believe it the best plan to keep the boar in a separate lot from the sows and use as just noted. However, on some farms where a large number of sows are to be bred, a matured boar can be turned in the same lot with ten to fifteen sows and the feeder should carefully note sows in season and mark down the date the same as he would if the sow was taken to the boar. In this way it is possible to keep a close record of breeding dates and every sow will doubtless be gotten safely with pig without injuring the boar. Care must be taken not to turn a young boar in with a large bunch of old sows, and if your boar frets under this treatment and is getting out of condition it would be wise to put him by himself, feed him well and take the sows to him. Judgment must be used in matters of this kind, as it is the little things that are often most important and have much to do with the success or failure of swine breeding.

While the herd boar should not be overloaded with fat, he should be in a reasonably strong fleshy condition, the result of proper feeding along lines that will not produce too much fat or white meat. A muscle-producing-feed should be used, such as middlings, oats, peas, barley, a little corn and tankage, etc. Use a variety of feeds, with of course what grass he will eat, or other succulent feed such as should be found on every farm.

CHAPTER EIGHT.

SELECTING BROOD SOWS.

When the breeder or farmer lays the foundation of a herd of brood sows it is very necessary that he first make up his mind what breed of swine he wishes to commence with. I am not recommending any particular breed. There are a number of standard breeds and they are all good, especially five or six of them. Looking over those known as the lard breeds, one cannot go wrong by selecting any of the following named in alphabetical order:

Berkshires
Chester Whites
Duroc-Jerseys
Hampshires
Poland-Chinas

There are also quite a number of Cheshires and Victorias used in the far eastern states, probably more of them in New York than any other State, and they are a very satisfactory breed.

Among the breeds known as bacon breeds, are the following:

Large Yorkshires
Tamworths

Further than these there are several small breeds, used locally, such as Essex, Small Yorkshires and Suffolks; the latter three breeds are used little in the western States.

After deciding on one of the above breeds for a foundation herd it will be best for one entering the business to post himself as well as possible regarding the characteristics of that particular breed, and it is my opinion that other things being equal, it is better for a man to produce only one breed and that should be the one he thinks he would like best. He should never attempt to raise a breed of hogs he does not like, either pure-breds or for pork

If he is going to raise hogs to sell on the market or to follow cattle, he need not be as particular about blood lines, but should be just as particular regarding individual type and characteristics. Let him make a careful study of type, size and general conformation, and always remember the desirability of getting as much size as possible without sacrificing quality.

First let him see a number of the breed he wishes to purchase, that he may have no reason afterwards to regret his selection. This rule will be necessary no matter what breed he selects. No better place can be found to study breed characteristics than at county and state fairs, at the International, and at public sales of pure-bred swine.

It is well in making the selection of a foundation herd of brood sows to secure only those that show good length of body, well-sprung ribs, with deep sides; a full loin; long deep hams, with as straight legs as possible; not too high above ground when in ordinary condition, and with a full heart girth giving plenty of room for the vital organs such as heart, lungs, etc. The head should be characteristic of the breed. The neck short with a reasonably full jowl but not heavy and hanging—especially not flabby. This should connect with the shoulders smoothly; the crest should be reasonably short without crease or deep wrinkle laying both on top and sides smoothly to the shoulders. Shoulders should be well filled but not too broad on top to give flat appearance, but should be round and smooth without crease back of them at the heart girth. It is better always to select a sow that is strong in the back, somewhat arched, so that even when carrying a heavy litter her back would show no sign of sagging. From the loin coupling, to what is known as the tail head, or where the tail sets, should not be too steep or drooping, giving the top line a bad appearance, but should on the other hand, be well up or nearly on a line with the loin—at least but slightly drooping.

It is common with some farmers and even with breeders who have had years of experience, to select a brood sow that is too short and thick throughout; such an animal is not apt to be as good a producer as one with more length, more depth and mellowness in her general make-up. One should look well to the bone, pasterns and feet. It is not

necessary that the bone should be extremely large in diameter, like that of a Clydesdale or Shire horse, for often an extremely large bone in a hog does not have as much firmness and strength as a bone that is not so large. The pasterns should be as short and upright as possible. This is surely one of the important things that we should look after in all of our present-day breeds. If the pastern is short and the bone of good quality there will never be any trouble with broken-down feet.

When it comes to the foot proper, the toes should be short and not too sprawling, or in other words they should set rather close together. The legs should be straight from a side view of the animal, as well as from an end or front view. Often one finds a hog with a front leg as crooked as a "Fist" dog, with the knees close together and feet wide apart, giving a very bad appearance to the animal. Regarding the hind legs, they should be as straight and upright as those of the Shorthorn, rather than being what is known as "sickle hocked" and should stand square under the body.

The coat of hair should be ample, yet not curly or coarse, and the smoother it lays on the body the better; all appearance of what is known as "swirls" should be avoided, especially if the animals are intended for breeding purposes, and the boar should not be considered if he has a "swirl." For the benefit of the beginner, I will explain that a "swirl" is what would be called in the human race, a cowlick. In some hogs these are quite small and hardly noticeable, while in others they appear as large as a saucer and are generally located near the loin and some times near the tail head.

In selecting a herd of brood sows, it is my judgment that the more uniform in type, size and conformation the sows are, the better, and I would even go so far, if I were selecting but a few, to have them all from one or two litters if possible, rather than take the risk of getting such a great variety of types by the selection of individuals from different families, and I would have them from reasonably large litters.

While we all like good-sized litters, I am not a crank on this subject. I prefer litters running from seven to nine

rather than from ten to twelve pigs each, and believe I could make more pounds of meat and obtain better growth for breeding purposes, than I could from extremely large litters. Of course we occasionally find a good sow that can grow a litter of twelve or more, but the pigs are not apt to be as thrifty and as growthy as those of a litter of eight or nine. It is better to have a litter of medium size that are very thrifty, than one larger that cannot get enough nourishment to develop as they should.

"DON'T BE A CRANK ON MARKINGS."

In selecting brood sows of any breed, it is not so much how they are marked as it is whether or not they are good sows of the right type, quality and conformation. Of course this trouble will not come up about those whose color is solid, such as the Chester Whites, etc., but in the Berkshires, Poland-Chinas and Hampshires, one often meets a man, who is more particular about fancy markings than he need be. I do not believe that a perfectly marked Berkshire sow, bred to a perfectly marked Berkshire boar, would ever produce a litter that was perfectly marked, nor do I believe that a sow or boar with one black foot, black switch, or a white splash on the jowl or arm would ever produce a litter that was all marked like the sire or dam. Of course the nearer the litters come to being perfectly marked the more we are pleased, but we should look more to conformation, size and quality, than to the markings.

We once paid $225.00 for a son of old Longfellow that had a splash that nearly covered his entire left jowl and face and I cannot recall that he ever sired a pig with the same marking. This rule will apply to the Poland-China breed, and to the Hampshires when the white belt varies in width and shape as well as some of the feet having white part way up the leg. First look for quality and size, then let the markings be a secondary consideration.

See also, in selecting your brood sows, that there is a mellowness to the touch, which shows feeding quality. Avoid one that is hard and coarse to the touch.

CHAPTER NINE.

AGE, TIME AND SEASON FOR BREEDING.

Personally I am a firm believer that for best results animals should not be bred too young. Many breeders and farmers make a great mistake in selecting the sows they wish to breed, from the spring gilts each year, also selecting from his own herd, or some other, a young boar from a spring farrow, rather than carry over his older sows and keeping a mature boar. I am positive that it is much better to use only mature animals for breeding or those as nearly matured as possible. We all know that a sow from two to five years old bred to a boar of about the same age will produce stronger pigs with considerably more size and weight at birth, than will a young gilt, and yet many men each year purchase young bred gilts.

I think the average litter also is larger in number from mature animals. Furthermore, it has been my observation that the farmer who each year selects young gilts and breeds to a young boar and follows it up for a number of years, gradually reduces by this process the stamina and vitality of his herd, causing them to be in a condition to contract disease much easier than would older animals. For this reason I would advise that, for best results, nothing be bred under one year old, which would bring the litter at about sixteen months of age, at which time the animals are well along toward maturity. After having started a sow to breeding and it is found that she is a good producer, a good mother, careful of her litter and a good suckler, by all means keep that sow as long as she produces satisfactorily, and when you strike the best mating, or one that proves highly satisfactory, continue to breed her to the same boar, rather than take chances by changing.

It is not necessary to do as we have done once or twice, to keep a sow almost up to the limit of the average usefulness of production, or you might get caught as we did, by having quite a number of sows, that had been valuable breeders, but by holding too many years, all quit breeding at once. It is very hard when one has a sow that produces very high-class animals to quit using her until he is obliged to.

We bred a sow once in her 13th year and she produced one pig; of course she had been a valuable sow or we would not have retained her in the herd until that age. When she farrowed her litter of only one pig we concluded it was time to stop, so we fattened her and sold her to the local butcher. He remarked as he looked her over that she was no spring chicken, and some weeks after when I asked him how the old sow turned out, he said all right in every way.

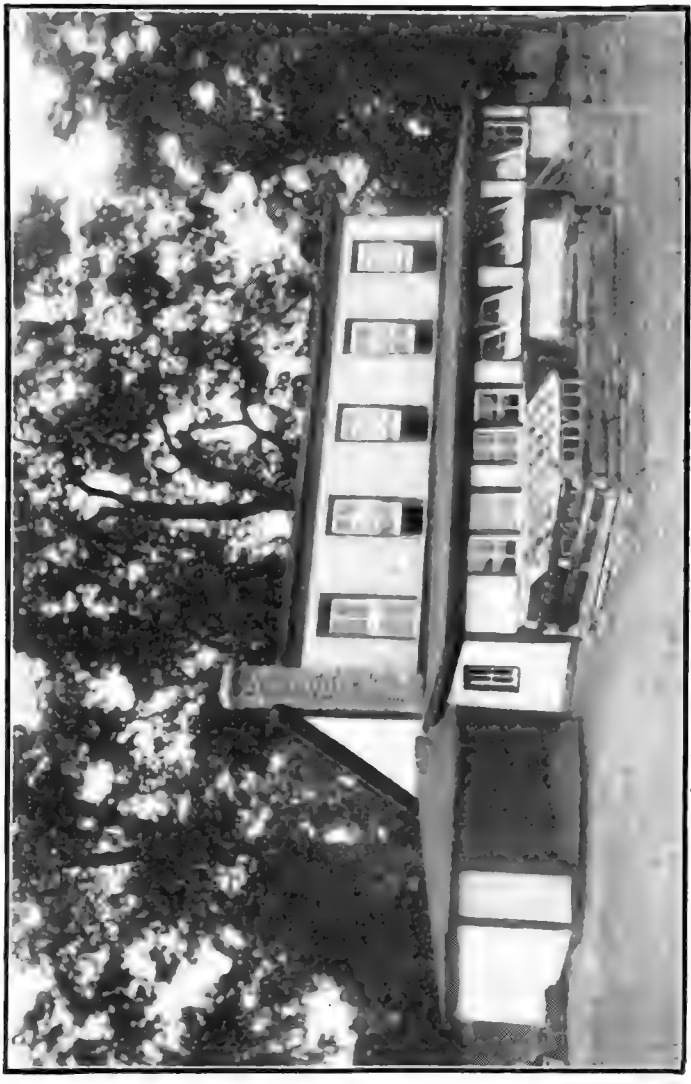
The season in which it is best for sows to be bred, depends entirely upon the part of the country in which you are located. Breeders and farmers residing in the southern states where cold weather is not a factor, may breed at any time of the year, and this is a great advantage over those of us who live in the northern or eastern states. In the cold weather states, it is best not to have pigs farrowed later in the fall than September, and by no means later than the latter part of October, for the reason that these pigs will be farrowed too late to get sufficient growth to be weaned and fed by themselves before the weather becomes too cold for best results in development, unless one is especially fitted with conveniences, such as warm sleeping houses, etc., with plenty of warm feed to continue their development without check.

Nothing looks so bad as a little pig in the winter time doubled up with cold and its hair pointing to its ears, but where the pigs can be properly taken care of and continue to grow and look smooth and thrifty, then it is a different matter and they are fully as valuable as the pigs farrowed in the spring, because they come to the proper breeding age the fall following their birth, and there is nothing more desirable or that sells better than fall litters that can be bred a year from birth.

With the spring litters the northern and eastern breeder must also be a little careful. It is all right in this section to have a few pigs farrowed in February, but that is not generally best. There are men who probably would like to buy February pigs, as they have a little more size when the fall breeding season commences, than those farrowed later, but they require much more attention to bring them to weaning time than would the litters farrowed in March and April; besides none of the February pigs could be shown the following fall in the under six months class. This in a measure militates against their being sold to breeders, but would be all right where sold to farmers for breeding purposes without considering the matter of showing. However, this is a matter that is up to each farmer or breeder, as he sees it from his own viewpoint.

USE OF BREEDING CRATE.

There is considerable difference of opinion regarding the use of breeding crates, but I have long considered them a necessity although we do not use them in every instance. Where there is much difference in size of the animals the crate should be used; on the other hand where the size is nearly equal, perhaps just as good or better results can be had without the use of the crate, yet every well regulated establishment should have one or more reliable breeding crates. Some claim that using a crate is against nature, which may be true. However, I believe when the crate is to be used, the animals to be bred should be turned together for a short time for the purpose of getting acquainted, and the teasing is no doubt a great benefit, but the practice of forcing a sow into a breeding crate, then bringing the boar to her, without any teasing, does not always work out as expected and sometimes creates much trouble. When everything is all right, a crate is quite satisfactory. Any crate used for this purpose should be adjustable both in length and width. If sows can be bred without a crate, it is better, as a general thing.



A photograph of a modern farrowing house.

CHAPTER TEN.

A MODERN FARROWING HOUSE.

As we have no modern farrowing house at Lovejoy Farm, and as I have carefully inspected the one at Gregory Farm, and like it very much, I have pleasure in herewith inserting an article written by Mr. W. S. Corsa, and first published in the Breeders Gazette and later in the July 1909 issue of The Berkshire World and Cornbelt Stockman.

Mr. Corsa's article fully explains the arrangement of the house and clearly tells how it is built.

Doubtless if we were building a new farrowing house at Lovejoy Farm we would take the Gregory Farm farrowing house largely as a pattern.

The article follows:

"A combination of good ideas is much more practical and satisfactory than a hobby. The individual farrowing house and lot is a good thing. Under certain conditions it is the most desirable abode for a sow and her family. Fortunately in this climate that is the case throughout a great part of the year, particularly in stormy weather, but for the best results it is almost indispensible in all weather.

"There need be no argument between rival camps of individual farrowing houses vs. permanent farrowing houses. They are distinct compliments one to the other. Use the individual house whenever you can. At other times use the permanent house, and let the mother and her new family set up housekeeping in their own individual home at the earliest possible date.

"There are just a few cardinal principles to bear in mind in building a permanent farrowing house. These are largely summed up in remembering that such a house is to be built for the comfort of the hogs rather than the convenience of the herdsman. Fortunately, these two considerations are not necessarily opposed to each other.

"In building a permanent farrowing house, as in building anything permanent, consideration should be given to location. It would seem to be better to place such a building reasonably near the individual lots and away from the general group of farm buildings. For many reasons this may not always be feasible, but it would seem to be a good practice to keep the hogs away from the barns and adjoining buildings.

"The nightmare of the permanent farrowing house is disease, so that the sanitary conditions are always the deciding ones, as sunshine, the cheapest and best germicide in every pen at some hour of the day; plenty of ventilation without draught and no harboring place for filth.

"While the permanent farrowing house at Gregory Farm has received unusually favorable comment from visitors we do not take any particular credit to ourselves. We are in-

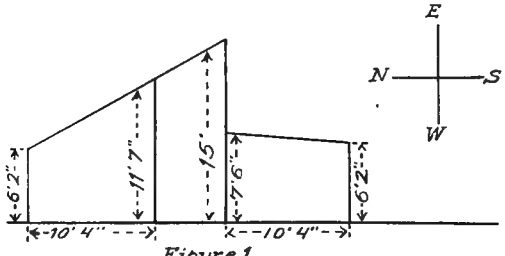


Figure 1

debted to such well-known members of The Gazette family as Mr. Wing, Mr. Bonham, Mr. Lovejoy, Prof. Dietrich and others, for valuable suggestions, which were collected and in hand a year or more before the house was begun.

"Our principal office was to sit in judgment as court of last resort on the many suggestions offered, and occasionally building in a vagrant idea of our own.

"This house is located with reference to the individual hog lots and houses much the same as the Light Brigade to the Russian cannon of Balaklava. It stands on ground with a decided slope to the south, giving good natural surface drainage. At the rear an open wood of natural forest trees on somewhat higher ground affords material protection from the north and northwest storms of winter.

"Having with some care located the site, we started in on the foundation by digging a trench six inches wide and

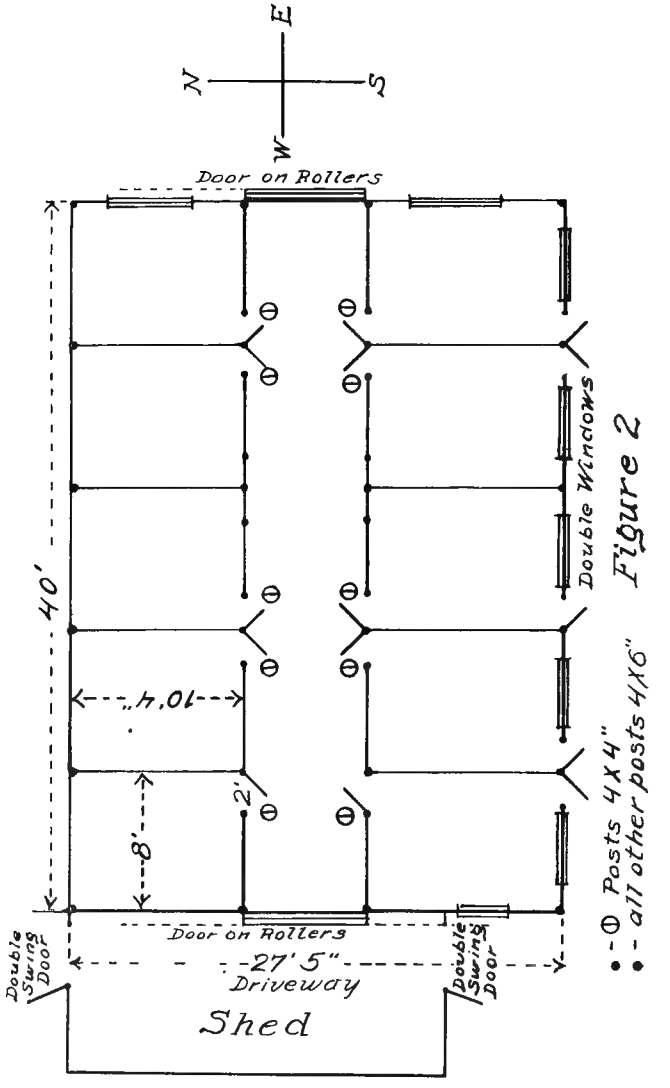

E
N
S
W
Door on Rollers
40'
14.01
8'
2'
Double Windows
Door on Rollers
Double Swing Door
27'5"
Driveway
Double Swing Door
Shed
- Posts 4X4"
- all other posts 4X6"

Figure 2

deep enough to go below the frost line. With the concrete foundation brought to the proper level, we filled in the hollow parallelogram with gravel and rock, tamped it well and covered the entire surface with concrete, making the floor rat-proof and water-proof. Iron pins were placed in the concrete wherever there were to be posts in the building. For siding we used boards that had seen service for two years as stack covers. Where it is intended to use concrete on exterior, old lumber not only may be used, but has the advantage of having the shrink out of it. The finishing boards were then put on, and then chicken wire, one-inch mesh, was stretched.

"Let me emphasize some things, although Mr. Wing has

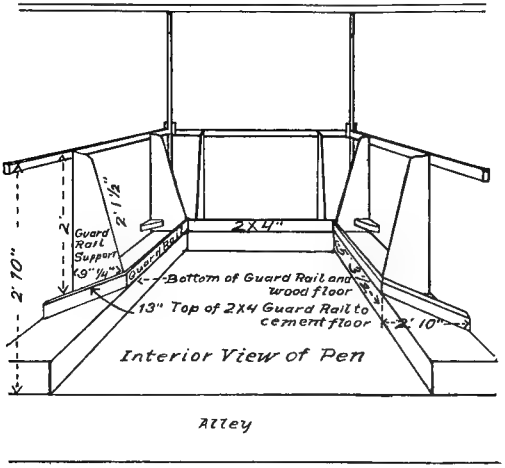
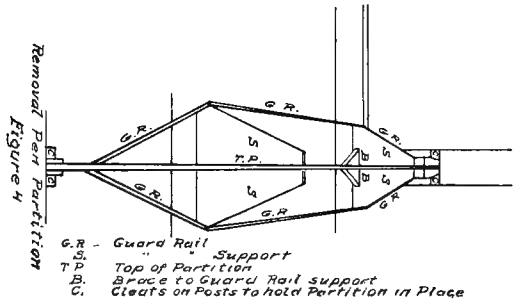


Figure 3

repeatedly said them so much better; hang your strip of chicken wire as you would wall paper. Start at the top, make that secure, then fasten one edge, after which stretch sideways, then fasten to the bottom. Do not use strips of wood or laths to keep the wire out from the sides, but use screws, about 1¼ inches, burying the wire in the head of the screws, and give a half turn. Wherever the wire might touch the wood place a screw. Fence staples will keep the wire from leaving the screw heads. Use screws and staples generously.

"The first coat of concrete, made 2 parts sand to 1 cement, will just cover the wire netting. Before this is entirely dry apply finishing coat of 1 part sand, 1 cement, and

float even with the finish boards. Concrete fills in cracks between siding boards and effectually stops all draughts and sifting in of snow in times of driving storm. Concrete was used on the entire exterior except on south front above the low roof, which was finished in shingles. The appearance would have been improved if the shingles had been laid irregularly. This low roof is quite flat and is consequently covered with prepared roofing. It is important that this roof be kept almost flat, so as to bring the upper large windows as low down as possible to let the sunlight shine directly into the back row of pens. Remember to make ample flashing where this low roof joins the shingle front above; otherwise any southerly storm will be in evidence in your farrowing house. One more important feature of this low roof: at the lower edge is a box gutter tinned in 6 inches wide. At the west end it is 1 inch deep, and at the east end



4 inches. Down spouts should be boxed in and run into tile. All this helps to keep the premises dry. Ordinary gutters would be less sightly, less durable and interfere with the sunlight at the east end of the lower row of windows. The main roof is covered with shingles.

"All posts are set on iron pins bedded in the concrete. The corner posts are 6 feet and the 2-inch plate gives ample room for a man to walk around without fear of bumping his head. The pens are 10 feet 4 inches long by 8 feet wide, and have a removable floor of inch boards made in two halves each 10 feet by 4 feet. This does away with the chill from the concrete and the tendency to rheumatic sows and pigs.

"The pens are separated by removable partitions (Fig. 4), which slide down between cleats on the posts. The partition 2 feet 10 inches high, has a 2 by 4 inch guard rail on

both sides. At customary times we take up wood floors, remove the partitions and clean house.

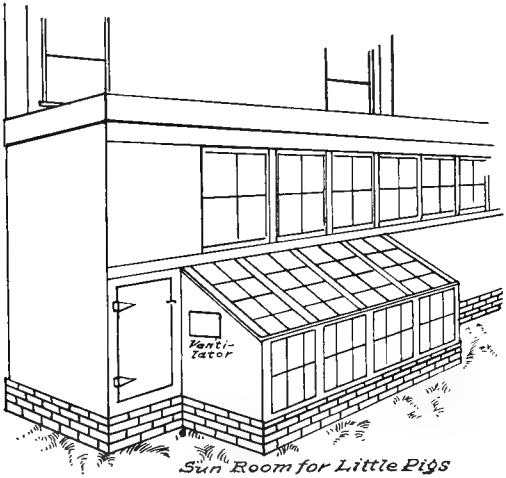
"Fig 3, (interior view of pen), shows guard rail supported on partition. This leaves the floor surface entirely unobstructed. This is important. We use a wood rail instead of gas pipe, because it is not so cold, and finally we use a "rail" instead of the customary guard board because the rail lets the sun between it and the partition, to the great comfort and health of the little pigs. The bottom edge of this 2 by 4 inch guard rail is 8 inches above the board floor. The bottom of the triangular guard rail support is 9 inches long, so that when the 2 by 4 inch guard is nailed on there is a protecting space for the little pigs of 11 inches. The guard rail at the rear of the pen is attached by its supports permanently to the 2 by 6 inch nail girts. At the front of the pen the guard rails are brought on a slant from the support and attached directly to the partition. This gives a little additional room in front for feeding, and does away with sharp corners, especially necessary at entrance to pen. Doors to the pens are 2 feet wide; heavy hinges, 6 inch butt and 10 inch strap, with bolts and screws, will discourage even the occasional uneducated and untamed sow.

"You will observe the hog trough is conspicuous by its absence. Do not use a hog trough in a permanent farrowing house. Above all things do not build one in. No amount of care can keep a trough clean inside and outside. We prefer to use galvanized pans. Those we have are 27 by 16 inches and 5 inches deep, a very good size and depth for the sow and her little ones, and when the meal is over the pan is taken out of the pen.

"The alley between the pens is 6 feet 6 inches wide. This is a convenient and comfortable width. The narrow alley is a nuisance, and if built to save either room or money is misplaced economy. The floor of the alley is the bare concrete and made a little rough by sprinkling when green, so the hogs will not slip. At each end of the alleyway are sliding doors the full width of the alleyway and 6 feet 8 inches high. The upper windows are 5 feet, 8 inches by 2 feet 5 inches, double sash, each sash with two panes 12 by 30 inches. Both sash are hung by weights so they may be raised or lowered, affording splendid ventilation.

"These large upper windows should never be omitted.

They throw the sunlight down into the back row of pens instead of up against the roof, as would a smaller window. The lower windows are double windows, with single sash 2 feet 4 inches by 2 feet 8 inches, and four panes 12 by 14 inches. These sash are hung at side about center, so the top will swing in and the bottom out. When they are open you will notice the fresh air comes in at the top and you have ventilation and abundance of fresh air without any direct draught on the pigs.



Sun Room for Little Pigs
Figure 5

"At the west end and the outside of the farrowing house proper, but connected with it by sliding doors located just under the lower west window, is the life-saving station in the winter pig business—the sun room. Here warm sunshine and fresh air makes the youngsters happy enough to scrap, and so they doze and get their exercise by turns for an hour or more until warm lunch is served by mamma in her own apartment. Then a little "beauty sleep" and outdoors they go, racing around their lot like the lusty youngsters they are.

"The little sun room shown in Fig. 5 is invaluable. The glass part is very cheap. In the front are four barn sash of three lights each 10 by 16 inches; top glass is lapped hothouse fashion; floor dimensions are 12 by 3 feet. We get a warm floor by laying up a brick wall a few inches high and filling in with sand and laying a board floor on the sand."

CHAPTER ELEVEN.

FARROWING TIME.

It is presumed that all breeders of pure-bred stock keep a record of the date sows are due to farrow. If this is not the case trouble is sometimes the result. As farrowing time approaches no unusually special care need be given to the brood sow if she has been fed along lines laid down in this book, and if she has had sufficient exercise during the gestation period. It is only necessary that she be placed in a quiet, warm, dry place in winter and cool in summer, a week or two previous to the date of farrow. This should be done so that she may become accustomed to the new surroundings.

As the time approaches for the coming of the litter, see that the sow gets out of her sleeping place daily and takes plenty of exercise, otherwise she will become more or less constipated. If such is the case, two ounces of Epsom Salts should be given her in the slop daily until her bowels are in a laxative condition. See that the place where she is to farrow is provided with a guard rail around at least three sides of the pen, to protect the young litter being overlaid by the sow and crushed.

If everything is going right with the sow at farrowing time, let her alone. If one finds that after several hours of labor, there are no pigs in sight, it is well enough to investigate. Often by oiling the hand and entering a few inches, one will find either the leg of the pig or its head can be reached, when a slight pull results in an immediate delivery.

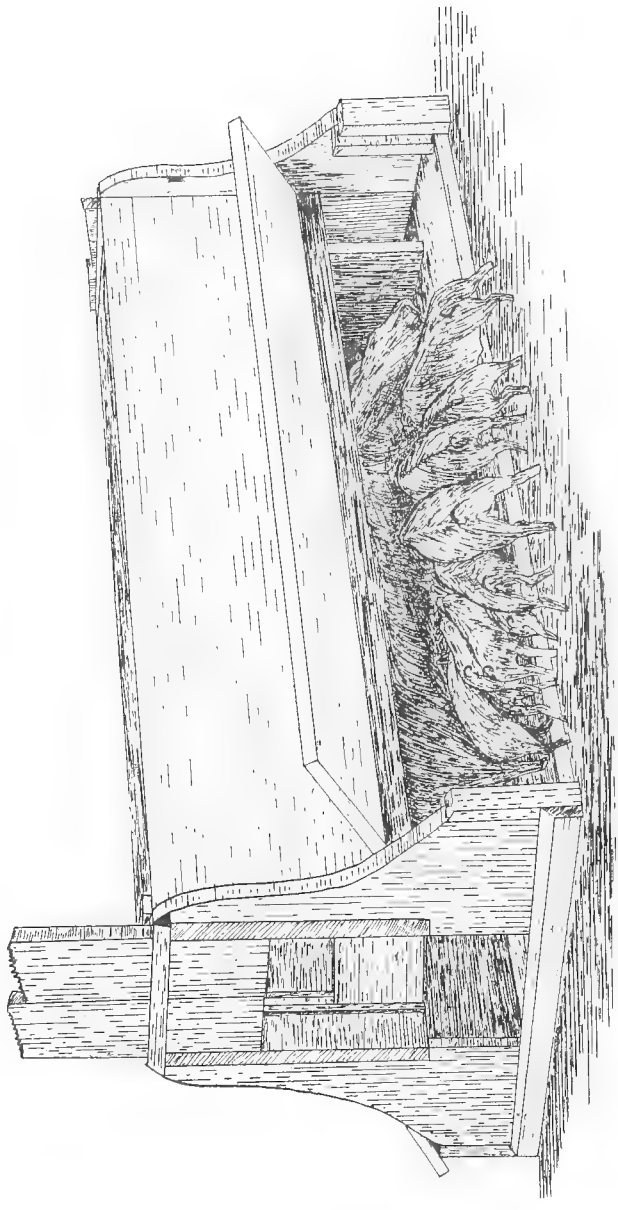
If the sow is unduly fleshy and seems closely built, it is a very good plan, when she is ready to farrow, to inject a little oil—either sweet oil, cotton seed oil, or any that is clean and pure—that the passage may be made easy.

During nearly forty years of breeding, we have only had to resort to pig forceps once or twice, and then generally without good results.

If the weather is cold when the young pigs are just farrowed, we have made it a practice to have close at hand a barrel or box with either a hot brick or two or a stone heated and laid in the box and covered thickly and deeply with chaff or cut straw, and as fast as the youngsters appear we wipe them off with a cloth and place them in this box, where it is warm, covering the same with a blanket, and wait for the next one's appearance, keeping this up until the entire litter is farrowed, if not continuing over too long a period. If several hours' time is occupied in farrowing the litter, we let those that have appeared nurse once or twice during the time, placing them back in the box as soon as they have nursed sufficiently, and when the whole litter is farrowed, we place them all with the mother, and if everything goes right and the mother is quiet, leave them there. If, however, she is ugly and inclined to get up and turn around and act badly, we place the pigs back in the box to keep them warm, and wait a short time until she is again settled. But generally, after the sow permits the litter to nurse once without undue restlessness, she will be quiet with them.

You will notice an illustration of a farrowing box, which we have used for many years, and consider it one of the best appliances in the equipment of a farrowing house, for while the sow can easily lie down on either her right or left side, she cannot turn around or lie down on the pigs, as they are protected by the sides of the farrowing box which do not extend clear to the floor, but have a space of some nine inches in which the youngsters can run out into the outer part of the box at either side or end. We found in the last Spring farrowing of over two hundred pigs, that only three were injured in the farrowing box. In a large herd three or four of these boxes would be one of the best investments that could be made.

After the pigs are two or three days old, they, with the sow, can be removed to an individual house or pen, without much danger of their being overlaid by the sow, unless she is deaf, which is sometimes the case, but such a sow should be sold for pork and not kept in the breeding herd.



The Trone Farrowing Crate that has saved many Pigs on Lovejoy Farm.

Occasionally one finds a sow that is very nervous after farrowing. She will get up and lie down again frequently, and may crush one or more of the newly farrowed pigs. It is well to give such a sow a small feed, mostly of bran with a little middlings or cornmeal, as this will often quiet her. If she is extremely nervous and insists on getting up and down, pour one teaspoonful of laudanum into her ear.

Pig health means hog profit.

Importance of Keeping Breeding Dates.

Every breeder and even every farmer and grower of hogs for market should keep correct dates when his sows were bred and should put down the date to retry them, making it from twenty to twenty-two or twenty-three days from the date bred, and should not neglect when this time comes, to try them again and see if they are settled or if they will have to be rebred. This should be carried on at least to the third period after first breeding, so that he would absolutely know that his sows are safe in pig, and if they are to be used to fill orders for bred sows, he should still keep tab on them and not ship them out until they show their own guarantee that they are safe in pig. It is a very distressing thing, both for the purchaser and seller, to find after shipment, that the sow shipped had failed to prove in pig. Better wait a little longer before shipping and know that the animal is absolutely safe in pig.

CHAPTER TWELVE.

CARE OF THE BROOD SOW FROM BREEDING SEASON UNTIL WEANING OF PIGS.

To have brood sows in prime condition at the beginning of the breeding season, in the Fall, it is well to have them come off from good fresh grass or pasture of some kind, having for a short time been fed grain and being in a slightly gaining condition. This usually brings them in season very shortly, and generally where there are many, all will come in season about the same time. This is well, as it enables a large number to be bred as near the same time as possible, and the litters to arrive about the same time in the Spring, thereby giving one a large number of youngsters of practically the same age.

During the time these sows are being bred and carrying their litters they should be fed absolutely right for best results. First and all the time they should have plenty of exercise—the more the better. If they could run about the pastures and fields during the daytime, between the feeding periods, it would be well, and they should sleep some distance from where they are fed.

The feed should be composed of a variety and should be as nearly a balanced ration as possible, containing the proper amounts of both fat and bone-making material, and never solely an all-corn ration. Of course corn is the cheapest feed one can use, in the cornbelt, especially if he grows it on his own farm, and if this must be used for the sake of economy, it can be to the amount of about three-fourths of the ration, with the other fourth composed of feeds containing a high percentage of protein. Tankage fed in the proportion of one-tenth to nine-tenths corn, makes practically a balanced ration. Hogs on alfalfa or green feed, need less tankage. For convenience it would be better to grind the corn and mix the tankage with the

meal, which can be fed either dry or soaked and fed as a slop.

With this ration a feed of the third cutting of alfalfa hay, which is always bright and green, would be an excellent addition, giving both bulk and green feed for the sows.

A mixture of one part shelled corn, one part oats, and two parts finely cut alfalfa hay put through a cutting box, makes a nicely balanced ration, with the addition of five per cent tankage, or where skim milk is plentiful, use it instead of tankage, in the proportion of three pounds of skim milk to one of grain.

Another good ration is equal parts of rye and barley ground fine and mixed with twenty-five per cent white middlings or shorts—on account of price of middlings, although middlings are very good—adding about five per cent oil meal or tankage. This makes almost an ideal ration.

A small per cent in weight of a good quality bran added to any of the above makes a valuable addition.

One thing must not be overlooked, and that is plenty of clean fresh water. If it can be had at will, so much the better; if it cannot, it should at least be given once or twice daily, for the hog needs a drink of water as much as any other animal or human being. I have known pigs to walk directly from a wet feed of nice rich slop to a drinking fountain and take a good drink of water, as though they had been fed on dry feed. I really think that the majority of breeders and farmers overlook this matter of letting the hogs have plenty of water to drink.

Further, the brood sows during the season should, if possible, have some kind of green feed or pasture. Of course in parts of the country where there is heavy snow, something must be fed to take the place of pasture. There is nothing equal to the third or fourth cutting of alfalfa for this purpose. This, if cured without being damaged by rains, is practically as green as it would be in June, and is greatly relished. It can be fed in racks, properly made, and mentioned elsewhere in this book, or it may be run through a power cutter and chaffed and fed with a portion of the grain ration, as above recommended. A mixture of salt, charcoal, wood ashes and ground limestone or slacked lime is absolutely necessary, and if convenient add also a portion of ground phosphate rock. This mixture adds much

in the way of mineral matter that is so necessary in building up the bone and frame of the unborn litter.

Brood sows should have a dry warm place to sleep, and but few in number—not over ten or twelve—should run together or sleep in one compartment. This is to avoid their crowding or piling up too closely.

The future of the pig depends much, in fact more than is usually realized, on what the dam receives in feed and care before the birth of the litter. "A litter well born is half raised," and there should be no immediate change in the feeding formula for the sow having just farrowed a litter of pigs, from what she has been having during the period of gestation, only after farrowing the sow should go at least twenty-four hours without feed, with what water she will drink, which in cold weather should be given her with the chill taken off; then, a very light portion of the same feed she has been having. If she has been fed a dry feed, it would be well to use the same proportion in the mixture, only feed it as a slop, with warm water during the winter in a cold climate, and cold water if in the southern States.

This feed should be gradually increased as the litter is able to take all the milk furnished by the mother. Usually at the end of one week, if the litter is an average sized one, the sow can be fed all she will eat up clean.

By the time the pigs are three weeks old they will eat a little on the side from the trough with their mother, and if it is desired to push them to the limit in growth, a small feeding space can be arranged so they may feed from a very low, shallow trough by themselves, unmolested by the mother, giving them the same feed given the mother.

During this period of the early life of the litter the sow and litter should take plenty of exercise for the necessary good of the pigs, for they must exercise considerably during each day, or they will become fat around the heart and die with what is known as "Thumps," which is nothing more or less than fatty degeneration of the heart, which they will certainly have unless they are exercised daily in some way.

As weaning time approaches, which should not be earlier than ten to twelve weeks, in my opinion, the feed may be lessened for the sow and more given the litter, so that the

sow would gradually give less milk and have no trouble when the pigs are taken entirely away.

Some breeders have made it a practice to gradually wean the litter by taking them away for a few hours and then returning them to the mother and following this up for a few days until they are taken away entirely.

Others have practiced taking one or more of the most thrifty pigs in the litter away from the mother first, then after a few days a few others, and finally taking those remaining, believing that pigs so weaned would leave the sow in better condition and less danger of swelling and soreness of the udder.

We never have practiced this, however, during our forty years of breeding pigs. By letting the litter suckle until it is ten to twelve weeks old or a little over, the sow naturally is inclined to wean them herself and if she has been properly fed the last part of this period she will practically give no milk at the end of three months or thereabouts.

When the litter is finally weaned the sow should be given a good fresh pasture of some kind with a little grain and she will need very little else during the next month or two or until time to begin to bring her in condition for another season's breeding.

We pastured something like forty brood sows that had weaned their pigs in May, by turning them directly into a fresh white clover and blue grass pasture where there was plenty of shade. They had no grain or slop for four months, but were given daily from a water fountain all the fresh clean water they could drink.

They did well on this grass and water diet, but in 1914 we will feed two or three ears of corn daily to each sow, besides the grass and water, as I believe for best results they should have a little grain. The sows that were bred for fall litters ran in the pasture with the others and were removed into individual lots about a month before farrowing where they were given a little corn and some slop with plenty of grass.

To have two litters a year, sows must wean their spring litters by May 1st, so as to be bred for early fall farrow, and the fall litters must be weaned in November or early December so as to be bred for March and April farrow.

In the North it is not always practical to have two litters a year and we find it often advisable to breed the sows so that they will farrow one litter the first year and two litters the next year, or in other words, three litters in two years.

CHAPTER THIRTEEN.

MARKING PIGS.

The matter of having each litter marked so that pigs may be identified at any time, is one that every breeder of pure-breds at least should follow without fail. There is nothing that would be more embarrassing than to have a prospective buyer, when looking over the pigs ask how we identify them and be unable to answer satisfactorily. After trying all kinds and varieties of ear labels we settled many years ago on the only system that we have found entirely reliable, and one that never fails to remain where it is put. This system is a series of small punch marks in the outer and inner rims of the two ears, and is fully illustrated herein.

One thing is quite important, namely, that a small punch be used, one not larger than the largest size in a revolving harness punch. The punch should be set on the rim of the ear, only cutting out a half circle. If too large a punch is used the marks become too prominent as the pig grows to maturity.

A small vest pocket memorandum book should always be carried, using one leaf for each sow and her litter, with the stamp, as shown in the illustrated system of marking, showing the same ear marks as are given to the pig. In this way as one goes through the herd and asks for the breeding of different pigs, it can very readily be given, by referring to the small memorandum book. To illustrate: Suppose a prospective buyer selected a pig and said to me, "this pig has two marks in the right ear outer rim and one in the left, outer rim. What are his sire and dam and date of farrow?" By referring to the book showing this mark I will find it is the fifth litter farrowed during the year and shows that the sire was Rival's Majesty 150500 and the dam Locksley's Artful Belle 178745 and was far-


1st
2nd
3rd
4th
5th
6th
7th
8th
9th
10th
11th
12th
13th
14th
15th
16th
17th
18th
19th
20th
30th
40th
50th
60th

rowed March 13th, 1913. This is all in a nut shell and very satisfactory to the one asking for the information.

In this system we use the same mark for each pig in the litter, as the pig is not named or registered until sold, then a name is given and a registry number which is entered on the card record of that particular litter. If a sow in this litter or a boar is retained in the herd the card record should show it and ear mark as well. This system is started new the first of January each year, as the previous year's litters are supposed to be sold, but for the few that are not, or are intended to be retained in the herd, a memorandum is made.

RECORD OF LITTERS.

We have found the following card system for keeping a record of the litters, as well as disposition of each, to be the most convenient of anything we have ever tried. The cards should be 5x8 in. as illustrated. On one side should be written the pedigree of the dam, her description, showing the ear marks she carries, and the date she was farrowed. The opposite side, as illustrated should show the sire and dam of the litter giving their herd book numbers, and cut of the pigs head should show how the litter was marked. You will note that this side of the card is ruled for the purpose of entering on same the disposition of the pigs of the litter; the pigs that were sold as breeders as well as those for pork should all be entered on this side, showing to whom sold and price; and where a portion of the litter was sold for pork, or butchered for family use, they should also be entered. Those sold for breeders should have their name and herd book numbers in proper column as shown. We give one of these cards to the litter of each sow. If she has two litters in one calendar year she has two cards to show what her litters were in number and what disposition was made of them. It would surprise many persons to see the footings of the sales from a registered sow seven or eight years of age, that has been a good producer once or twice each year. These cards should be kept in a small cabinet drawer and each one numbered with the number given to the sow, so that all cards for that sow may be of the same

INDEX No. (20)

A. J. LOVEJOY & SON.

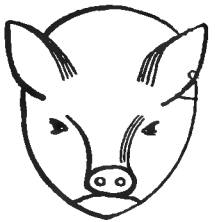
BOARS (4) SOWS (5)

FARROWED March 2nd, 1907.

SIRE of litter. Majestic Baron

DAM of litter Matchless Perfection 2d 100008

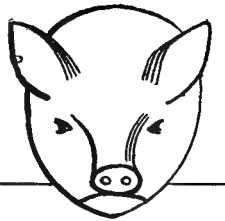
SEX	NAME	NUMBER	SOLD TO	PRICE
B	Matchless Baron	100928	John Doe	150.00
B	Matchless Baron 2d	100929	James W Smith,	100.00
B	Matchless Baron 3d	100930	Geo. H. Brown	75.00
B	Matchless Baron 4th	100931	Wm. George	125.00
S	Matchless Belle 5th	100932	)	
S	Matchless Belle 6th	100933	(Warren Bros.,	400.00
S	Matchless Belle 7th	100934	)	
S	Matchless Belle 8th	100935	(	
			Total for litter sold-	850.00
S	Matchless Belle 9th	100936	Kept in herd for our own use.	



One side of card used in keeping record of litters.

DESCRIPTION

A large typey sow, nicely marked



FARROWED March 20th, 1906.

Matchless Perfection 2d 100008

- Masterpiece 77000
  - Black Robinhood 66086
    - Imperial Duke 43929
    - Black Girl 40th 33681
  - Duchess 221st 56527
    - Lord Premier 50001
    - Duchess 192d 50028
- Lady W 89229
  - Royal Premier 67382
    - Lord Premier 50001
    - Stumpy Lady 17th 58030
  - Lady Majestic 22d 88129
    - Rockland Gentry 51027
    - Rockland's Majestic 4th 53698

The reverse side of the card shown on the preceding page.

number and in the same pocket. It takes but a moment's time where this system is followed to open the drawer of the cabinet, take all the cards belonging to a certain sow and add up what her produce has brought you. I had occasion a short time since to look over the cards of an old sow who was beginning to get along in years, and added up what we had received for her direct produce since she was old enough to breed, and found we had sold from this individual sow over $3,500.00 worth of pigs, and none of them at an extravagant price. It is much more convenient than having to use a herd record, as the cards are all in one bunch and quickly viewed. We have had many letters in the last few years asking us to send a blank card showing this system, and all inquirers, so far as I have heard, have put the system in practice and are well satisfied with it. A breeder cannot be too careful in keeping absolutely correct records of dates of farrows and of pigs sold.

CHAPTER FOURTEEN.

CARE OF PIGS.

Care of Pigs for First Three Months After Weaning.

Weaning time is a very critical period in the life of the pig. We will suppose that the pig has been fed in addition to what he received from the mother, so that he is well started, and, without changing the rations he has had, he should be fed at least twice daily all that he will eat up clean. It is a bad custom to feed any animal more than it will eat and clean up thoroughly. The pig should have, in addition to what it is fed in concentrated ration, at all times of the year, the run of a good fresh pasture of green feed. The different varieties are treated in another chapter.

Probably the most economical ration for pigs for the first three months after weaning is a mixture of home-grown grains, preferably ground into a fine meal and properly balanced. If one is growing his own grains for hog feed, a good ration is a mixture of corn and oats very finely ground. I do not mean broken up with a cheap steel grinder, but ground into a fine meal, and if it could be sifted, so much the better. Oat husks are not a very desirable adjunct in the mixture, but will not injure the pigs after a few months old, but during the first few weeks of their lives the husks prove more or less irritating in the intestines. This mixture would be improved by an addition of ten per cent tankage of not less than sixty per cent protein, unless one has enough skim milk with which to mix the ration into a slop as thick as can be poured. There is nothing better for growing pigs than skim milk properly balanced with three pounds of milk to one pound of ground carbonaceous grain. More than this amount of milk per pound of grain should not be used. Where there is no milk, tankage will practically take its place in balancing the ration.

All the feed should be fed while sweet. When the

weather is not too hot it would be better to mix it ten or twelve hours before feeding, or so that it would soak after morning feeding time until the evening feed, and vice versa. If it is desired to feed three times a day, the noon feed could well be made up of shelled corn soaked at least twenty-four hours, or until the kernels become softened. Remember always to use the liquid or water from the soaked corn to help in mixing the slop feed, as there is a large amount of nutriment in water from soaked corn. It has been said that "it is to a pig what beer is to a Dutchman." Some feeders use ear corn for soaking, but I have never liked to feed wet ears of corn, much preferring to shell it and soak as above. Above all, feed only clean, corn.

Here let me mention again the matter of clean, fresh water never being neglected.

In addition to the feeding and watering, there are other little attentions that must not be overlooked. The pigs should, if possible, have a shallow cement pool that could be used as a wallow, and it should be so made that the water can be changed every day or two. By having this kind of a wallow, and adding a good disinfectant and a little crude oil poured on the water, the skin of the pigs will be kept in perfect condition, without any danger of skin disease or eruption.

Where one is not prepared to place these clear water pools or wallows, he should have a dipping tank. A dipping tank certainly gets the dip and oil on every part of the body, for the animals have to plunge or slide down the chute into the dipping tank, which thoroughly immerses them.

One great trouble is that the pigs are not run through the dip as often as they should be. Once every week in warm weather is none too often if there are any lice or indications of skin trouble. After they once become entirely free from all such troubles, once every two to four weeks will do.

If, however, there are lice on the pigs, a good quality of crude oil should be added to the dip, and the sleeping quarters carefully looked after. It would be useless to dip a drove of lousy pigs and allow them to return to an infected

sleeping place. The sleeping quarters should be thoroughly cleaned out and the ground or floor thoroughly wet with the dip. This would be beneficial in several ways; if the ground was used instead of a floor, it would be dampened by the dip and oil. The oil would certainly be a great help here as well as in the dip, as it would keep down the dust. After the sleeping place has been oiled once or twice, there would be no danger of an accumulation of dust during the season. If the ground is treated in this way, there will be no need of bedding during the summer months, or until the weather becomes cold and bedding is needed for warmth.

We have noticed in caring for pigs, that it is often the case that the feed used lacks in mineral matter, and we have therefore found it a great help to keep a mixture of mineral matter in troughs or boxes where the pigs and hogs can go to it at will, and it is surprising how much will be eaten by them. The mixture we generally use is composed of ground rock phosphate which we buy for use on our land, and to this we add finely ground limestone; to give it a flavor and a relish, also mix in some salt, and often add to this slacked lime, thoroughly mixed; these ingredients form a very desirable mineral feeding preparation.

In carrying the pigs along from weaning time to maturity, too many should not be allowed to herd together—especially is this true if they are of various sizes and ages. Where they must run together in large numbers and various sizes, there should be a separate feeding place with a graduated creep where small pigs can pass through and eat by themselves, unmolested by the larger ones. There is no surer way of getting a bunch of runts on the farm than by allowing all sizes to eat in the same feeding yard.

A creep of from twelve to sixteen feet long can be made between panels of a fence dividing the feed yard where large numbers are fed. These spaces should be made of rollers with a piece of iron in each end standing upright and set into a two by six or other size timber just wide enough apart, so the smaller pigs can pass through without injury.

Pigs carried along in this way and fed and attended to in the above manner should make rapid growth and development, and if desired to be kept for breeders, this same

treatment can be carried on during the first year. If it is planned to put them on an early market, and at a weight of from 200 to 250 pounds, the ration can be somewhat changed for the last sixty days by using more corn and a little less of the other kinds of feed.

Probably better weights can be made and much more economically with ninety per cent corn and ten per cent tankage. This ration, by actual use, put a car of hogs on the market that topped the market, and showed by records to have been made at a less cost than those that were fed corn alone. It is a well-known fact that the first one hundred pounds of growth of any hog is made at a much less expense than any other subsequent one hundred pounds. So it is economy to feed all the good feed that can be properly digested from birth to maturity.

There are feeders, and always have been, and probably always will be, who pay little attention to their pigs during the growing period of the first six months, believing that if they are turned out into any old pasture and can get water to drink, that they can grow a frame and some size at little or no cost. This may do for the careless farmer, who does not wish to give any time to his crop of pigs, expecting to do it all after they have lived long enough to develop some frame, which is in some way to be covered up and rounded out with an all-corn ration thrown out to them in any kind of a yard, in any season, expecting them to make pork at small expense and little time given to their care. This may be satisfactory to that class of men, but it has always been our plan and belief that the mother's milk fat of the little pig should never be lost, but be increased by liberal and proper rations during its entire life.

Carrying the Pigs on After Six Months of Age Until Marketing.

After the pigs have come to about the age of six months, there should not be much change in the feed from what they have had since weaning time; however it is well at this time to increase the corn or the fat producing element in their feed, and reduce somewhat the other elements. Probably at this time there is nothing better than a rape pasture with what corn the pigs would clean up each day, with the addition of about 10% in weight

of corn in good meat meal or tankage. This will bring them on to a finish and put two curls in their tails. This for spring pigs in preparation for early marketing in the fall or for shipping out as breeders. The grain ration of course may be varied, using ground corn meal with 10% tankage, or by using ground barley or wheat or rye with corn meal. Any mixture of fattening grains balanced with a little tankage where skim milk cannot be had is all that is necessary with good pasture to make rapid gain.

WEIGHT FOR AGE OF PIGS.

This is a very difficult subject, as there is no iron clad rule for pigs of certain ages. A litter of pigs from a sow that was a poor milker would not grow out at weaning time nearly as heavy as a litter the same age from a sow that was a good milker. Neither would either litter make as many pounds per age in the hands of a poor feeder as in the hands of a good feeder. Much will also depend on the inherited ability from the sire and dam. Even different individuals in the same litter would differ in weight at a certain age if each was fed by the same man on the same ration, so it seems that not much information can be given along this line, except in a general way.

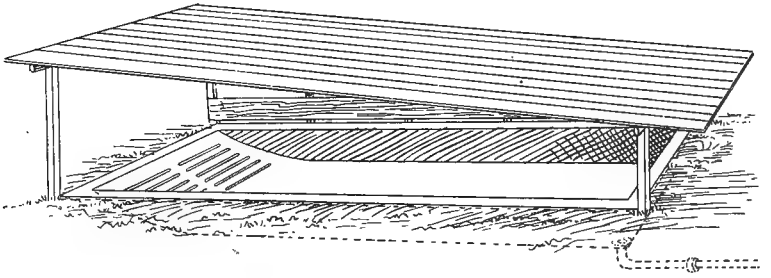
One feeder will take a litter of pigs from a sow, that he is particularly interested in making as large as possible at six months of age and he can make them weigh as high as 225 lbs. each and possibly even more than this. He may take another litter and fail to make, with the same care and ration, even 180 lbs. each at six months of age. While another man may take the same two litters and feed them and not make over 100 lbs. each on one litter and 125 lbs. on the other, so that we really cannot say what a pig should weigh at a certain age as there are so many conditions to be considered.

On the other hand the pig that is pushed to weigh every pound possible at six months, will, if he accomplishes the feat of weighing 225 or 250 lbs., as is occasionally the case, be practically ruined for future use in the breeding herd, but

of course for the market he could be cashed in quicker than a much lighter weight pig. I think a fair weight might be as follows:

3 months of age.....	60 to 75 lbs.
6 months of age.....	140 to 180 lbs.
8 months of age.....	225 to 250 lbs.
1 year	300 to 350 lbs.

This will be about right unless the pig has been crowded for show, or for the purpose of seeing how heavy it could be made at a certain age. For breeding purposes pigs that



A Convenient and Sanitary Hog Wallow. (See Page 69).

are not developed too fast up to from 6 to 9 months of age, generally develop into larger and better breeding animals than those that are crowded to the limit from birth.

We must always keep in mind that in a cold climate pigs mature much faster in the spring and early summer, than they do in late fall and winter, so that there would be a difference in weight for age between spring and fall litters.

CHAPTER FIFTEEN.

INBREEDING, LINE BREEDING AND CROSS BREEDING.

Inbreeding is one of the surest ways known to establish permanent type in animals, and has been from the time of the early history of improved herds of swine, as well as all other domestic animals. It might be said it is nature's way of reproduction among animals and all living things, except the human family, but it must be carried on with great caution when handled by man. Of course in the matter of wild animals, birds, etc., it is simply a matter of the survival of the fittest, so that weaklings would never probably be reproducers of their kind. For instance, take game birds; there seems to be no degeneration of their species, as there would be in animals of the domestic kind if they were allowed to take nature's course unlimited, but a man of wise judgment can inbreed even to a great degree by being extremely careful in his matings and always seeing that no female with a marked weak point in her make-up is ever mated with a sire with the same weakness. In other words, the mating should be of two animals of similar blood lines, both strong and well developed in their general make-up. In this latter case the produce should be an improvement on either sire or dam, and yet there will occasionally crop out an inferior animal or two in the offspring which should immediately be discarded as a future reproducer of its kind. Herds would be improved to a great degree if this rule was practiced intelligently, but woe be unto the practice of *indiscriminate* inbreeding.

Line breeding is somewhat similar to inbreeding, but not carried to as great an extent. It is the mating of animals along similar blood lines on the part of both sire and dam with occasional out-crosses, that is, a cross of different blood lines, *but of the same type,* a little further back in

the pedigree, as illustrated in this chapter where a sample pedigree of a closely inbred animal is shown and also another pedigree of a strongly line-bred animal.

Cross breeding, strictly speaking, is understood to mean the mating of two animals that are of pure breeding but of different breeds, as crossing a Berkshire boar on a Poland-China sow, or any other of the pure breeds bred together. Cross-breeding from the feeders' and farmers' standpoint produces in the first cross a very superior feeding animal, often the produce being better for pork purposes than the pure-bred but it must stop at the first cross; by further crossing, the animals deteriorate and the result is the reversion to the scrub. It is not generally customary to do any cross breeding except for experiments or special results in the first cross.

SPECIMEN PEDIGREE OF A LINE BRED ANIMAL.

CLIMAX BARON 112983.

Farrowed September 26th, 1907.

Sire	Masterpiece Climax 100001	Masterpiece 77000	Black Robinhood 66086	
			Duchess 221st 56257	
		Lustre Lady 2d 66416	Imp. Lustre's Bachelor 52262	
			Columbus Girl 2d 47068	
Dam	Matchless Baroness 103002	Masterpiece 77000	Black Robinhood 66086	
			Duchess 221st 56257	
		Baron's Belle 4th 88138	Baron Lee of Riverside 70400	
			Carlinville Belle 5th 63863	

You will notice that Climax Baron 112983 is a *line-bred* animal; that his sire Masterpiece Climax, is a son of Masterpiece, and his dam, Matchless Baroness, is a daughter of Masterpiece. But Masterpiece Climax, the sire of Climax Baron, was out of a sow sired by an imported boar, giving an outcross that proved especially desirable in our herd.

SPECIMEN PEDIGREE OF AN INBRED ANIMAL.

FAIRFIELD RIVAL 112412.

Farrowed September 10th, 1907.

Sire	Lord Premier's Rival 92805	Lord Premier 50001	Baron Lee 4th 33446
			Margery 37491
		Lee's Artful Belle 3d 88403	Baron Lee 8th 48160
			Artful Belle 30th 64947
Dam	Longfellow's Duchess 8th 102611	Premier Longfellow 68600	Baron Lee 6th 34246
			Duchess 222d 60002
		Duchess 279th 75009	Lord Premier 50001
			Duchess 168th 44532

FAIRFIELD RIVAL 112412 is an intensely *inbred* animal and a careful study of this boar's pedigree may not be out of place.

You will note that the sire of Fairfield Rival was Lord Premier's Rival, a son of Lord Premier, and that Lord Premier's sire was Baron Lee 4th. The dam of Lord Premier's Rival, was a daughter of Baron Lee 8th, a full brother of the sire of Lord Premier, and the next dam, Artful Belle 30th, was a daughter of Lord Premier.

Notice also how the dam of Fairfield Rival is bred. She is a daughter of Premier Longfellow, who was sired by Baron Lee 6th a full brother of the sire of Lord Premier, and Premier Longfellow's dam, Duchess 222d, was a daughter of Lord Premier. Her dam, Duchess 279th, was a daughter of Lord Premier, and was out of a daughter of King Lee 2d a full brother of the sire of Lord Premier.

No matter how you trace the breeding of Fairfield Rival it traces directly to one family, that is, Lord Premier or his sire, or full brothers of his sire.

CHAPTER SIXTEEN.

SELECTING A BOAR FOR USE ON GRADE OR COMMON SOWS.

There are thousands of pure-bred boars bought annually for use in the herds of farmers who do not care to grow hogs except for the open market, and while the selection of a boar for this purpose is of much importance, yet it is not so necessary that the buyer should be a student of pedigrees as in the case of the breeder of pure-breds, but it is of vital importance that the farmer buy a pure-bred boar and that the boar be not only well bred but a good individual of the easy-feeding, early-maturing sort, and himself vigorous and masculine. Such a boar will add several times his cost in the feeding and quick-maturing qualities of his pigs from common sows. Sometimes conservative farmers do not like to pay the price asked by breeders for their good hogs, yet I feel sure it is false economy, as the better ones will prove the most profitable. I once saw a farmer outbid a breeder for a good boar, and he got him at a higher price than many breeders will pay, saying, "I never stop at any reasonable price for a good boar to sire pigs for the market." This man was a breeder of pure-bred cattle and knew the value of a good sire, and bred and fed hogs at a profit.

Buy Your Boar Early.

To the farmer who wishes to purchase a boar for use as a producer of good feeding hogs for the market, I would urge that he do not wait too long as many do, but that he buy the boar early, while the herd from which it is to come is not all culled, so that he may get a better choice and the pig may become accustomed to his new home long before he is to be used.

When the pig first comes to his new home he should be given a good-sized grass lot to exercise in; a dry, warm place to sleep, and where other pigs or hogs cannot worry

him by running along the division fence. Take good care of him, feeding a good ration that will make him grow rather than fatten him. Give him plenty of good, clean water. Handle him as frequently as possible that he may become gentle. A boar can run with sows under proper conditions, but I have known men to buy a boar, and as soon as he arrives turn him in with a lot of sows, and they would almost ruin him, chasing him about the lot until he would pay no attention to them, and the result would be a letter of complaint to the seller, claiming that the boar was no good. Many a good boar

Feeding Time at Lovejoy Farm.

has been replaced for no other cause than poor judgment in starting to use him. We replaced one a few years ago, and this discarded boar got ninety-six pigs for a neighbor who took him at our request. A man must have "horse sense" if he is a successful hog man, and he must use it at all times. A boar pig at $50.00 to use to produce pigs for market will add value enough to the pig crop that he gets, to pay for two or three such boars—value in finish, feeding quality, uniformity and color, all of which go to help top the market when they are sold. Read what I have said about handling the herd boar and turning the boar in with the sows.

CHAPTER SEVENTEEN.

FEEDING HOGS FOR MARKET.

The matter of feeding hogs for breeders has been touched on in this book in another chapter, but it would be well to say something along the line of feeding hogs for market. It is the general custom where hogs are fed for market to run them together in larger numbers than where they are fed for breeding purposes only, and for this reason the system of feeding may be a little different.

In growing hogs for market it is quite important that the litters come as nearly at the same time in the early spring as it is possible to have them, that they may be uniform in size when the marketable age arrives. These pigs should be fed lightly while suckling the sows and not weaned any earlier than ten to twelve weeks old that they may be well on in the process of feeding, and after weaning should be placed in a first-class pasture where the grass is fresh, thick and green. Clover of course is one of the early things. Possibly the fall sown rye should come on first; a pasture of this would be a grand place to start the pigs after weaning. They should, however, have a good ration of some kind of flesh producing feed, grains that are produced on the farm if possible, adding to this as they develop some shelled corn soaked for about 12 to 14 hours; enough to keep them growing and developing at a rapid rate.

After the rye pasture then a choice clover pasture or alfalfa which is still better. Later a field of rape sown early enough so that it will be several inches high before the pigs are turned into it. This would furnish them a very satisfactory green feed for the balance of the season, or until time to begin feeding green corn of some kind, preferably from a field of evergreen sweet corn, which when planted in the northern country, would be ready the first of August. This is a great feed to put on growth

and flesh but should be fed with great care until the pigs become used to it, as it is apt to scour them if fed too liberally at first. This will last until the field corn is in good condition to commence feeding.

I am practically sure that much of our so-called hog cholera in the early months of the fall or late summer, is nothing more than a condition brought about by overfeeding green corn when it is in the roasting ear stage. Pigs that have been fed possibly on scant feed during the summer and that are in rather thin condition would, if given too much green corn in its early stage eat much more than they could properly digest, bringing about a condition that leaves the pigs ready to take any disease that comes along. If they are troubled with worms at this time, and the worms are not expelled, they will die about as fast as if they had the cholera.

Pigs handled as above mentioned from birth, should be ready to market at any time after seven or eight months of age, as suits the owner, or could be carried along until late fall or early winter, but should be marketed before cold weather comes on. It is not so easy to make rapid gains in cold weather as during the early fall months. Pigs handled in this manner should top the market whenever they are shipped.

Of course they should be as well bred as possible from high-grade sows and pure-bred sires to make the best gain, and should also have other attentions such as either good bathing pools made of cement, as described in this book, in which they can lie during the hot hours of the day, or should often be run through the dipping tank, or should be sprayed with some good disinfectant to which crude oil has been added, thus keeping them free from vermin, the skin in good condition, and assuring good health.

The mixture of mineral matter mentioned in another place should always be before them under cover where they can go and eat when they desire. They should be kept free from worms. This may be done by various methods as herein described.

The feeding of hogs for market will be found one of the most profitable departments of the farm, and with as little trouble as anything could be for the amount of money it

will bring in, and quite a large number of hogs might be fed for market on every farm even if it be a small one, and if one will be sure to have his hogs inoculated with both the virus and serum, known as the simultaneous treatment, before they are even exposed to cholera, he need have no fears of losing them, provided the work is properly done. They may become slightly sick from the treatment at about 14 to 15 days after being treated, but it will soon pass off and the death loss should be but little if any. The writer knows one party that had 3000 inoculated and lost but ten from the treatment. In our own herd in 1913 we inoculated 219 and lost but four which were quite young and probably got a little larger dose of virus than they could carry.

This growing and feeding of hogs for market should become more common on the average farm. Too many farmers have the idea that the danger of cholera is too great to make any attempt at the growing of hogs for market, which is all wrong. There is nothing better than to be able to ship to market at one time, a carload of choice finished hogs, which will always bring in a large amount of money with seemingly little expense.

Value of a Uniform Carload of Pork Hogs.

If one thinks that all kinds of hogs will sell for the same price on the market, just let him ship a carload of even weight and uniformly colored pigs to any market and watch them sell in comparison to a load of mixed breeding, colors and weights. He will then be fully convinced that it pays and pays well to use a good pure-bred boar for producing pork hogs. The writer once shipped a carload of short year-old hogs to the Chicago market that averaged 409 lbs. on the scales there. The shrinkage was but 80 lbs. on the whole load, and they brought 25c per 100 lbs. above the top of the market that day.

Why? Simply because they were as alike as a lot of beans, and were so well finished that there was little shrink in them.

It is a well known fact that quality counts in any market and with any kind of stock or other produce of the farm.

CHAPTER EIGHTEEN.

"ARE YOU FEEDING RIGHT?"

The following is an editorial taken from a recent issue of The Swine World.

We have never practiced this system fully, but believe that Prof. Evvard has worked out a feeding system which greatly reduces the cost of feeding and lessens labor, and at the same time secures no little increase of growth from a given amount of feed.

It is my opinion that we will practice this system on Lovejoy Farm much more in the future than we have in the past:

"At the recent Iowa Swine Breeders' meeting, held at Iowa Agricultural College, Ames, Iowa, Prof. John M. Evvard stated that rape was without a peer as the best of all forage crops for swine, feeding value alone considered. He stated that rape was second only to alfalfa for the number of pigs that it would support per acre, and on account of the low price of rape seed and the small amount of labor required to raise the crop, that it deserved the attention of all swine raisers.

"Prof. Evvard emphasized the well-known fact that corn was deficient as a single swine food, and laid great stress on the necessity of forage crops. It was while speaking on this subject that he made the above statement relative to the advantage of growing rape.

"However, forage crops by themselves, says Prof. Evvard, are not sufficient to produce best results, even when fed with corn, and he advises the use of some concentrated supplementary feed such as old process oil meal or tankage. In this connection Prof. Evvard made a very interesting statement and one that we fully agree with, and that is, that oil meal and tankage fed together in equal parts is a better feed for swine than when fed singly.

"In a series of carefully conducted experiments, Prof. Evvard determined that the cost of 100 lbs. of gain when oil meal was the supplementary feed with corn, was $5.62. When tankage was used with corn, the cost per 100 lbs. was $5.30. When equal parts of tankage and oil meal were used, the cost of 100 lbs. gain was $5.04.

"Another interesting fact that was brought out in these series of experiments and one that will interest every thoughtful swine breeder, is that hogs that are allowed an opportunity to eat their feed at will, gain more rapidly and on less feed that when fed by hand. In the experiments conducted by Prof. Evvard, an equal number of 260-pound sows were placed in two lots and both fed the same ration. One lot was fed shelled corn in a self-feeder, and gained 2.4 pounds a day and required 457 pounds of corn for 100 pounds of gain. Another lot was placed in the care of a practical and experienced swine feeder and fed by hand. The gain was 2.09 pounds a day, and it required 478 pounds of corn for 100 pounds of gain. In another lot the same number of sows of the same average weight as lots one and two, were fed shelled corn and tankage. The corn and tankage was fed in a self-feeder and the daily gain was 2.35 pounds, and it required 470 pounds of corn for 100 pounds of gain. Lot number four averaging the same weight and the same number as lots one, two and three, were fed shelled corn and tankage by hand and had the watchful care of an experienced feeder and made a daily gain of 1.03 pounds, and it required 483 pounds of corn to 100 pounds of gain.

"This experiment plainly shows that corn supplemented with proper concentrated feed and fed so that Mr. Pig has an opportunity to feed himself at his own free will, makes the most desirable gain at the lowest cost."

CHAPTER NINETEEN.

PRACTICAL FEEDS AND FEEDING.

Under this head comes tankage, which is the by-product of the packing house, made up from various waste products steamed to a high degree of heat, after which the liquid is drawn off and the residue dried and ground into a fine meal. Meat meal is practically the same thing only wholly made from meat scraps. Both of these feeds are extremely high in protein, which is a very necessary element combined with other feeds to make up a balanced ration.

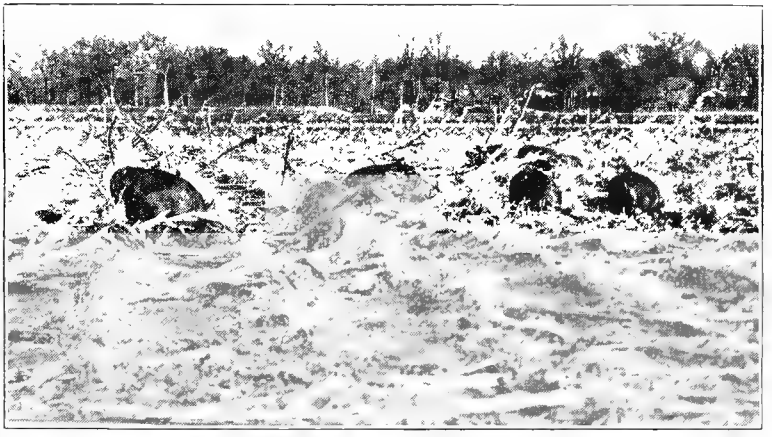
From 5 to 10 per cent of 60 per cent protein tankage is generally sufficient to balance a corn ration for swine. I have mentioned the use of tankage in several places in this book.

There is another variety of meat meal which the writer has used quite extensively. It is purchased from the large butcher shops, or from the small packing house near home where a few hundred hogs are slaughtered daily, and is known as "cracklings," being the compressed part of the fat after the lard is pressed out by hydraulic pressure, and usually comes in cakes of about 125 lbs. each. We purchase these cakes half a ton or a ton at a time, break them up into small pieces with an axe and run the broken pieces through our steel burr grinder, making a finely ground article of pure scrap meat. We add about five per cent of this to a pig's ration, and it is certainly relished by pigs of any age. It keeps the bowels open and in nice condition, makes the hair glossy and is of great value.

Hogging Down Corn.

Some farmers and perhaps breeders of pure-breds, practice the custom of "hogging down" a field of corn. If this is to be done—and it is a good custom—it would be a very

great help at the time of the last cultivation of the corn to sow some rye or rape, or both, in the corn and let it get a few inches high by the time the hogs would be turned into the corn. This would be a help in balancing the ration. It is also well if the field of corn is adjoining a clover or alfalfa field, as either would have the same tendency to make a quicker and a cheaper growth than would the corn alone. If the field is large it will be well to fence off by some kind of temporary fence, a portion not too large, and let the hogs have that until it is well worked down, preferably by the older hogs that would be ready for market first and followed by the younger hogs or shotes that do not need so heavy a feeding of



Hogging Down Corn.

corn. This is a very economical way of finishing up a bunch of hogs for the market.

Prof. Carmichael, University of Illinois, states that a field had been planted with corn continuously for thirty-three years and every year was "hogged down."

Within the last year or two the owner desiring to learn the condition of the soil and how much corn this particular piece was producing after having been planted to corn for thirty-three continuous years, measured off a piece before turning in the hogs, and by actual measurement learned that the land was producing over 100 bushels of corn to the acre.

It behooves the thinking farmer to keep up soil production, especially during these days of high priced land, and this can be done profitably and economically by "hogging down" corn, especially if rape or some of the clovers or other grasses, or some of the grains like rye, is sown in the field when the corn is laid by. This will give a good balanced ration, and the hogs will do the harvesting themselves without cost to the farmer, and will doubtless, taking one year with another, bring the selling price of his corn up to an average of not less than $1.00 a bushel.

I have a friend who made a comparison between "hogging down" part of a field of wheat, in 1913, and cutting the other part of the field, threshing it and hauling it to the elevator and selling it at 80c per bushel. Estimating the yield of the entire field the same, the portion that he "hogged down" after weighing the hogs when turned into the wheat field, and again when the wheat was all eaten and the hogs sold on the market, he found that his wheat that was "hogged down" brought him $1.40 per bushel compared with 80c per bushel for that threshed and hauled to market. Further than this it required no expense to market the wheat that was "hogged down," and it also benefitted the land to have the hogs on it. There are many little things in the hog business if one will try them out that are not only more economical but are less work than the old methods.

Of course where men are breeding hogs of the pure breeds, to be sold as breeders, it is necessary that they should be in good flesh and prime condition at all times, to be ready for inspection by visiting breeders. With such animals additional care and feed may be necessary. Certainly it is a good plan to have everything in the hog line at least in good breeding condition and always ready for inspection.

Every breeder or feeder should know what are the best grasses, grains and other feeds that can be grown in his locality, or can easily get this information from his State Agricultural College, and should use his judgment in selecting those that are best. The essential thing is to have plenty of green feed at all times of the year if possible, either for grazing or that can be used during

the season when there is no pasture, as in our northern and western States. In portions of the country where roots are grown to some extent, such as mangels, sugar beets, turnips, etc., they can be used with success as a succulent feed during the winter months, but my experience is that the average farmer or any help that he can hire will do mighty little getting down on his knees to work among roots of any kind, which is necessary in order to thin out and keep clean from weeds until they become large enough to be cultivated in the proper manner, so the root question with us has never, with the exception of one or two years, been considered in our ration for succulent feed, preferring to use the last cutting of green alfalfa instead. Let me emphasize the great importance of pasture and succulent feed at all times.

COOKING OF FEED.

It is a well-known fact that the nutriment in feed for swine, or its value as a flesh producer, is not increased by cooking; but it is also a well-known fact that during the cold months, at least in the northern states, much benefit is derived in feeding Fall pigs and others not well on to maturity, a warm feed rather than one mixed with cold, icy water.

There are some kinds of feed, however, often fed during the winter that require thorough cooking; particularly is this true of potatoes, which some people use when they have a quantity of small ones sorted out from the regular lot. Potatoes are of little food value unless thoroughly cooked, and when so cooked and mixed with cornmeal and other ground grains are really a valuable adjunct to the ration. Shelled corn is often fed to young pigs during the winter, and this is much improved by being steamed until soft, then cooled down to the proper temperature for feeding, but such matters will be treated in another chapter.

We have for many years made it a practice to feed Fall litters (either not weaned or recently weaned) during the entire winter on a feed mixed with hot water that would make it quite warm for the pigs when poured in the trough. For this purpose we have used a boiler of about ten-horsepower capacity, in which steam can be raised in a very few minutes, with pressure enough to heat several barrels of

water. While steam is getting up the water is let into the barrels or mixing tank, which, in our case, is on wheels and divided into four compartments, and as soon as steam is up the hose is turned in and in a few minutes the water is as hot as necessary. We then mix in the feed, perhaps of several different mixtures in the four compartments, to accommodate the animals of different ages and conditions. This is fed and quickly eaten, when the pigs go back to their warm sleeping houses, thoroughly satisfied and contented. Whereas, if cold or ice water was used, it would require most of the day for the animal heat to warm the pig up to its normal temperature, thus taking more feed and giving far less satisfactory results.

There are various methods of getting hot water for the purpose of mixing the feed for pigs during cold weather. There is manufactured a very desirable outfit for heating water by process of steam, with an attachment to temporarily or permanently warm farrowing pens. We speak advisedly regarding this cooker for the reason we formerly used two of them, but in later years thought we needed a larger affair and purchased a ten-horse-power steam boiler, which has proven a great success.

There are other kinds of hot-water heaters made for this purpose, as well as the old-fashioned kettle set in a stone arch, which will do where but little hot water is needed, but it would be entirely unfit for furnishing hot water for a large herd.

The kind of steam generator or hot-water heater is immaterial so long as it does the work and furnishes enough for mixing the feed for the herd, but I must insist that, for young pigs before and just after weaning, warm feed is necessary for best results and is of equal value for young shotes.

When the hogs are well matured it is not necessary to give them this extra attention and they can make good growth and development on dry feed, where plenty of pure water is supplied for them. This saves much labor and prevents the freezing of swill in troughs.

Of course the breeders in the southern States and warmer countries are not supposed to have this extra expense in

warming feed, yet even in such states there are times when warm feed would taste wonderfully good to a pig from a late Fall litter.

SOILING.

Where large numbers of hogs are kept on a small farm, it is sometimes quite convenient to have small plots of green feed that can be cut and fed in the troughs or feed places where the hogs are kept. This method of feeding green feed is known as "Soiling." For instance, take a small patch of fall rye, which is about the earliest green thing to be found in the spring, and when it gets up a few inches high it can be mowed off in small quantities daily and fed to the hogs in their regular feeding places while fresh and green. A very small piece of ground in this manner will furnish a large amount of green feed. While the green rye is being cut off some other crop can be planted or sown such as rape for feeding after the rye is gone and the clovers are dried up. A small patch of alfalfa adjoining hog pastures would also be of great value; this could be cut and fed green, and a very small patch would feed a large number of hogs for some time. By feeding it in racks such as described in this book, there would be very little waste from soiling.

After rape once gets a good start and becomes large enough to mow and feed as in the above manner it can be recut as fast as it grows up to the proper height, all through the season until freezing weather comes. A small field of evergreen sweet corn can be handled in the same way. As soon as the ears are formed and are of proper size for roasting, this may be cut and given to the pigs daily in small quantities at first, increasing as they become used to it, until they can have all they will eat up clean. I believe soiling can be practiced with economy, especially where hogs are kept in separate lots and could not be placed in a pasture. Besides there would be no waste from soiling as none of the feed would be injured by the animals walking over it. We have never practiced this system to any extent, but believe it could be made one of the best ways of handling green feed where one did not have suitable pastures for each lot.

Roots could be handled in this way also, but would not be necessary except for winter, when green forage was impossible other than alfalfa, cowpeas and clover.

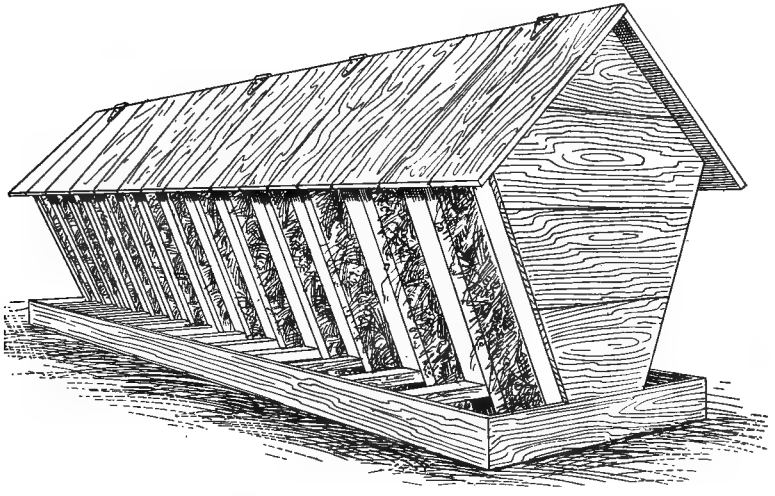
HOW TO MAKE COB CHARCOAL.

As charcoal is a very desirable supplemental food for pigs, it is well to know how to make a good article and cheaply, particularly in the cornbelt where there are more or less cobs after corn shelling season.

Dig a hole in the ground about six feet deep, and four or five feet across, bricking it up with fire brick so there will be no danger of its caving in or becoming broken up. Build it up to a level with the ground and have a heavy galvanized iron cover made large enough to cover the pit tightly. Then take a double wagon box full of dry cobs and start a little fire in the bottom of the pit, adding a few cobs as fast as those in the pit begin to burn and come to a red glow—actually burned to a charcoal—yet looking bright red. As fast as this condition appears in the pit add a few more cobs, until the entire pit becomes filled to the top with a glowing mass of burned cobs. Then have handy a few barrels of water in which salt is dissolved and sprinkle it on this pit of burning, glowing cobs until the fire is entirely extinguished. Then cover the pit with the iron cover, packing a little dirt on the edge so no air can get in the glowing mass, and leave it until the next day, when the fire will be all gone and the pit full of charred cobs in a condition where they can almost be crushed with the thumb and finger. Let it stand until you know it is absolutely cool before feeding, then put a bushel basket full in every lot where there is a sow and litter or where there are eight or more pigs. It will be surprising to you to see how eagerly this is eaten by pigs and hogs of every age and condition. They seem to relish it very much and it acts as a corrector of acidity. This is a good thing to have on hand at all times if possible. Good charcoal cannot be made by raking up cobs from the feed yard and burning them in the open air, for the reason they will either all burn up to ashes, or if put out with water, will leave many of them simply scorched and not burned to charcoal.

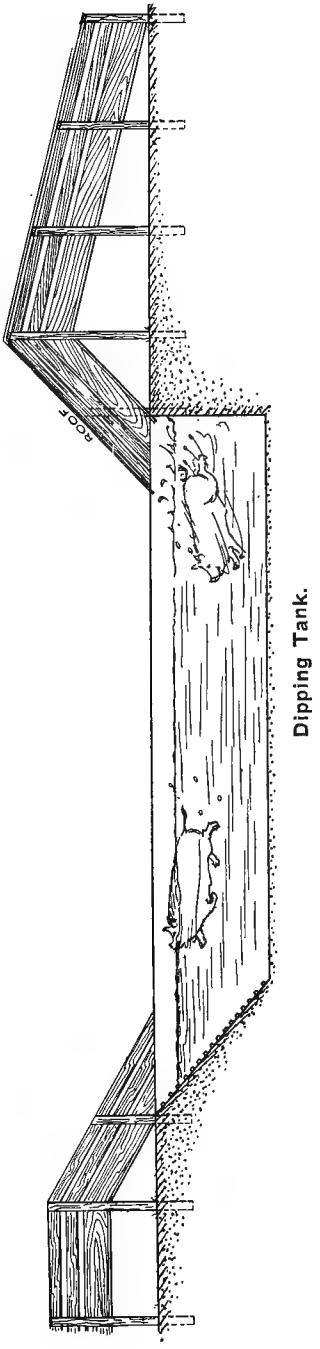
CONVENIENT RACK FOR FEEDING ALFALFA.

Among the equipments for handling roughage on a hog farm the accompanying design furnishes a very convenient way for feeding Alfalfa, Cowpeas or clover hay, all of which are first class feed for winter forage for the herd.



HOUSECLEANING.

Besides the matter of keeping all sleeping pens and feeding places clean, it is well for the breeder to look carefully after the premises in general by having a regular clean-up at least twice a year, buildings, yards, fences, etc. This would not only give a good appearance but would be a benefit along sanitary lines. There are many good disinfectants and some should be used weekly, by spraying the troughs, feeding utensils, mixing barrels, etc., as well as the feeding floors and sleeping places. Feed yards should be well cleaned up and kept free from cobs and other accumulations. These are small matters, yet quite important and should be carefully looked after.



Dipping Tank.

CHAPTER TWENTY.

ADVANTAGES OF SHOWING.

For the breeder of pure bred hogs who wishes to establish a substantial trade, it is very necessary that, as soon as he becomes well versed and properly started in his breeding line, he should make it a practice each year to fit a show herd. Possibly at first it is as well for him to prepare only for County Shows, until he thoroughly learns what is required to win at the big Shows and Expositions. There is no way, in my opinion, in which a young breeder can so quickly get before the people and started to selling his hogs for breeders as to annually fit enough animals to fill the classes usually provided for in the various premium lists.

The reason I suggest that the beginner commence his show career at the County Fairs, is from the fact that I passed through all these little troubles when I was a great many years younger than I am now and know what the difficulties are for a beginner. It is hardly expected that a young breeder who has never followed the practice of showing, and who has probably not spent a very large amount of money in the foundation of his herd, can win at State Fairs and Expositions where only a few great show animals can get in the money. Let the County Fairs be the stepping stones to larger ones where it requires, practically speaking, the P. T. Barnums of the business to win.

Never will I forget the time way back in the 70's when I made my first show at a State Fair. It was at the Illinois State Fair when it went around on wheels, and that year was located at Freeport. I had only been in the business a year; knew nothing of what it required to even have a chance of getting into the money; but nevertheless I was full of enthusiasm and overflowing with ignorance. I fitted up a portion of a herd which I thought was "some pigs"

but found, much to my profit eventually, that they were only ordinary. Starting out with much pride and having already figured the amount of money I would bring home by adding up the amounts in the premium lists, I found after the Fair was over, that I was really a wiser man and richer in knowledge, but poorer financially than when I arrived on the grounds, beaming with confidence. I did not even get in sight of the premium money. Those were the days when a young breeder was hardly noticed, but, being made of the kind of stuff that never gives up, but sticks, I did not parade the grounds condemning the Judges for lack of knowledge, nor inform the managers of the State Fair that I would never show again at their Fair; but quietly studied the conformation of the animals that were good enough to win, then returned home with the determination to come a little stronger next year.

This was followed up several years before getting much above the white and yellow ribbons. The only blue thing I found in those days was my feelings in not being able to win. This is where I made a mistake by attempting, ignorant as I was, to show at the great State Fairs, rather than starting at County Fairs. But the determination was in me and the show ring was followed, as large as it was and as great as the shows were, from 1877 until 1893, when the climax was reached at the Chicago Worlds Fair. As I grew in knowledge and experience each year, after a few years I was able to win a few of the better prizes and as the years came and went, won more prizes, until it was a pretty sure thing when I started out on an eight weeks' trip to the Big State Fairs, that I would win money enough to pay all expenses and more and be benefitted greatly by building a substantial acquaintance among breeders in our line.

The trade grew annually and after winning the Grand Championship at the World's Fair at Chicago for the best herd, consisting of one boar and four sows, over one year old, my name was finally placed on the map and my son and I have practically discontinued showing since that time.

I strongly urge the show ring as a means, not only of education for the breeder, but of building up a substantial business.

CHAPTER TWENTY-ONE.

SELECTING THE SHOW HERD.

The selection of the show herd requires a knowledge of what it takes, when well fitted, to win. One should commence months in advance of the show to make his selections, first making up his mind whether or not he wishes to fill all the various classes listed in the premium lists, which are now so made up that the same animals can show throughout the circuit without being required to carry along other animals of various ages from those first selected to fill the classes.

In making the selection for the show herd, commence first by selecting the animals that are required to show in the "Aged Class."

The aged sow class should be made up of animals that have proven themselves breeders and should show by their appearance that they have been breeders. Let them, however, be well fitted without overdoing and as uniform as possible in type and conformation, with an aged boar of the same general type, showing that he has been a breeder, only of a more masculine appearance, thus making up a desirable herd for the aged class.

The tusks of the boar should be removed before starting out on the show circuit and should be so closely cut that no trace of the same could be seen. This should be done both for the safety of the caretaker and those about the show ring.

Next, select the senior yearlings, a boar and three sows—which should carry as much size, or nearly so as the aged herd, but would naturally be somewhat smoother owing to the difference in age and previous service. Be sure that these are also uniform in type with the aged herd.

Next select the junior yearlings—a boar and three sows, which are, generally speaking, the sweetest things in the

show ring, and being at an age that shows full development and yet not required to have produced any offspring, naturally will be much smoother and more in bloom. This class is usually the best of all at any breed show. These should be of the same general type as the older ones selected, and should be in the pink of show condition—well developed at every point—carrying all the flesh that goes to make an ideal show animal, yet under no circumstances to be overly fatted or fleshed to a condition of uneveness or roughness.

This same careful selection must be carried out also in the boar and three sows under twelve months of age. This is really the hardest class to fill satisfactorily. First, for the reason that the young boar over six and under twelve months of age is passing through a crisis in his development; this being an age that almost invariably, if the boar is a vigorous one, finds him fretting and champing more or less when in sight of other animals. The sows, also of this age, are harder to properly develop and bring out in their best form, as they too are passing through a period of life when there is more or less restlessness and excitement than when older.

Some people greatly enjoy bringing out a pig herd, under six months of age, as there are often enticing prizes offered in this class, and it is a good way to show the class of pigs you are producing. While this class should also be as uniform in type and conformation as the others, and should be well fitted in flesh, care should be taken that they are not pushed too hard and become over done, and more or less wrinkled in appearance.

CHAPTER TWENTY-TWO.

FITTING THE HERD FOR SHOW.

We will now suppose that the herd has been selected along proper lines and we are ready to start the fitting process with a bunch of animals of the same type. The question now is how to fit these animals to the best advantage without over doing them, so they will show when the Fair season opens, in the best possible bloom.

Always remember that "bloom" is a desirable thing in a show animal. When "in bloom" a hog is at its best and this "bloom" only lasts for a short time, and is as easily lost as the bloom of a ripe peach, hence the matter of fitting should commence in time and be carried on in a manner to have the animals "in bloom" when the Fair season opens.

For convenience in handling and caring for them, the show animals should be kept by themselves and not allowed to roam with the general herd. The four boars being fitted for the different herds should be carefully prepared and put together in one lot where they can be fed and handled together so that there will be no danger of their fighting should it be necessary to drive them to or from the show building together. The aged sows, the senior and the junior yearlings, should also be fed and kept in one enclosure for best results during the Fair circuit, when it is necessary to exercise them mornings during the show season. The over six months and under six months sows can also be kept together for the same reasons.

The yards or lots, where the animals are to be fitted during the next few months, should have an abundance of succulent pasture, either natural grasses or other green forage crops provided and each lot should have a water fountain that should be kept well supplied with pure clean water at all times. Of course ample shade should be provided—either natural or artificial—and no dust should be

allowed to accumulate where these animals lie in the shade. If possible, a cement bathing pool large enough and deep enough in the deepest part to practically cover them should be provided, in which the water should be changed every few days, always remembering to add a little disinfectant and crude oil to the water, preventing any skin troubles or lice.

PROPER FEEDING OF HERD.

When one starts out to fit a herd of show animals for the large Fair circuits, the matter of expense must, in a measure be forgotten, as these animals should have the best feed possible to put them in just the right condition to show all that is in them. We have found, when fitting animals for show, that we have to make some changes in our regular grain mixtures for best results. I have found nothing better in this case than to feed a nice rich slop feed, made up about as follows:

For the older animals above one year I would use equal parts of finely ground corn meal and the best quality of white heavy middlings, with an addition of ten per cent old process oil meal, thoroughly mixed together before being wet, and if sweet skimmed milk or that from the separator is possible to be had at any reasonable price, the feed should be mixed with this and all feed in a sweet condition. If it is found impossible to get milk, add tankage to the oil meal (eight to ten per cent. oil meal and five per cent tankage), and the mixture of meal and middlings, and mix this with fresh water and feed it after it soaks a few hours—but never allow it to become sour.

I think two feeds a day, even in the fitting of a show herd, is as good as three, generally; however, it would be proper and perhaps as well to give these animals a little soaked shelled corn that has soaked long enough to become soft, as a noon-day meal. Where this is done, the morning and evening feed can be fed a little earlier and later, respectively.

For the younger herds of over six and under twelve months, as well as the herd under six months, I should certainly urge the use of skimmed sweet milk for best results. I have known showmen, while fitting young pigs,

to feed whole milk fresh from the cow. This is entirely useless and, I think, is one of the surest ways of overdoing the pig and causing him to break down in the pasterns and it is also almost a certainty that pigs fed fresh warm whole milk will become more or less wrinkled, but skim milk is not so apt to cause this trouble, and this is especially true when well balanced with the ground feed.

Always remember, however, that too much milk is worse than none. The proper amount is three pounds milk to one pound of grain; with this your ration is practically balanced or at least gives the best results.

If any of the animals at any time during the fitting do not eat with as much relish as would seem best, there are many kinds of condiments that could be used to make the feed more palatable. A sufficient amount of brown sugar or black strap molasses to well sweeten the mixture, will make the feed much more palatable. This would be the case even when milk was used instead of water in mixing the feed.

I would, by all means urge, while fitting these hogs for show, that a mixture of mineral matter mentioned in another part of this book be used. It may be well to mention here that this should be made up of ground limestone, with perhaps some slacked lime, together with ground phosphate rock or any other material that would contain plenty of phosphate and the whole mixed with salt to make it more palatable. I urge the use of this material so that while fleshing these animals there would be no danger of breaking down the bone, as the mineral matter is essential for bone growth.

If any of the younger animals in the show herd were inclined to be a little weak in the feet or pasterns, I would buy one hundred pounds of finely ground bone meal or bone dust and mix it with the mineral matter or even add it in small quantities to the slop feed.

Much care should be taken in fitting the show herd not to break them down, and as a help in this matter as well as in keeping them in better condition, it is necessary that the show herd be given some special exercise other than that which they will naturally take in their enclosure. By taking the three older boars out each day and driving a half

mile or more you will not only have them under perfect control, but will also have them in a condition to show at their best when driven in the show ring, and the same is true of the show sows and even the under a year herds.

We have all noticed, while standing about a show ring and watching the animals come in from their pens, that many of them, while in good flesh, are not really in show condition, for the reason that they cannot walk with ease and grace but wabble around. A show animal should not be so heavily loaded with fat as not to be able to walk with ease and comfort. It is not always the amount of flesh that an animal is carrying that makes it show at its best, but the smoothness in which it is put on and the ease with which it is carried.

It is my opinion that what is known as "strong breeding condition"; *i. e.,* flesh enough to round out every point without over loading, is the proper show condition.

What I have said about the feed to be used in fitting the show herd, need not be considered as an absolute iron-clad rule. Any of the mixtures of grain, grasses, etc., that will come close to being a balanced ration is all that is necessary. I merely name these feeds as among what we have found to be the most satisfactory. The real object is to feed what will flesh them rapidly and not add too much fat, but more red meat or flesh.

CHAPTER TWENTY-THREE.

OTHER THINGS NECESSARY BESIDES FEED.

While fitting the herd for the show ring they should be handled daily by the feeder, by brushing them a little or scratching them and coaxing them to lie down where he can handle them about the legs and feet, so that when you are ready to trim the toes and hoofs into nice shape they will not get excited, but will lie quiety and let you work over them as you wish.

The foot and pastern of the show pig can be improved one hundred per cent. by proper trimming. When the pig is lying down, quietly take the foot in the left hand and with a very sharp knife trim the lower edges off the hoof, commencing well back and following around the entire hoof, shaping the toe up as close as possible to the fleshy part of the foot without injury. If the dewclaws are of unusual length these too can be shaped up at the bottom and pared down to proper shape. All this work should be done at odd times before starting out to the Fair.

A nice brushing every day or two after sprinkling with disinfectant and crude oil is very essential, not only to make the show herd quiet and docile, but to improve the condition of the skin and hair. All this is a help in shedding the old coat. The earlier this is commenced in the preparation of fitting a show herd the better. Every animal except the under six months pigs should shed off his or her old coat not later than the first of August, that the new coat may be nicely started before the Fair season opens. Generally all this will come along in due time if the animals are fed as above and are gaining in flesh constantly. If any of the herd should not begin to show an inclination to shed by the middle of June or the first of July, I would give them a wallow hole in which some clay has been placed, if it is not naturally a clay

soil, keeping this hole rather thick in mud, and adding some wood ashes.

Many showmen are in the habit of clipping the hair of their older animals when they do not shed off in time. While this, in some instances, looks better than an extremely coarse coat of hair, it always shows every little unevenness in the flesh of the animal. This practice is more common among the Poland-China showmen than any other breed I believe, yet I have seen some show animals come into the ring that were closely clipped, showing almost no hair and sprayed in oil, that really I think were not showing as well as though not clipped, for the reason that little uneven places could be plainly seen along the back and sides, evidence to the Judge that they did not flesh as evenly as they should, and would in a way, militate against them.

Before entering the show ring or as early after arriving on the Fair grounds as possible, the herdsman should take a hand clipper and clip the long hairs off the edges of the ears and about the nose and jaw of the hogs and also clip the tail clean from the brush back to the tail head, giving a much more finished appearance to the animal than though this was neglected. The above suggestions properly followed and the bringing of the herd to the shows in a thoroughly docile, well mannered condition, add much to their credit while in the show ring. It is pretty hard for a Judge to properly examine an aged boar or one even younger, if he is brought into the ring with four or five men, each bumping him around with a short hurdle—the boar certainly is not showing to the best advantage.

DRESSING.

A nice dressing to use after the hogs are fitted and in show condition, before entering the ring, is made as follows:

Take a good quality of cotton seed oil, adding enough wood alcohol to thoroughly cut and make a nice thin easy running dressing. After the hog is thoroughly washed and his skin is clean apply with a brush and rub it in thoroughly.

One of the most detestable dressings that I have ever come in contact with as Judge at the great shows is made of oil and lamp black. The animals, as they come into the

show ring, are not only a mass of grease and lamp black, but the attendants are about as badly blacked up as the hogs, and before the Judge is half through he is also more or less greased up. I have known of cases where the Judge had to send his clothes to be cleaned each night or put on a clean pair of overalls each day. All that is necessary as a dressing is something that will make the hair glossy and yet not be gummy.

EXERCISE ON THE SHOW CIRCUIT.

The good herdsman and care-taker does not lie in bed until late in the morning, but is up early and has his show animals out on the grass somewhere about the Fair grounds, and drives them around for an hour until each animal is thoroughly emptied out and has had proper exercise.

CHAPTER TWENTY-FOUR.

HANDLING SHOW HERD WHILE IN THE RING.

The proper fitting and handling of the show herd before it starts out on the circuit, will prevent much trouble in handling the animals in the ring.

With the herd properly trained, there is nothing with which to handle them compared with a buggy whip, in the hands of a man who has sense enough not to whip the hogs, but quietly touch them on either side of the head to place them where he wishes. As a matter of fact this has been my experience in the many years of handling show hogs. I never need a hurdle with our hogs. With some breeds it is absolutely necessary to have a hurdle in handling a mature boar even though he is supposed to be well mannered and docile, but there is no excuse in using a hurdle with a bunch of sows if they are half way prepared before starting on the circuit. When a hurdle must be used, let it be a light one and made so that the hog cannot see through it. Don't make it of narrow slats a few inches apart, but cover it with heavy material, or else make it of boards tightly matched so there can be no seeing through it. When in the ring with the herd or a single animal, show to the best possible advantage. The showman has this privilege.

Be Careful About the Feeding While on the Show Circuit.

Many exhibitors seem to think that when they start out on the show circuit they must stuff the animals with all the feed possible, not only during the time they are on the cars going to and from the shows but each day while on the grounds. It has been our experience that the man who follows this custom generally arrives home with his hogs much lighter in weight than when he started out, while if the hogs had been given only water to drink while enroute to the shows and fed lightly for the first day after arriving

and given plenty of exercise, they would wind up the circuit in much better condition than if they had been stuffed all the time.

I have known an exhibitor to buy warm milk from some of the dairymen and feed his pigs all they could hold, though they had never had a drop at home while being fitted. This generally results in a case of scours with the pigs "off feed" for several days and by the time they go into the ring they are badly gaunted up. Of course if the pigs have had this ration at home it should be continued. Avoid radical changes in the rations.

TREATMENT OF SHOW HERD ON RETURN HOME FROM SHOWS.

Many successful exhibitors, when they have finished the show circuit, won their laurels and arrived home safely with their herds, seem to think that the animals now need no further attention, except feed. This is a great mistake, and if these show animals are expected to go on and prove what they should be, desirable and regular breeders, they must be handled very carefully.

The first thing I would advise on return from the shows, would be to quarantine the show herd on a portion of the farm or some other place where they would not come in contact with the home herd. They should be placed on good, green, succulent pasture, if possible, and if not possible, should have some kind of green feed to take the place of pasture. They should be fed quite a little less than while on the show circuit, and no fat-making feed, and be made to take all the exercise possible, so that they may be reduced in flesh somewhat—not by starving, but by lighter feeding and abundant exercise—and if they have not been too strongly fitted, they will soon be in prime condition to breed.

The show herd should be kept in quarantine about three weeks, and if no symptoms of disease appear by that time, it would be safe to put them with the home herd.

Now that we can procure a reliable hog cholera serum I would advise all hog men making the Fair circuits to give each show animal a large dose of serum (no virus) about a week before leaving home for the Fairs, unless they have

positive knowledge that every animal in their show herd has been properly and permanently immuned by the simultaneous treatment.

A large per cent of bran and oats mixed with a small amount of middlings and cornmeal is an excellent feed to use during the reducing period. They must have exercise and if necessary see that they get it by driving daily. This is very important and must not be overlooked.

A part of the ration may consist of whole oats scattered freely in a clean place, as the oats themselves are an excellent feed, and they will get considerable exercise while eating them.

I might say right here that with many exhibitors it is a custom to breed the show sows a month before starting out on the Fair circuit, and if successful in settling them, so much the better, even though the litter comes at an unfavorable time of the year. It simply keeps the animals breeding, and it is that much better for them.

CHAPTER TWENTY-FIVE.

A WORD TO THE EXHIBITOR AND FAIR MANAGER.

The wise exhibitor or herdsman will so arrange his circuit that he will arrive on the Fair Grounds as early before the opening of the Fair as possible, that he may have his hogs well rested and in the pink of condition before the show opens. Where one attends a Fair each week, this of course is sometimes a hard rule with which to comply, but many thinking Fair Managers today are so arranging their dates and days of show that the live stock that is to show the following week at a distant state is allowed to be released on Friday night—which, by the way, is a custom that all Fairs and Expositions should follow.

Many State Fairs have too many men among their management who know nothing whatever of the needs of the live-stock exhibitor while on the circuit. They manage their show as though it were the only one the exhibitor was going to attend and seem to think that the exhibitor, because he made an exhibition at their Fair, should be obliged to remain there until the last man is gone. They should always remember that without the live-stock exhibit their Fair would soon be a thing of the past, and for this reason should give the live stock exhibitor every encouragement and help possible.

Necessity of Being Prepared to Show Pedigrees.

Oftentimes in the under-six-months class or the class over six and under twelve months, there is such a wide range of sizes that one hesitates in comparing. Here is where every exhibitor should produce the certificates of registry, and if any of the animals have been purchased of others, the certificates of transfer, showing exact age of the

animals on exhibition. This would avoid any unpleasantness between exhibitors or between the exhibitor and the judge.

It is pretty hard for an experienced judge to step into a ring of pigs showing in the under-six-months class and find most of them of proper size and development, and others showing by their general make-up that they are far beyond six months old, even being old enough to show well developed tusks, which every man knows are not developed until after the pig is six months of age. The judge who knows his business, while not inclined to quarrel with the exhibitor over the age of his pigs, will quietly ignore them, not considering them eligible to the class. This, of course, generally causes the exhibitor to complain when he should be quietly informed that his pigs are out of their class owing to age, and unless he can prove by certificates of registry, properly signed by the Record Association, he should not be allowed in the ring. For this reason I would urge every prospective showman to always start out fully prepared for such emergencies. Many is the time that I have asked the exhibitor, while acting as judge, the age of his animal; he generally has an answer ready, and when asked if he has his registry papers with him, he replies that he has them at home, but forgot to bring them, and after passing around the ring once or twice, I again ask the gentleman, "What did you tell me the age of this animal is?" and he would give an age entirely different. I have done this on purpose to find out if the man was telling the truth. You know it has been said that it takes an awfully smart man to be a liar.

Again, where registry papers are not absolutely insisted upon, many exhibitors are inclined, when asked the age of the under-a-year animals, to give you the date of September 1st to 3d, as their date of birth, and those in the under-six-months class from March 1st to 3d. This of course has to be taken by the judge as a fact, however much he may feel it is not correct.

This matter of showing pigs of uncertain ages is somewhat in disrepute. It simply puts the man that is doing business right, up against an almost impossible chance of winning, where older pigs than should be admitted to the

class are being shown. I know of no way to stop this except the rigid enforcement of showing certificates of registry.

One may say that the same rascality might be covered up by the owner when sending his pedigree in for registration giving a wrong birth date, showing the animal younger than it really was. When it comes to this proposition the fellow will have to be very smart or he will be tripped up sometime by having registered two litters from the same sow that were born too nearly at the same time.

CHAPTER TWENTY-SIX.

JUDGING SWINE SHOWS.

There are many good Judges; men who not only know the correct type and conformation of show animals of the various breeds, but are men above reproach and can always be relied on to be absolutely square and honest in their decisions. The matter of selecting the best three or five animals, as the rules in the premium list require, is no small task.

The first thing the Judge must do when he steps into the arena is to forget all friends and know no man. He must judge the hogs only and let no personal feelings enter his mind. If his brother or son should be showing in the ring he should be a man of strong enough character to turn down their animals, if not worthy, just as quickly as though shown or owned by an entire stranger.

The Judge should not attempt to pass on the animal unless he has in his mind a true picture of what the animal of that age and that breed should be. Of course no animal, even a show animal, is perfect.

After carefully examining each animal of the class under view, and finally deciding which, in his opinion, is the best, let him pass this without further attention and consider which is the second best. It is usually much easier to find the first prize animal than the third, fourth or fifth, but after the judge compares points, conditions, general type and conformation, and has his mind made up, let him line these animals up as first, second, third, fourth and fifth as the case may be, for the clerk to take the entry number and write the proper names and the award in the book. Then he should by all means be ready to compare these animals in the presence of the bystanders, explaining why he gave this one first over that one and so on. It is surprising to a Judge sometimes to find what great satisfac-

tion it gives the exhibitor to be shown where his animal lacked in comparison with the one above him, and no Judge should act unless he is able to give the reason.

While disliking to speak of myself as a Judge, I may be pardoned in saying that I have acted as Judge at practically every State Fair in the Union and I make it a practice to make this explanation after each decision and many and many a time has the loser come to me and said: "Mr. Lovejoy, I learned more today from what you have shown me about weak points or undesirable ones in hogs than I ever knew before, and I thank you, and I now know I was not entitled to higher honors."

A Judge in a hot ring has many little annoyances; for instance there is the showman (and it is his right) who brings in an animal that possibly droops a little in the back, with possibly an inclination to sag too much, and while the Judge is trying to find this out, the showman is continually bumping the animal on the nose to keep its head down and its back up. It is also amusing often to find one of the exhibitors who is continually squatting beside or in front of his animal and patting it, trying to attract the attention of the Judge to certain points that he thinks might be overlooked. Let me say to this kind of exhibitor that the Judge will find all the good points quickly; what the Judge is looking for is the weak ones, and if he knows his business he will find them.

Really, the best showmen, who are not only good winners but good losers, say very little to the Judge unless asked a question, and this is as it should be, for the Judge knows that the whole responsibility is on his shoulders and he is willing to take this responsibility without, rather than with, the advice of the owner or showman.

I always like to have the animal that I am judging walk off naturally and without an attendant. I think this quite important, as it will many times show up defects that an expert showman will completely hide from the Judge if the showman is allowed to show that animal all the time. With this idea in mind, I invariably stand where I can see the animals come into the ring from their pens.

If you are fortunate enough while showing to win the blue or purple let that joy be confined in your heart; if

you are so unfortunate as to lose let that disappointment also be confined in your heart and try to appear a good loser. It really requires a "good sport" to be a good showman, and especially to be a good loser. The Judge cannot in his decisions consider the desires or hopes of the exhibitor, but must at all times make the awards according to his judgment and not be influenced by the ringside.

CHAPTER TWENTY-SEVEN.

SHIPPING CRATES.

Shipping crates are probably sent out in a greater variety than almost any other article used in the swine breeding business. It is not always the fault of the shipper that he cannot send a better crate or a nicer looking one, from the fact that crate material in many States is almost impossible to be had. At least this is the case in our vicinity. We have no hardwood lumber for sale in our county, neither do we have any old fashioned white pine. We do have southern pine that is so full of sap and knots that it is hardly worth while to use it, and if it is used it makes an extremely heavy crate.

Probably the best lumber from which to make shipping crates is poplar if it can be procured, being both light and strong. Following this comes a straight grained elm, used principally in a half inch thickness, with exceptions of bottoms and corners.

The matter of crating hogs, where there are many to ship, is an item of bother and labor, which many times can be lightened. We have a scale of sizes for crates. When we build we make a side; then lay another side on top and build all the sides first. Then make all the bottoms, then the tops. If crowded for room, one can build twenty crates in this way and leave them knocked down and put them together when needed. When in this form a crate can be put together in five minutes. Always have a few of each size on hand for immediate use when they are wanted. It is good rainy-day work. The average crate is made too low for comfort; a crate should be high enough to allow a hog to sit on his hind quarters and stand in front, which raises his head some higher than when he stands on all four quarters. Herewith find a table of measurements for dif-

ferent sized crates which will answer the purpose in shipping different sized pigs or hogs.

Length	Height	Width
3′	28″	14″
3′ 6″	30″	18″
4′	30″	20″
4′ 6″	32″	22″
5′	34″	22″
6′	36″	24″

Bottoms are made by using strips one inch thick and one and one-half inches wide. Lay them down the length of the crate and build the floor on them crossways. The sides are fastened by nailing to the under strip, which is flush with the floor. All standards are on the outside of crate to prevent the strips being pushed off if the animal presses against the side of the crate. Tops are made lengthwise with cross piece at front, middle, and one inch from back, so tail boards can be put in up and down; these are less liable to rub tail than when a hog is nailed in with strips across the crate as in front. Crates four and one-half feet long, and longer, should have center standard to strengthen the crate. Bred sows should have good roomy crates, especially in width.

I believe that linn — sometimes called basswood — makes even a better crate than elm or poplar, but this is also hard to be found and as high in price as clear cork pine, so that one is almost compelled to use such material as can be found in his own vicinity. We have used a little half-inch beechwood for the sides of crates for light pigs, which is fairly satisfactory but inclined to split when driving nails in it, unless previously softened by placing the ends in water. We once bought a dozen or so of the nicest shipping crates that it is possible to imagine, made of electric welded woven wire sides, end and top, so hinged and locked together that they made an ideal crate which could be quickly knocked down and returned in a collapsed form to the shipper. A plainly printed, substantial tag was fastened on each crate giving directions to the receiver of the animal, to please knock down and return. This was usually done, but occasionally a man receiving it, would either forget to return the crate or imagine that it belonged to him, and in this way the

original number purchased by us, after a year or two, were all lost by not being returned. However, we decided to try them again and ordered a new lot, only to find that the party making them had gone out of business and he replied that he was unable to make any more. If his patent could be secured by some enterprising company and the crates made in large numbers, I think they would prove very profitable to the manufacturer, as they are the most satisfactory shipping crates that can be conceived of for hogs of all ages.

There should be a manufacturing company somewhere that would get together all these conveniences for the equipment of the swine breeding farm.

Preparing the Pig for Shipment in Crate.

Some men think that when a pig is to be shipped some distance he must be stuffed with an unusually large feed the morning he is to leave. This is a mistake. We had rather the pig would not be fed the morning he is to be shipped, as he will ship better and arrive at destination in better condition without his morning feed, unless it is a distance that will require more than two days. This may look strange to a beginner but an old breeder generally prefers to ship his pigs on an empty stomach. Particularly is this true when pigs are shipped during the hot months, as they will ship cooler by simply having what water they will drink and no feed.

It is well to brush the pig and make him thoroughly clean before he is crated; then he should be sprayed with a disinfectant giving him a nice clean finish. A little dry clean bedding of some kind should be placed in the crate. If the pig is going a distance that will require four or five days to make the trip, then it is best to put a little feed in a small sack and tie it to the crate with instructions to feed a very little once daily. A five-cent tin basin wired in one corner of the crate on the floor will serve as a place to water and give a little feed if it is necessary. A notice should be placed on the crate, if it is during the summer months—"See that the crate is kept near an open door in the car, facing the way the train is going, that the pig may get the benefit of the breeze." Should the pig, by any

reason, become over-heated, it should have attention at once, and instructions should be given the route agent to sprinkle the pig's nose with a little water and put some water on the floor of his crate so as to wet the pig underneath, but under no consideration should cold water be thrown on the body of the pig when over-heated, as it means almost certain death.

How to Treat the Pig on Arrival at the New Home.

On receiving a pig that has been shipped a long distance, do not expect to see him come out of the crate looking like he was just from a bandbox, for naturally he will be gaunt, somewhat dirty and probably quite tired. Brush him off nicely, put him in a place by himself and give him a drink of fresh water, after which give him a very light feed, only a little at first, of a nicely mixed ration of rich slop. Then let him alone until he is rested, or until the next feeding time comes, when you may give him a little more feed than you did the first time; thus you will gradually bring him up to his full feed.

Notice, on receiving the pig, if he seems constipated; if so give him two tablespoonfuls of Epsom Salts in his feed and let him take a little exercise where there is some grass.

It is a good thing when ordering a pig from a breeder, to ask how the pig has been fed, and if you can do so, continue about the same ration he has been getting. If you wish to change to a different system of feeding, do so very gradually and you will not be disappointed. If you should overfeed the pig on the start everything will go wrong and you will be very much disappointed later.

CHAPTER TWENTY-EIGHT.

WHAT A BREEDER OF PURE BRED HOGS SHOULD BE.

Probably there is no business that requires character and intelligence in a man, to a greater degree, than the breeding of pure-bred stock of any kind. First, the young man when starting should know that he likes the business, and has made up his mind to follow it as a permanent business and to stick to it through thick and thin. This matter of stick-to-it-ive-ness is one of the principle elements a man should have. Next, he should be a man whose character is above reproach and absolutely honest. With these elements and a determination to succeed, he can build up a life business that is gratifying in every way.

Then, he must select as good animals as possible to found his herd; he must cull a goodly proportion from the produce each year to sell as pork hogs, selling nothing but the better animals for breeding purposes. He must keep careful records of his breeding; he must be prompt in answering inquiries; he must be truthful and reliable in every way, so that the purchaser may know when he receives the pedigree of a pure-bred animal that it is absolutely correct. Much, in fact, depends on the correctness of the pedigree, and that is dependent on the man who writes it, and for this reason he must be dependable in every respect. A man who is not dependable cannot build up a permanent business.

The policy of the pure-bred stock breeder should be always to satisfy his customer, if possible.

CHAPTER TWENTY-NINE.

MATTER OF PEDIGREES.

This is a matter that does not greatly interest the farmer or feeder who is growing hogs simply for the open market, but must be understood, and thoroughly so, by the breeder of registered hogs who expects to sell a large portion of his produce to other breeders. A pedigree amounts to nothing unless it is a *correct record* of the different blood lines in the sire and dam taken from the established records for the breed. The pedigree in itself adds no value to the individuality of the animal but it is a means of noting the various blood lines that has produced the animal. Neither is a pedigree of any value unless it is made by a man who would under no circumstance write in other than the correct names of animals, with their herd book numbers. A man who would make a false pedigree would do anything else false that came to his mind and should not last long as a breeder of pure bred hogs of any breed. In other words the pedigree should be a *guarantee* that only such animals were used in producing the particular individual, as really were used.

One who is well versed in the scientific principles of breeding pure bred animals, and familiar with the value of the different blood lines of the breed, can by studying the pedigree of the animal he purchases to head his herd, know practically what the results will be from using him. The more animals that appear in the pedigree that have made good as producers of superior stock, the better the pedigree and the more valuable it becomes as a guarantee for future quality in the herd; hence it is of great importance that the owner of a high class breeding herd, who wishes to continually improve the quality of his herd, study carefully the pedigree of any new animal that he wishes to introduce as the head of his herd. It is a well known fact, however, that there are

few outstanding sires that are worthy of special note in any breed of pure bred hogs, and buyers of boars, when they order a boar for use, should not expect him to be "one in a thousand," unless he has investigated the animal's get and has proof of the fact that he *is "one* in a thousand," and if such a boar is found he, the buyer, must expect to pay a very large price to secure him, for the owner can ill afford to part with this kind.

Correspondence.

The breeder of pure-bred hogs, after he is established, will have a large amount of daily correspondence to look after. He should make a rule to be prompt in his replies, answering all questions carefully, describing the animal he offers so that the man will not be disappointed, should he order. He should keep a carbon copy of each letter written. He should always keep a letter file of some kind, whereby he can keep each man's correspondence by itself. I think we have every letter received in thirty years, and pasted to it is a carbon copy of the reply. A card system should be kept with the name of each and every correspondent you do business with, and a follow-up card system would be well, as a follow-up letter often results in getting an order that would be overlooked otherwise.

Every breeder should procure a typewriter and learn to use it, and write all letters on this machine. It is rather hard for some men to write a nice hand with a pen, and there are often some words in the letter that are not plainly written and that puzzle the one receiving it; besides, when writing a letter on the machine the copy can be made at the same time and filed with the original letter.

System.

System is a great thing, even in the hog business. Systematic methods of keeping all records, filing all letters, keeping the cards, the breeding records, the feeding records, and everything connected with the business, is most important.

CHAPTER THIRTY.

ADVERTISING.

This chapter is written for the benefit of breeders who are selling pedigreed stock for breeding purposes, and I want them to consider the matter of advertising, *one* of the most important parts in the business. *First* is the breeding of the right kind of hogs to furnish breeders. The next thing is the proper care of them until they are ready to ship to the breeders. Then comes advertising which is as important as anything else, for without advertising of some kind there will be little or no business.

I have mentioned in a previous chapter, that the matter of attending the County Fair circuits and showing was one way to commence a good line of advertising, and after a little experience at County Fairs, to take a step a little further up, and show at the State Fairs and large expositions, or in other words increase the show ring practice as you increase your knowledge of the business, and ability to bring out the right qualities in animals. This show ring experience and mingling with hundreds of farmers and others, is a good way to start a permanent acquaintance, and establish the business, and the orders taken while at the County Shows should be almost enough to dispose of the surplus for the first year or two, and when later the larger shows are made the sales should increase accordingly.

The young breeder should at these shows keep a list of the names of all men with whom he becomes acquainted and who are interested in his breed, as well as a list of the men to whom he sold pigs.

Besides the advertising made at the shows, the breeder should be a liberal advertiser, not only with his Breed Organ but with other leading reliable publications that go to the homes of the better farmers and breeders. While

speaking along the lines of advertising I wish to impress upon the mind of the breeder, the necessity of his advertisements being permanent or continuous, not spasmodic. What is more assuring to a prospective purchaser than when looking through his various swine and live stock publications to find the name of some advertiser of his favorite breed, whose advertisement always appears in each weekly or monthly issue of his paper? This goes to show that the one who advertises this way is a permanent and constructive breeder, but if you find the advertisement of a breeder of your breed, who comes out with considerable gush once or twice in some publication and then drops out, you are not inclined to send such an advertiser an order, and you may conclude that as he had dropped out his advertising, he may also have dropped out of the business. These are matters that I know from absolute experience in many, many years of continuous advertising. We have never carried but one or two advertisements at one time, but for over thirty years our advertisement has never failed to appear continuously. While possibly not needing this advertisement some times to help dispose of our stock, we believe that as there are many new men entering the breeding arena as breeders, as well as farmers and feeders, it is the profitable thing for us to keep permanently and continuously before the people, and so we continue to advertise even after many, many years.

We often receive letters from parties, who say: "I have seen your ad for many years, etc.," which shows they understand we have been in business a long time from the fact that we are continuously appearing before the readers of good publications.

Another good advertising plan is occasionally mailing out either a herd catalogue or a neat folder, giving a little history of the herd and the business done, also listing the names and numbers of the brood sows and herd boars, and a list of the litters farrowed that season. Some breeders also believe in publishing once or twice a year, a circular describing certain animals and their breeding, which they are offering for sale at that time. This is a good plan.

Another matter that is quite important is the necessity of using a typewriter, and learning to use it properly, and

never to fail to answer correspondence promptly and in an intelligent manner. It is not necessary to use all the adjectives that one can scrape together in describing what he has to offer the inquirer; better be a little modest along this line, simply stating the breeding and a *true description* of what you have to sell, with the price.

The style and quality of stationery one uses is also one of the things that makes an impression on the inquirer. A neat, plain letter head, with as little printing on it as possible, and paper of good quality, speaks well for the breeder and impresses his correspondent with the belief that this man is not making any extra flourishes. A good judge of human nature can quite readily determine something as to the character of a man by his stationery, and still more by the letter he writes. We have never found it necessary in our business to cover very much paper in replying to a letter. However, we often receive letters that contain quite a number of pages, which after reading and trying to digest, it is hard to really know just what the man wants, further than that he seems to want an animal that will score upwards to 100 points, and then wants it for an extremely low price, with all the guarantees he can think of, added.

There is another matter that is quite important in the way of advertising; always have your home grounds, hog quarters and other parts of the equipment of the hog establishment, as well as the hogs themselves, in shipshape for visitors. Do not feel obliged when a man suddenly appears on your farm to inspect your herd, to commence apologizing for the condition of things in general. Always have them so that a good impression may be made on the mind of a visitor, for he is taking all things in as he passes down the line, and you certainly wish to make a good and not a bad impression.

First impressions are lasting and these should be as favorable as one can offer.

When writing advertisements one should try and be as concise as possible, and not say too much, but say it in a way that will attract the attention of the reader. The writing of advertisements is an art.

CHAPTER THIRTY-ONE.

HOME CURED PRODUCTS OF THE HOG.

I have often wondered why more farmers who grow pork for the market, do not take up the business of a farm packing plant on a small scale. I am sure pigs and hogs of different weights could be slaughtered on the farm; the products cured in the good old home way, and sold to local stores or markets for better prices and better profits than could be received for live weight. I feel certain that a farmer who would prepare for this work could profitably market a high class article of all pork sausage—something that cannot be found in a butcher shop. He should take great pains to make this as perfect as possible, just as he would make it for his own family. Put it up in attractive packages of one, two or five pounds each and furnish one or more of the best groceries in the nearby city. Or the farmer could send out small sample packages to the better class of citizens in the city and he soon would build up a retail trade that would astonish him and at prices much above anything sold by the butchers.

Further than this, the hams could be home cured in a sweet pickle or mild cure and smoked as they should be, slightly, rather than be cured "while you wait" with chemicals, and smoked with creosote dressing. There is no more delicate morsel than a farm-cured ham from a young pig of about 200 pounds. There is a great demand for such hams during the winter season, without any smoking whatever. I personally like this kind of curing better than when smoked, but hams cured in this manner would not keep during the long summer months. The older hog, with the exception of the spare ribs, should be made into sausage. There would be little fat pork in light young hogs, but older ones could be finished for this purpose from which extra fine fat pork could be furnished, as well as a very

choice quality of home made lard. Pickled pigs' feet, headcheese and souse could be easily introduced to the fancy trade.

The main thing is in *starting* this business and going at it with the determination to build up a business. I believe a farmer could hardly raise enough hogs and pigs in a year to supply the demand for the fancy pork products that he could put up, as the consumption of pork products is constantly increasing from year to year. We must remember that every morning there are over three thousand new mouths to feed in America, and practically every one of them to eat the product of the American hog and enjoy it. Meat production increases wealth, and the grain products of the farm can all be utilized in the production of high-class pork. We have no animal of greater economic value than the pig; he matures quickly and brings ready returns. If there was no money in pork the farmers of the west would not grow eighty-five million dollars worth each year, to supply foreign nations, besides keeping enough at home to supply the demand of our own people.

BONELESS PIGS' FEET.

Cut the feet off with a sharp knife and a little saw, well above the ankle joint; wash in hot water and scrape thoroughly and clean. Lay them in salt water over night to remove all blood. Put on to cook with enough slightly salted cold water to cover and cook from three to five hours, until the bones loosen. Place the meat in a chopping bowl and chop medium fine. Strain the liquor in the pot in which the feet were boiled and season it with vinegar and pepper to taste. Then add the meat and cover with this juice to which should be added more hot water, as it will bear diluting. When cold turn out of the bowl and cut down in slices half an inch thick.

PIGS' FEET SOUSE.

Cut off the horny part of the feet and toes; scrape clean and wash thoroughly; singe off any stray hairs. Place in a kettle with plenty of water, boil and skin. Pour off the water and add fresh, and boil again until the bones will pull out easily, but do not pull out the bones but pack in a stone jar with pepper and salt sprinkled between each

layer; cover with good cider vinegar. When wanted for the table take out in sufficient quantities and put in a hot skillet; add more vinegar, salt and pepper if needed; boil until thoroughly heated; stir in a smooth thickening of flour and water, and boil until the flour is cooked. Serve hot for a nice breakfast dish.

HEAD CHEESE.

Having thoroughly cleaned the pig or hog head, split it in two; take out the eyes and the brains; thoroughly clean the ears; throw scalding water over the head and ears and then scrape absolutely clean. When perfectly clean put in a kettle, with water to cover, and set over a quick fire, skimming as any skum arises. When boiled so the flesh leaves the bone, take the head from the water with a skimmer, and place in a large wooden bowl or tray; then take out every particle of bone, chop the meat fine, season to taste with salt and pepper—a little powdered sage may be added—spread a cloth over the colander, put the meat in, fold the cloth closely over it, lay weight on it so that it will press every part of the surface equally. When cold take the weight off; remove from the colander and place in a crock. Some add vinegar in the proportion of one pint to each gallon crock.

FRIED SALT PORK.

Cut in rather thin slices, freshen by letting stand an hour or two in cold water or milk and water. Roll in flour and fry until crisp. Drain off most of the grease from frying pan. Stir in, while hot, one or two tablespoons of flour, half a pint new milk, a little pepper and salt, if necessary. Let boil and pour into gravy dish. This makes a nice white gravy when properly made.

BAKED HAM.

Most persons boil ham. It is much better baked, if baked right. Soak the whole ham for an hour in clear water and wipe it dry. Next spread it all over with thin batter, and put into a deep dish with sticks under it to keep it up out of the gravy. When it is fully done take off the skin and batter crusted upon the flesh side and set away to cool. It should bake from six to eight hours. After removing the skin, sprinkle over the ham two tablespoons of

sugar, some black pepper and rolled crackers. Put in a pan and return to oven to brown. Then stick cloves to the fat portion and dust with powdered cinnamon.

BOILED HAM.

Pour boiling water over the ham, and let it stand until cool enough to wash. Scrape clean; put in a thoroughly cleansed boiler with enough cold water to cover it; bring this to the boiling point and then place on the back of the stove and let simmer steadily for from six to seven hours or until very tender when pierced with a fork—be careful to keep the water at boiling point but do not allow to go much above. Turn the ham once or twice while in the water. When done put in baking dish to skin. Dip the hands in cold water and take the skin between the fingers and peel it as you would an orange. Set in a moderate oven placing the lean part of the ham downward. Sift over it rolled crackers and bake one hour. Or cover with the white of a raw egg and sprinkle sugar and finely pulverized bread crumbs over it. Place in the oven and brown. The baking brings out a quantity of fat leaving the meat much more delicate; in warm weather it will keep in a dry, cool place for a long time.

BONELESS BOILED HAM.

Soak a well cured ham in tepid water over night, boil it until perfectly tender, putting it on in warm water. Take up in a wooden tray and let cool. Remove the bone carefully, press the ham again into shape and return to the boiling liquor. Remove pot from fire and let ham remain until cold. Cut cross wise and serve cold.

DELICIOUS FRIED HAM WITH EGGS.

Slice ham and place in boiling water and cook until tender. Put in frying pan and brown; then place on platter. Fry some eggs by dripping gravy over them until done instead of turning them. Take up carefully and lay on slices of ham.

HAM AND EGG LUNCH LOAF.

Chop remnants of cold boiled ham; add crushed crackers and from three to six eggs, according to the amount of meat. Bake in a round baking powder can and when cold it may be sliced for the table.

HAM BALLS.

Take half a cup of bread crumbs and mix with two eggs well beaten. Chop fine some bits of cold boiled ham and mix all together. Make into balls and fry.

HOW TO COOK PICKLED SIDE MEAT.

Cut in slices to fry; parboil to freshen. Roll in flour and fry until cooked through.

HOME-MADE SAUSAGE.

It is the writer's job to make the Berkshire sausage at Lovejoy Farm and in doing this I take much of the choice meat that might be used for other purposes, often using the entire shoulder of the hog as well as all trimmings from the ham, sides, etc., using about equal proportions of the fat meat and lean, although sometimes making sausage largely all lean meat, yet I do not think this gives as good or as tender, well flavored sausage as where the fat and lean are of about equal proportions. We often use the tenderloin strips also in the sausage meat yet this is almost too delicious a dish, when fried by itself, to be given up by placing it in the sausage. After all meat is prepared for sausage it is run through a grinding chopper and made very fine. We also pulverize sage through this same meat grinder, then flavor the meat with salt, pepper and sage to taste. During cold weather it is kept in large crocks and cooked as needed. Where large quantities are made to be kept through the summer, it is cooked and placed in muslin sacks of about twelve inches in length and three or four inches in diameter, which are then dipped in hot lard until the cloth is well filled with the lard, then taken out and placed in a cool, dark cellar to be used as desired.

CURING THE THICK WHITE FAT PORK.

Where one wishes to put up the very thick fat pork for home use, he may cure this by what is known as dry salting. Take a large earthen jar, large enough to hold all one wishes to pack, put a layer of salt in the bottom of the jar, then pack the square cut pieces of pork snugly together and fill all spaces with salt, and a light covering over the top, then another layer of fat meat as before and continue this until all is packed and thickly covered over the top with salt. Set this in a cool place where rats or mice cannot

get to it, and let it remain, using from it whenever the real fat pork is needed.

HOME-MADE LARD.

It is best for the farmer to make his own lard when possible for the simple reason that it is cheaper than to sell his hogs on the market and then purchase lard; besides, when the housewife makes lard for home use she knows what she is using. Lard is almost a pure oil of a permanent composition, and moisture and air have little affect on it. Care should be taken to see that the lard is pure, such as the leaf lard, especially if it is to be kept for any length of time. Stone jars are the best vessels to keep the lard in after being rendered, and should always be kept in a cool, dry place.

Besides the lard made from the leaf lard, there is much more of the animal fat that can be used for this purpose. All the trimmings of fat from the hams or shoulders, and all the gut fat may be rendered into a good quality of lard. Many persons who do not care for the fat pork, or at least as much of it as is furnished from the fat hog carcass, can use all that is not needed for fat pork for the manufacture of lard.

A RECEIPT FOR CURING HAMS.

Many years ago, at a show in New York State, a farmer won a $100.00 prize for the best home-cured ham. I have used his receipe ever since, and with great satisfaction.

To 100 lbs. of meat use—
8 lbs. clean pulverized rock salt.
3 lbs. brown sugar.
2. oz. of pulverized saltpetre.
2. oz. of bicarbonate of soda (cooking soda).
4 oz. red pepper.

After the hams are thoroughly cooled, rub in the above mixture well and place them in a tub or box and let them remain in this container for one week.

Make a brine of the above mixture, which should be boiled and strained through a cloth, and left till cold. Then after brushing the dry mixture from the hams, place them in a tub or large earthen jar or any receptacle that is big enough to hold them, and pour brine over them, so that they will be entirely covered. Place a floating cover over the hams, and on this cover a heavy weight so as to hold the hams under the brine, and leave them for one week, after which they can be taken out and smoked, if desired. Should you not wish to smoke these hams, they can be left in this brine and used as needed, until hot weather.

The bacon and shoulders, back meat and fat meat can all be cured in like manner.

This method of curing produces a very delicate and choice product and would be termed a "mild cure" for hams and bacon.

The manner of smoking can be done as preferred, but we use many of our hams without smoking at all, if used before hot weather comes on.

Such portions of ham and shoulders as are not to be smoked may be left in the brine as mentioned heretofore until such time as insects might appear. If one wants to keep the smoked hams for any length of time they should be securely covered with canvas and either white washed or packed in bran or oats. The room where cured meats are kept should be as cool and as dark as possible.

TREATMENT FOR HOG CHOLERA.

During the last three years, i. e., 1911, 1912 and 1913, we have made it a practice on Lovejoy Farm to keep the entire herd immune by the simultaneous treatment. In the summer of 1913 we immuned 219 pigs at one time, using the simultaneous treatment, and the loss was about two per cent. This leads me to believe that our government authorities and others who have been instrumental in working out the simultaneous serum treatment, have in it the long-sought-for specific treatment for the prevention of hog cholera.

However, I am convinced that many have not fully understood this method of hog cholera treatment, and as I had been much attracted to and pleased with an article by Mr. J. L. Thatcher, I requested Mr. Thatcher to furnish a serum article for publication in this book, and take great pleasure in giving him full credit for the excellent service he has rendered swine breeders by his contribution to hog cholera literature.

Mr. Thatcher's article follows in full, and is commended to the thoughtful attention of every reader of this book, with the hope that the serum treatment will be better understood and more generally followed. And I firmly believe that if his suggestions are properly carried out, in time we can stamp out this dread disease:

CHAPTER THIRTY-TWO.

HOG CHOLERA AND ITS PREVENTION BY THE SERUM-SIMULTANEOUS METHOD OF TREATMENT.

In accepting the invitation of the author of this book to write this chapter on the subject of Hog Cholera and its Prevention by the Serum-simultaneous Method of Treatment I did so with the idea that I could talk as one breeder to another, and with the hope that what may be said may lead to a more active and persistent campaign against a disease that, judging by the results attained at Iowana Farms, and elsewhere where the treatment has been given a fair and intelligent trial, can be prevented and ultimately wiped out.

Aside from the purely elementary scientific statements that are made in order to give a clearer understanding of the nature of hog cholera as a disease, of what is meant by immunity, and of the process followed in obtaining serum, the statements made and the conclusions drawn are based entirely upon our work with registered swine. They show what we have accomplished and the policy we have permanently adopted in preventing the disease. The results have been very gratifying to us, and have enabled us to prevent the enormous loss which almost inevitably follows when a hog cholera epidemic strikes a herd. If our experience, with the results attained and the conclusions drawn, can be of benefit to the swine breeders of the country, we are glad to make known what we have done, and to do our part towards stamping out a disease that is annually causing the loss of tens of millions of dollars throughout the United States.

The prevention of hog cholera, and through its preven-

tion the control and ultimate eradication of the disease, is the most urgent and financially vital problem which confronts swine breeders and farmers throughout the entire country today.

The table given below, based upon data taken from the Crop Reporter, issued by the Department of Agriculture at Washington in February and April, 1913, will prove of interest in showing the distribution of swine throughout the United States, and giving the estimated number and value of hogs in the various sections, and the losses that have been sustained through disease. The ten leading hog-producing states are given in a separate grouping.

Section of U. S.	No. of Hogs	Value of Hogs	No. Hogs Lost	Value Hogs Lost
North Atlantic	2,498,000	$ 31,572,000.00	48,671	$ 615,201.44
South Atlantic	6,451,000	48,356,000.00	694,751	5,210,632.50
North Cent. East of Mississippi River	14,766,000	156,093,000.00	1,562,124	16,511,670.68
North Cent. West of Mississippi River	22,465,000	249,451,000.00	2,987,333	33,159,396.30
South Central	12,830,000	95,681,000.00	1,311,473	9,783,588.68
Far West	2,168,000	21,956,000.00	91,931	931,261.03
Total	61,178,000	$603,109,000.00	6,738,283	$66,439,470.38

By ten leading States:

Name of State.	No. of Hogs	Value of Hogs	No. of Hogs Lost	Value of Hogs Lost
Iowa	8,720,000	$104,640,000.00	1,395,200	$16,742,000.00
Illinois	4,315,000	45,308,000.00	604,100	6,343,050.00
Missouri	4,087,000	34,740,000.00	715,225	6,079,412.50
Nebraska	3,798,000	43,297,000.00	417,780	4,752,692.00
Indiana	3,709,000	36,348,000.00	556,350	5,452,230.00
Ohio	3,399,000	36,709,000.00	292,314	3,156,991.20
Kansas	2,611,000	27,154,000.00	313,320	3,258,528.00
Texas	2,493,000	20,941,000.00	112,185	942,354.00
Wisconsin	2,030,000	23,548,000.00	56,840	659,344.00
Georgia	1,888,000	13,405,000.00	311,520	2,211,790.00

Now when we consider that fully ninety percent of the hogs that die from disease die from hog cholera, we can readily gain some idea of the magnitude of the losses we are annually sustaining through this disease alone, and of the imperative need for a nation-wide campaign against this scourge in which not only breeders and farmers, but state and national authorities themselves shall join, fighting continuously and persistently with the end in view that in, say ten years, our entire country may be declared practically cholera free.

The financial losses sustained through the loss of pork hogs alone is, however, only one phase of the proposition.

The progressive, business farmer no longer follows the practice of looking for his annual profits through the sale of grain crops. Rather he looks for his gain through the raising and sale of live stock. He needs the manure to maintain the fertility of his soil, and he is appreciative of the fact that a bushel of corn that sells for fifty cents on the market, will bring him one dollar when disposed of in the form of pork.

Further this same farmer realizes, or is beginning to realize, the greater returns to be gained from the breeding and raising of pure-bred stock, and he is constantly endeavoring to improve his herds by the introduction of pure-bred, registered animals.

Yet it matters little how successful one may become as a breeder of improved hogs, or in the building up of his herd, as a feeder if he is to be at the mercy of hog cholera epidemics, and is constantly confronted by a condition that may in the space of a few days wipe out his entire herd, destroy utterly the results of years of work and study in selective breeding, and with it all inflict upon him a loss that in many cases reaches into the thousands of dollars.

Even a casual consideration of the facts given above will show the absolute necessity of some definite, effective, concerted action which can and will stay the ravages of this disease and work to its final elimination. And particularly is this so when there is no longer any question that the trouble can be controlled.

Up until within the past few years hog cholera has been one of the most stubborn diseases to respond to treatment.

Although the whole pharmacopeia has been searched for a specific cure, no such cure has ever been discovered. Many so-called remedies have been boasted and boosted, but not one of them has ever proved efficacious when an emergency arose. Even proper feeding, proper housing and sanitary surroundings, though essential in maintaining animals in a healthy condition and rendering them more able to fight disease, have not proved a safeguard against cholera infection. And on the contrary, it might be added, that there is no condition or set of conditions, even improper care and feeding of hogs, that will bring on cholera infection without the presence of the living cholera germ.

Hog cholera is characteristically a contagious disease and is caused by a living germ that develops and multiplies in the body of the animal and produces a poison fatal to life. Even though scientists have thus far, because of inadequate equipment, been unable to identify the particular bug that causes the havoc, the proof of its existence lies in the fact that if a few drops of blood from a cholera infected hog be injected into the system of one not so infected, the blood of the latter animal will become as thoroughy impregnated with cholera virus as was that of the former. This condition, however, would not and could not obtain if the blood of the original animal did not contain a living, active organism. An inactive or dead foreign substance injected into the blood of the second hog could not multiply or increase in quantity.

The discovery in this instance, as in the cases of all contagious or infectious diseases, of the origin or cause of the disease marked the first steps toward the prevention and control of hog cholera, and thanks to the investigations and activities of our Department of Agriculture and our Experimental Stations, we have, I am firmly convinced, an absolute method of preventing the disease and of bringing about its complete eradication. In my mind it is no longer a question of *how* to prevent hog cholera, but rather is it one of how to provide the proper means under efficient supervision and regulation, and then to get the farmers to use them.

It may have been noticed that no claim has been made that a *cure* for this disease has been discovered. Our hope

for its control lies in its prevention rather than in its cure, and this brings us to the discussion of the serum method of treatment, which is distinctly preventive rather than curative in its nature. Success in fighting hog cholera lies in warding it off rather than in overcoming it after the animals have become diseased.

To understand this method of procedure it is essential that one has in mind a clear idea of what is meant by immunity.

It is common knowledge that when a person has once recovered from an attack of certain contagious diseases he is thereafter less liable to respond to a second attack of those same diseases, and this holds with other animals as well as with human beings. Such individuals, whether persons or other animals, are said to be immune to those particular infections.

What this immunity consists in is still under debate, I believe, but whatever its nature it is very clear that those animals possess a resisting power they did not possess previous to the first attack of the disease.

Scientists tell us that all disease-producing germs or bacteria develop certain toxins or poisons which acting upon the body cells and nerve centers tend to cause death. At the same time that this invasion is going on nature, in her attempt to save life, begins the manufacture of a counteracting substance, called anti-toxin, the function of which is the destruction of the living, death-producing microbes and thus stay or limit the progress of the disease. There is, therefore, being carried on within the system of the infected animal a life and death struggle between these two opposing forces, the toxin and the anti-toxin, and the ultimate success of the one or the other means either the death or the recovery of the hog. In the large majority of cases, however, the body becomes so thoroughly impregnated with the poisonous germs that the anti-toxin cannot be developed rapidly enough and hence the animal dies. If, on the other hand, the animal has at the beginning an unusual or sufficient amount of native resisting power, or the infection be not of the more virulent nature, recovery takes place and thereafter the animal is considered, and is in reality, immune.

It is from the blood of these immune hogs that the serum is secured, which, when injected into the systems of other hogs, renders them likewise immune to the attacks of hog cholera.

Ordinarily, however, the blood of these merely immune hogs contains only enough anti-toxin to protect the animals themselves against the disease, and thus the serum from the blood of such animals, in small doses, would not be effective in immunizing other animals. This necessitates the production of what is known as a state of hyper-immunization in the hogs from which the serum is to be taken. Hyper-immunization is produced by giving to an already immune hog large doses of cholera virus, thus causing the blood of the animal to become so saturated with anti-toxin that small doses of serum from its blood may be successfully used in immunizing other hogs.

The method of preparing the serum may be briefly stated as follows:

Either a hog is procured that has recovered from an attack of hog cholera, or more frequently, such an immune hog is artificially produced by injecting him with a small dose of virus obtained from an acute case of the disease, while at the same time he is injected with a protective dose of serum. Thus an immunity is established. Then one of two methods may be employed. Either several successively increasing doses of virus may be given at intervals of about a week apart, or one extraordinarily large dose may be given at one time. Either of these methods is effective, but that of giving the one large dose has the advantage in the point of time saved. From a week to ten days after the last injection of virus the animal is bled from the tail, about a pint of blood being drawn from a hog weighing one hundred pounds. The blood so drawn is allowed to clot and the clot is then strained under pressure, and the resulting serum is given sufficient of a five per cent solution of carbolic acid so that ultimately it contains one-half of one per cent of carbolic acid, this being for the purpose of increasing its keeping qualities.

This bleeding process is repeated at least twice at intervals a week apart, the whole being then mixed to give a uniformity of product. It should then be tested by prac-

tical experiment to determine its potency before being sent out and is then ready for use. If properly prepared, the serum is undoubtedly effective in immunizing against cholera when used in doses of twenty to twenty-five CC for hogs weighing one hundred pounds, with doses of fifteen CC extra for each successive one hundred pounds of live weight of hog.

In warding off or preventing cholera by use of serum one of two methods may be employed. First, by the injection of serum alone under the skin or into the muscles of the animal. This is known as the simple serum method and gives only temporary immunity, say for about thirty days. The second method, known as the simultaneous method, consists in the injection of the same amount of serum, but at the same time a small amount of cholera virus, from one to two CC, according to the age and size of the animal, is also injected into the animal being treated. The second method produces what is known as active immunity, and is permanent in its character, lasting during the period of the animal's life.

Which ever method is employed certain essentials must be absolutely insisted upon if any degree of success is to follow the work; and particularly in the simultaneous method must this be so if disastrous results are to be avoided.

These essentials are: *First, the serum and virus used must be pure and potent; and second, the person treating the hogs must know his business thoroughly—that is, he must be able to know hog cholera when he sees it, he must know which method to employ under the given or existing conditions, and he must understand how to do the work. Failure in the observation of these requirements* will explain why there are still so many breeders and farmers who doubt or question the efficacy of the serum treatment and hesitate in its use.

To secure the proper kind of serum and virus it is necessary that all serum and virus should be tested to determine their potency before they are sent out for use, and this by expert supervision, under state or federal control. Ample means and equipment for their manufacture should be provided so that when emergencies arise and the de-

mand for serum and virus becomes large and urgent the calls could be met and the product sent out would be pure and potent. This comes within the business of the state. To be sure there are numerous commercial plants manufacturing serum and virus, but these likewise should be brought under state or national supervision to insure the excellence of their product.

That the work of treating hogs should be done by one thoroughly acquainted with the disease and competent to give the treatment should go without saying, when one considers the importance of the undertaking and the magnitude of the losses that may result if failure follows.

Which method of treatment should be used must be determined by existing conditions. Where an outbreak has already occurred and it is desired to treat the remaining apparently well animals the simple serum method should be employed, for it is very probable that many, if not all, of the animals so injected have become previously infected and the treatment will result in permanent or active immunity. The use of cholera virus on hogs that have already become infected or are otherwise diseased is simply adding to their troubles and will almost invariably result in the death of the animal. Further, the *simple serum method only should be used in treating brood sows in pregnancy,* even though the treatment may have to be repeated to carry them on through farrowing and until their pigs are old enough to wean, and then both sows and pigs should be given the simultaneous treatment.

The simultaneous method should always be used where permanent immunity is desired, and especially so whenever the animals are to be placed in lots or houses in which cholera outbreaks have previously occurred.

As to the efficacy of the simultaneous treatment, where the serum and virus are right and are properly given, to produce immunity and thus permanently prevent the ravages of hog cholera there is in my mind absolutely no question.

That it can be done has been proved time and time again. To be sure there are numerous cases where serum has been used with no apparent effect, and the simultaneous treatment has been given in order to gain permanent immunity,

that results have been deadly and almost entire herds have been lost. But careful investigation, and thorough analysis of the serum used have proved, or would have proved, that where the simultaneous method was employed the simple serum treatment only should have been used, and in both cases the serum itself had lost part if not all of its potency.

In May, 1911, with 172 head of hogs, young and old, on hand, cholera broke out in our herd. We immediately began the use of serum, injecting not only the hogs already sick with the disease, but also those that had been exposed. The effect of the treatment was to check the progress of the disease, and our losses were confined to those animals that had become badly infected before the serum was used. We came out of the siege with 127 animals, having lost forty-five—eight mature hogs and thirty-seven pigs. Compare these results with those of one of our neighbors whose herd was attacked by cholera shortly after our herd became infected. He had 165 animals, young and old, at the beginning, and he came out of his trouble with only five head remaining—two sows and three pigs. He did not believe in the serum treatment or in its virtue as a preventive. Note the comparative results and draw your own conclusions.

This outbreak of cholera in our own herd led us to adopt the policy of permanently immunizing every animal. Those that had recovered from the disease were already immune. Those that had never shown sickness, even though they had previously been given the simple serum, were subjected to the simultaneous treatment. This practice we rigidly adhere to. All young pigs from immune parents, before being weaned, and all new stock brought into the herd, unless we are positive it has already been treated, are likewise given the simultaneous treatment. And in giving the treatment we have never lost a single animal as a result of such treatment, and up to the present time we have treated upwards of 1,300 animals. In this, however, we have been singularly fortunate. Statistics show that ordinarily a loss of from two to five per cent of the animals treated may be looked for. But even this is insignificant when compared with losses that commonly follow an outbreak where the treatment is not employed.

Our method of procedure in giving the simultaneous treatment may explain in part the reason for our freedom from loss following its application.

In beginning the work of immunizing our herd we gave each animal a *regular dose of simple serum alone.* This was given as a preparatory treatment. Fourteen (14) days later we gave each animal thus treated the double or simultaneous treatment, using the *virus and the regular amount of serum.* The preparatory treatment paved the way for the simultaneous treatment 14 days later, and rendered the animal better able to stand the latter treatment.

In treating pigs *whose parents are immune,* we give the simultaneous treatment at once, and without the preparatory dose. We usually treat our pigs about two weeks before we wean them.

Hogs and pigs being treated should be given a clean, dry place to house in, plenty of cool, clean water, and all heating and heavy feeds should be discontinued for a couple of weeks.

In case any animal, given the simultaneous treatment, is not doing well as a result of the treatment, give it another, a double dose of simple serum. This will help carry it through the fight.

While we recognize that the giving of the above so-called preparatory dose of simple serum doubles the cost of immunizing hogs and pigs, yet the total absence from loss of animals by such practice fully justifies, in our minds, the added expense thus incurred. And especially is this true where the treatment is being given to pure-bred, registered stock.

Our observations in treating breeding stock have led us to adopt the following practice: We never give the simultaneous treatment to bred sows, nor do we breed sows within two or three weeks after treating them. Further, boars just treated should not be put into immediate service. Time should be allowed for the immediate after effects of the treatment to wear off and the animals to regain their normal and active condition.

The results of our experience in following out this practice have removed from our minds all fear of cholera epidemics. We do not hesitate to move animals from one

house or lot to another even though we know that the latter may have contained hogs that had had cholera and are known to be thoroughly infected with cholera germs. And we have never had an animal become infected by such handling. Further, we do not fear to introduce new hogs into our herd regardless of where they may come from. During the entire show seasons of 1912 and 1913 none of our hogs were troubled with the disease, and after the fairs were over we did not hesitate to return our show animals immediately back into the lots with our other hogs.

We have carried our tests still farther to prove the efficacy of the simultaneous treatment in producing permanent or active immunity. This was done to demonstrate to the breeders and farmers of this locality how cholera epidemics could be prevented.

In August, 1912, one of our young barrows was placed in a herd of hogs in which an outbreak of cholera had occurred. He remained there fifty-five days without contracting the disease and then was brought back and placed again among our own hogs.

The second of January, 1913, we sent out three other barrows to be put among hogs that were dying from cholera. These three barrows remained among those sick hogs for more than six weeks, eating and sleeping with them, but not one of the three became infected or showed any ill effects from the rigid test under which they had been placed.

Further, at the Live Stock Exposition held in Chicago in 1912 the writer purchased six choice gilts to be shipped us and placed in our breeding herd. Knowing the infected condition of the Union Stock Yards, it was stipulated that those gilts should be given the simultaneous treatment before shipment. Through oversight on the part of the man left in charge of the animals they were not given the treatment, and were shipped immediately after the close of the Exposition and were placed at once among the other animals of our herd which numbered at that time something over 240 hogs and pigs. Only a very few days elapsed after their arrival before those gilts showed distinct evidence of cholera infection. Three of the animals had become so badly infected that it was im-

possible to save them. The others we were fortunate in pulling through by a liberal injection of serum. The important point in connection with this incident is this: Though all of those six gilts had the cholera, and three of them died from the disease, yet not one of the *240 immune animals among which they were placed, and with which they had been eating and sleeping, became infected, or have we seen any evidence or trace of cholera among our animals since, and this was over a year ago.*

Such tests as these are our warrant for the conclusions we have reached that hog cholera can be prevented, and by its prevention be completely eradicated. And the results we have attained are being repeated by numerous other breeders who have adopted the system of simultaneously treating their animals and have given the method fair and intelligent handling.

With us the permanent immunizing of our hogs is a business proposition pure and simple. The cost is strictly an investment in the way of the purchase of protection that will insure against losses that might reach into the thousands of dollars if we were not so protected.

An important point which should be mentioned is the possibility of carrying, or the transmission of, cholera infection from herds, in which the simultaneous method of treatment is employed, to herds which are not immune. For the past year and a half we have shipped hogs and pigs to every section of the United States, and we have as yet to learn of the first instance where any infection has been carried from our herd to other herds, even though those herds had not been given the simultaneous treatment. And further, we have as yet to hear of the first case where herds in our own locality have become infected because of our practice of employing the simultaneous treatment to immunize our animals.

It is advisable, however, that care should be taken where hogs are being shipped from herds in which the simultaneous method is used, and especially so when they are being sent into sections where the animals are not immune. Animals just treated should be held several weeks before shipment, and in all cases they should be thoroughly disinfected before being sent out. Upon being received by the pur-

chaser they should be held in quarantine for about thirty days. Observation of the above precautions should remove all possibility of trouble.

Whether or not every breeder of hogs in the United States should adopt the policy of simultaneously treating his animals, and thus establishing and maintaining a permanent immune herd, is for each breeder himself to determine. Situated as we are, in the very center of the great swine producing section of the country, where hog cholera outbreaks are constantly occurring, and hog cholera germs are with us practically all of the time, this method of treatment is our only salvation, and affords the only means by which we can check and prevent the disease. For breeders, who live in sections of the country where the disease seldom occurs, and who are not bringing in stock from cholera infested districts, the need for immediate action is not so imperative. But those breeders who do not adopt the practice of permanently immunizing their herds, and follow this up by likewise immunizing their young stock as it comes along each year, should be ever on the alert, and when an out-break of cholera does occur in their locality they should at once get in touch with their state authorities, and active and persistent steps be taken to check the progress of the disease.

Unfortunately, many of our states have not as yet provided ample facilities for the production of proper serum and virus to meet the demand when hog cholera becomes epidemic. Under these circumstances breeders are forced to depend upon commercial concerns for their supplies.

It is in helping the breeder to get pure and potent serum and virus that the state and federal authorities can be of greatest assistance. Every plant manufacturing these supplies should be under constant state or federal supervision, and every bottle of serum and virus sent out should bear the stamp of the government inspector. This would in effect place all serum and virus on a recognized standard basis as to their purity and potency, and would insure to the farmer and breeder the quality of the article they were getting. Then steps should be taken by the state authorities to see that the serum and virus are administered by

men who know their business and have license to do the work.

While the simultaneous method of treatment affords a means of checking and eliminating hog cholera, in districts or sections of the country where it has become prevelant, every precaution should be taken to prevent its being carried into other sections or states not so infected.

A law should be passed making it a misdemeanor to sell a bunch of sick hogs. A law should be passed requiring the railroad companies to disinfect each stock car after it has taken a load of hogs to market, and every public stock yard should be thoroughly cleaned and disinfected at stated intervals. Further, a law is needed, and should be enacted by the federal government, requiring a certificate of health for a hog before he can be shipped from one state to another.

These are precautionary measures which are needed and which can and will do much towards preventing the spreading of the disease.

CHAPTER THIRTY-THREE.

COMMON DISEASES OF SWINE.

Worms.

This question of worms in pigs is one of greater importance than many breeders and farmers realize. The presence of worms in the stomach is not only a hindrance to thrift and growth, but if neglected, becomes a very dangerous matter, as the worms multiply very rapidly and are a constant drain on the vitality of the pig. Often they become so numerous in good sized shotes that they form almost a solid mass in the intestines, which results in emaciation of the pig and finally death. It is a question my mind if more pigs do not die from stomach worms during the fall and winter months than from cholera.

It should be the practice of every farmer and also of every breeder of pure-bred hogs to feed something throughout the life of the pig as a preventive or a destroyer of worms. There are many medicated salts on the market, most of them good, and these preparations have proven, with us at least, successful in either preventing worms entirely or keeping the trouble down so much that we have never had any difficulty with worms. Even when feeding something of this kind, however, one will occasionally see the passing of worms from the pigs. Any worm powder that contains the proper amount of Santonin is good, and where the use of medicated salts is not quite sufficient, let the owner at once get a prescription from a Veterinarian which will clean them out. Young hogs that are badly infected with stomach worms will have a very unthrifty appearance; the coat will be dry and "staring"; the head rather drooping as in cholera; the back arched; the pig coughing more or less, and becoming more emaciated every day, with little appetite.

Another species of worms that bother young hogs and pigs is what is known as thread worms, which form in bunches

or large quantities in the throat and often about the lungs, causing a severe cough and much emaciation. These can usually be readily cleaned out by giving a couple of tablespoons of turpentine to each three hundred pounds of live weight, in the slop every day for three days, then skipping a day or two and using it again for three days.

It must be remembered that when you are doctoring a pig for worms with medicine of any kind it should be given on an empty stomach, or in other words after the pig has been kept from feed about eighteen hours, otherwise the turpentine or worm medicine would have little or no effect.

These species of worms are the only two with which I have ever had any experience during our many years of breeding pigs, and they never caused me any trouble whatever, as we are always on the alert for worm symptoms.

The eye of the feeder is one of the great things in the hog business. The man who feeds the pigs should take interest enough in his work to carefully note the condition of each animal daily, and if there is ever so small a change in the animal, by way of being a little "off feed", he must at once find out what the trouble is, whether it is an over feed from the day before, or a little indisposition from conditions which, unless promptly attended to, might lead to serious trouble. The old adage that a "Stitch in time saves nine" was never more true than in the care of swine.

WHY YOUNG PIGS LOSE THEIR TAILS.

One often notices when looking over a number of litters, especially of Spring pigs that were farrowed during the cold months of February and March, that a number of them have lost their tails. This condition is caused wholly by neglecting to provide dry beds for the sow and litter. I do not mean by this that an occasional change of bedding, once every week or two would prevent it, but that the bed of the young nursing litter must be absolutely dry at all times, and to make it such it should be changed at least every other day. Otherwise the bed will become damp and the mother and litter will heat it so that it soon commences to steam, and if you should put your hand on the straw you will find it hot and wet. This will surely cause their little tails to shrivel and in a week or so drop off.

If you notice a pig among your litter of youngsters that shows a little crease or crack around the tail within an inch or a half inch of the body, while the rest of the tail seems dry and dead, you may make up your mind that it will be a bobbed tail pig in a mighty short time. If the trouble has not gone too far, it may be overcome by cleaning the tail where the crack appears with peroxide of hydrogen, which disinfects and purifies the sore parts, and if this is applied two or three times daily, and afterward the place rubbed with carbolated vaseline, if the case is not too bad, the tail may be saved. Of course the matter of bobbed tail pigs "cuts little ice" where the hogs are being raised for the pork market, but the loss of the tail greatly disfigures an otherwise outstanding show animal. While the average Judge would not turn down an animal in the show ring for lack of a good tail and nice switch or brush, he would very much prefer that the disfigurement was not there.

THUMPS IN VERY YOUNG PIGS.

Thumps in very young pigs often occur where litters are farrowed in the colder months of the Spring or Winter. While there is no trouble in saving the litter if properly handled, there is danger of the young litter becoming too fat, particularly through the shoulders and front half of the body. This is caused by their not taking proper exercise, and receiving too great a flow of rich milk from the mother. In this case they always become extremely fat, especially about the heart and vital organs of the body, and so thicken up that it is almost impossible for the little fellows to breathe even while lying quietly in the nest, and when this stage becomes apparent it means almost sure death to the pigs if they are forced to take exercise; hence it is extremely important that if a litter is farrowed when it is cold and they are inclined to stay in the nest all day, they must be made to hustle out and take exercise enough to keep them from getting too fat.

This condition will be very quickly noticed by an observing man who looks after the sow and litter.

If the sow is a good milker there is all the more danger. In this case it would be well to feed the sow, for two or three weeks, on a ration that would not produce so much milk. This would be a great help in keeping down the trouble, but the pigs should be made to take plenty of exercise daily before any such condition appears.

There are several ways of compelling this exercise. One is to take the litter some distance from the sleeping place or nest and put them on the ground and let them work their way back. It makes no difference how far this distance is, if you are sure they will get back to the nest. If this custom is followed daily you will lose no pigs from so-called thumps.

Another plan is to take the pigs out of the nest and get after them with a broom and if they will not run away from you, force them to do so, by pushing them along.

Any system is all right that will compel lots of exercise.

ANOTHER KIND OF "THUMPS"—PLEURA-PNEUMONIA.

There is another trouble one often runs up against when he walks out among his pigs in the fall, or in fact at almost any time. He finds a half-grown animal, or even a mature one, breathing short and fast with a perceptible jerk in the flank and back of the heart along the shoulders. This is a pretty sure symptom of serious trouble, and is generally an unfailing sign of what is known as Swine Plague, or what would be called, in the human race, Pneumonia. This is a dangerous disease and is one of the "so-called" varieties of hog cholera and is really more dangerous. There is little that can be done with hogs in this condition. They should be given a warm dry place to sleep, thoroughly rubbed with some strong heating liniment, that is penetrating, all along the sides; back of the elbow; between the fore legs; all about the vital organs; then, if in a shivering condition, cover them with blankets or something to keep them warm, and keep them where no draft or cold air can strike them. It would be well, in a severe case, to consult the family physician or a good Veterinarian with a view of giving them some internal treatment. The animals will appear very gaunt and probably

refuse to eat. If this is the case there is not much hope. Exercise in this case is always fatal.

SORE MOUTHS IN YOUNG PIGS.

Some breeders and farmers often have trouble with sore mouths among their pigs. There are two kinds of sore mouth that we have had experience with—neither of which need cause any trouble whatever. The more common cases are caused by the pigs fighting each other while nursing and with their little sharp tusks (which are usually black), they strike each other on the sides of the face and jowl. This trouble can be stopped at once by taking the pig, when it is three or four days old, and nipping off these little tusks with a very small pair of pliers and washing the sore part of the face with a solution of any good coal tar dip.

This trouble could be avoided if one was careful to note, while the litter was sucking, whether or not there was any inclination for the little fellows to fight each other.

CANKER SORE MOUTH.

Canker sore mouth is very dangerous, and unless treated at once, a hard thing to cure; but what little we have had in our herd has been stopped in a day or two by using a soft cloth, wet in a solution of good dip (made quite strong) and thoroughly washing the mouth of the pig affected. If this is done daily, or even every two or three days, for three or four times, it will absolutely cure canker sore mouth—or at least it has done so in all cases we have had. If treatment is not commenced within a short time after the cankers are formed, the teeth will drop out and gums slough off and the pig die from the trouble.

Canker sore mouth, I am informed, results from the contamination with germs often found even in the soil; if there has been no other way of the disease being communicated, the ground should be thoroughly wet with a strong disinfectant. The sow's udder should also be thoroughly washed with disinfectant and the trough as well, and no further trouble is likely to occur.

SORE FEET.

It is not often that pigs are troubled with sore feet, yet sometimes, where they are kept and fed on frozen ground,

the feet become sore and sensitive, which causes the pig to walk in a very peculiar manner. This is more often the case where hogs are very heavy and are obliged to walk on rough, hard or frozen ground. There are occasionally cases where sores break out around the hoof and between the toes. This is what might be called "Foul in the Foot", but is not considered contagious, being only a local trouble which irritates the part between the toes. Sometimes this is caused by being obliged to walk about a yard that is filled with cinders; these get between the toes and cause irritation. If such a yard is being used it would be well to cover the place over with sand and wet it thoroughly with a disinfectant.

If an animal becomes very lame wash the place two or three times daily with Nitrate of Potassium—Salt Petre—and this will cool the irritated parts and relieve the trouble. Should proud flesh appear use Chloride of Zinc, one dram in a pint of water, once or twice daily. Keep the pigs in a dry place and feed them well. Proud flesh may be known by its appearance, which is bluish in color and spongy to the touch. This may be removed by an application of Terchloride of Antimony, which may be put on with a feather. This will usually remove proud flesh after which the above treatment will heal the sores.

STERILITY.

Generally speaking, there is not much trouble in the swine breeding business along this line, unless it be among highly fitted show animals, which have been forced by stimulating feed to a condition of flesh that is abnormal. Where this is the case, the animal becomes so plethoric from being highly fed, that sometimes the tubes connected with the organs of generation are blocked up. There are also other causes, such as disordered ovaries; a morbid condition of the uterus; or hardening of the neck of the uterus. In a pig, on account of not being able to make an examination, it is difficult to find the cause and, if found, it would be difficult to remove.

If the animal is kept in only good growing condition, avoiding its getting too fat, there will seldom be any trouble. If the sow takes on fat very easily, and will not breed, give her two ounces of Epsom Salts, dissolved in

half a pint of cold water; follow this with ten grains of Iodide of Potassium twice a day, in her feed, for two weeks. By this treatment one may succeed in absorbing the materials which have blocked up some of the tubes connected with the organs of generation. On the other hand, if an animal is very thin and in a weak, run-down condition, and fails to breed, give her good feed—all she will eat—and with this twenty to forty drops, according to size of animal, of Tincture of Chloride of Iron, twice a day in the feed.

RHEUMATISM.

Rheumatism is very common among pigs; more particularly among quite young ones. It is hard to say what causes rheumatism in the pigs, as we often find it under various conditions—whether the animals are well kept or not.

Symptoms—Lameness in one or more of the legs; swelling of the hock joints or the fetlock joint. When these muscles are affected it may be a form of inflammatory rheumatism, which may cause some fever and sickness. In this case the animal would be stiff and refuse to eat; its breath will come quite short and fast; muzzle, or nose, will be dry, and if the animal is made to move about it will show signs of pain. Often it will shift from one leg to another.

Treatment—The animal should be kept in a warm, comfortable place and if it is in good flesh give it a dose of from one to two ounces Epsom Salts every three or four days, or two to three drops of Croton Oil, which is a useful medicine in rheumatism.

For pigs, two or three months old, give half the quantity. It is well to rub the swollen joints with an equal mixture of turpentine and sweet oil.

INFLAMMATION OF UDDER.

While this is not considered a disease, at times it causes some trouble—but not often.

Causes—Usually this is caused by an over accumulation of milk in the udder which is the result of overfeeding the sow on rich feed immediately after farrowing, or caused by the litter being too few in number or too weak to take all

the milk that the sow furnishes, resulting in a feverish condition and soreness of the udder.

Symptoms—Udder becomes swollen and rather hard, and is hot to the touch. The skin will become red and very tender. When this is the case the sow usually shows considerable fever, loss of appetite and constipation.

Treatment—If possible, draw off the milk, although this is a hard matter to do as the inflammation causes the milk to coagulate. If the pigs are living allow them to nurse, yet this is bad for the pigs, as that usually starts the ailment in new born pigs known as white scours. Bathe the udder carefully with hot water, then use a half ounce of Acetate of Lead, with two ounces of Tincture of Arnica in one quart of warm water. This bathing should be done three times a day and the lotion applied after each bath. Give the sow two ounces Epsom Salts, followed with ten grains of Nitrate of Potassium, in a little water three times a day. If the udder becomes very hard or caked, rub with one dram of Lodine and one ounce of Vaseline. Apply this about twice a week until the udder becomes soft and pliable.

SORE TEATS.

Once in a while, while nursing, the teats will become inflamed and swollen and of course are very sore. The sow will be inclined to refuse to let the pigs touch her. This only makes matters worse, on account of the accumulation of milk in the udder, and the result is a fever as above mentioned.

Cause—This trouble is generally caused by the udder and teats dragging through the dirt or mud which irritates the skin making it crack and become sore. It is also caused by the sow having traveled through poisonous weeds in the pasture while wet with dew or rain.

Treatment—Bathe three times a day with half an ounce Acetate of Lead in a quart of warm water. Then bathe with two ounces Glycerine and Tannic Acid—twenty grains in four ounces of water well shaken.

SKIN DISEASES.

About the only skin disease that one is liable to have occasion to treat, is mange. This is caused by a parasite

that burrows under the scurf skin and causes great irritation, practically destroying that part of the skin, so that a little scab forms. This, on account of great itching, causes the animal to rub and this disease soon becomes general throughout the herd. The scabs formed are rubbed and soon become a raw sore. The first appearance will be found on the thin parts of the skin; back of the ears; inside the thighs or upon the back. The parasite may be readily seen with a pocket magnifying glass.

When first discovered remove all unaffected pigs to buildings or grounds where affected pigs have not been.

Treatment—First wash the pig all over with soap-suds, and then rub in dry sulphur. The sulphur coming in contact with the sores forms a compound that is poisonous to the parasite. Another sure remedy is to steep two ounces of stavesacre seeds in one and one-half quarts of water. Keep water nearly boiling for an hour, then add enough water to make up the quantity originally placed in the vessel. This solution, rubbed well into the skin, will kill both the parasite and its eggs. This may be repeated if necessary. Animals that are occasionally dipped with any of the coal tar preparations will never have mange. Prevention is better than cure. This is one reason why pigs should be either dipped or thoroughly wet with some of the foregoing dips as a preventive to any skin trouble.

CHAPTER THIRTY-FOUR.

CASTRATING.

This is a necessary matter that must be looked after, not only by the farmer who breeds for the general market, but by the breeder of pure-bred hogs as well. The best time for this operation is during the early period of the pig's life and at weaning time for best results, and not left until the pig is six or seven months of age, or older. It is not so apt to be neglected by the farmer or feeder of market hogs, as by the breeder of pure-breds. It is astonishing, however, in either case, to see the great improvement after early castration, compared to a pig of the same litter left uncastrated. Some of the greatest barrows ever shown at the International in Chicago were selected, not so much for their superior merit at weaning time, but because they were not quite up to the standard to carry on and sell as breeders; yet after this operation their development so far outstripped the litter mates that there was no comparison. On the other hand, how often we see—especially at shows where a large amount of money is put up for prizes—a barrow that really is nothing more nor less than a "stag," and evidently kept by the breeder for a long time, thinking he could be sold for a breeder, but not developing just right, he was finally castrated and fitted for a barrow show. The expert barrow Judge, however, soon discovers this fact and avoids much further attention to him in the ring.

PRACTICAL METHOD OF CASTRATING.

Wash the parts clean with pure water to which has been added any good coal tar dip, making it rather strong, and with a sharp knife make an incision over both testicles as small as possible, to remove the testicles, and low down, so as to drain thoroughly. Press the testicles through the openings, drawing the cords well out, and scrape apart rather than cut them off.

Then, with a soft cloth, cover the parts with full strength coal tar dip, and if the operation has been perfectly clean, the pig will be entirely well in a week or so, without any bad after-effects.

SPAYING.

This is an operation on the female and is not often practiced. In fact I seldom hear of a bunch of sows being spayed. It is an operation that requires much more care and knowledge, than castration of males.

Many years ago the writer had a few young gilts spayed by a very able veterinarian. The process was that of laying the young gilt on an incline table and after being securely fastened, the operator, with a sharp lance, made an opening on the left side forward and below the hip joint, between that and the first rib, where the instrument was inserted and the ovaries removed and the wound dressed and opening closed up, but many of the animals so treated seemed to have little swellings or abscesses form where the opening was made, and the trouble and expense did not seem to justify any further attempts along this line. It is supposed, however, that a bunch of sows so operated on will feed better and make larger gains the same as barrows, because they are more quiet and do not have periods of excitement and restlessness, but as I said above, it is not generally practiced. Spaying should be performed while pigs are young and before they come to an age of heat periods.

GESTATION TABLE

Showing the date when a sow is due to farrow, counting sixteen weeks from the day when she was served. Find the date when the sow was served and the date immediately to the right is the date when she is due. For instance, if the sow was served February 1, she is due May 24, if served May 24, she is due September 13.

Feb.	May	Sept.	Jan.	April	Aug.	Dec.	Mar.	July	Nov.	Feb.	June	Oct.	Jan.
1	24	13	3	25	15	5	27	17	6	26	18	8	28
2	25	14	4	26	16	6	28	18	7	27	19	9	29
3	26	15	5	27	17	7	29	19	8	28	20	10	30
4	27	16	6	28	18	8	30	20	9	Mar. 1	21	11	31
5	28	17	7	29	19	9	31	21	10	2	22	12	Feb. 1
6	29	18	8	30	20	10	April 1	22	11	3	23	13	2
7	30	19	9	May 1	21	11	2	23	12	4	24	14	3
8	31	20	10	2	22	12	3	24	13	5	25	15	4
9	June 1	21	11	3	23	13	4	25	14	6	26	16	5
10	2	22	12	4	24	14	5	26	15	7	27	17	6
11	3	23	13	5	25	15	6	27	16	8	28	18	7
12	4	24	14	6	26	16	7	28	17	9	29	19	8
13	5	25	15	7	27	17	8	29	18	10	30	20	9
14	6	26	16	8	28	18	9	30	19	11	July 1	21	10
15	7	27	17	9	29	19	10	31	20	12	2	22	11
16	8	28	18	10	30	20	11	Aug. 1	21	13	3	23	12
17	9	29	19	11	31	21	12	2	22	14	4	24	13
18	10	30	20	12	Sept. 1	22	13	3	23	15	5	25	14
19	11	Oct. 1	21	13	2	23	14	4	24	16	6	26	15
20	12	2	22	14	3	24	15	5	25	17	7	27	16
21	13	3	23	15	4	25	16	6	26	18	8	28	17
22	14	4	24	16	5	26	17	7	27	19	9	29	18
23	15	5	25	17	6	27	18	8	28	20	10	30	19
24	16	6	26	18	7	28	19	9	29	21	11	31	20
25	17	7	27	19	8	29	20	10	30	22	12	Nov. 1	21
26	18	8	28	20	9	30	21	11	Dec. 1	23	13	2	22
27	19	9	29	21	10	31	22	12	2	24	14	3	23
28	20	10	30	22	11	Jan. 1	23	13	3	25	15	4	24
	21	11	31	23	12	2	24	14	4	26	16	5	25

CHAPTER THIRTY-FIVE.

LOVEJOYISMS.

To the farmer who wishes to purchase a boar for use as a producer of good feeding hogs for the market, I would urge that he do not wait too long, as many do, but that he buy the boar early, while the herd from which it is to come is not all culled, so that he may get a better choice and the pig may become accustomed to his new home long before he is to be used.

After the pigs are two or three days old, they with the sow, can be removed to an individual house or pen, without much danger of their being overlaid by the sow, unless she is deaf, which is sometimes the case, but such a sow should be sold for pork and not kept in the breeding herd.

Occasionally one finds a sow that is very nervous after farrowing. She will get up and lie down again frequently, and may crush one or more of the newly farrowed pigs. It is well to give such a sow a small feed, mostly of bran with a little middlings or cornmeal, as this will often quiet her. If she is extremely nervous and insists on getting up and down, pour one teaspoonful of laudanum into her ear.

You will notice an illustration of a farrowing box, which we have used for many years, and consider it one of the best appliances in the equipment of a farrowing house, for while the sow can easily lie down on either her right or left side, she cannot turn around or lie down on the pigs, as they are protected by the sides of the farrowing box which do not extend clear to the floor, but have a space of some nine inches in which the youngsters can run out into the outer part of the box at either side or end. We found in the last Spring farrowing of over two hundred pigs, that only three were injured in the farrowing box. In a large herd three or four of these boxes would be one of the best investments that could be made.

One thing must not be overlooked, and that is plenty of clean fresh water. If it can be had at will, so much the better; if it cannot, it should at least be given once or twice daily, for the hog needs a drink of water as much as any other animal or human being. I have known pigs to walk directly from a wet feed of nice rich slop to a drinking fountain and take a good drink of water, as though they had been fed

on dry fed. I really think that the majority of breeders and farmers overlook this matter of letting the hogs have plenty of water to drink.

During this period of the early life of the litter the sow and litter should take plenty of exercise for the necessary good of the pigs, for they must exercise considerably during each day, or they will become fat around the heart and die with what is known as "Thumps," which is nothing more or less than fatty degeneration of the heart, which they will certainly have unless they are exercised daily in some way.

A man must have "horse sense" if he is a successful hog man, and he must use it at all times.

It is a well-known fact that quality counts in any market and with any kind of stock or other produce of the farm. There are farmers who have fed live stock for the market all their lives, and yet never come anywhere near topping the market. They sell at a low price because they pay little attention to the matter of breeding a market type of good feeders, either in hogs, cattle or sheep.

I have done this on purpose to find out if the man was telling the truth. You know it has been said that it takes an awfully smart man to be a liar.

This matter of showing pigs of uncertain ages is somewhat in disrepute. It simply puts the man that is doing business right, up against an almost impossible chance of winning, where older pigs than should be admitted to the class are being shown. I know of no way to stop this except the rigid enforcement of showing certificates of registry.

Generally speaking, the sire should be a little more on the compact order than the sow. By this I do not mean a chunky, short, thick boar, but one showing full development at every point, and of a strictly masculine type. There is nothing so unsatisfactory as to have the head of a herd show a feminine appearance. The boar particularly should be of the proper type of the breed he represents.

Careful attention should be given to the blood lines of the sire. He should be what is known as an intensive breeder—one able to reproduce himself and improve the get. Such a sire is more often than otherwise found in a strongly "line-bred" boar, carrying the blood of closely related ancestors. If of proper conformation he can be relied upon to prove a good sire.

Personally, I would never think of introducing a herd boar into my herd of brood sows that did not carry much of the blood represented by the sows, and yet it is not uncommon for a breeder to receive letters from prospective buyers, insisting that a boar be sent that is in no way related on either side to the sows to which he is to be bred.

Many exhibitors seem to think that when they start out on the show circuit they must stuff the animals with all the feed possible, not only during the time they are on the cars going to and from the shows, but each day while on the grounds. It has been our experience that the man who follows this custom, generally arrives home with his hogs much lighter in weight than when he started out; while if the hogs had been given only water to drink enroute to the shows and fed lightly for the first day after arriving, and given plenty of exercise, they would wind up the circuit in much better condition than if they had been stuffed all the time.

Avoid radical changes in the rations.

I strongly urge the show ring as a means, not only of education for the breeder, but of building up a substantial business.

The reason I suggest that the beginner commence his show career at the County Fairs, is from the fact that I passed through all these little troubles when I was a great many years younger than I am now, and I know what the difficulties are for a beginner. It is hardly expected that a young breeder who has never followed the practice of showing, and who has probably not spent a very large amount of money in the foundation of his herd, win at State Fairs and Expositions where only few great show animals can get in the money.

Never will I forget the time way back in the 70's, when I made my first show at a State Fair. It was at the Illinois State Fair, when it went around on wheels, and that year was located at Freeport. I had only been in the business a year; knew nothing of what it required to even have a chance of getting into the money; but nevertheless I was full of enthusiasm and overflowing with ignorance. I fitted up a portion of a herd which I thought was "some pigs," but found, much to my profit eventually, that they were only ordinary. Starting out with much pride and having already figured the amount of money I would bring home by adding up the amounts in the premium lists, I found after the Fair was over, that I was really a wiser man and richer in knowledge but poorer financially, than when I arrived on the grounds, beaming with confidence.

The main thing is in **starting** this business and going at it with the determination to build up a business. I believe a farmer could hardly raise enough hogs and pigs in a year to supply the demand for the fancy pork products that he could put up, as the consumption of pork products is constantly increasing from year to year.

We must remember that every morning there are over three thousand new mouths to feed in America, and practically every one of them to eat the product of the American hog and enjoy it. Meat production increases wealth, and the grain products of the farm can all be utilized in the production of high-class pork.

We have no animal of greater economic value than the pig; he matures quickly and brings ready returns. If there was no money in pork, the farmers of the West would not grow eighty-five million dollars worth each year, to supply foreign nations, besides keeping enough at home to supply the demand of our own people.

The author of this book has not undertaken to write a thesis on the swine breeding business, nor to give the history of the various breeds, but having commenced the business of swine breeding when quite a young man and following it for practically forty years, he has been

requested to write this book, along practical lines of breeding, feeding, care and selling of hogs, both for the market and for breeding purposes.

Starting with a pair of young pigs way back in the dim distance, the business of breeding hogs was commenced by the writer. Knowing nothing whatever in the beginning, the only way anything has been learned has been by actual experience during all these years, finding out each day something that must be learned. This experience has been very costly, but that learned at the greatest expense one never forgets.

It is a small matter in what way water is furnished daily to every hog and pig on the farm, but it is of much importance that it be furnished in some way.

The eye of the feeder is one of the great things in the hog business. The man who feeds the pigs should take interest enough in his work to carefully note the condition of each animal daily, and if there is ever so small a change in the animal, by way of being a little "off feed," he must at once find out what the trouble is, whether it is an over feed from the day before, or a little indisposition from conditions which, unless promptly attended to, might lead to serious trouble. The old adage that "A stitch in time saves nine" was never more true than in the case of swine.

The policy of the pure-bred stock breeder should be always to satisfy his customer, is possible.

There should be a manufacturing company somewhere that would get together all these conveniences for the equipment of the swine breeding farm.

Every breeder should procure a typewriter and learn to use it, and write all letters on this machine. It is rather hard for some men to write a nice hand with a pen, and there are often some words in the letter that are not plainly written and that puzzle the one receiving it, besides, when writing a letter on the machine the copy can be made at the same time and filed with the original letter.

However, I believe when the crate is to be used, the animals to be bred should be turned together for a short time for the purpose of getting acquainted, and the teasing is no doubt a great benefit, but the practice of forcing a sow into a breeding crate, then bringing the boar to her, without any teasing, does not always work out as expected and sometimes creates much trouble.

It is a well known fact that the nutriment in feed for swine, or its value as a flesh producer, is not increased by cooking; but it is also a well known fact that during the cold months, at least in the northern States, much benefit is derived in feeding Fall pigs and others not well on to maturity, a warm feed rather than one mixed with cold, icy water.

As charcoal is a very desirable supplemental food for pigs, it is well to know how to make a good article and cheaply, particularly in the cornbelt where there are more or less cobs after corn shelling season.

The kind of steam generator or hot water heater is immaterial so long as it does the work and furnishes enough hot water for mixing the feed for the herd, but I must insist that, for young pigs before and just after weaning, warm feed is necessary for best results and is of equal value for young shotes.

In selecting a herd of brood sows, it is my judgment that the more uniform in type, size and conformation the sows are, the better, and I would even go so far, if I were selecting but a few, to have them all from one or two litters, if possible, rather than take the risk of getting such a great variety of types by the selection of individuals from different families, and I would have them from reasonably large litters.

Judgment must be used in matters of this kind, as it is the little things that are often most important and have much to do with the success or failure of swine breeding.

Nothing looks so bad as a little pig in the winter time doubled up with cold and its hair pointing to its ears, but where the pigs can be properly taken care of and continue to grow and look smooth and thrifty, then it is a different matter and they are fully as valuable as the pigs farrowed in the spring, because they come to the proper breeding age the fall following their birth, and there is nothing more desirable or that sells better than fall litters that can be bred a year from birth.

I am practically sure that much of our so-called hog cholera in the early months of the fall or late summer, is nothing more than a condition brought about by overfeeding green corn when it is in the roasting ear stage.

Pigs that have been fed possibly on scant feed during the summer, and that are in rather thin condition, would, if given too much green corn in its early stage, eat much more than they could properly digest, bringing about a condition that leaves the pigs ready to take any disease that comes along. If they are troubled with worms at this time, and the worms are not expelled, they will die about as fast as if they had the cholera.

This growing and feeding of hogs for market should become more common on the average farm. Too many farmers have the idea that the danger of cholera is too great to make any attempt at the growing of hogs for market, which is all wrong. There is nothing better than to be able to ship to market at one time, a carload of choicely finished hogs, which will always bring in a large amount of money with seemingly little expense.

There are many such instances on record, which emphasize the value of the right kind of a pedigree as well as "some hog" which is certainly very necessary.

It is also of great importance that the same critical judgment be used in the selection of the brood sows on which the herd is founded, that the future may be an assured success.

Besides the matter of keeping all sleeping pens and feeding places clean, it is well for the breeder to look carefully after the premises in general by having a regular clean-up at least twice a year—buildings, yards, fences, etc. This would not only give a good appearance, but would be a benefit along sanitary lines. There are many good disinfectants, and some that should be used weekly, by spraying the troughs, feeding utensils, mixing barrels, etc., as well as the feeding floors and sleeping places. Feed yards should be well cleaned up and kept free from cobs and other accumulations. These are small matters, yet quite important, and should be carefully looked after.

The selection of the show herd requires a knowledge of what it takes, when well fitted, to win. One should commence months in advance of the show to make his selections, first making up his mind whether or not he wishes to fill all the various classes listed in the premium lists, which are now so made up, that the same animals can show throughout the season, without being required to carry along other animals of various ages besides those first selected to fill the classes.

Some people greatly enjoy bringing out a pig herd, under six months of age, as there are often enticing prizes offered in this class, and it is a good way to show the class of pigs you are producing. While this class should also be as uniform in type and conformation as the others, and should be well fitted in flesh, care should be taken that they are not pushed too hard and become overdone, and more or less wrinkled in appearance.

We will now suppose that the herd has been selected along the above lines, and we are ready to start the fitting process with a bunch of animals of the same type. The question now is how to fit these animals to the best advantage without overdoing them, so they will show when the Fair season opens, in the best possible bloom.

Always remember however, that too much milk is worse than none. The proper amount is three pounds of milk to one pound of grain. With this your ration is practically balanced, or at least gives the best results. I would by all means urge, while fitting these hogs for show, that a mixture of mineral matter mentioned in another part of this book be used.

Much care should be taken in fitting the show herd not to break them down, and as a help in this matter as well as in keeping them in better condition, it is necessary that the show herd be given some special exercise other than that which they will naturally take in their enclosure.

It is my opinion that what is known as "strong breeding condition," i. e., flesh enough to round out every point without overloading, is the proper show condition.

What I have said about the feed to be used in fitting the show herd, need not be considered as an absolute, iron-clad rule. Any of the mixtures of grain, grasses, etc., that will come close to being a balanced ration, is all that is necessary. I merely name these feeds as among what we have found to be the most satisfactory. The real object is to feed what will flesh them rapidly and not add too much fat, but more red meat or flesh.

The foot and pastern of the show pig can be improved one hundred per cent by proper trimming.

The good herdsman and care-taker does not lie in bed until late in the morning, but is up and has his show animals out on the grass somewhere about the Fair Grounds.

Many successful exhibitors, when they have finished the show circuit, won their laurels and arrived home safely with their herds, seem to think that the animals now need no further attention, except feed. This is a great mistake, and if these show animals are expected to go on and prove what they should be, desirable and regular breeders, they must be handled very carefully.

A large per cent of bran and oats mixed with a small amount of middlings and cornmeal is an excellent feed to use during the reducing period. They must have exercise, and if necessary, see that they get it by driving daily. This is very important and must not be overlooked.

Weaning time is a very critical period in the life of the pig. We will suppose that the pig has been fed in addition to what he received from the mother, so that he is well started, and without changing the rations he has had, he should be fed at least twice daily all that he will eat up clean. It is a bad custom to feed any animal more than it will eat and clean up thoroughly. The pig should have, in addition to what it is fed in concentrated ration, at all times of the year, the run of a good fresh pasture of green feed. The different varieties are treated in another chapter.

In addition to the feeding and watering, there are other little attentions that must not be overlooked.

Pigs carried along in this way and fed and attended to in the above manner, should make rapid growth and development, and if desired to be kept for breeders, this same treatment can be carried on during the first year. If it is planned to put them on an early market, and at a weight of from 200 to 250 pounds, the ration can be somewhat changed for the last sixty days by using more corn and a little less of the other kinds of feed.

It is a well-known fact that the first one hundred pounds of growth of any hog is made at a much less expense than any other subsequent one hundred pounds. So it is economy to feed all the good feed that can be properly digested from birth to maturity.

There are feeders, and always have been, and probably always will be, who pay little attention to their pigs during the growing period of the first six months, believing that if they are turned out into any old pasture and can get water to drink, that they can grow a frame and some size at little or no cost.

This may be satisfactory to that class of men, but it has always been our plan and belief that the mother's milk fat of the little pig should never be lost, but be increased by liberal and proper rations during its entire life.

Some men think that when a pig is to be shipped some distance he must be stuffed with an unusually large feed the morning he is to leave. This is a mistake.

On receiving a pig that has been shipped a long distance, do not expect to see him come out of the crate looking like he was just from a bandbox, for naturally he will be gaunt, somewhat dirty and probably quite tired. Brush him off nicely, put him in a place by himself and give him a drink of fresh water, after which give him a very light feed, only a little at first, of a nicely mixed ration of rich slop. Then let him alone until he is rested, or until the next feeding time comes, when you may give him a little more feed than you did the first time; thus you will gradually bring him up to his full feed.

Notice on receiving the pig, if he seems constipated; if so, give him two tablespoonsful of Epsom Salts in his feed and let him take a little exercise where there is some grass.

It is a good thing when ordering a pig from a breeder, to ask how the pig has been fed, and if you can do so, continue about the same ration he has been getting. If you wish to change to a different system of feeding, do so very gradually, and you will not be disappointed. If you should overfeed the pig on the start, everything will go wrong, and you will be very much disappointed later.

Probably there is no business that requires character and intelligence in a man to a greater degree than the breeding of pure-bred stock of any kind. First, the young man when starting should know that he likes the business, and has made up his mind to follow it as a permanent business and to stick to it through thick and thin. This matter of stick-to-it-ive-ness is one of the principle elements a man should have. Next, he should be a man whose character is above reproach and absolutely honest. With these elements and a determination to succeed, he can build up a life business that is gratifying in every way.

I believe a hog prefers green barley sown early in the spring to any of the other varieties of spring sown grain. Why this is I cannot explain, but if a patch of oats and another of barley are sown early in the spring, side by side, and pigs turned into the two lots when the grain is a few inches high, they will eat the barley all off and give little attention to the oats, probably for the reason that the barley is more palatable.

Prof. Carmichael, University of Illinois, states that a field had been planted with corn continuously for thirty-three years, and every year was "hogged down." Within the last year or two the owner desiring to learn the condition of the soil and how much corn this particular piece was producing after having been planted to corn for thirty-three continuous years, measured off a piece before turning in the hogs, and by actual measurement learned that the land was producing over 100 bushels of corn to the acre.

It behooves the thinking farmer to keep up soil production, especially during these days of high priced land, and this can be done profitably and economically by "hogging down" corn, especially if rape or some of the clovers or other grasses, or some of the grains like rye, is sown in the field when the corn is laid by. This will give a good balanced ration, and the hogs will do the harvesting themselves without cost to the farmer, and will doubtless, taking one year with another, bring the selling price of his corn up to an average of not less than $1.00 a bushel.

There are many little things in the hog business, if one will try them out, that are not only more economical but are less work than the old methods.

A man who would make a false pedigree would do anything else false that came to his mind, and should not last long as a breeder of pure-bred hogs of any breed. In other words the pedigree should be a guarantee that only such animals were used in producing the particular individual, as really were used.

INDEX

Page No.

Advertising 120–122
Alfalfa, third cutting for winter 12
Alfalfa, rack for feeding 91
Barley, sown early 24
Barley, preferred to other spring sown grains 24
Breeders, pattern after success of 33
Breeders, wise ones open minded 31
Breeding, age, time and season for 42– 44
Breeding crate, use of 44
Breeding dates, importance of keeping 56
Brood sow, buy one good one rather than half dozen common ones 33
Brood sows, care of, from breeding season until weaning of pigs.. 56– 61
Brood sows, description of 39
Brood sows, in pasture between seasons 60
Brood sows, nervous ones 56
Brood sows, selection of 38– 41
Brood sows, should carry blood of herd boar 35
Canker sore mouth 149
Carload pork hogs, value of uniformity 81
Castrating 154–155
Catalogues 121
Coal Tar dip for canker sore mouth in pigs 149
Coal Tar dip for mange 153
Cob charcoal, how to make 90
Correspondence 119
Cracklings, use of 84
Crates, shipping, proper sizes 114
Crates, shipping, how to make 113–116
Creep for pigs 70
Cross breeding 74
Crude oil, use in dip 69
Curing the thick white fat pork 127
Diseases of swine 145–153
Dipping tank 69
Farm plat, necessity of 14
Farrowing crate 55
Farrowing house, a modern (W. S. Corsa) 45– 52
Farrowing time 53– 56
Feeding, are you feeding right? 82– 83
Feeding, experiments in self-feeding 83
Feeding hogs for market 79– 81
Feeding pigs separate from mother 59
Feeding warm feeds in winter 88

Page No.

Feeds and feeding, practical 84– 91
Feeds, cooking of 87
Foreword (by DeWitt C. Wing) 5
"Foul in the foot" 150
Fountain, self-watering 27
Gestation table 156
Growth, first hundred pounds the cheapest 71
Ham and egg lunch loaf 126
Ham balls 127
Ham, baked 125
Ham, boiled 126
Ham, fried with egg 125
Ham, receipe for curing 128
Head cheese 125
Herd boar, buy early 77
Herd boar, description of 34
Herd boar, feed for 37
Herd boar, handling of 36– 37
Herd boar, necessity for exercise 37
Herd boar, the selection of 34– 35
Herd boar, selection of, for use on grade sows 77– 78
Herd boar, separate lot from sows 37
Hog cholera and its prevention (J. L. Thatcher) 131–144
Hog cholera, treatment for 130
Hogging down corn 85
Hogging down wheat 86
Home-cured products of the hog 123–129
Hot water heaters, use of 88
House, a very complete swine 17– 21
House-cleaning 91
Ideal hog farm, the 9– 16
Inbreeding, line breeding and cross breeding 74– 76
Inbred animal, specimen pedigree 76
Inflammation of udder 151
Introduction 6
Judging swine shows 110–112
Lard, home-made 128
Line breeding 74
Line bred animal, specimen pedigree 75
Litter, size of 40
Litter, value of one 30
Loading chute 14
Lousy pigs 69
Lousy sleeping quarters 69
Lovejoy, A-shaped hog house 16
Lovejoy, portrait of 2
Lovejoyisms 157-166
Marking pigs 62– 67

Page No.

Markings, don't be a crank over 41
Milk, amount for growing pigs 68
Milk, amount to feed 99
Mineral matter, importance of 70
Molasses, the feeding of 99
Pasture, great importance of 22– 25
Pedigrees 118–119
Pedigree expert, traces ancestry 30
Pedigree, necessity of being prepared to show 107
Pigs, attention needed during first six months 71
Pigs, care of 68– 73
Pigs, care of for first three months after weaning 69
Pigs, carrying on after six months of age until marketing 72
Pigs, how to treat on arrival home 116
Pigs, other things necessary besides feed 69
Pigs, in lots according to size 70
Pigs, preparing for shipment 115
Pigs, winter 43
Pig's feet 124
Pig's feet, boneless 124
Pig's feet souse 124
Pickled side meat, how to cook 127
Pleura-pneumonia 148
Proud flesh, how to cure 150
Pure-bred breeder, what he should be 117
Rape for pasture 23
Rape, value of 23
Rheumatism 151
Runts, a sure way to have 70
Salt pork, fried 125
Sausage, home-made 127
Sausage, a profit in 123
Shade, natural or artificial 24
Showing, advantages of 93– 94
Show herd, dressing for 102
Show herd, exercise for 103
Show herd, feeding while on the show circuit 104
Show herd, the fitting of 97–100
Show herd, handling while in the show ring 104–106
Show herd, other things necessary besides feed 101–130
Show herd, the selection of 95– 96
Show herd, treatment on return home from shows 105
Show animals, proper condition of 100
Sire, best breeders use high priced 32
Sire, importance of a good 29– 33
Sire, influence of (Prof. Plumb) 31
Sire, unfortunate use of cheap 32
Skin diseases 152

Sleeping quarters, use of crude oil in 69
Soiling 89
Sore feet 149
Sore mouths in young pigs 149
Sore teats 152
Spaying 155
Stationery, style and quality of 122
Sterility 150
Sugar, the feeding of 99
Sun room for little pigs 52
System 119
Tankage for young pigs 68
Tails, why young pigs lose their 146
Thumps 147
Typewriter, use of 119
Water, necessity of plenty of pure 26– 28
Water, use of hot in winter 88
Wallows 69
Weight for age of pigs 73
Winter rye, use of 11
Worms 145
Word to exhibitor and Fair manager 107–109