The Barrow of Tomorrow: Would You Recognize Him today?

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INTRODUCTION

During the last 15 years the swine industry has gone through a period of frequent type changes. The ideal type market hog has changed from a short, deep, chuffy, excessively fat hog in the early 50's to a long, lean hog in the middle and late 50's to the moderately long, thick, muscular, trim, heavy boned hog with a minimum amount of backfat that is sought after today. The change which has occurred was due to several reasons. However, the most frequent reason given for the change from the old-fashioned hog to the long, lean hog was fat. There was no longer a demand for fat--so the swine industry made an about face. The result was a long, narrow, rather meatless hog. This hog was light muscled and did not grow and gain with the high degree of efficiency that was so essential to each and every swine enterprise. The next step was to give up some of the unnecessary length in light of additional thickness, muscling and substance. Swine producers found that it was necessary to breed, raise and feed the kind that produce a maximum amount of muscle and a minimum amount of fat at 220 pounds in the shortest period of time. This brings the industry to the day of the "modern meat-type hog."
The following discussion is directed towards the market barrow of tomorrow. However, a large percentage (about 40 per cent) of the market hogs are gilts. The contents of this publication apply to the entire pork industry including the market hog (barrow or gilt), as well as immature breeding stock and mature breeding stock. The same basic principles apply regardless of sex, age or use.

The text and illustrations of this publication point out the distinguishing characteristics of a modern barrow (Animal A) and barrows of the past (Animal B, C or D). These drawings, illustrations and explanations pertain to the characteristics of skeletal and muscle structure and fat deposition in regard to the modern meat-type barrow and the barrows of the past. The points or areas of a hog that can be used as indicators of muscling and finish, either too much or not enough, are illustrated, pointed out and discussed.

This information is based on research findings, practical experience and observations and can be used by those that breed, feed, evaluate, appraise and select modern day swine. The information presented herein can be used as a tool to help breeders, feeders, packers and professional hogmen select the big, rugged, muscular, fast-gaining hogs that display a minimum amount of fat (backfat) and a maximum amount of muscle at the market place. These are the hogs that we need to recognize, breed and promote for the good of the swine industry. Only visual appraisal with a keen eye and an educated mind along with performance records can insure the swine industry of the "modern meat-type hog" for years to come. Those that advance and prosper in the swine industry in the years to come will be the ones that have studied the live animal and then slaughtered the animal for the purpose of making detailed observations and measurements of the carcass. For the purpose of selecting breeding stock, the hogman will have to be able to "eye ball" the desirable characteristics in the live animal. The breeding value of an animal is lost when we slaughter the animal in order to properly evaluate it. Some of the traits that are sought after in selecting the modern meat-type hogs are presented herein. If you will study these points of interest, you should be able to do a more accurate job of selecting the hog of the future without slaughtering the animal. The discussion that follows will pertain directly to the market hog (barrow); however, the same basic principles are involved when selecting breeding stock to produce the "modern meat-type hogs."
Front View

• A. Animal A shows a thick, meaty top (1) that displays a more desirable turn than either Animal B or C. This could also be described as a more symmetrical turn than that displayed by either Animal B or C.

Animal A shows considerable muscle development in the shoulder area (2). This area can be used as a muscle indicator. When a muscular barrow walks, the muscle in the shoulder will bulge and express itself as the muscles contract and relax to allow the barrow to move. If a barrow is carrying too much finish, you will see the fat roll up or "push-up" in front of the shoulder blade. There is a certain amount of judgment involved in determining whether the shoulders are coarse and prominent due to the actual skeletal structure of the animal in question or if the shoulder indicates extreme muscle development. As a meat-type barrow walks, the movement of the shoulder blade should be evident over the top of the shoulders. If the shoulder blades cannot be seen when the animal moves, then usually the barrow is pushing a heavy deposit of fat up over the top of the shoulders. This would result in a very heavy probe at the first rib site.

The jowl (3) is an area that can be used as an indicator of excessive finish. However, not all barrows with a "heavy" jowl are wasty or too fat—so again the judgment factor is of extreme importance in evaluating this trait. Animal A has a trim, clean jowl (3) that is free of wrinkles and displays considerable firmness when the animal moves.

Animal A has a wide, clean chest floor (4) that is essential in rugged, fast-gaining, vigorous barrows. The front legs of Animal A are set out on the corners of the body and help provide the rugged constitution that is so necessary in good-doing, fast-gaining, efficient, meaty, muscular, modern-day hogs. Animal A has very little excessive finish in the chest floor area which makes for the very trim, clean appearance that is desired in modern meat-type hogs.

The cannon bone area (5) is one of the most accurate and quickest indicators of bone size, substance and ruggedness of an animal. Research data shows that heavier boned animals have more muscle. In other words, there is a positive relationship between bone size or substance and muscling of swine. Note the very desirable length of leg possessed by Animal A as viewed from the front.

• B. Animal B does not exhibit the uniform symmetrical turn to the top (1) displayed by Animal A. Note the rather flat top that turns at right angles to the ground. This is due to the excessive fat that is deposited along the topline and down over the shoulders on Animal B. Muscles are round, not square. The deposition of fat between and over the body muscle structure is instrumental in giving Animal B the square look.

Animal B fails to exhibit the muscular appearance through the shoulder region (2) that is displayed by Animal A. An animal of this kind (B) may be as muscular as Animal A, but excessive finish will conceal extreme muscle development; how-
ever, in most cases animals of this appearance (Animal B) are usually light-muscled and over-finished. Note that Animal B is extremely smooth when compared to Animal A. The muscle seams (in between the muscles) are filled with fat to give the animal the smooth appearance that livestock evaluators have desired in the past. The animal is smooth only because it is relatively light-muscled, and the muscle seams have been filled with fat to bring out the smooth effect. Animal B is much wider at the top of the shoulders (2) than at the bottom. This is due to heavy deposits of fat over the top of the shoulders and down over the top half of the outside of the shoulders. The over-finished barrows will be somewhat wedge-shaped as you view them over the top from either the front or rear. The widest part of the wedge is the topline and the narrowest part of the wedge is the sides and underline for the over-finished barrow. When a barrow that resembles Animal B walks, there will be little noticeable movement of the shoulder proper or of the shoulder blades over the top of the shoulder. The over-finished barrow will "push up" excessive fat deposits over the top of the shoulders and in front of the shoulders, which will be evident from the front view.

The jowl (3) of Animal B is heavy with fat deposits and lacks the trim, clean-cut, firm appearance found in Animal A. A fat, heavy jowl will have several noticeable wrinkles and will shake and wiggle and look extremely sloppy when the animal moves at the walk.

Animal B has adequate constitution and ruggedness as is evident by the width displayed through the chest floor (4). Note, however, that Animal B looks as though it has more depth through the chest than Animal A. Research results have demonstrated that this extra depth is again the result of heavy fat deposits through the chest and along the underline area. When Animal B walks, the loose, sloppy appearance that was noticeable through the jowl will also be particularly obvious back through the throat, chest floor and underline area.

Animal B does not display quite as much substance in the cannon bone area (5) as Animal A. However, the real difference here is in length of leg between Animals A and B. Animal B appears to have much shorter legs than Animal A; however, some of this difference is rather deceiving. The front legs on Animal B are actually short but appear more so because of the extra depth through the chest. The length of leg is influenced some by depth through the chest and shoulder as well as waste along the underline. Research has demonstrated that there are certain productive factors such as feed efficiency, and rate-of-gain related to length of leg and width and capacity through the chest floor. Today, the trend is to select away from the short-legged barrows and breeding animals because these short-legged individuals are too close to the ground and do not perform as well at the self-feeder or in the farrowing-house as the big, stout, trim, clean-chested hogs that stand up on more length of leg and display more substance of bone (Animal A).

C. Meatless--Animal C is nicely or correctly turned over the top (1) but lacks thickness and width over the top (1), which is usually characteristic of a meatless individual. Animal C is very clean (little finish) over the top and this, along with the correct turn to the top, has led many to believe that this was the right kind. This type of barrow is usually the poor-doing, light-muscled kind that if fed enough will look almost exactly like Animal B.
The shoulders (2) on Animal C lack thickness, depth and evidence of muscling when compared to Animal A. Animal C will have, as a rule, very little fat over the top of the shoulders and down over the outside of the shoulders--so there will be very little fat that will "push up" or be noticeable in either of these areas as the animal moves at the walk.

Note the neat, trim, clean-cut jowl (3) displayed by Animal C. This goes along with the meatless appearance exhibited through the entire make-up of Animal C. Occasionally a barrow that resembles Animal C will have a loose, sloppy jowl to go along with its meatless appearance, so it is well to evaluate the entire animal, not just part of it.

Animal C is very narrow and shallow through the chest floor (4) and lacks width between the front legs, which is especially evident in slow-growing, poor-doing barrows that lack the constitution, ruggedness and vigor of barrows represented by Animal A.

Animal C is light-boned (5) and lacks the substance and ruggedness displayed by Animals A and B. Animal C has good length of leg which usually accompanies the narrow, meatless-type barrows represented by Animal C.

Top View

A. Animal A expresses muscling in the shoulder area (1) from this view as well as the front view. Barrows that are meaty and muscular are going to have some thickness and muscling through the shoulders. When you evaluate a barrow on the basis of per cent ham and loin alone, the barrow with more shoulder will not have as high a score or per cent; however, there is no place in the swine industry today for narrow-shouldered, narrow-chested breeding stock. We're just fooling ourselves if we turn down barrows that have some muscling, thickness and development through the shoulder region. Animal A is neat and clean over the shoulder, and you can see the shoulder movement and the muscle expression through this region as the animal walks out.

Animal A is not full and smooth-back of the shoulders, in the heart girth or fore-rib area (2). This has been over-emphasized for many years. The skeletal structure and muscle development does not permit an animal to be smooth in its appearance in this area. The shoulder blade is attached to the outside of the rib cage--so unless the animal is extremely narrow-chested, the shoulder is going to be noticeable. If the animal is heavily muscled and thick, the shoulder will be even more noticeable especially if the individual has the desired spring or rib that is so essential in modern meat-type hogs. A muscular animal that is properly finished should not be required to be extremely neat-shouldered and full-back of the shoulder.
ers... The full heart girth or fore-rib area of animals like B is smooth and full because of excessive finish over the top of the shoulders and just back of the shoulders in the fore-rib area. Note the correct turn over the top and the tremendous spring of the fore-ribs and rear-ribs (2) of Animal A. Animal A tends to taper a bit from the shoulders back to the loin-ham (or rump) connection. This is because the heaviest fat deposit over the top of a barrow is over the shoulders, and the lightest fat deposit is over the rump. The fat is responsible for some of this tapering effect, plus there are no ribs in the loin area proper to help maintain the spread and thickness uniformly over the top and down through the sides.

Animal A has tremendous length, flare, thickness and muscling through the ham (3). Note how the ham flares out from the loin and how far forward the rump or ham ties or hooks up into the loin and side. The thickest part of Animal A is through the center of the ham (stifle muscle area). This is the greatest muscle mass in the animal's body. If an animal is meaty and muscular, the ham area should be the thickest portion of the animal when viewed from either the top or rear. Note the "coke bottle" shape displayed by Animal A. Observe the extra width and thickness through the shoulders tapering back slightly into the loin with the thickest, meatiest, heaviest-muscled portion through the center of the ham (stifle muscle area). This is sometimes referred to as the desired "right shape" or the "correct shape" in the modern meat-type barrow.

B. Animal B displays rather uniform thickness from front to rear. The terms commonly used to describe an animal of this type are smooth and uniform. In this case, uniformity doesn't mean a thing except that the animal is carrying excessive amounts of waste fat in several places throughout the general body makeup. Animal B does not show much muscle development through the shoulder area (1). This is due to one of two things, either it was light-muscled to start with or the muscling is concealed by too much fat. At any rate, neither animal is the right kind. There will be very little shoulder movement and muscle expression over the top of the shoulders and down over the outside of the shoulders when Animal B moves out. However, there will be excessive amounts of fat "pushed up" over the top of the shoulders and in front of the shoulders as the animal walks out.

Animal B is very smooth and full-back of the shoulders in the heart-girth or fore-rib area (2). Animals that take on this general appearance usually carry excessive amounts of fat just back of the shoulders in the fore-rib area and as a rule have heavy fat deposits in the elbow pocket (point of the elbow). When Animal B walks, there will be excessive amounts of fat that will roll up just behind the point of the elbow (elbow pocket) as the front legs move and the animal shifts its weight forward to facilitate the movement of its body. Note that Animal B is somewhat boat-shaped with the widest part in the middle of the body. This is the area where the least volume of red meat or muscle is located. Animal B has a rather sharp right-angle turn over the top and in no way exhibits the tapering effect from the shoulders to the loin-ham (or rump) connection displayed by Animal A. In fact the shape is almost inverted, which is mostly due to fat but is also influenced by the amount of muscling.

Animal B has a short ham (3) that lacks the thickness, length, flare and muscling possessed by Animal A. Animal B is short and tapering in the rump. This short,
tapering appearance in the rump is quite often associated with animals that are short-bodied, light-muscled and over-finished. Animal B displays no flare to the ham, but it does have a very smooth, uniform appearance throughout which means too much finish and too little muscle.

C. Meatless Animal C is clean (free of excess finish) over the shoulders but shows very little evidence of muscle development through the shoulder area (1). Meatless barrows will be very sharp up over the shoulders and are occasionally referred to as being "fishbacked." The narrowness in the chest floor area and the close set of the front legs permit the shoulder to set in rather smoothly on the meatless barrow. For these reasons, Animal C appears very narrow, light-muscled and extremely meatless through the shoulder area (1).

There is very little shoulder development on Animal C—so consequently Animal C appears to be smooth and full just back of the shoulders in the heart-girth or fore-rib area. This is due to the lack of muscling through the shoulders and the general lack of spread, thickness and muscling all down the top of Animal C. Animal C is clean down the top and is more correctly turned over the top than Animal B. Animal C exhibits very little, if any, tapering effect from the shoulder to the loin-ham (or rump) connection as does Animal A. This helps establish the narrow-topped, meatless condition of Animal C.

Animal C displays adequate length of rump (3) but definitely lacks the flare, thickness and muscling in this area and down through the ham that is so evident in Animal A. Meatless barrows represented by Animal C will usually have a high ham-loin per cent because they have very little waste fat depositied over the carcass. However, animals of this type (meatless) lack the acceptable quality in the carcass and as a rule yield bellies that are too thin to be suitable for bacon production. These reasons, plus the fact that barrows represented by Animal C are slow-gaining, poor-doing barrows that lack the muscle volume of the modern meat-type barrow, are the best evidence that could be presented as to why Animal C (the meatless barrow) is not the barrow of the future. Animal C would eventually have the same general shape from the top view as Animal B if it was fed long enough and fattened to the degree illustrated by Animal B.
Side View

A. Animal A is clean, firm and trim in the jowl (1), shows extreme muscle development through the shoulder and forearm area (2) and stands up off the ground on correctly set front legs that are heavy-boned and possess excellent substance (3). Note that Animal A is free of excessive fat deposits in the elbow pocket (fore-flank area) (4) and is free of wrinkles over the shoulder. Animal A is very clean and neat in the middle and shows excellent length of middle to go along with its adequate depth of side (5). At this time, there is no research or evidence available that demonstrates any advantage of extreme length of body or side in the modern meat-type hog. Animal A is tucked up a bit in the rear-flank (6) which is quite acceptable under present day evaluation standards. In past years, it was practically unheard of for a champion animal not to have a deep, full flank. Research has yielded considerable evidence that this extra depth and fullness in the flank was due to nothing but fat deposited between the skin and the abdominal wall all along the underline but particularly in the flank region. Note again the length of leg, the straight, correctly placed hind leg, the heavy, rugged bone and the moderately long, strong pasterns (7) possessed by Animal A. The strong pasterns and straight hind leg help an animal express and display its muscling and correctness. Animal A does not have the extremely deep bulging ham (8) desired by livestock (swine) evaluators in the past. The ham ties in above the hock joint and leaves the joint clean and neat when viewing the animal from either the side or rear (8). The skeletal structure and muscle development does not permit an animal to have the extreme depth and bulge to the ham that was sought after in the past. This highly unnatural condition of extreme depth and bulge of ham is mainly brought about by excessive fat deposits in the area of the cushion of the ham. This causes wrinkles at the base of the ham and a general lack of firmness in this area as the animal moves. Animal A has a high tail setting (9) that makes for a deeper ham than is displayed by Animal B even with the extra fat deposits at the base of the ham on Animal B. When the tail sets (or fits) higher up into the back, there will be more depth of ham and as a result more ham volume than when the tail setting is low. Animal A has a long, extremely strong, uniformly arched topline (10) which is a desirable characteristic of modern meat-type hogs. Usually a strong high arch to the top is related to above average muscling throughout the body, especially when it is found in a barrow that possesses the body length and thickness that Animal A exhibits. Note also the long rump that is emphasized by the even, uniformly arched top that carries from the tip of the nose to the tail setting of Animal A.

When Animal A walks out, note the firm, trim, clean-cut jowl; the muscle expression through the shoulder and the movement of the shoulder blades; the long, clean, tight underline that is free of excess fat in the fore-flank and rear-flank areas; the length of leg, heavy bone, correct set to the feet and legs and slope to the pasterns; the long, meaty ham that fits or ties far up into the side and the muscle expression and movement in the stifle muscle area; the high tail setting and the long, strong, uniformly arched topline. When Animal A walks, you will note that it is very firm throughout. This is an indication of muscling. Muscle is firm and fat is loose and sloppy. Watch the jowl, underline, rear-flank and base of the ham. When
the muscles in these areas contract or tighten, there will be a definite degree of firmness displayed. Then when the same muscles relax, they will still display firmness in a relaxed state. If the muscles relax in these areas and become very loose and sloppy, then there is a good chance that part of what looked like muscle was simply fat deposit between and over the muscle tissue.

- B. Animal B is wasty, loose and flabby in the jowl (1) and extremely thick and heavy through the shoulders (2). Note the wrinkles in the jowl and over the shoulder. These wrinkles are nothing but rolls of fat. There will be very little, if any, evidence of muscle expression through the shoulder and forearm of Animal B. Animal B is shorter-legged, a bit lighter-boned and weak on its pasterns (3) when compared to Animal A. The less than average bone size in the cannon bone area would tend to support the lack of muscling mentioned previously for this animal. There is evidence of heavy fat deposit in the elbow pocket (fore-flank area) (4). This will be especially evident when Animal B walks as the point of the elbow will push back the rolls of fat that are present in this area. Animal B has a short, loose, flabby underline and deep body with numerous wrinkles along the side (5). The extremely deep side of Animal B is mainly due to excessive waste and flab all along the underline and into the flank area. There has been some thought that additional depth indicated extra capacity and resulted in faster gaining, better-doing animals. Research studies have demonstrated that animals get extra capacity from body length (up to a certain point) and not depth. The ribs spring out from the backbone (vertebral column) and connect to the breastbone (sternum). No matter how deep bodied an animal gets, it is not possible for the body capacity to increase except for elongation of the ribs which is rather slow after hogs reach about 100 days of age on a standard plane of nutrition. There is very little muscle in the lower half of the mid-section of swine, so the extra depth is of no great value. When animals fatten, they can only deposit so much fat within their muscles (intramuscular) and the remainder is deposited on the outside or between muscles (intermuscular). This is why the extra depth displayed by Animal B is mainly due to extra flab and waste fat rather than red meat and muscle. Note the deep, full rear-flank (6) on Animal B. The flank will appear very loose and sloppy when the animal walks because this full flank is due once again to waste fat. The rear legs (7) of Animal B are short, set under the body too far and lack the clean-cut, high quality appearance demonstrated by Animal A. The lack of substance of bone, weak pasterns and incorrect placement of the rear feet and legs are evident in the illustration depicting the old-fashioned barrow (Animal B). The deep bulging appearance of the ham (8) possessed by Animal B is mainly due to extremely large deposits of fat on the cushion of the ham. Research results have shown that this extra depth is predominately fat and really gives a false impression of red meat and muscle development in the lower ham area. The deep ham, illustrated by the drawings representing Animal B, carries way down into the hock joint area and many times this will result in a coarse, puffy condition in this area. The tail setting (9) on Animal B is low and consequently tends to make the ham a bit shallower than it would actually seem when observing the individual animal. Note that Animal B has a rather short, flat, unevenly arched topline (10). The fat, old-fashioned barrow (Animal B) has very little strength to the top which is especially evident when comparing Animals A and B. A short, flat, uneven top is associated with over-finished, wasty, light-muscled hogs. Note also the short, steep rump displayed by Animal B. This characteristic is typical of light-muscled, over-finished hogs.
When Animal B walks out, note the loose, sloppy, wasty jowl; the presence of wrinkles on the jowl, shoulders, sides, underline and at the base of the ham; the loose, flabby appearance in the fore-flank and rear-flank areas, along the underline and at the base of the ham; the light bone, crooked legs and weak patterns that result in incorrectly placed feet and legs; the deep, short side; the short ham; the low tail setting; the almost flat, uneven topline; the general lack of muscling throughout and the evidence of excessive finish over the entire skeletal make-up. This is an old-fashioned barrow, and there are still many hogs produced and marketed today that would fit this description rather closely. Old-fashioned barrows have often been referred to as "cob-rollers," "pumpkin-seeds," peanuts, the short chubby kind, the lard type, and so forth.

C. Meatless Animal C is extremely neat and clean in the jowl (1) and shows considerable firmness throughout this area when walking. There is very little evidence of muscle development through the shoulder and forearm areas (2) of Animal C. Note the desirable length of the front legs (3) displayed by Animal C but also observe the definite lack of substance of bone that is especially evident in the cannon bone area (3). As mentioned previously, less substance and ruggedness will usually accompany the lack of muscling or vice versa. Animal C is clean and neat in the fore-flank (4), along the underline (5) and in the rear-flank (6) areas which is especially noticeable when comparing Animals B and C. Note that the meatless barrow (Animal C) resembles Animal A more closely from the side view than does Animal B (old-fashioned barrow). This is why it is so important that swine judges be aware of the true differences between Animals A and C. Animal C shows adequate length of side. In most cases, the meatless-type barrows (Animals like C) are never too short, if anything, they are usually long and snaky looking. Animal C may be criticized for not having enough depth of body (5) and capacity and in most cases the criticism is justified. The meatless barrows (Animal C) will usually be "poorer-doing," less efficient animals that do not grow and muscle-up as fast because they do not have the capacity and the genetic potential to do so. Observe the "cut-up" appearance in the rear-flank area (6) displayed by Animal C. This is brought about by the simple fact that Animal C is not carrying a lot of waste fat, therefore it hasn't filled the flank areas (4 and 6) with waste and flab. Animal C stands on very desirable length of rear legs (7) but definitely lacks substance of bone (7). Note the "cat ham" appearance of the ham (8) on Animal C when viewed from the side. The ham (8) is very shallow and narrow and simply shows the evidence that Animal C is light-muscled throughout. The tail setting (9) is low, and the rump is short and steep which both contribute to the short, shallow, narrow ham (8). Animal C has a long topline (10) but note the definite lack of arch and strength of top (10). Again the long, narrow, generally weak top with a slight weakness just behind the top of the shoulders is a good trademark of the meatless barrow (Animal C). Meatless barrows (Animal C) usually display some degree of sharpness over the shoulders and fore-rib area to go along with their uneven topline. Through close comparison of Animals A and C the differences between the modern meat-type barrow and the meatless barrow should become quite evident.
Rear View

A. Animal A has tremendous strength of top, is very correctly turned over the top and has an extremely desirable shape (1). Note how the muscle flares or rolls out from the backbone as the animal is observed down the top from the rear view. This has been referred to as the "butterfly" shape where the muscle springs or pops out of each side of the vertebral column (backbone). The extremely meaty barrows that are carrying a minimum amount of backfat will actually have a groove down their top immediately above the vertebra of the back (dorsal vertebral process). When a heavily muscled barrow (Animal A) of this description is observed, it will have a backfat probe or measure from .7 to .9 of an inch and will yield a high ham and loin per cent. The above description is more the exception than the rule, but more and more market barrows fit this description every day. The ham (2) is the greatest muscle mass of the animal's body and should be trim, thick, muscular and expressive. Note the flare to the ham (2) of Animal A. The extreme muscling causes the ham to flare out or spring out from the loin area. The stifle muscle area is located right in the center of the ham and should be the thickest part of the ham. A muscular hog should have muscles that flex upon movement and bulge and express themselves upon stimulation. The muscle seams are plainly visible in the meaty barrows carrying a desirable amount of backfat (0.7 to 1.3 inches). Animal A exhibits the heavy bone and straight legs (3) that are characteristic of most modern day meat-type hogs. Animal A is "cut up" in the twist or crotch (4) so to speak, using the critical terminology of the past. The deep, full crotch commonly referred to in the past was a result of waste fat. During the feeding period, fat deposits in the crotch area and gives the impression of additional muscle development. Note that Animal A is clean and neat in the crotch and at the base of the ham and exhibits an excessive amount of muscle through the inner ham area (4). The weight or volume of the ham is influenced greatly by the thickness it possesses, and the extreme muscle development of the inner ham on Animal A is an excellent example (4). Note the "set" to the feet and legs of Animal A. The feet (5) are set wide and out on the corners of the body. Animals that are heavy muscled must have wide set legs and thickness between them to carry the vast amounts of red meat and muscle tissue they possess. This is illustrated in the drawing of Animal A. Once again, the higher tail setting (6) of Animal A is mentioned. The tail setting is neat and clean and in no way shows a countersunk appearance that is evident in over-finished barrows. The higher the tail setting (6) fits into the rump, the greater the portion (depth, thickness and muscling) of the total pork carcass that will be found in the ham, all other things being equal.

B. Animal B does not show any muscle expression over the top (1) and in general has a rather square, right angle look over the top. Note that Animal B is wider at the top than it is at the bottom. This is the result of heavy fat deposits down the top and along the loin edge. The fat deposits give Animal B a smooth, symmetrical, full-looking appearance. Animal B lacks muscle expression through the ham (2) and particularly in the stifle muscle area. Note how the ham tapers toward the bottom; this is a definite indication of too much finish and a lack of the desired degree of muscling. The presence of muscle seams will not be seen in the ham of Animal B, because the seams have been filled with excessive amounts of fat which give the ham
a round, smooth dimension. The thick, bulging, muscular, expressive dimensions are the ones possessed by Animal A. Animal B has a rather square, right angle look when compared to the round, shapely appearance of Animal A. This square, right angle, table-top, shelf-type or square-muscled look can be used as an indication of excessive finish. Note the short legs and average bone size (3) displayed by Animal B which is usually associated with light-muscled, less-productive hogs. Animal B possesses a deep, full crotch and inner ham area (4). This area is loaded with fat which is highly responsible for the deep, full-looking appearance. The muscle structure in the inner ham region in no way forms and develops to give the deep, full look displayed by Animal B. Also note the sagging appearance in the twist area just below the tail. The heavy fat deposits in this area and at the cushion or base of the ham cause wrinkles to form in these areas, and the end result is a loose, sloppy, flabby appearance that is particularly evident when the animal is walking. Note that the feet and legs (5) of Animal B are set a bit close together under the center of the body. A close set of the feet and legs usually indicates a lack of muscle in the animal that possesses this characteristic. Animals that have this appearance and lack muscling tend to fatten faster and thus become the over-finished, light-muscled hogs that are undesirable according to present day evaluation standards. The tail setting (6) on Animal B is rather low and gives an indication of being countersunken into the body of the animal. This is the result of excessive fat build-up around the tail. The lower tail setting of Animal B (6) results in less total ham volume when compared to the higher tail setting displayed by Animal A. As a rule, a low tail setting will accompany a short, steep rump.

C. Meatless Animal C possesses a reasonably correct turn to the top (1) but indicates very little muscle development over the top (1). The ham area (2) is rather flat and expressionless with very little evidence of the desired muscle development through the stifles (center ham). Note the long-legged, fine-boned traits (3) displayed by Animal C. These traits quite often accompany the lack of muscling. Animal C is extremely "cut up" in the twist or crotch area (4) and shows almost no evidence of muscle development through the inner ham region (4). The hams from Animal C would be lean with a minimum amount of fat on them, but they would have very little dimension and would lack the quality demanded by the consumer at today's self-service supermarket meat counter. Note the narrow stance (5) of Animal C. The narrow placement of the rear legs is very typical of meatless barrows and is one of the best traits to use in identifying animals of this nature. The tail (6) is placed rather low on Animal C and will be accompanied by a short, steep, narrow rump and a narrow, shallow ham.

D. Meatless-fat Animal D is a meatless barrow that was fattened to the same degree as Animal B, the difference being that Animal B was a more muscular individual to start with than Animal D. Note the very square, right-angle, table-top look exhibited over the top (1) on Animal D. Since there was less muscle to start with in Animal D, the finished product is more exaggerated than Animal B. Animal D displays a rather "pear-shaped" look from the rear, with the top being considerably wider than the bottom. This is truly an indication of a lack of muscling. Note the flat, expressionless appearance to the ham (2) of Animal D. The fine bone (3) characteristic is another good indicator of a lack of muscling. Animal D has the same deep, full appearance in the twist or crotch area (4) as that displayed by Animal B. This is the result of heavy fat deposits in this area plus the lack of muscle
development through the inner ham region (4). The rear legs (5) are set very close together and truly indicate that Animal D has a very small muscle volume through the ham region. The additional thickness displayed by Animal D when compared to Animal C is essentially all fat. Note the countersunken appearance of the tail (6) on Animal D as well as the wrinkles at the cushion of the ham and in the upper crotch or twist region. All of these characteristics point toward an over-finished, light-muscled animal. The same general characteristics are evident in any type of hog when it is fat. This can be observed by comparing Animals B and D.

It is extremely important for breeders, feeders, packers, judges, professional hogmen or anyone connected with the pork industry to keep in mind that visual appraisal is not the only tool to use in the selection and improvement of "modern meat-type hogs." Information from swine testing programs can be very helpful in assisting the pork producers of today to achieve the goals of tomorrow. The real differences between Animal A, B, C and D are due to their genetic makeup or breeding. Management will help express (either good or bad) the genetic potential of each hog. Since genetics are responsible for the differences, it is the combination of subjective (visual appraisal) and objective (physical measures) methods that provide the best way to produce "modern meat-type hogs."

SUMMARY

The barrow of the future will need to possess every characteristic of Animal A discussed in this publication. Plus, it will need to have the correct slope to the shoulder, set to the front and rear feet and legs and slope to the pasterns. It will need to have toes of the same length and will need to walk out smartly and with ease of movement. The barrow of tomorrow will need to be structurally sound in every way. This animal will need to gain one pound for every two pounds of feed consumed and weigh 240 pounds in 150 days or less. The barrow of tomorrow will be commonly sold at 240 pounds so it will definitely be essential for this animal to have the rugged framework, the correct structure and above all the heavy bone and sound feet and legs that will be necessary to carry the extra weight while being raised in a confinement setup. The barrow of tomorrow will consistently yield 40-45 per cent ham and loin, depending on the degree of muscling and finish. The question--Is the barrow of tomorrow here today? Are the judges and evaluators on the right track in using the present day standards, measures and ideals? Are all segments of the industry considered in the showing and on the rail? Is the marketing structure justly recognizing the advantages possessed by the modern meat-type barrow?