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AGRICULTURAL EXTENSION
XII

LIVE STOCK JUDGING FOR BEGINNERS

To become a good judge of live stock should be the ambition of every boy and girl. This circular is designed primarily for the beginner in the study of live stock judging, and more especially for the boys and young men of Indiana who cannot come into personal contact with any one familiar with a systematic method of studying this subject.

Indiana farms need more and better live stock in order to prevent the waste of large quantities of rough feeds and to maintain soil fertility and increased profits.

The farmer who has become a good judge of live stock through careful, systematic study will have opportunity to come in touch with the best methods of breeding and handling stock and with men of affairs, and by his increased knowledge broaden his influence and usefulness to his community and the world at large.

The man who understands market demands and who has the ability to select animals for the feed lot, that will make consistent, rapid, and economical gains throughout the feeding period and meet the market requirements will find this knowledge a source of both profit and satisfaction.

Wise selection and mating is impossible without definite knowledge of what constitutes a good animal and ability to discriminate against the undesirable, inferior sire.

It is not practicable nor possible to replace all the live stock of the farms of Indiana with purebreds. It is possible, however, and would be highly profitable, to replace all the grade, cross-bred, and scrub males which are being used as sires, with males which possess the breeding that will insure improvement.

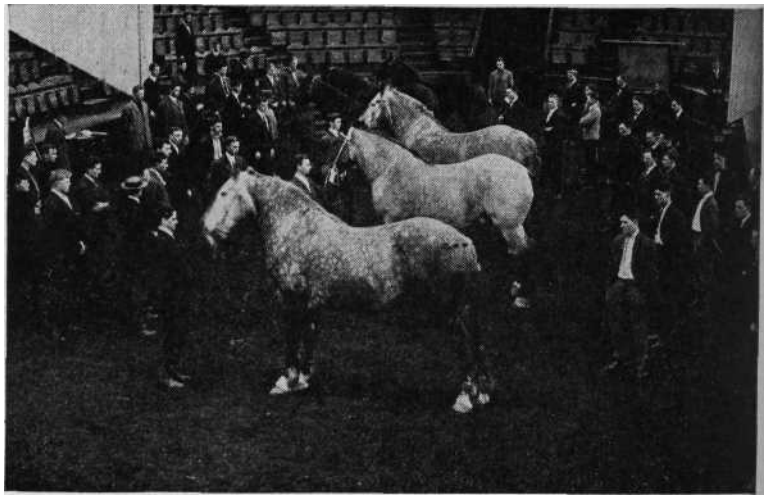

Fig. 1. Judging draft horses. Winter Course contest, 1911

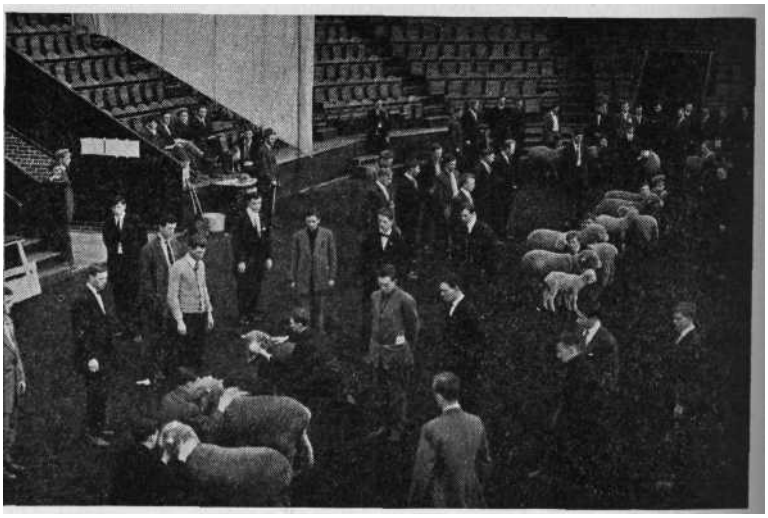

Fig. 2. Judging sheep. Winter Course contest, 1911

LIVE STOCK JUDGING FOR BEGINNERS

This circular was prepared under the direction of J. H. Skinner, Professor of Animal Husbandry, by members of the Departments of Animal Husbandry and Dairying, and edited by D. O. Thompson.

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PART I
INTRODUCTION THE STUDY OF LIVE STOCK JUDGING IS PROFITABLE

The knowledge gained by such study will be a source of satisfaction and financial profit throughout life. Wise buying and selling, proper selection of stock for breeding and feeding purposes, a knowledge of the excellence of your animals and their value, acquaintance with the market classes, and a more intelligent interpretation of market quotations, will aid you in placing your live stock business on a firmer, more profitable basis. Combining definite knowledge with your business means that you will make and save more money than would otherwise be possible.

Every country boy and girl should be interested in good stock and know how to properly care for it. Good live stock on the farm is a continual source of profit and satisfaction. To become a good judge of animals should be the ambition of every boy and girl. There are few more interesting studies than the study of animal life and with the assistance of your parents, your teachers and others, and the many books, agricultural papers, and bulletins of your Agricultural College and Experiment Station and the United States Department of Agriculture now published, any one may obtain a knowledge that will be invaluable to him. Indiana farms need more and better live stock in order to prevent the waste of large quantities of rough feeds and maintain soil fertility and increased profits.

Every farmer who keeps live stock must meet the problem of selecting females to be used in his breeding herd or flock; however, a more difficult problem is the selection of males suited to produce best results when mated with them. Wise selection and mating is impossible without definite knowledge of what constitutes a good animal and ability to discriminate against the undesirable, inferior sire. Through long experience, filled with costly mistakes and equally costly triumphs, some men have learned the art of selection and mating. A careful, systematic study of live stock will enable you to obtain what these pioneers in breeding have discovered by costly experience and the expenditure of much time and money. The successful breeders of pure-bred[1] live stock in the future must

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[1]Pure bred; stock whose ancestors are registered or eligible to registry in a recognized registry association. Grade: stock, the offspring of pure bred sire and non-pure bred dam. Scrub: stock having neither parent of pure breeding is said to be of scrub breeding: or, the get of a sire of impure breeding: or, inferior stock

necessarily understand the science of selection and mating and be able to put their knowledge into practice early in life without experimenting for years as has been the case with our forefathers. In other words, they must begin where their fathers quit, and improve our present flocks and herds which have already reached a high state of development. Live stock shows of local, state and national character afford an excellent medium for advertising breeding stock. The knowledge and ability to select animals that will develop into show stock will largely determine an exhibitor's success in the show ring. The breeder who is a good judge of animals and who has the knowledge of show ring standards is in a position to determine whether his stock can successfully compete in the shows.

The man who understands market demands and who has the ability to select animals for the feed lot that will make consistent, rapid, and economical gains throughout the feeding period and meet the market requirements, will find this knowledge a source of both profit and satisfaction.

The farmer who has become a good judge of stock through careful, systematic study will have a degree of recognition and influence in his community that may offer many opportunities for him to meet and mingle with the best informed live stock men, expert judges, prominent breeders and officials of shows and other agricultural organizations. He may thus come in touch with the best methods of breeding and handling stock and with men of affairs, and by his increased knowledge broaden his influence and usefulness to his community and the world at large.

As indicated in the title, this circular is designed primarily for beginners in the study of live stock judging, and more especially for the boys and young men of the state who can not come into personal contact with any one familiar with a systematic method of studying this subject. A considerable amount of detail, therefore, necessary to the automatic action of the circular as an instructor in live stock judging, has been inserted. This may appear superfluous to the more advanced student and to the experienced stockman and judge, who may, at their pleasure, dispense with its perusal. Beginners, however, will derive from the careful study of the introductory sections, information enabling them to more fully comprehend and follow subsequent instructions and suggestions.

THE SCORE CARD[1]

Its Purpose.—The score card is primarily an aid to the study and teaching of stock judging. It is a detailed description of the parts of an ideally perfect animal, giving in systematic order all of these parts, and emphasizing their relative importance. It teaches the method of seeing the various parts in a logical, orderly way. It deals with one animal, comparing it with an ideal of what the animal should be. After learning the method of examination, the art of seeing the parts of the animal instead of merely the animal as a whole, and securing an idea of the relative importance of these parts, you are ready to discard the score card, and take up comparative judging.

Its Make-up.—A comparison of the score cards given in this circular shows that they are all made up in nearly the same way. At the top of the card at the left is given the kind and at the right the class of animals for which the card is made. All the cards are divided into several main divisions, and these again divided into a number of sections. The different parts of the animal are listed and described. At the right of each description is given a figure which shows the percentage value attached to each particular part.

How To Use It.—If the animal is as nearly perfect in any part as is possible, place in the column headed "Student's Score" the figure in the column headed "Standard" and the point will 'go full,' which means that it is worth in your judgment all the card allows. If the part is not good, make a 'cut,' or take away from the percentage given in the standard an amount which will show just how bad you think it is, or how much it would have to be improved to be perfect. Never make a 'cut' of less than one-fourth of one per cent. Seldom will a part of an animal deserve a 'cut' of more than 50 per cent. of its value. An important part deserving more than a 50 per cent. 'cut,' is so seriously at fault that it may disqualify the animal. Then put in the column headed "Student's Score" the percentage value you think this part of the animal to be worth. Start the examination at the first part mentioned on the score card and continue until all parts have been noted in the order given. You will then have recorded in the column "Student's Score" the percentage value of each part by points. Add this column and the total is the score of the animal. Scoring many animals of a class and comparing scores with those of a good judge, and talking with him

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[1] *Scoring* is the act of systematically examining an animal and recording on a score card the figure representing the degree of perfection in every part. *Judging* it generally applied to the act of selecting and arranging in the order of their merit the animals in a group entered in public competition. *Selection* is generally applied to the act of choosing breeding, feeding, or show stock

about the points of difference is a good way to learn how to value the weak and the strong points.

A Good Score.—The perfect animal—one filling in every way the description given in the score card—should have a score of 100. It takes a very good animal to score 80, and an exceedingly choice one to score 90. It is impracticable to work out a mathematical system for making 'cuts.' Because the 'cuts' made must depend upon the scorer's judgment, rarely will two scores for the same animal made by two persons be alike in all details, or even in the total score. Two good judges may differ several per cent. in the score allowed an animal, and still both hold about the same opinion of the relative degree of perfection of the animal.

Students' Score Cards.—The score cards given in this circular are those used in class work by the Animal Husbandry and Dairy Departments of Purdue University School of Agriculture to aid in teaching the subject of live stock judging. They are made so that breed characters are not taken into account. The animal is scored from the standpoint of the use to which it is to be put. The parts named are those which go to make up perfect animals from a utility or market standpoint. It would not be practicable nor possible to have one score card which would do for use in the study of all the different breeds of the same kind of animals, because in studying the breeds and learning to judge them, those points showing the difference in breeds must be considered. All animals of a kind which are meant to do exactly the same work, or intended to serve in the same way, may well be studied by one score card—the standard for the animal best fitted to do that work or serve that purpose.

Breed Standards.—These have been adopted by nearly all of the national associations for the registration of pure-bred live stock, and may be found in the books of record. Much valuable descriptive matter may be obtained from these associations upon request. In judging from the breed standpoint, base decisions upon trueness to breed type as described in the breed standard. On pages 119 to 124 inclusive tables are given showing the breeds of horses, cattle, hogs, and sheep, the country of their origin, some of their characters and uses, the names of the associations in which they are registered in the United States, the name and address of the secretary of each.

The Way to Study.—In order that you may study live stock scoring and judging in an easy, reasonable way, taking the different things in their proper order, the following steps are outlined:

1. Learn where the points mentioned in the score card are located on the animal.

2. Learn the different uses to which these animals are put, and class them according to uses.

3. Study the score card for one of these classes. Learn what the words used in describing a part of the animal mean. Fix an ideal in your mind and learn to recognize when and wherein any animal departs from that ideal.

4. Score a large number of animals of this class. Comparison with the scores of a good judge whenever possible will help in this practice. Several beginners scoring the same animal and then comparing their scores and discussing them, will help each other where it is not possible to have a competent judge or instructor do the scoring.

5. Study the descriptions of animals of this kind which are put to a different use than the above and which are classed differently. For example: after making a thorough study of the draft horse, and fixing that ideal firmly in your mind, take up a study of the harness horse, then the saddle horse, and so on.

6. Get from the secretary of the registry association for the breed of live stock which you know the most about, a good description of the breed, and study carefully. Know one breed well; few men become an authority on many.

7. After studying the full grown animal, study animals of different ages of the same breed, noting wherein they differ from the mature animal. Strive to learn to distinguish those things about a young animal which may indicate the possible manner of future development.

8. After studying the breeds with which you are acquainted, make a study of the different breeds of live stock. This is a long task, the work of a life time, and should not be attempted very largely until you have made a very close study and have become a good judge of some one breed. A study of the history of the origin and development of breeds, together with the lives of some of the men who have made marked improvement in live stock breeding, is interesting, and will be of help in understanding why it is that the breeds differ in form, habits, nature, etc. On page 126 is a list of books among which are some that will give you more in formation about these breeds.

COMPARATIVE JUDGING

Definition.—After a thorough study of the score card, and practice in comparing the points of a great many individual animals with the ideal described in the score card, you will be ready to start comparative judging. Instead of merely balancing the parts

of one animal against the description in the score card, compare the parts of several animals of the same kind, class, and age, keeping in mind the standard which they should approach.

Compare Points.—Make this comparison part by part, and record in your mind, or on paper, the parts in which each animal excels. For example: compare the general appearance of the animals in the class, and decide upon just what parts in general appearance each animal is better than the others. In beginning this work it will be well to write these points down, together with the ways in which they excel. In this same manner, consider all the parts in systematic order, listing points of merit or demerit, and stating just how the part is strong or weak. For further instruction in this, see the write-up of comparative judging in Parts II, III, IV, V, and VI of this circular.

Balance the Comparisons.—The best balanced animal, most uniformly perfect in the largest number of the most important points and without disqualifying weakness, should be placed first in the class. Your reasons for placing any animal ahead of any others should be so definite and clearly fixed in mind, that you can write a comparison of the several animals justifying your decisions. In writing this comparison, do not try to describe each animal, but tell wherein each is superior or inferior to the others.

Order of the Animals in the Ring.—When the animals are brought before the judge they are not in any regular specified order that is, as to their respective merits. The superintendent in charge of the judging should see that they are placed in an orderly way to avoid crowding and to admit of ready, careful inspection by the judge.

Cattle, sheep, and horses should be lined up on a level piece of ground, all facing the same direction and each held by an attendant. Hogs are not easily held, and they are best managed with a movable gate-like device called a 'hurdle.' Strange hogs, especially aged boars, should not be allowed to get together in the ring, as they will fight, and not only hurt each other, but cause a disturbance that will interfere with the work of properly judging them. In some instances they have been known to injure the judge.

For purposes of examination or comparison the judge may direct the animals to be moved about as he wishes, and placed in whatever order he desires. It is customary to have the animals finally placed in the order of their merit, the best one at the head of the class, the left end of the line, the second best next, and so on.

PART II
JUDGING HORSES

D. O. Thompson, Animal Husbandry Extension

INTRODUCTION

In order to intelligently study the score card, together with the descriptions given in it, it is necessary to learn the names of the parts of the horse. These accompany the picture of the draft gelding on which the parts are located by numbers.

Classification.—For the purpose of study, a broad classification may be made as follows: market horses; breeding horses. Market horses may be divided into four groups according to type, and the work that the horses are best fitted to perform, as follows: draft horses, horses principally valuable for moving heavy loads; harness horses, horses used for stylish driving, road work and racing in harness; saddle horses, horses used for riding purposes; and ponies. Breeding horses may be of any of the above types, and may be considered under two groups—stallions and mares.

DRAFT HORSES

The draft horse finds his particular field of usefulness in hauling heavy loads. He is a machine, the function of which is propulsion. In the score card below is given the description of the horse best fitted to do this. To best perform this work he must be heavily and strongly made. Everything about him should be massive.

SCORE CARD

DRAFT HORSES MARKET

SCALE OF POINTS	Standard	Points deficient	
		Student's Score	Corrected
GENERAL APPEARANCE -19 per cent.			
1. Height, estimated……hands; actual ……..hands….			
2. Weight, over 1600 lbs. according to age ……	6	……..	……..
3. Form, board, massive, well proportioned, blocky, symmetrical ……	4	……..	……..
4. Quality, refined; bone clean, hard, large, strong; tendons clean, defined; skin and hair fine; feather, if present, silky …..	6	……..	……..
5. Temperament, energetic; disposition good ……	3	……..	……..
HEAD AND NECK -9 per cent.			
6. Head, lean, proportionate size; profile straight ……..	1	……..	……..
7. Ears, medium size, well carried, alert ……	1	……..	……..
8. Forehead, broad, full …….	1	……..	……..
9. Eyes, full, bright, clear, same color ……	2	……..	……..
10. Lower jaw, angles wide, clean ……..	1	……..	……..
11. Muzzle, neat; nostrils large, open, free from discharge; lips …. Thin, even, firm …….	1	……	……...
12. Neck, well muscled, arched; throatlatch clean; windpipe large….	2	……	……

SCORE CARD (continued)

DRAFT HORSES MARKET

SCALE OF POINTS	Standard	Points deficient	
		Student's Score	Corrected
FOREQUARTERS -24 per cent.			
13. Shoulders, moderately sloping, smooth, snug, extending into back ……	3	…….	…….
14. Arm, short, strongly muscled, thrown back, well set ……...	1	…….	…….
15. Forearm, strongly muscled, wide clean ……	2	…….	…….
16. Knees, deep, straight, wide, strongly supported ……..	2	…….	…….
17. Cannons, short, wide, clean; tendons defined, set back ……..	2	…….	…….
18. Fetlocks, wide, straight, strong, clean ……	1	…….	…….
19. Pasterns, moderate length, sloping, strong, clean ……..	2	…….	…….
20. Feet, large, even size, sound; horn dense, waxy; sole concave; bars strong; frog large, elastic; heel wide and one-fourth to one-half the lineal length of toe ……..	8	…….	…….
21. Legs, viewed in front, a perpendicular line from the point of The shoulder should fall upon the center of the knee, cannon, Pastern and foot. From the side, a perpendicular line dropping From the center of the elbow joint should fall upon the center Of the knee and pastern joints and back of the hoof …….	3	…….	…….
BODY -9 per cent.			
22. Chest, deep, wide, large girth ……	2	…….	…….
23. Ribs, long well sprung, close; coupling strong …….	2	…….	…….
24. Back, straight, broad, strongly muscled ……	2	…….	…….
25. Loins, wide, short, thickly muscled ……..	2	…….	…….
26. Underline, low; flanks full ……	1	…….	…….
HINDQUARTERS -30 per cent.			
27. Hips, broad, smooth, level, well muscled ……..	2	…….	…….
28. Croup, not markedly drooping, wide, heavily muscled …….	2	…….	…….
29. Tail, stylishly set and carried …….	1	…….	…….
30. Quarters, deep, broad, heavily muscled, thighs strong …….	3	…….	…….
31. Gaskins, long, wide, clean; tendons defined …….	2	…….	…….
32. Hocks large, clean, strong, wide well set ……..	6	…….	…….
33. Cannons, short, wide, clean; tendons defined ……..	2	…….	…….
34. Fetlocks, wide, straight, strong, clean ……..	1	…….	…….
35. Pasterns, moderately sloping, strong, clean ……..	2	…….	…….
36. Feet, large, even size, sound; horn dense, waxy; sole concave; bars strong; frog large, elastic; heel wide, and one-fourth to one-half the lineal length of the toe ……..	6	…….	…….
37. Legs, viewed from behind, a perpendicular line from the point of the buttock should fall upon the center of the hock, cannon, pastern and foot. From side, a perpendicular line from the hip joint should fall upon the center of the foot and divide the gaskin in the middle, and a perpendicular line from the point of the buttock should run parallel with the line of the cannon…..	3	…….	…….
ACTION -9 per cent.			
38. Walk, fast, elastic, regular, straight ……..	6	…….	…….
39. Trot, free, springy, balanced, straight ……	3	…….	…….
Total ……..	100	…….	…….

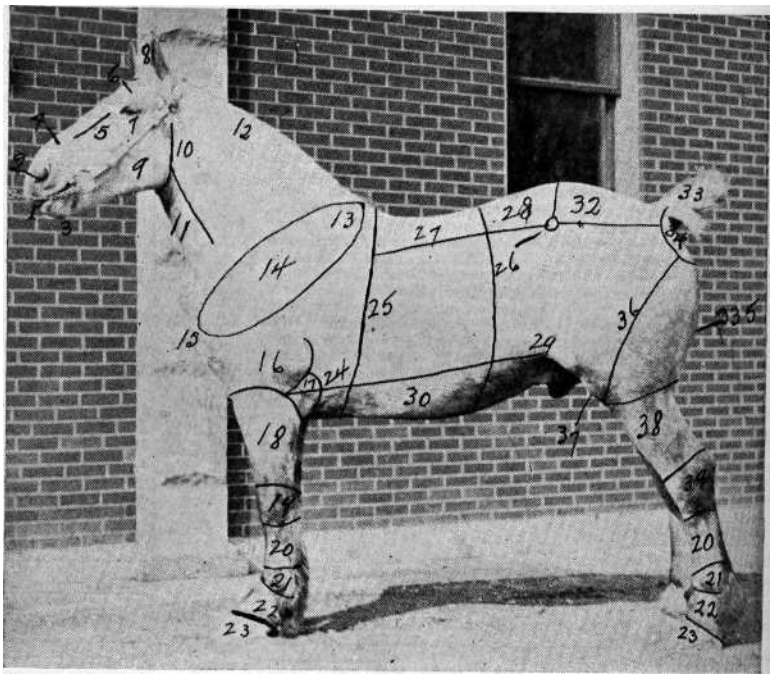


Fig. 3. Points of the horse

1. Mouth	14. Shoulder	27. Back
2. Nostril	15. Breast	28. Loin
3. Chin	16. Arm	29. Rear flank
4. Nose	17. Elbow	30. Belly
5. Face	18. Forearm	31. Hip
6. Forehead	19. Knee	32. Croup
7. Eye	20. Cannon	33. Tail
8. Ear	21. Fetlock joint	34. Buttocks
9. Lower jaw	22. Pastern	35. Quarters
10. Throatlatch	23. Foot	36. Thigh
11. Windpipe	24. Fore flank	37. Stifle
12. Crest	25. Heart girth	38. Gaskin, or lower thigh
13. Withers	26. Coupling	39. Hock

Height.—A "hand", the unit for measuring the height of the horse, is four inches. A measuring staff marked off in hands, inches, and fractional parts thereof, is used where the accurate height is required. "Where such is not available, or where absolute accuracy is not demanded, a good way to estimate the horse's height is to 'chin' him. Find out how high it is from the ground to the point of your chin when standing erect. The measurement for the height of the horse is taken at the withers, indicated in the picture.

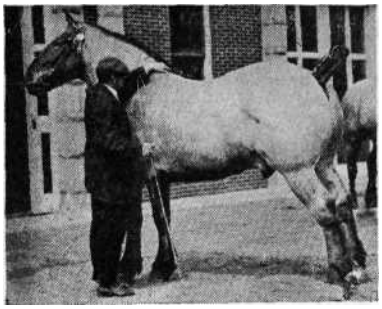


Fig. 4. Correct position for estimating height. Left hand shows point from which to measure

Stand facing the horse close to his side, on a level with the soles of his feet. Estimate how much the top of the withers varies in height from the point of your chin. For example: if from the ground to the point of your chin is 62 inches, or 15 hands, two inches, and the point of the withers is three inches higher, addition gives 65 inches, or 16 hands, one inch, as the height of the horse. The desired height for the draft horse is from 16 to 17 hands; a wide variation, however, from 16 to 18 hands, is common. The height should be due to depth of body instead of length of leg. A deep body indicates constitution, and capacity for food, which in turn indicate capacity for work.

Weight—6 per cent.—The draft horse must weigh 1600 pounds, and should weigh a ton or over. This great weight should be largely due to massiveness of form and heavy frame and muscles, rather than to an excessive amount of fat. Weight holds the horse to the ground, enabling him to secure a foothold against which to exert his strength and throw his weight. Weight thrown forward is power in itself and the greater the weight to throw forward, the greater the power derived from it. The horse market classes horses weighing less than 1600 pounds, and of draft type, as chunks and wagon horses. Any horse under weight should not be allowed a

place in the draft classes in the show ring. Depth and width of body, compactness, blockiness, massiveness, heavy muscles, are some of the things which indicate great weight. Excessive fat should not be considered a credit. Long legs, light bone and muscles, long body with small girth at the heart and flank, and long coupling, are some of the things which indicate that the horse is not heavy for his height, and should cause you to discriminate against him in the show ring, and cut him heavily when scoring.

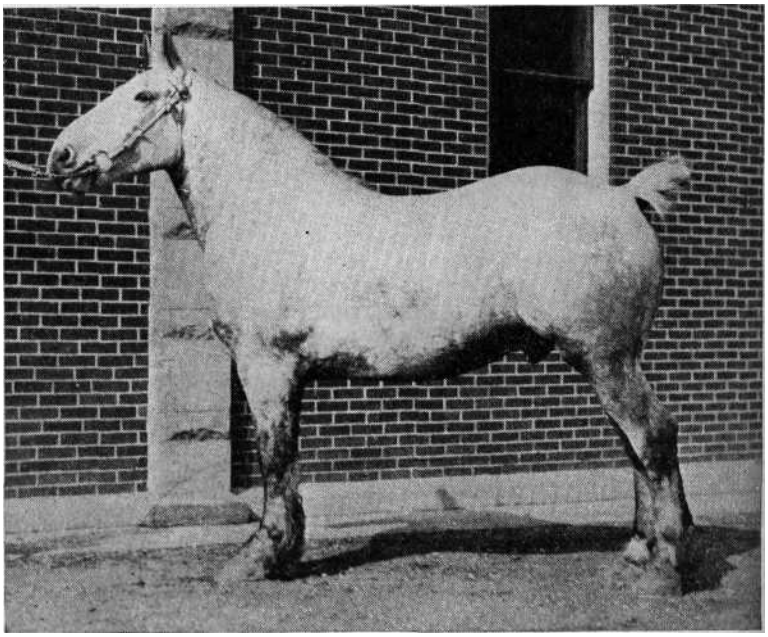


Fig. 5. Muscular, compact, low set, draft conformation. “Prince.” International champion draft gelding, 1910

Form—4 per cent.—Stand at a convenient distance in front of the horse, facing him, and note the form of the head, the balance of its parts, the width of breast and depth of chest, strength and straightness of the fore legs. You should see a large, clean-cut head, bright eyes, large, open nostrils, proportionate muzzle, broad forehead; a large windpipe; great breadth between the points of the shoulder; a wide breast and floor of the chest; a pair of short, strong clean, heavily muscled legs supporting the shoulders, squarely placed and vertical to the ground. A narrow forehead means small brain and nerve development, a tendency for the horse to be slow

going and unintelligent. Small, contracted nostrils and windpipe are generally associated with a narrow chest and small heart girth, indicating weak constitution and limited endurance.

Observing the horse from the side, note the upper and lower lines, the balance of the fore and hind quarters, the depth of body, the straightness and muscles of back, compactness and closeness to the ground. The body should be deep and well proportioned in all its parts, giving a well balanced appearance. The fore and hind flanks should be low, the back and loin straight, strong, short, and heavily muscled. The coupling should be close and strong. The compactness and squareness of the body should be completed by the croup carrying out level to the tail-head. A sagging, 'hollow' back, long, 'washy' coupling, steep croup, cut-up flank, long, poorly placed legs, are some of the most frequent faults to be seen from the side view.

Passing to a safe distance at the rear of the horse, note the width and straightness of croup, the muscles of the thighs and quarters, and the position of the hind legs. The croup should be wide and straight; quarters and thighs, deep and heavily muscled; the legs straight and squarely placed under the body. Narrow or lightly muscled croup, quarters, or thighs, or crooked legs are serious faults. After a view from the other side you will have finished the examination for form.

Lack of depth of body, too much ranginess, openness, legginess, lightness of muscling and of body are some of the things to be most severely criticised. These deficiencies of form detract from the weight and strength, and therefore from the pulling power of the horse.

Quality—6 per cent.—From the same position as before, note the flatness and cleanness of cannon, cleanness and definition of the joints, fineness of coat, mane and tail, cleanness of head. There is a correlation of the external and the internal anatomy of the animal; therefore, these may be taken as indications of quality. High quality is shown by a flat appearing, clean cannon bone; hard, clean and well defined joints; fine skin, hair, mane, and tail; clean cut and sharply defined features of the head, thin, even lips, and fine ears. All of this fineness should be accompanied by sufficient substance; that is, a small cannon bone is not necessarily a bone of high quality; neither is a large cannon bone necessarily one of poor quality. A cannon bone behind which the tendon is clean and clearly defined, giving a flat appearance to the cannon indicates wearing quality; fineness of hair about the leg and hoofhead, or coronet, indicates that the small fibres of the wall of the hoof and the structure of the bone are fine, making a dense hoof wall and a hard, clean

sound bone. The value of the horse, the length of time he will be of service, depends largely upon the quality of all his parts. Superior quality increases the selling price of the draft horse. [1]The common, sound, 1800 pound drafter sells at $300 on the Chicago market; give him style and quality and he will sell on the same market at $450. Heavy horses of very low quality, sell on the horse market as loggers, and for a lower price than the drafter of good quality, suitable for city service.

Temperament—3 per cent.—A live, snappy, energetic temperament, together with a docile, manageable disposition, should entitle a horse to a full score, and should give him preference over a horse with either a vicious disposition, or a slow, sluggish, lazy temperament.

Head and Neck—9 per cent.—The head and neck should be of such excellence of feature, form and quality, that they give the horse a distinctively pleasing, stylish appearance, either in or

Fig. 6. A "Good Outlook." Head should be clean cut, neck muscular, arched, and long enough to give a pleasing appearance in harness

out of harness. Some of the most common faults to expect are, a coarse, meaty, over or under-sized head, with a "Roman nose;" a narrow, dished or bulging forehead; blindness or defective eyes; large, meanly carried, poorly attached ears; weak, narrow jaw, meaty in the angles; small muzzle; poorly controlled lips; teeth not meeting evenly, making a 'parrot' mouth, or an 'undershot' jaw; a poorly muscled, 'ewe' neck, with a coarse, meaty throatlatch, and a small contracted windpipe. Any of the above faults detract from the appearance of the horse and decrease his usefulness and selling price.

Forequarters—24 per cent.—The shoulder should be smooth and strong. It should form a collar bed against which the pulling

[1]T. W. Bell, Union Stock Yards Horse Exchange, Chicago

power of the horse may be applied for a long time without sores and unsoundness developing. The rough, angular shoulder is more liable to become sore and unsound than the smooth, snug shoulder. The slope of the shoulder, that is, the direction of a line which you might draw from the top of the withers to the point of the shoulder, is closely related to the slope of the pastern joint. Upright shoulders and pasterns mean a short, stubby, wearing, undesirable way of going. Too great slope of these two parts means a poorly controlled, ambling way of going. A slope of about 45 degrees is proper. The arm, lying between the point of the shoulder and the elbow joint, should be short and heavily muscled, strongly supporting the shoulder. It should lie in a nearly horizontal plane, well thrown back under the body, insuring strength and desirable action. Weak muscling and upright position are common faults. Heavy muscles on the upper part of the forearm, and a clean, 'cordy,' flat appearance of the lower part, indicate strength. Here is a good place to estimate the probable size of the hidden muscles of the horse. The appearance of strength of the back and loin may be improved by fat, but the forearm does not fatten. Its size depends upon the muscular tissue present. Light muscles of the forearm are taken to indicate light muscles, therefore weakness, throughout the horse. The knee joints should be large, straight, and angular (not round or egg shaped as viewed from in front), with the tendon standing out well behind, giving strength and support to the joint. A tied-in appearance below and at the back of the knee indicates weakness. The cannons should be short, clean, with the tendon well defined at the back, giving the leg a flat appearance. Shortness increases power and improves action. Roundness, coarseness, or too much fineness (lack of substance) are undesirable. The fetlock joints should be clean, straight, and strong. The pasterns, viewed from the side, should show a slope of about 45 degrees, and will have about the same slope as the shoulder. This slope allows of some spring and elasticity in this part when the foot meets the ground. Pasterns too upright give the horse a stubby, pounding way of going, tending to produce foot troubles and unsoundness, as sidebones, ringbones, navicular disease and stiffness. Pasterns with too great a slope are weak and liable to break down when the horse becomes old, or is put under a great strain for a long time.

The foot should be attached to the leg so that it toes straight ahead rather than in or out. This position permits straight, forward action. If the toes turn in, the horse throws his feet out when bringing them forward, or 'wings.' If the toes turn out, the horse throws his feet in when bringing them forward, or 'paddles.' Either fault tends to unbalance the stride, decrease its length, and causes

the foot or the shoe to wear unevenly. View the shape and size of the fore feet from in front and from the side. The feet should be large, even in size, and from the front view should appear nearly circular at the line of contact with the ground, the circle making a somewhat abrupt turn at the inside front are, and following a trifle less circular line to the inside quarter. From the side, note the slope of toe and of the heel and their proportionate lengths. The length of the heel should equal one-fourth to one-half the lineal length of the toe. The heel should be parallel to the median line of the foot, and should appear parallel to the toe when viewed in profile. The toe should slope at an angle of about 50 degrees, and should harmonize in this respect with the slope of the shoulder and of the pastern, which as above stated should be about 45 degrees. The hoof wall should be free from cracks or breaks. Lift the foot, and hold it by the point of the toe with the sole upturned. The heel should be wide throughout its length, widening somewhat as it reaches the sole of the foot. The frog, that spongy portion beneath the heel, should be well defined, large, and elastic to the touch. Hardness, dryness, decaying conditions, and total absence of frog, are serious faults. The bars are horny braces leading from the point of the frog to the hoof wall at the sides of the heel on both sides of the frog. Their purpose is to keep the heel from contracting, and they should appear strong and well defined. If the blacksmith has cut them out, or for some other reason they are not strong, the heel will be contracted, crowding the frog out of shape and place. The dense sole of the foot should be very slightly concave. The arched or concave sole gives a stronger support to the interior anatomy of the foot than would a flat or a convex sole. As soon as his feet wear out or become notably unsound, the horse is no longer serviceable on the city streets. Any faults about the feet should cause severe criticism of the horse and discrimination against him in the show or sales ring.

Body—9 per cent.—From a position at the side of the horse, observe the form of the body. The fore rib should be well sprung and long, giving the horse a broad back and a deep chest. The back and loin should be short and heavily muscled, the coupling should be close and strong, the rib roundly arched, the flank low, giving the horse a deep, strong-bodied appearance, abundance of room for the respiratory and digestive organs, and the ability to endure strenuous labor for a long period of time. Do not mistake excessive fat over the back and loin for heavy muscling. A horse with a shallow body, poor spring of ribs, hollow or weakly muscled back and loin, and with long, open coupling is neither a good, hardy worker nor an "easy keeper."

Hindquarters—30 per cent.—Exercise caution in making an examination of the hindquarters of a horse. Make observations from a safe distance at the rear or the side, and when necessary to handle a part to aid the eye in determining quality, size, condition or soundness, never approach the horse from the rear, nor without first speaking to him, thus warning him of your approach. Speak to him, and then, making your approach from the side, lay your hand on his back, following along the loin, thigh, and gaskin, and thence to the region you desire to examine. Always expect a kick and maintain a position at all times from which you can readily escape injury. A squatting position, or one at the immediate rear of the horse should never be assumed, as they are unnecessary, undignified, and dangerous. From the side and rear observe the distance between, and the smoothness of the hips, the width and levelness of the croup, the depth and fullness of the quarters, and thighs, and the strength of the gaskins. Note the muscling throughout. The hips should be proportionate in width to the general width of

Fig. 7. Weak, sickle-shaped hocks

Fig. 8. Straight, upright pasterns, showing cocked ankle

These faulty conformations are often transmitted from stallions and mares to the offspring. Legs built like these are weak and subject to unsoundness

the body. Prominent, rough hips are unsightly and more susceptible to injury than smoothly covered hips. To afford room for heavy muscling, and to improve the general appearance of the horse, the croup should be level, wide, and fairly long. A short, steep croup is a common fault. Deep, strongly muscled quarters and thighs are required for strength. The gaskin, or lower thigh, should be short and heavily muscled, indicating great development of muscle throughout the body. This whole region of the horse should be powerfully built and heavily muscled, for most of the force in pulling is exerted by the muscles of the hindquarters.

You can best note the shape, strength, and soundness of the hock from a position in line with the head of the horse, and to either side. From this position you see the face of the hock which should be broad, clean, flat, and strongly supported below. The juncture of the hock with the cannon bone should be strong, and should not appear cut-in. Passing again toward the rear and continuing the examination, note the back and sides of the joint, which should be long from top to bottom, angular, strong, sharply defined and strongly supported by the back tendon. Soft, full, puffy, small, rounded, or crooked hocks deserve a considerable cut on the score card or in case of comparative work, should cause the horse so afflicted to be strongly discriminated against. With the exception that the hind cannons are usually wider, pasterns and toes slightly shorter and more nearly upright, an angle of about 50 degrees for the former, and 60 degrees for the latter and the feet less rounding, the requirements are the same as forward, and may be seen from about the same relative positions. The common faults are about the same as in front. The set of the fore and hind legs when the horse stands naturally and is not posed should be as described in the score card, and with a little work you will become able to recognize correct and faulty position of the legs. Most of the faults in the way the horse goes are due to a faulty attitude of either the fore or the hind legs, or both; hence the necessity of having a faultless set of legs.

Comparative Judging.—The work thus far has been planned to create within your mind an ideal of a draft horse. The standard of perfection, the method of examination, and many of the common faults, have been presented. The aim has been to teach you to see the horse in detail, and seeing, to recognize merits and faults, together with their relative importance.

JUDGING ACTION—THE WALK[1]

Fig. 9. Have the horse moved away from you at the walk. His feet should be lifted with a snap, the joints flexed so that the shoe shows plainly, and carried forward in a straight line. The hocks should not be carried wide, nor close together, either position being a bad fault, the former of far more frequent occurrence

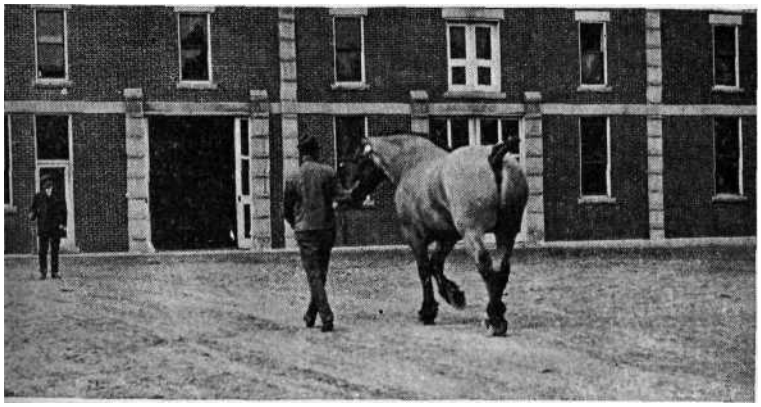


Fig. 10. Have the horse brought back toward you at the walk. His feet should be lifted clear of the ground, brought forward straight, and meet the ground so that no dirt or dust is kicked forward by the impact. This means that the heel meets the ground ahead of the toe, and that the horse does not have an undesirable, stubby gait

[1]Position of man with whip in Figs. 9, 10, 11, 12, indicates position from which to judge action

JUDGING ACTION-THE TROT

Fig. 11. Have the horse moved away from you at the trot. His feet should be lifted with a snap, the shoe showing plainly, and there should be no spraddling, due to going too wide, nor interfering, due to going too close. There should be no roll to the body due to poor position of the legs or poor flexion of the joints

Fig. 12. Have the horse brought back toward you at the trot. His feet should be lifted clear of the ground, brought straight forward, without throwing the fore feet either out or in, called "winging" or "paddling", and should meet the ground heel first, as will be shown by the fact that no dirt is stubbed up by the impact. A stubby gait is undesirable. A rolling gait, due to the legs being placed too wide on the body, is faulty

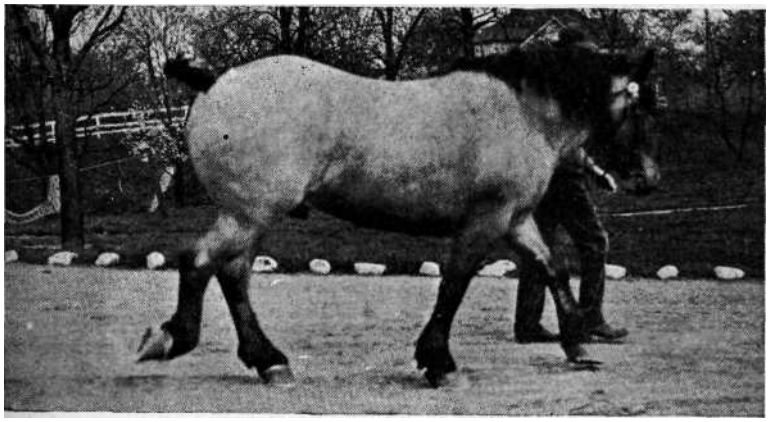


Fig. 13. Have the horse moved past you at the walk. He should move with a quick, energetic, lengthy stride that carries him straight forward. Note the length of stride, the flexion of the Joints, and whether or not the ground is well cleared without any useless expenditure of energy or shortening of the stride by high

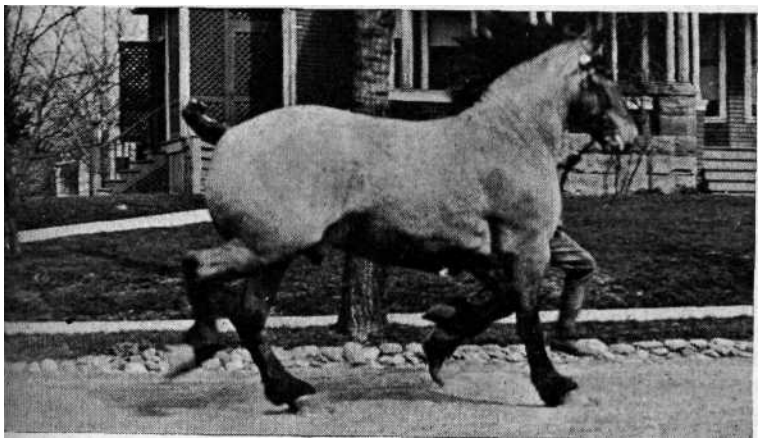


Fig. 14. Have the horse moved past you at the trot. He should flex the Joints enough so that there is no chance of stumbling, carry the feet straight forward in a long, even stride. At the end of the stride, the feet should meet the ground heel first, thus allowing of a better spring in the pastern joint, and doing away with the stubby action generally associated with upright pasterns

Henceforth, instead of comparing the horse with a standard of perfection, you will compare two or several horses. The question arising for answer will be, "In what ways affecting his utility, or market value, is each horse superior or inferior to all others with which he is being compared?" To answer this, it will be necessary to merge to a considerable degree the many details of the horse described in the score card, and consider those more inclusive characters or qualities about the horse, affecting his utility or market value: as size, soundness, conformation, quality, action, temperament and style.

Note and compare relative sizes, heights, weights, and general conformations of the horses in a class of several, to be placed in the order of their merit. Specific parts in conformation to be given especial attention are body, shoulders and pasterns, hocks and feet. Make examination for soundness while comparing quality. "While the horses are being moved to permit of judging action, note and compare their temperament and style.

The horse superior in the greatest number of these primary considerations and without notable fault in other important respects, will be of the greatest service and will sell for the highest price on the market, therefore is the most desirable. If he be notably inferior in any of the above respects, his selling price will be lessened and his utility value diminished.

HARNESS HORSES

After becoming familiar with the points of the horse, and having made a careful study of the draft horse, it will be an easier matter to learn to judge the other classes of horses. All the parts are named the same; indications of quality, constitution, etc.; methods of making observations and examinations are the same. Differences which fit horses for particular kinds of work cause them to be classified differently.

In the draft horse the essential requirement is pulling power; in the heavy harness horse, style, action, and conformation; in the light harness horse, speed and endurance; saddle horses, gaits, style, temperament, and carrying strength; ponies, style and tractable disposition.

Harness horses are generally divided into two classes, the *heavy* and the *light*. The heavy harness class includes horses of the coach type, which are driven at a slow trot or walk to a heavy vehicle. The light harness class is made up of horses of the roadster type, which are driven to a lighter, plainer vehicle, at a faster, less stylish gait, or are used for racing.

Heavy Harness Horses

General Description.—The heavy harness horse is fairly compact, smoothly turned, and has a high, flashy, trappy action. It ranges from 15 to 16 hands in height, and from 1100 pounds to 1400 pounds in weight.

Form.—The head and neck should be clean cut, attractive, and high and gracefully carried. The shoulders and pasterns must be

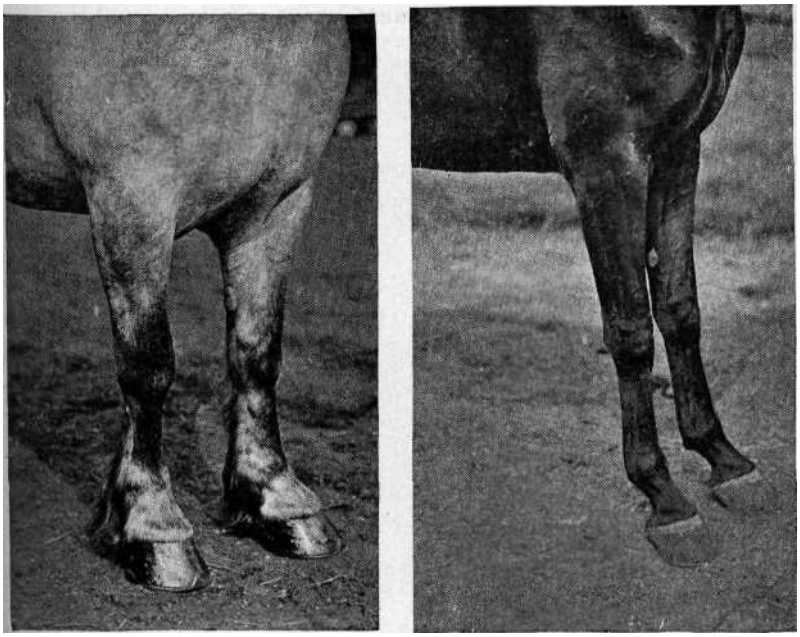


Fig. 16. Strength Fig. 16. Speed

The broad muscular breast, heavy muscles of the arm and fore arm, well supported, large knees, short cannons, strong fetlocks and pasterns, and large sound feet, all indicate pulling power. The deep chest, long, lithe muscles, clean joints and cannons, long cannons, and pasterns and tough feet, indicate speed and endurance

oblique and the knees and feet strong and perfectly free from any unsoundness or weakness of conformation. The back should be short and straight; ribs roundly sprung and deep; coupling, strong and close; croup long and level and the tail set high. The quarters and gaskins should be thickly muscled; hocks clean and large; feet of medium size. The legs should be straight, and perfectly placed under the body.

Quality.—The heavy harness horse must be of superb quality in order that it may have that general air of finish and refinement which is an absolute essential to this class of horses, in which style is of the greatest importance.

Action.—This is one of the most essential qualities of the harness horse. All movements must be graceful and in perfect balance. If the horse can not move with plenty of smoothness, flash, and style, he is among the 'undesirables.' The fore feet must be carried straight and high; the knee folding and carrying the foot forward in a graceful curve. The hocks must be sharply flexed and the feet kept well under the body. The action of this class differs from that of the roadster, in that the stride is not as long, feet are carried higher, with more snap, and are kept more nearly under the body at all times.

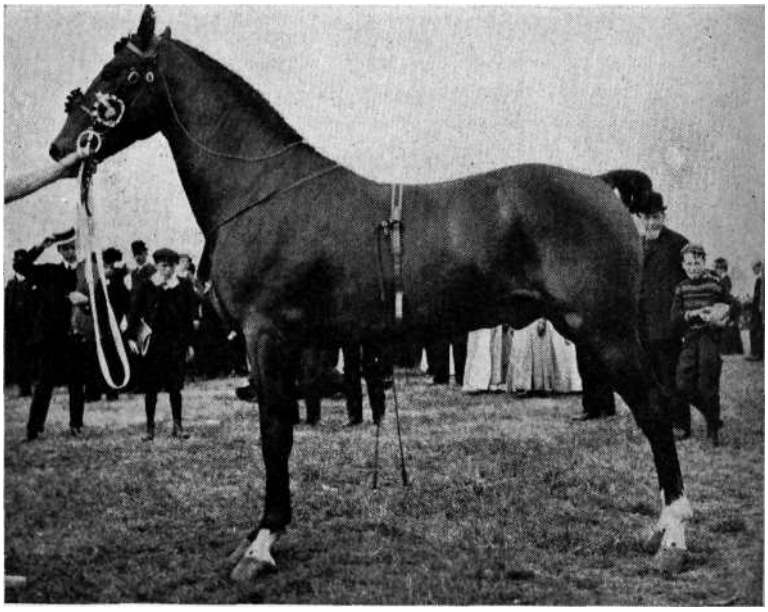


Fig. 17. Heavy harness horse. Note the refinement of head, length of neck, slope of shoulder and pasterns, compactness of body. Champion Hackney stallion, 1908 Royal Show, England

Light Harness Horses

General Description.—The light harness horse is more rangy and angular, with lighter and longer muscles than any of the other types. Its purpose is to move a light vehicle at a rapid rate of speed for a greater or less period of time, endurance in either case

being necessary. The roadster must have stamina, or 'bottom,' spring-steel quality, courage, and grit, perfect constitution and good sense or level headedness.

The most desirable height and size is 15 hands, three inches, and 1100 pounds respectively. The range on the market is from 15 to 16 hands in height and from 900 to 1150 pounds in weight.

Form.—The head should be medium in size, with clean-cut features, full, bold eye, erect, medium-sized ears, and large, open nostrils. The throatlatch should be clean cut, the neck long and slightly arched. A sloping shoulder should extend well into the back.

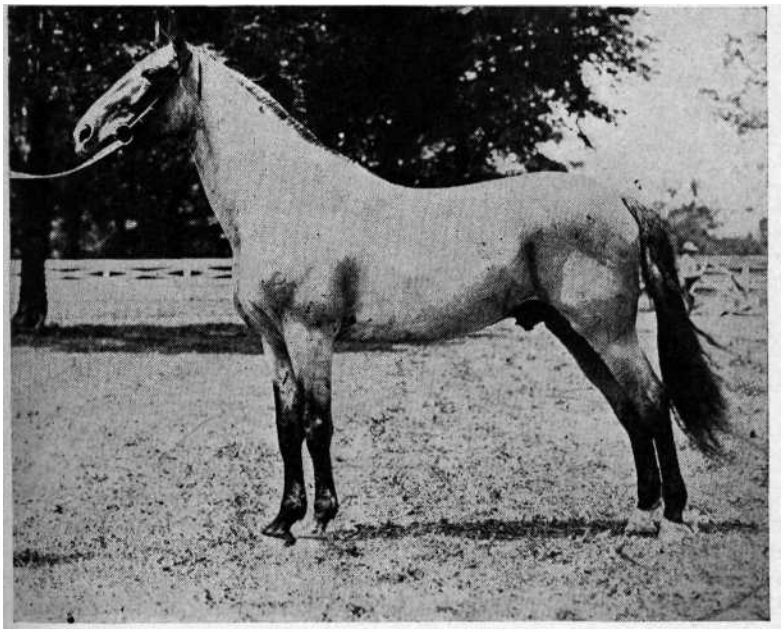


Fig. 18. Light harness horse. Angularity and length of body and limbs indicate speed. Depth of chest and quality of legs and feet indicate stamina and endurance. Standard-bred stallion

Strong, long muscles should cover the arm and forearm. The Knees should be strongly supported, cannons flat, and the pasterns long, and obliquely set, with the feet strong, and of medium size. The body should be deep, closely ribbed, and strongly coupled; the croup level and nicely rounded with muscles. The muscles of the thighs, quarters, and gaskins should be long and heavy. The hocks must be large, clean-cut, angular, and strongly supported.

Action.—The action of the roadster should be moderately high, and the stride long and frictionless. The feet must be carried straight forward and extend farther behind and reach farther in front than with either the heavy harness or the saddle horse. Forging, cross-firing, interfering, paddling and winging, and going too wide behind, are some of the common faults.

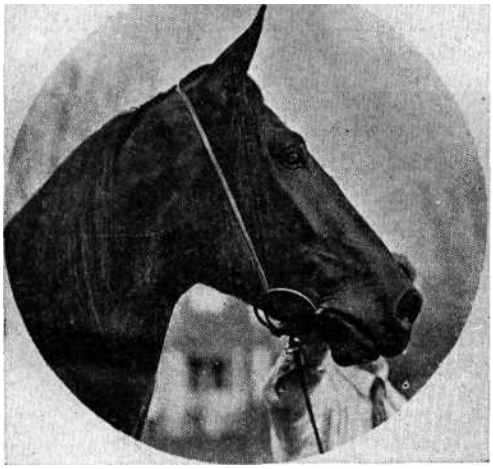


Fig. 19. Quality, style, and spirit; light harness type. Three year old, standard-tired filly

SADDLE HORSES

General Description.—In the United States there are two classes of saddle horses; the five-gaited and the three-gaited, or walk-trot-canter saddle horse. The size and weight of this class varies according to the weight to be carried. The classification on the market gives a range from 14.3 to 16 hands in height, and from 900 to 1200 pounds in weight.

Form.—The two types differ but little in conformation, the five-gaited type being less rangy, having more graceful lines, and presenting a smoother, rounder appearance than the three-gaited type. The quality, set of legs, and conformation in general are slightly similar to that of the carriage horse, a slightly greater emphasis being placed upon the length of neck, slope of shoulder, height of withers, and length and slope of pasterns, than in any other class, insuring comfort and endurance to rider and horse.

Action.—The three-gaited horse should go plain walk briskly and with speed equal to four miles an hour; canter reasonably high

and gentle; trot steady, straight, and true; action enough to be attractive ; well balanced and with speed equal to 12 miles an hour.

Added to the foregoing, the five-gaited horse should go running walk, fox trot, or slow pace smoothly and equal to six miles an hour; rack easily without being forced, with speed equal to 12 miles an hour. Must stand quietly, back readily, and lead with either foot in a canter from a halt. (Not required or desired to change lead in action.)

In showing, high rate of speed and racing are forbidden, and any 'High School' will be accepted as a disqualification.

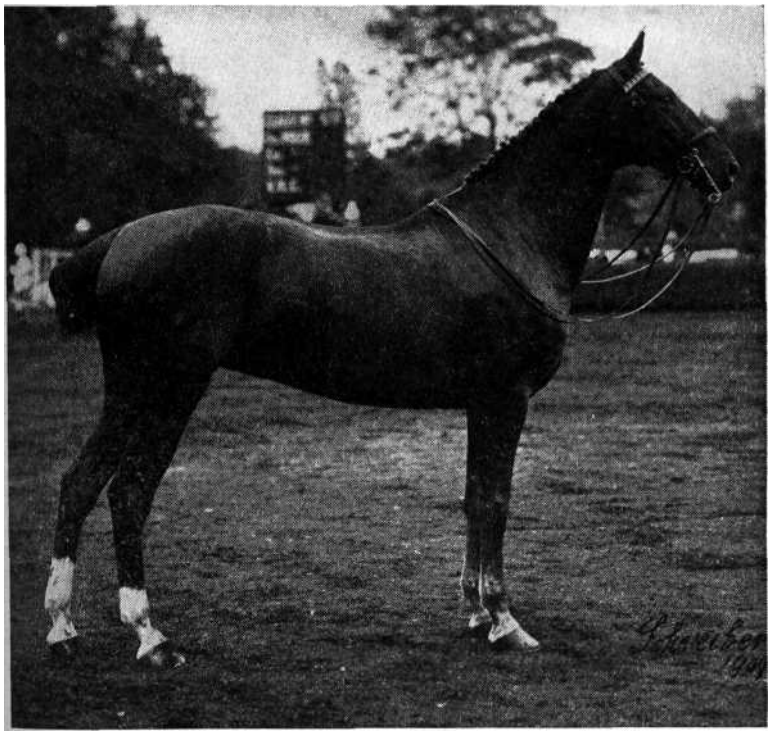


Fig. 20. Popular type of saddle mare. Length of neck, height of withers, strength of hack, levelness of croup, length and attitude of the legs are typical of the saddle horse. "Sonia." Champion Philadelphia Horse Show, 1909

PONIES

The market does not attempt to specify weight limits for ponies. Fourteen hands is given as the maximum height. In the three more prominent breeds of ponies—Shetland, Welch, and Hackney, the maximum heights are respectively: 46 inches; 13 hands; and 14 hands.

The conformation of ponies varies greatly, some being like small carriage horses, while others, especially Shetlands, are often blocky and compact, representing miniature draft horses in form. The more rangy type is rather more in favor. Temperament is of utmost importance. The pony should show considerable energy and snap, but must be docile and easily tractable so that he may be perfectly safe for children's use. The more attractive the action other things being equal, the more desirable the pony.

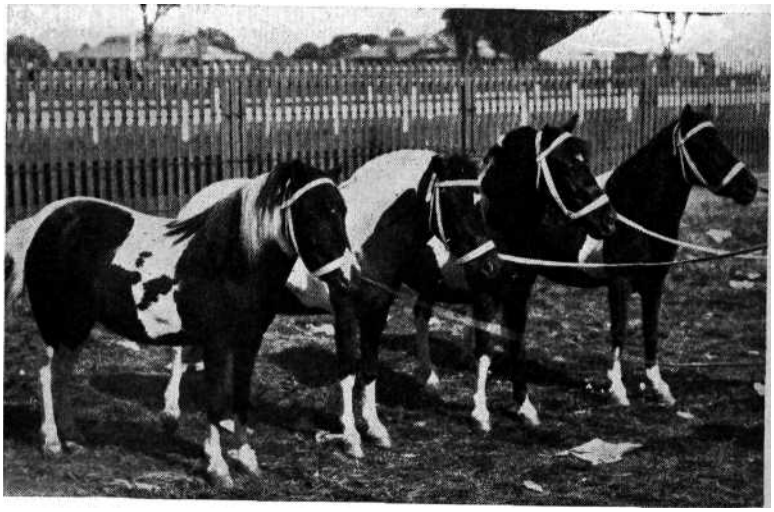


Photo by Hildebrand

Fig. 21. Type of Shetland pony in high demand. Dam and three of her produce. Uniformity of produce illustrates prepotency of dam

BREEDING CLASSES

In judging stallions or mares of any of the foregoing classes of horses, base your decisions to a great extent on excellence in sex characters, adherence to breed type, and degree of soundness.

Sex Characters.—The stallion should be a virile male. His entire bearing should be masculine. Bold, flashing eyes, haughty-carriage of the head, heavy development of crest and forequarters should mark him as pre-eminently masculine. These indicate great breeding powers, and strong prepotency. His conformation and disposition should be in direct contrast to that of the mare.

The hindquarters of the mare should be wide and roomy, indicating ability to exercise the maternal functions. The back and underline should be longer than in the stallion. She should have

a deep chest and body indicating strength of constitution. Her forequarters, neck, and head, should be refined, combined with a quiet disposition, to give her a feminine appearance throughout.

Breed Characters.—Certain breeds have been developed to do certain kinds of work. Size, conformation, quality, action, those essentials to the proper performance of that work, should be of first consideration in judging breeding classes. Color, shape of

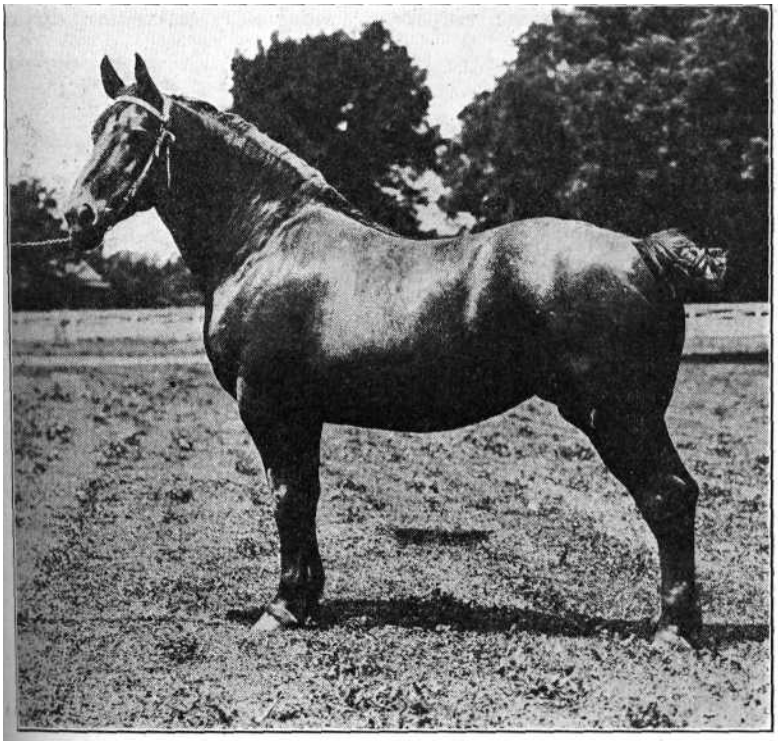


Fig. 22. Draft mare. Correct size, type, and quality for raising heavy draft horses for the market. A money maker where intelligently managed. Pure-bred Percheron

head, prominence of eye, slope of shoulder or pastern, slope of the croup, blockiness, quality and size of feet, presence or absence of hair on the legs ("feather"), are breed characters, adherence to which indicates purity of breeding. Therefore, in judging breeding classes of horses, these secondary breed characters must be given due consideration. A detailed study of the breeds will aid in learning the characters of the different breeds of horses.

Predisposition to Unsoundness Transmitted to Offspring. —Predisposition[1] to certain unsoundnesses is considered by the best authorities to be hereditary. Weak conformations in which unsoundnesses sooner or later develop are transmitted with marked regularity from sire and dam to the offspring. Dr. Alexander[2] gives the following as unsoundnesses and faulty conformations which should disqualify either stallion or mare from being used for breeding purposes: *moonblindness; blue eye; cataract; heaves; broken wind; spavins; ringbones; sidebones; navicular disease*

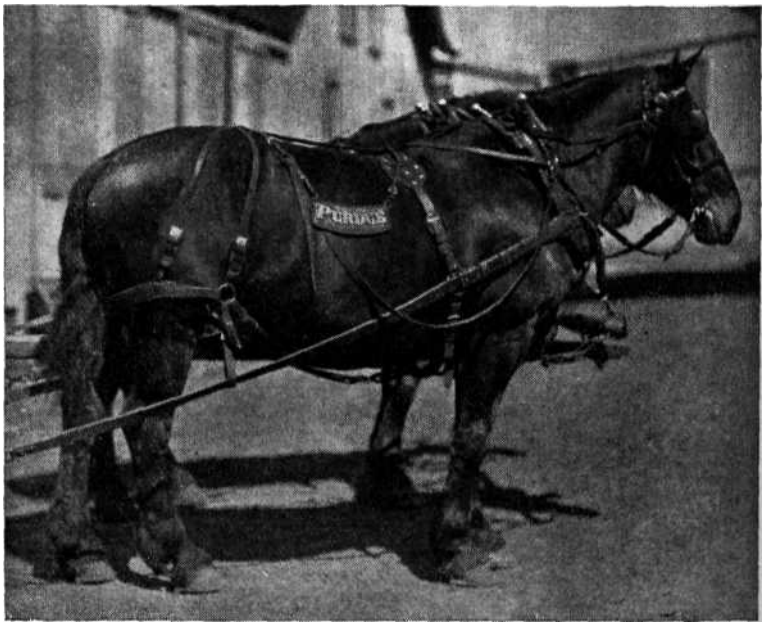


Fig. 23. The farm mare. Brood mares of draft type, weighing about 1600 pounds in working condition, should be in service on the farms of Indiana

(grogginess); hocks, sickle formed, curby, crooked, boggy, sprung; hoofs, flat, weak, unsound; "washy" couplings; pasterns, short, upright.

It is not the purpose here to discuss at length the numerous unsoundnesses to which the horse is heir. The location and names of the more common unsoundnesses listed in systematic order will aid in examining for soundness. Column 1 gives the place to look; column 2 some of the unsoundnesses to expect. Unsoundness in any part makes the horse "unsound" on the market. The Chicago Horse Market has discontinued the use of the term "serviceably sound," as it left too great an opportunity for controversy. Horses are now sold as sound or unsound.

[1]An inborn liability or tendency
[2]University of Wisconsin, Madison, Wis.

LOCATION OF COMMON UNSOUNDNESSES AND FAULTS

WHERE TO LOOK	WHAT TO LOOK FOR
1. Head	1. Poll evil
2. Eyes	1. Blindness
	2. "Blue-eyed"
3. Ears	1. Overmoblie: -indicates
	a. Viciousness
	b. Blindness
	2. Immoblie: -indicates
	a. Deafness
	b. Lockjaw
4. Muzzle	1. Discharge: -indicates
	a. Catarrh
	b. Glanders
	c. Diseased molars
	2. Signs of roaring
	3. Bit sores
5. Teeth	1. Diseased molars
	2. "Bishopped" –cut to appear young
	3. "Parrot" mouth
	4. Undershot jaw
6. Tongue	1. Mutilation –end cut off to prevent lolling
7. Under jaw	1. Abscesses
8. Neck	1. Broken crest
	2. Sores
	3. Skin disease
	4. Braided in mane
9. Withers	1. Fistula
10. Shoulders	1. Collar boils
	2. Sweeney
	3. Abscess or fistula
11. Elbow	1. Shoe boils
12. Knee	1. High splint
	2. Broken knee
	3. Buck knee
	4. Calf knee
	5. Capped knee
13. Cannons	1. Splints
	2. Thick tendons
	3. Grease heel
	4. Scratches

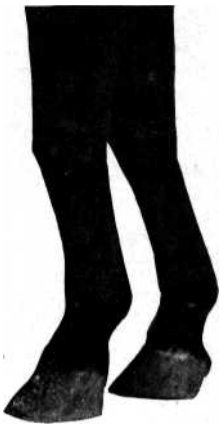


Photo by Dr. R.A. Craig, Purdue

Fig 24. Buck knees

LOCATION OF COMMON UNSOUNDNESSES AND FAULTS (continued)

WHERE TO LOOK	WHAT TO LOOK FOR
14. Fetlocks	1. Windgalls
	2. Interfering sores
	3. Cocked ankles
	4. Grease heel
	5. Scratches
	6. Scars of unnerving; to prevent lameness due to ringbone or navicular disease
15. Pasterns	1. Ringbones
16. Coronets	1. Sidebone
	2. Quittor
17. Feet	1. Navicular disease; shown by contracted foot favored in action
	2. Founder
	3. Toe cracks
	4. Quarter cracks
	5. Corns
	6. Thrush
18. Hips	1. Fractured ilium
	2. Knocked-down hip
19. Tail	1. Unhealed docked end
	2. False tail attached
20. Stifle	1. Knee-cap out of place
	2. Dropsical swelling
21. Hocks	1. Spavins
	a. Bone
	b. Bog
	2. Thoroughpin
	3. Curb
	4. Jarde
22. General	1. St. Vitus dance
	2. Crampiness
	3. Stringhalt
	4. Roaring
	5. Heaves
23. Vices	1. Cribbing
	2. Wind sucking
	3. Halter pulling
	4. Balking
	5. Biting
	6. Rolling in stall
	7. Kicking

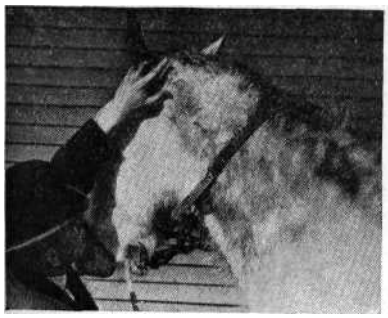


Fig. 25. Poll evil

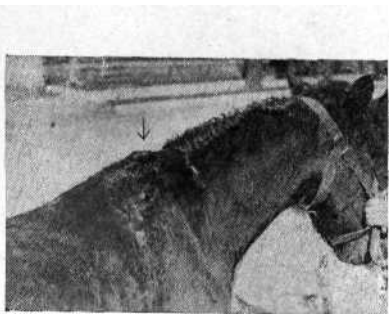
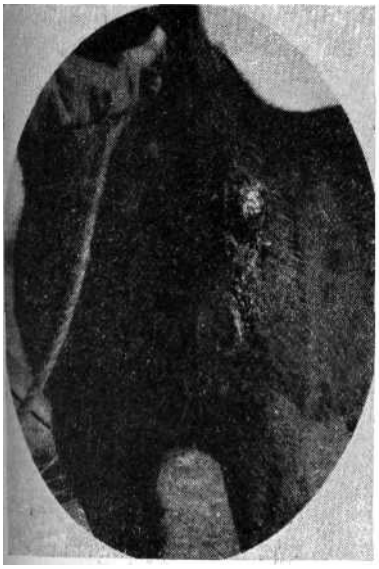


Fig. 26. Fistula of the withers



Photos by Craig

Fig. 27. Collar boil

Fig. 28. Shoe boil

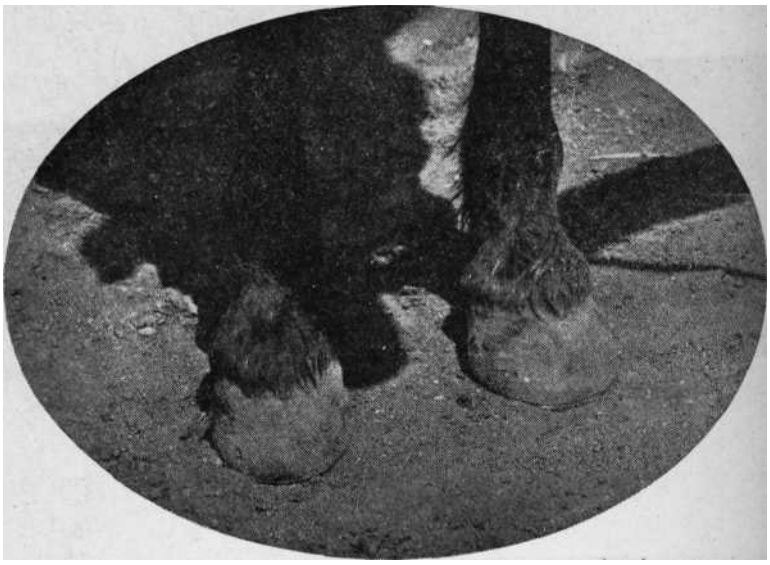


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Fig. 29. Right foot contracted due to navicular disease

Fig. 30. Ringbone

Fig. 31. Bone spavin

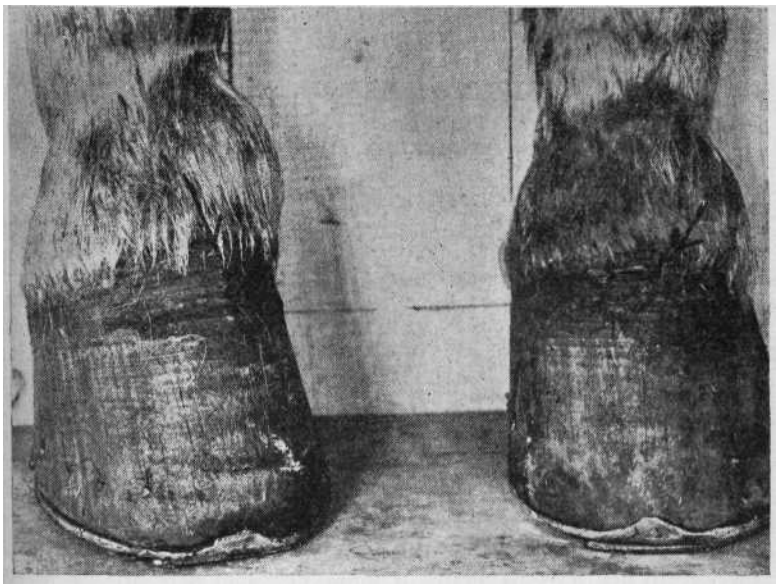

Photo by Craig

Fig. 32. Incomplete toe cracks

Photos by Craig

Fig. 33. Extreme case of quarter crack

Fig. 34. Knocked down hip

PART III JUDGING BEEF CATTLE

F. G. King, Associate in Animal Husbandry

INTRODUCTION

Classification.—Beef cattle are divided into three general classes, depending on the purpose for which they are to be used— butchering, feeding or breeding. The ultimate end of all beef animals is the butcher's block and the one that comes nearest to meeting the ideal of the butcher is the one which the feeder and breeder must strive to produce. The stock feeder when selecting cattle for the feed or show yard must ever keep in mind the steer that will most nearly meet the demands of the butcher and at the same time be an economical producer. The breeder must keep in mind when selecting his breeding stock not only the good killing animal which the butcher demands and the quick fattening one desired by the feeder but also one that has in addition to the killing and feeding qualities, indications of being a good breeder as well. In other words the breeding animal must give evidence of the ability to transmit his or her own good qualities to the offspring.

FAT STEERS

What the Butcher Demands.—Since the butcher is the final judge of excellence in an animal and is largely responsible for the ideals of the feeder and the breeder, the animal that will most nearly meet his demands, is the one the latter classes of cattlemen must strive to produce. The steer that brings the highest price from the butcher is one that will dress the highest per cent. of salable meat and will also have a maximum amount of this meat located in the most valuable cuts, which requires that the animal have the best conformation, quality, and condition.

Conformation.—The form of animal that meets with most favor in the eyes of the butcher can most readily be seen by studying the following figures. Fig. 35 shows a side of beef divided into the wholesale cuts. The table gives the name, per cent. of the carcass by weight, value per pound on May 1, 1911, and the percentage of the total value of the carcass found in each of the various wholesale cuts of meat. Fig. 36 shows the location of the wholesale cuts of meat on the live animal.

A comparison of Figs. 35 and 36 shows that the head, and legs below the hocks and knees are not considered in the dressing of the

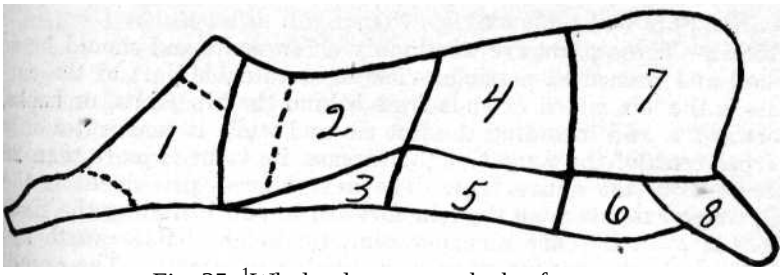

Fig. 35. [1]Wholesales cuts on the beef carcass

Name	Per cent. of carcass	Value per pound	Per cent. of value of carcass
1. Round	23	9.5 cts.	23.18
2. Loin	17	14.5 cts.	26.15
3. Flank	4	7 cts.	2.97
4. Rib	9	12.5 cts.	11.93
5-6. Plate	13	7 cts.	9.65
7. Chuck	26	7.5 cts.	21.24
8. Shank	4	5.5 cts.	2.33
9. Suet	4	6 cts.	2.55

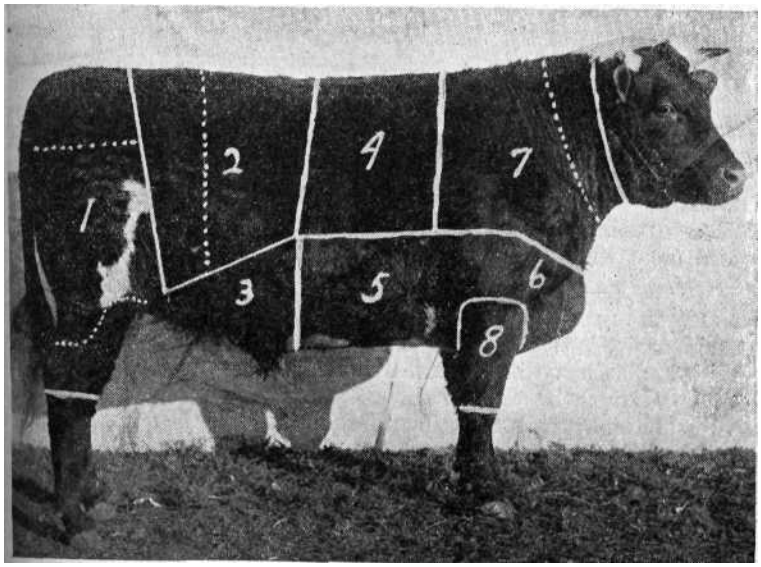

Fig. 36. Wholesale cuts located on live steer

[1]Wholesale Cuts. The division the packer makes of the carcass when he sells large quantities to retailers or to large consumers, as hotels, railroads, etc.

animal. These parts are worth only a few cents and should be as small and refined as possible. The most valuable part of the carcass is the loin which extends from behind the hip joints, or hooks, forward to and including the last rib and while if constitutes only 17 per cent. of the weight of the carcass, its value is more than 26 per cent. of the entire beef. The next highest priced cut is the rib which extends from the loin forward to and including the sixth rib. It contains only nine per cent. by weight but is worth approximately 12 per cent. in value of the entire carcass. The round, which includes in wholesale cuts, the rump (marked by the upper dotted line) and the shank (separated by the lower dotted line) constitute the salable portion of the carcass found back of the loin. Including the rump and shank, the round is worth as much per pound as an average of the carcass but the portion between the dotted lines contains more meat and is valued approximately the same per pound as the ribs. The importance of having a broad backed, deep quartered steer is shown by the fact that while less than 40 per cent. of the weight of the carcass is found in the loin, ribs and round, more than 60 per cent. of the value of the entire animal is found in these three cuts. Hence, the steer that carries a thick, even covering of flesh in the region of these valuable cuts meets with the greatest favor among the killers and retailers of meat. The chuck is the next in rank as regards value per pound and lies in front of the ribs. The neck while included in the chuck is much poorer in quality than the other portions of the cut and should be as short as possible. The flank, plate, and shank which are found in the lower part of the body, are the lowest priced meat found on the carcass. The steer, therefore, with the greatest development in the upper half of the body and with the smallest amount of waste in the head, legs, hide, etc., not only gives the highest dressing per cent. but also the greatest proportion of high priced meat when the animal is dressed.

Quality.—The term "quality" in a fat steer is taken to mean not only the proper kind of bone, hair, skin, etc., which is demanded , in thin as well as fat cattle and. may be known as "general quality," but also smoothness and firmness of covering, or "quality of flesh". Under the former head would come the indications of having the greatest strength and substance in the least amount of space which are shown by clean bone, soft, mellow hide, fine, silky hair and general refinement of features, and a strikingly clear-cut appearance. Lack of quality is shown in a large, coarse head, 1 heavy, open or rough shoulders, prominent hip bones, coarse joints and large, rough legs. Quality of flesh is denoted by having all parts of the body covered thickly and evenly with firm, mellow

flesh. Deficiencies in this regard are commonly found in cattle too thinly covered or having lumps or rolls of fat along the ribs, patches about the tail-head, bare places on the shoulder, uneven covering along the back, or soft, blubbery fat.

Condition.—In order to dress a high per cent. of meat, an animal must be in high condition, or finished. In other words, the fattening process must have continued until the fat cells have become filled with fat. This fattening process not only increases the dressing per cent. but also adds to the value of the meat, in that it is rendered more tender and palatable and can be stored with less

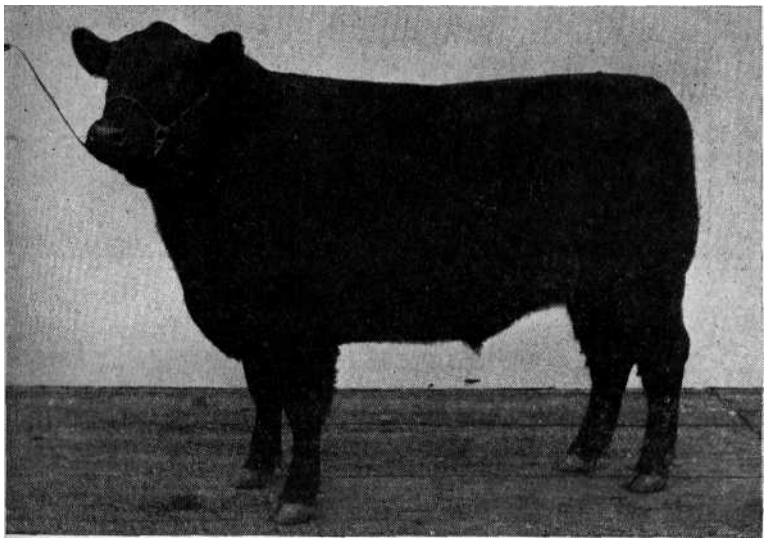

Photo by Hildebrand

Fig. 37. Thick, deep body; short head and neck. With exception of a slight lack of depth in hind flank and some extra length of leg, he represents almost an ideal fat steer. "Fyvie Knight." Grand champion fat steer, International Live Stock Exposition, 1908

danger of decay. One of the best ways of judging the finish of a steer is to press the hand against the flesh along the ribs and sides. When the flesh is firm and thick the animal is usually in condition for slaughter. Another method of telling whether the fattening process is finished is to feel the cod or purse which is one of the last places to fill with fat. When the cod is full and soft the steer is considered finished. A full flank is also another indication of ripeness. On a finished steer, the flank should be full, pendent and have the entire cavity filled until it is level with the bottom lines of the body.

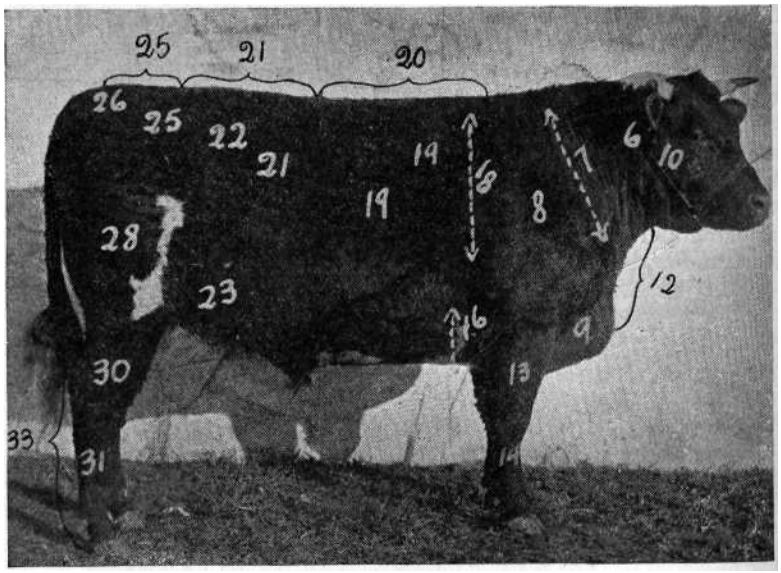

Fig. 38. Points of the beef animal

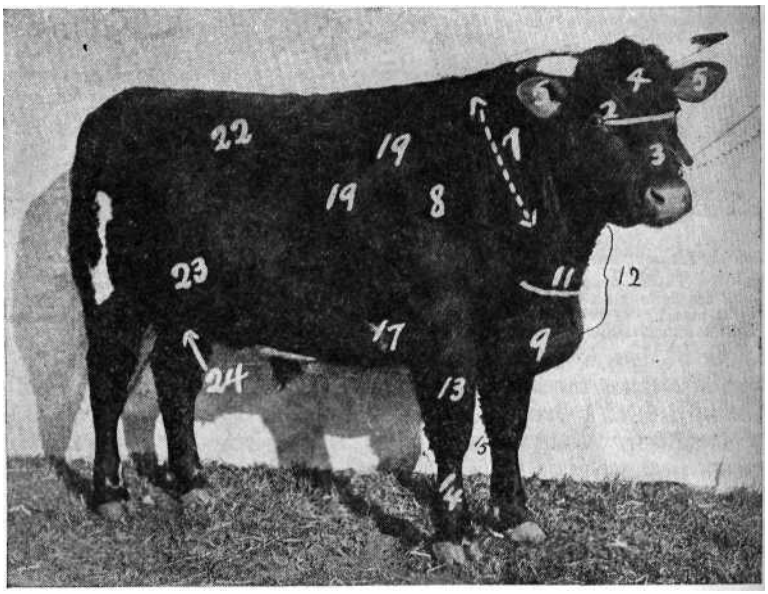

Fig. 39. Points of the beef animal

Fig. 40. Points of the beef animal

1. Muzzle	12. Dewlap or heavy skin on neck	22. Hips or hocks
2. Eyes	13. Arm	23. Hind flank
3. Face	14. Shin	24. Purse or cod
4. Forehead	15. Legs	25. Rump
5. Ears	16. Chest	26. Tail-head
6. Neck	17. Fore flank	27. Pin bones
7. Shoulder vein	18. Crops	28. Thigh
8. Shoulders	19. Ribs	29. Twist
9. Brisket	20. Back	30. Hocks
10. Jaw	21. Loin	31. Shanks
11. Breast		32. Tail

THE SCORE CARD

BEEF CATTLE FAT

SCALE OF POINTS	Standard	Points deficient	
		Student's Score	Corrected
GENERAL APPEARANCE -40 per cent.			
1. Weight, estimated ……lbs. Actual ……..lbs. according to age ……	10	…….	…….
2. Form, straight top and underline: deep broad, low set, stylish, smooth, compact, symmetrical ……	10	…….	…….
3. Quality, fine, soft hair; loose, pliable skin of medium thickness; dense, clean, medium-sized bone ……..	8	…….	…….
4. Condition, deep, even covering of firm mellow flesh; free from patches, ties, lumps, and rolls; full cod and flank indicating finish…….	12	…….	…….
HEAD AND NECK -7 per cent.			
5. Muzzle, broad, mouth large; nostrils large and open ……..	1	…….	…….
6. Eyes, large, clear, placid ……	1	…….	…….
7. Face, short; jaw strong……..	1	…….	…….
8. Forehead, broad, full ……	1	…….	…….
9. Ears, medium size; fine texture……	1	…….	…….
10. Neck, short, thick, blending smoothly with shoulder; throat clean with light dewlap…….	2	…….	…….
FOREQUARTERS -9 per cent.			
11. Shoulder vein, full……..	1	…….	…….
12. Shoulders, smoothly covered, compact, snug, neat……	4	…….	…….
13. Brisket, trim neat; breast full…….	2	…….	…….
14. Legs, wide apart, straight, short; arm full; shank fine……..	2	…….	…….
BODY -30 per cent.			
15. Chest, full, deep, wide; girth large; crops full……	4	…….	…….
16. Ribs, long, arched, thickly and smoothly fleshed……..	8	…….	…….
17. Back, broad, straight, thickly and smoothly fleshed…….	8	…….	…….
18. Loin, thick, broad……..	8	…….	…….
19. Flank, full even with underline……..	2	…….	…….
HINDQUARTERS -14 per cent.			
20. Hips, smooth……..	1	…….	…….
21. Rump, long, wide, level; tail-head smooth; pinbones wide apart, not prominent……..	3	…….	…….
22. Thighs, deep, full……..	4	…….	…….
23. Twist, deep, plump……	4	…….	…….
24. Legs, wide apart, straight, short; shanks fine, smooth……..	2	…….	…….
Total ……	100	…….	…….

How to Examine a Fat Steer.—When inspecting a fat steer, note from in front the general appearance of the head, for refinement of features, and any indications of coarseness; width of forehead; length and cleanness of face; size of muzzle; size and quality of ear and horn; and proportion of head to rest of body. The head should be short, broad and refined, the muzzle, large and broad, and the jaw strong. The ears and horns should be of fine texture and the features of the head have a well defined, clear-cut appearance and the head itself be of proportionate size to the rest of the body. Objectionable things about the head are narrowness, extreme length, coarse features, small, delicate muzzle, or lack of proportion in size between the head and the rest of the body.

From a slight angle to the right of the animal observe the width and smoothness of body, as shown in chest, shoulder, ribs, back, loin, hip and rump. The body should be broad and smooth. The chest should be wide and deep with the fore legs short, straight and standing far apart, the fore flank should be full and not sunken behind the fore leg. The shoulders should fit smoothly into body without a tendency to flatten on top or show prominence of shoulder blades. The lower part should be smooth, well covered with flesh and not heavy, coarse nor unduly prominent. The body behind the shoulders should fit smoothly into them and be more than full enough in ribs, back and loin to form a straight line from shoulder to hip. Any tendency to be flat in the rib or to be narrow or thin in back and loin must be discriminated against. The hips should fit smoothly into the body and be entirely covered by flesh, showing no prominence nor unevenness, and the rump should carry out full and show no tendency to droop beside the tail-head. The paunch must not be large and should be very little wider than the shoulder or thigh because a large paunch means a very large amount of waste in dressing.

Passing farther around the animal so that a full side view is obtained, note the length and cleanness of neck and its manner of fitting the shoulder at the shoulder vein, and the general outline of the body, the top and bottom lines, the depth and fullness of hindquarters and size and length of leg.

The neck should be thick but short, thus avoiding a large amount of cheap meat yet indicating good muscular development throughout the entire body. It should be free from dewlap or heavy skin and exceedingly large brisket and fit smoothly into the shoulder on both top and sides. The body when viewed from the side should present the general outlines of a rectangle, the top line being straight from head to tail with no tendency to droop either in front or behind of shoulder or on the rump; nor sag or be low in the back. The bottom line should be low, straight and parallel

to the top line, showing no tendency to be high in the flanks nor too low in the middle, due to an excess of paunch. The brisket need be only large enough to fill out the outlines of the body, the chest should be deep and full and the hind flank on a level with the lower line of the body which should stand on straight, short legs. The thighs should be deep, plump, full and extend well down to the hock.

Moving toward the rear of the animal, note from the changing viewpoint the different parts of the animal until a position in the rear is reached. From this position observe the depth and width of hindquarters, size of paunch, width and straightness of back, smoothness of hips and fullness of rump. The hindquarters should be deep and as broad as the shoulders. Paunch or belly must be very little wider than shoulders or thighs. The back as seen from the rear must be straight and not droop behind the shoulders nor in front of hips and be very broad and thickly fleshed. The hips should be smoothly covered and show no prominence. The rump should be filled with flesh on either side and gradually round off smoothly from hips to tail-head. Passing around the animal on the other side observe the various parts of the animal from all angles until the right side is again reached when the hands should be used to test the quality and thickness of flesh, or the condition, which it is impossible to do without handling. The best quality of flesh feels under the pressure of the hand to be firm yet elastic and is free from any rough places such as rolls, lumps, patches, ties and bare spots. Rolls are most commonly found on the ribs. Lumps and patches usually occur on the back, ribs and rump. These three objections are all of the same nature in that they are due to the fat having been laid on in larger amounts in some places than others and denote not only that there is a loss by having an excess of fat to be trimmed off before use but also that the fat is unevenly distributed through the lean, thereby injuring the quality of the meat. They can be easily detected by placing the hand upon the flesh. If it is smooth, firm and elastic it is of the proper quality, but localized hardening of the fat, as if in pockets, indicates the presence of undesirable fat. Ties are found commonly in the back but occasionally around the tail-head and are depressions where the skin is closely attached to the bone and cause unevenness of flesh. Bare spots or places where the flesh is very thin are most liable to occur on the shoulder, loin, back, or lower ribs and are due to uneven distribution of flesh. Press the fingers against the flesh (beginning on the shoulder and continuing toward the rear) in order to detect any of the above mentioned defects. The ideal flesh is even in all parts so that the hand can be moved over the

body without a depression or rough place being found. Avoid a soft flesh or one that is harsh and inelastic. In handling a steer, feel the flank in order to see that it is filled with fat until there is no loose, pendulous skin.

Comparative Judging.—After a thorough and systematic examination of all the animals in the ring, the next duty is to decide which one of them is the best. This can be done only by balancing the good and bad points of one animal against the good and bad points of another. There is no definite rule that can be laid down as to what should be done in all cases. This depends upon the extent of the defect or excellence and the question may be decided differently in almost every instance. In comparative judging, great stress must be laid on the uniformity of development. If there is no great difference in other things, discrimination should be made against the animal showing a decided weakness in any one of the following parts: form, quality, condition, head and neck, forequarters, body, or hindquarters. In balancing the weakness and excellencies it is often desirable to place the steers side by side and compare them part by part. For this reason and also to designate to the audience how the animals are placed, the first prize specimen is placed at the extreme end of the ring, second prize next and third next, etc. Do not let a weakness in a minor point overbalance an excellence in an important one. Other than that, the animal having no exceptionally weak parts must receive preference to one with some parts better and some parts worse than the well balanced beast.

FEEDER OR STOCKER CATTLE

When judging thin cattle it must be borne in mind that the final end of the steer is the butcher's block. Therefore the animal that gives promise of finishing into the best killing steer would seem to be the best one to select as a feeder. This is in general true in that the animal must be one that when fat, will dress out well and return a high percentage of the most valuable cuts. There are, however, some limitations, in that, while the butcher demands a very fine bone and as little paunch as possible, the feeder has found that a steer having medium sized bone and a more rugged constitution is enough more economical as a producer to offset the disadvantages of having the extra bone, and that a steer in order to be a good gainer must have enough middle to consume a large amount of feed.

The head requires much greater emphasis in a feeder than in a fat steer because the head instead of being only so much weight to be considered among the cheaper parts of the body, is a good indication of the fattening and gaining capacity of the animal. A

short, broad, clear-cut head with a large muzzle and mouth, strong jaw and quiet eye, indicates a quick fattening, rapid gaining steer that can be quickly made ready for market; a long, narrow head and fine muzzle indicate delicacy and poor feeding qualities, while a coarse, large head or wild disposition shows that the animal will require a long time to fatten and in the former case be a poor killing steer when finished. When viewed from the side, the feeder should present a short, blocky appearance, short, thick neck, straight back, deep body and short legs, as these are almost sure indications of easy fattening and early maturity which are the

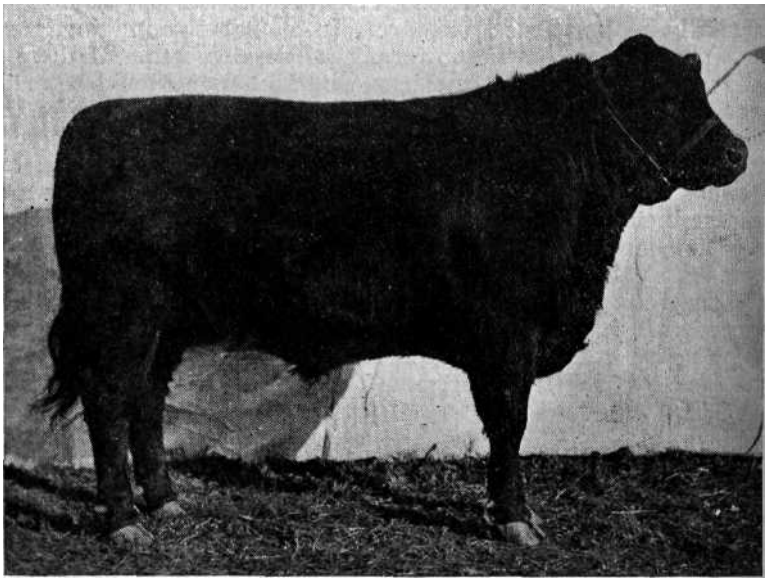

Fig. 41. Fancy selected feeder. Short broad bead; abort, thick neck; straight hack; deep broad chest; capacious middle; deep flank; full quarters; quality and symmetry throughout

principal features to be sought in a feeder in addition to the demands of the butcher which otherwise coincide with the requirements of the feeder. The middle, however, should be large and broad, and the flanks low. The chest must be deep and broad to give constitution and vigor. The ribs must be long and extend well back to the hip points as a long space between them indicates slow maturity and a thin loin when fat.

When viewed from behind the ideal feeder or stocker, presents a smooth appearance in the hip region which must not be unduly

large but be capable of becoming covered smoothly when the animal is finished. The rump must not be drooping or sharp, the thighs must be full and deep, the ribs be arched and as broad as the shoulders, thus giving a wide back and showing that the body of the animal will be evenly covered when fattened. The shoulders must be snug on top with no undue prominence at their points.

Handling the skin on a feeder is one of the easiest ways of telling the thrift of the animal. The skin is an extension of the intestinal walls and reflects the condition of the digestive tract. A tight, harsh, papery skin indicates an unthrifty, poorly nourished

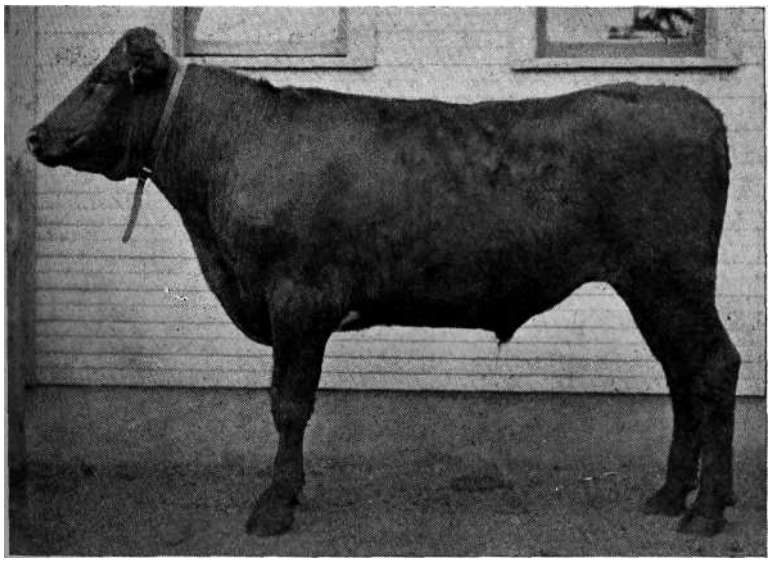

Fig. 42. Inferior feeder. Shows poor feeding characters; shallow, narrow body; long legs and neck; poor constitution; high flank; angular and delicate throughout

animal, while a loose, mellow, pliable skin shows that the conditions of the internal organs are such as to make rapid gains and indicates future progress. A thick, coarse hide indicates a coarse flesh of poor quality. When taken in hand the skin should feel elastic, loose and mellow and the hair should be soft and silky indicating good health and vigor.

BREEDING CATTLE

The first essential in breeding cattle is the same as for other classes of beef animals, i.e., the true beef form must be present in a very marked degree. There is no fundamental difference in

form between breeding beef animals and feeders or fat steers. The same deep, broad, thick-set animal as described under the butcher and feeder types is the one the breeder is trying to produce. The breeding stock adheres more closely to the feeder type in that the indications of early maturity and easy fattening must be very pronounced. These indications, as has been pointed out, are shown by the short, refined head and neck, deep, broad body, low flanks, straight top and bottom lines, and short legs. The handling quality of breeding stock when in breeding condition should be much the same as in feeding cattle. The flesh should be

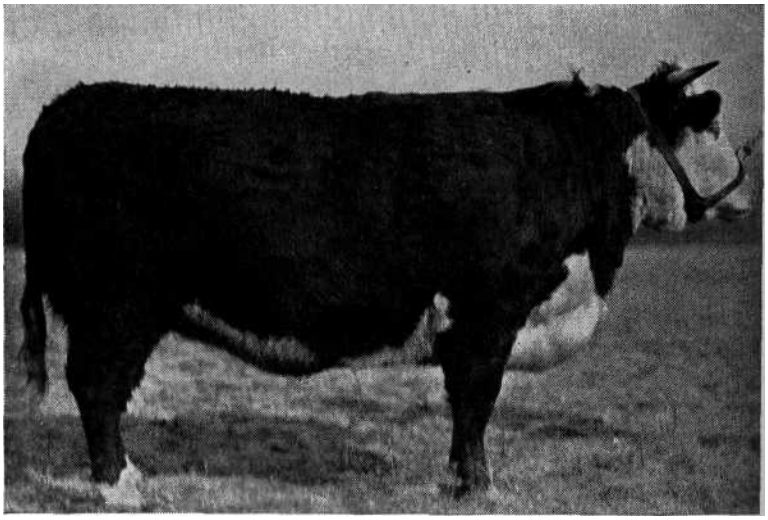

Fig. 43. Depth and width of chest, deep middle and thick natural flesh desired in breeding stock. Hereford cow

of almost the same thickness and the skin be very soft, mellow and elastic. When breeding cattle are prepared for show, their handling then is more comparable to that of a fat steer. The flesh should be thick, smooth and firm. The only point of difference between the two classes is that more mellowness is demanded and a lack of firmness can be more easily overlooked with breeding stock than with fat steers.

When judging cattle to be used for breeding purposes, attention must be paid not only to the requirements of the feeder and butcher, but to any indications in the animal that such good qualities as he or she possesses will be transmitted to their offspring. The best animal on earth that will not transmit his good characters

is of far less value as a breeder than one having desirable characters in a much less marked degree but having the ability to impress upon his offspring such good characters as he may possess. The good breeding animal in addition to having the characters demanded by butchers and feeders must have not only the physical ability, as shown by constitution and vigor, to produce good off spring but also the sexual ability or prepotency as shown by sex development and breed characters to impress his own good qualities upon his get.

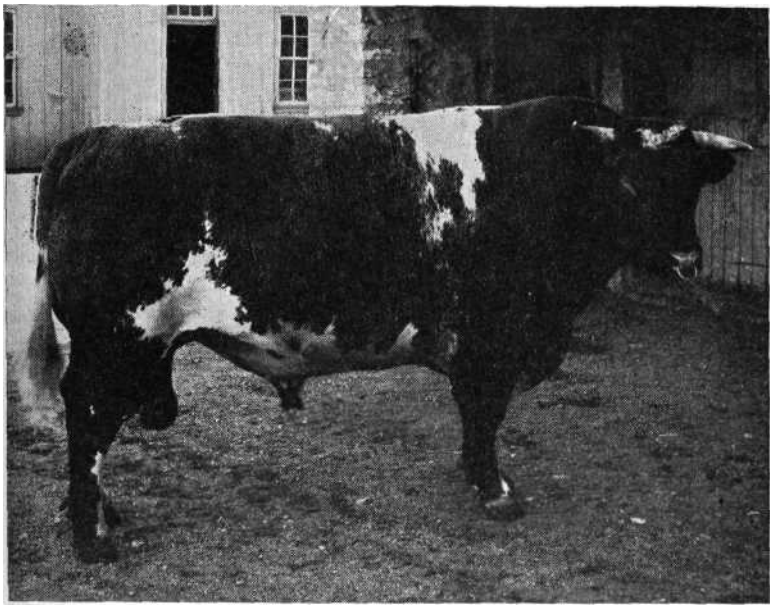

Fig. 44. Strong burly head; well developed crest; strong shoulder and general masculine yet refined appearance. Shorthorn bull

Constitution is the result of a strong development of the vital organs of the body and is associated with a deep, broad chest, straight back, round, well sprung ribs and a deep middle and flank. A narrow chest or flat ribs as seen from in front, a shallow chest, weak back, shallow body, and high flank as seen from the side are almost certain indications of a lack of constitution and vigor. A long, narrow head, small muzzle, extreme refinement in the head and legs and a thin skin indicate a weak constitution. There is also something about the style and carriage of a breeding animal that indicates vigor and strength. A sluggish, dull or slovenly carriage

indicates lack of vigor and vitality, while an active, stylish manner and carriage shows a reserve force and power that is always found in the best breeding animals.

Sexual Development which is an indication of prepotency is shown by a development of secondary sexual characters. In the bull it is seen in a strong, masculine head with a full forehead, strong horn and withal having the appearance of being heavy and burly but not coarse; a strong, full neck, surmounted by a heavy, well developed crest; and in the strongly developed shoulders that

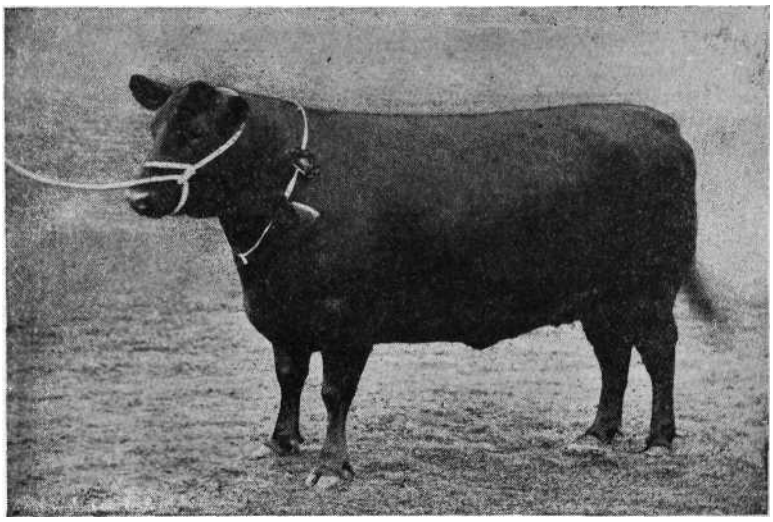

Fig. 45. Refinement of features; freedom from crest; and general feminine appearance. Aberdeen Angus cow; first prize at Royal, England, in 1906-7

while being strong and showing extreme development show no roughness or coarseness. The appearance throughout is in striking contrast to the refinement due to femininity. The skin is thicker and heavier, the hair is not so silky and soft, and impression is conveyed at once of a strong, active, masculine being, and yet there is a refined appearance indicating the presence of the greatest amount of quality associated with such masculinity and sexual development.

Indications of prepotency in a female are shown by very great refinement in all parts of the body. The head should be entirely free from the burly, heavy appearance seen in the bull; the forehead should be full and broad but not heavy; the horns should be finer; the neck should be more refined and thinner than a bull's and

be entirely free from crest; the shoulders should show no extra development and fit smoothly with the rest of the body. The skin should be thinner, mellower and more elastic; the hair be silkier; and there should be greater development in the hips which should be wider and more prominent than in a bull.

There ought to be throughout an appearance of refinement and femininity strikingly in contrast to the masculine look of a bull.

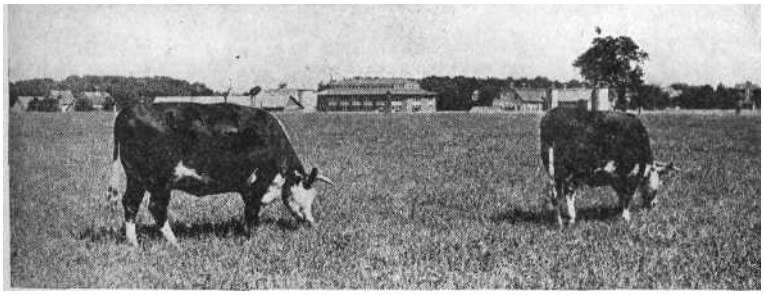

Fig. 46. Adherence to breed type indicates prepotency

Fig. 47. Uniformity adds value to the breeding herd

Prepotency is indicated in both sexes by close adherence to the characters of the breed to which they belong. Continuous years of breeding have fixed certain characters in breeds that while not necessarily responsible for good beef form, are closely associated with it in that particular breed. Any tendency of an animal, therefore, to break away from the characters of the breed to which it belongs is an indication of reversion or breeding back to unimproved ancestry. For this reason, an animal should be characteristic and typical of the breed to which it belongs as well as of a good beef animal.

PART IV JUDGING DAIRY CATTLE

P. H. Crane, Associate in Milk Production

INTRODUCTION

Methods of Judging.—Good cows are the first essentials for profitable dairying. Profitable dairy cows are those that make the maximum production on the minimum amount of feed. In general there are two methods used in the selection of dairy cows. The first method is the selection of cows from known records of milk production as determined by the use of the Babcock test[1], and scales; the second method is the selection by conformation or type of the animal.

The first method is the only strictly satisfactory way in which to judge of the cow's ability as a producer of milk and butter fat. Where cows are selected for the dairy or where they come up for judgment in the show ring, it is not always possible to know the records of production. Such records have not been generally kept, but dairymen are beginning to realize the necessity of knowing the annual production of their individual cows, and many are having official tests made. This is done by a representative of the Agricultural Experiment Station, who is present when the cows are milked, weighing and sampling each milking. A fat determination is made of each sample by the tester, while a composite sample is sent to the Agricultural Experiment Station to be tested, as a check. These tests may be continuous seven day tests, continuous 30 day tests, or two day per month yearly tests. In the last named test, samples are taken two consecutive days in each month and the milk is weighed each milking throughout the year. This is known as the semi-official yearly test, the total production being calculated on the production represented by the 12 tests. The results of the official and semi-official tests are accepted by the various dairy cattle breed associations for advanced registry or register of merit[2], as the case may be. Private testing is being done by many, in a manner resembling the semi-official yearly test, which method gives a good estimate of the cow's value as a producer.

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[1]Babcock test.—A simple method of determining the per cent. of butter fat in milk

[2]Advanced Registry.—The national registry associations recording pure-bred dairy cattle maintain a record in which animals of especially high performance are recorded. Records of production, admitting animals to advanced registry, or register of merit, must be made under the supervision of the association and a state experiment station. Bulls may be recorded upon their records as producers of advanced registry cows. Pull information may be obtained from the associations

The second method, the selection of cows by dairy type or conformation, has to be relied upon more often than the first method. There is no doubt that there is a certain type or form that is associated with high milk production. This type or form of the dairy cow is, to a large extent, acquired. Before cattle were domesticated, it is highly probable that the cow gave only enough milk for the calf until it could subsist upon other foods. It is undoubtedly true that the beef animals we have today are descendants of these same cattle, but by careful selection and breeding, the several breeds of dairy cattle have been developed. Some of the dairy breeds have been handled and bred as separate breeds for hundreds of years

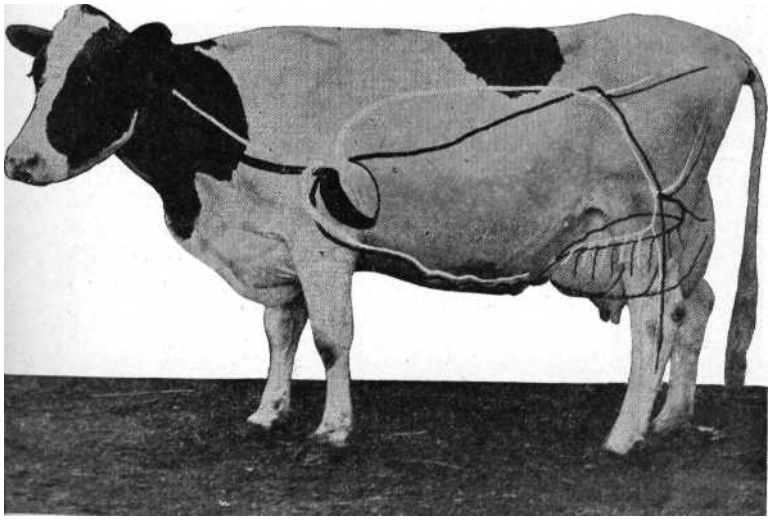

Fig. 48. Arteries (in white), leading from the heart to the udder. Veins (in black), leading from the udder to the heart

until their conformation, their milk and butter fat producing ability have become fixed and are transmitted with marked certainty.

Comparison of Form and Performance.—Whether or not the form of a dairy cow is the result of her function, or function the result of form, is still an unsettled question. It is certain, however, that performance is demanded and experience has proven that mere are certain requirements of form necessary to high production. The form of the cow must be such as will permit of the greatest possible development of the organs primarily important to milk production. There must be strength of jaw, capacity of muzzle, stomach, and other organs of digestion, in order that large amounts of

feed can be masticated and digested. Coordinate with the digestion, there must be a circulatory system of sufficient capacity to carry the nutrients from the digestive apparatus to the heart where the blood bearing these nutrients is pumped out through the artery (a, Fig. 48) leading to the udder, the real factory where the nutrients in the blood are made into milk. The process of milk secretion is not clearly understood and about all that is known definitely is that milk is a product made from the materials brought to the mammary glands by the blood and lymph. The process is not that of nitration or giving up of the materials in the blood in the exact form they are found in milk, but is a process of manufacturing, an

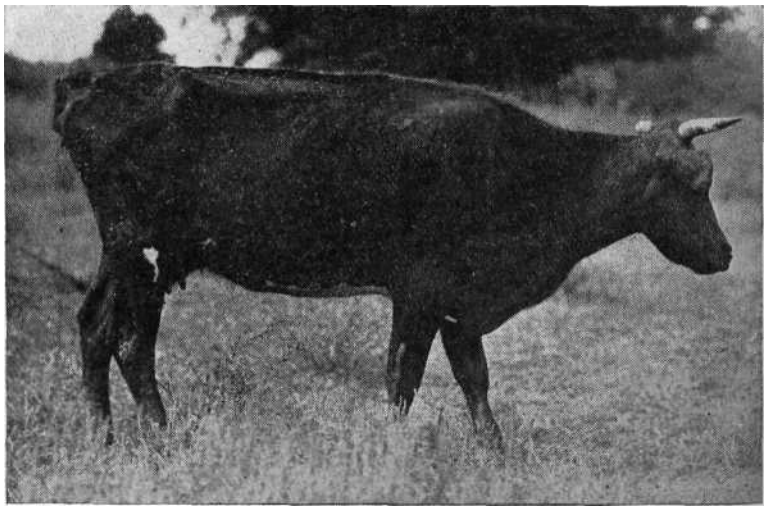

Fig. 49. A poor type of dairy cow, showing lack of capacity throughout

entirely new product being made from the materials in the blood. This new product is an emulsion consisting of very finely divided fat, suspended in a solution consisting of water, sugar, casein, albumen and ash in slightly varying proportions in different samples of milk. It is evident that there must be sufficient capacity of circulation to care for the large quantities of blood that must be carried through the arteries, to the udder where the nutrients are given up, and back through the veins, from the udder to the heart. The amount of milk secreted in a given length of time will also depend largely upon the size, shape, texture and quality of the udder.

When the cow has a strong tendency to change the feed consumed above maintenance requirements into milk, she is to be

classed as a dairy cow and as such, her production will depend largely upon her capacity of digestive, circulatory and mammary organs, provided that she is fed and cared for properly. With the proper development of the various parts as demanded by the function of milk production, the resulting animal has a characteristic dairy cow conformation.

General Appearance.—The conformation of the dairy cow is such that her general appearance distinguishes her from cows of other classes. She is thin or spare in flesh, singular and loose jointed. Her body is muscular, coat smooth and soft, eyes bright, and in disposition she is wide awake, showing that her thin appear-

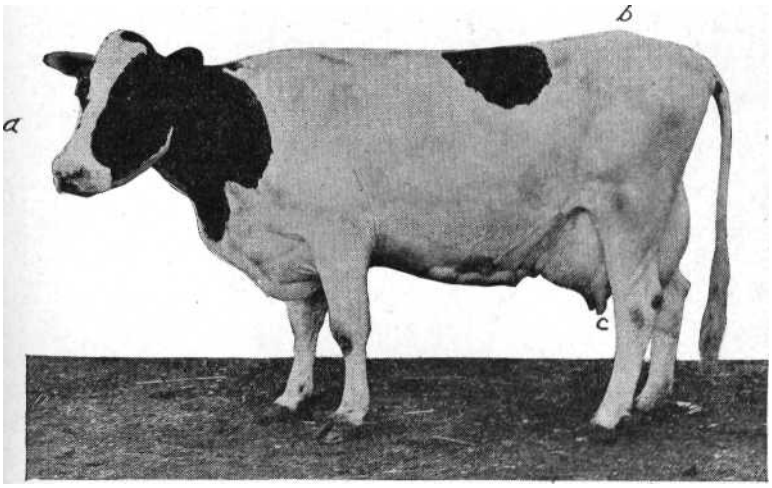

Fig. 50. Wedge shape as seen from the side, base, b-c, apex a

ance is not due to lack of feed or the ravages of disease but to her inherent tendency to convert her feed into milk instead of body fat.

The general angularity of the cow gives her what is known as the wedge conformation which is very evident in the typical dairy cow. This conformation outlines distinctly three wedges.

When the cow is viewed from the side, one of the wedges is seen with the base formed by the depth through from the hips (b) to the lower extremity of the udder (c), and the apex or point of the wedge at the head (a), as shown in Fig. 50.

When viewed from the top, the dairy cow's peculiar form presents a second wedge with the base, formed by the great width across from one hip point to the other, (b to c) and the apex at the withers (a), as shown in Fig. 51.

The third wedge is seen when the cow is viewed from the front. The base of this wedge is formed by the wide floor of the chest (b to c) and the apex by the withers (a), as shown in Fig. 52.

This wedge shape is found to a greater or less degree in all dairy cows, and is sought after, alike for the dairy, and for the show ring.

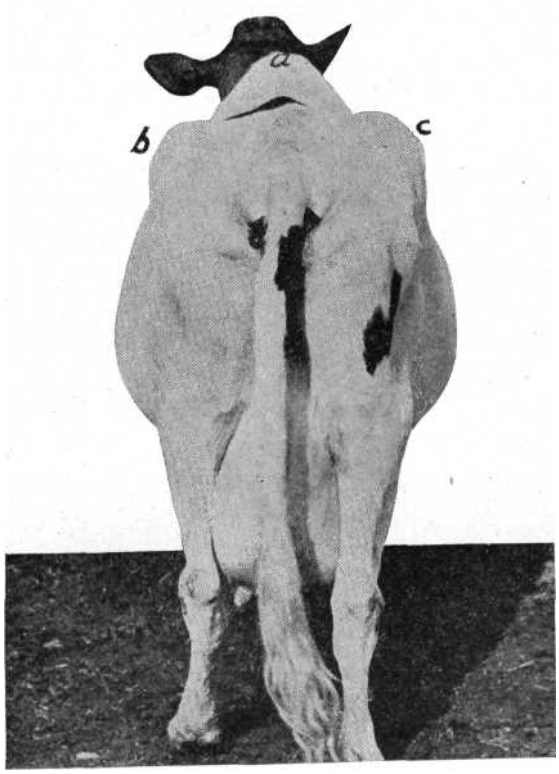

Fig. 51. Wedge shape as seen from above and behind, base, b-c, apex, a

THE DAIRY COW

Score Card.—In the judging of a dairy cow, all points that have any relation to milk production and symmetry of form should be considered. If the dairy cow is a pure-bred animal and is to be judged as such, there are a few points to consider other than those when judging any cow as a dairy animal.

In order that no point escapes notice, some system must be followed in looking at an animal, and this system can be acquired by the use of a score card. Study the score card until the location, ideal conformation and the relative value of all parts of the dairy cow are well in mind. This can best be done by using the score card carefully on a number of cows whose value as milk producers is known and in this way a fairly good idea may be formed of the number of points to deduct from the perfect score, when a part is defective.

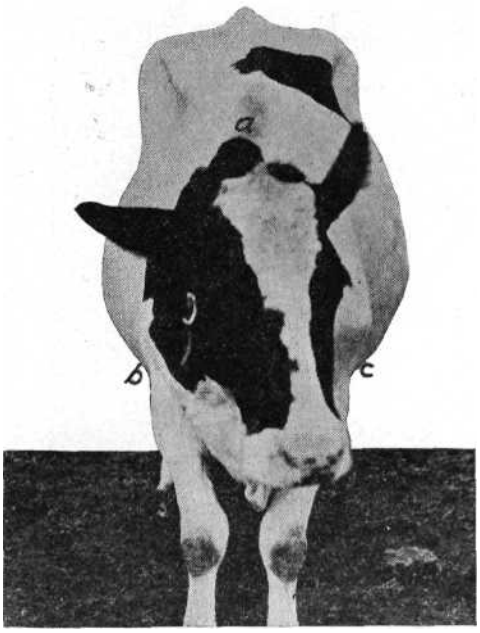

Fig. 52. Wedge shape as seen from the front, base, b-c, apex a

In judging a dairy animal see that it stands in a natural position on a level surface and that the attendant does not hide any defects from view.

Begin by taking in the general appearance, and note whether or not the animal belongs to the dairy class. This can best be done by walking around the cow three or four paces distant, viewing her from the front, side and rear. If she has the general appearance, as previously described to a degree to class her as a dairy cow, than begin a careful, systematic examination.

The system followed in the score card is to begin at the nose of the animal and go back over the body, considering every part.

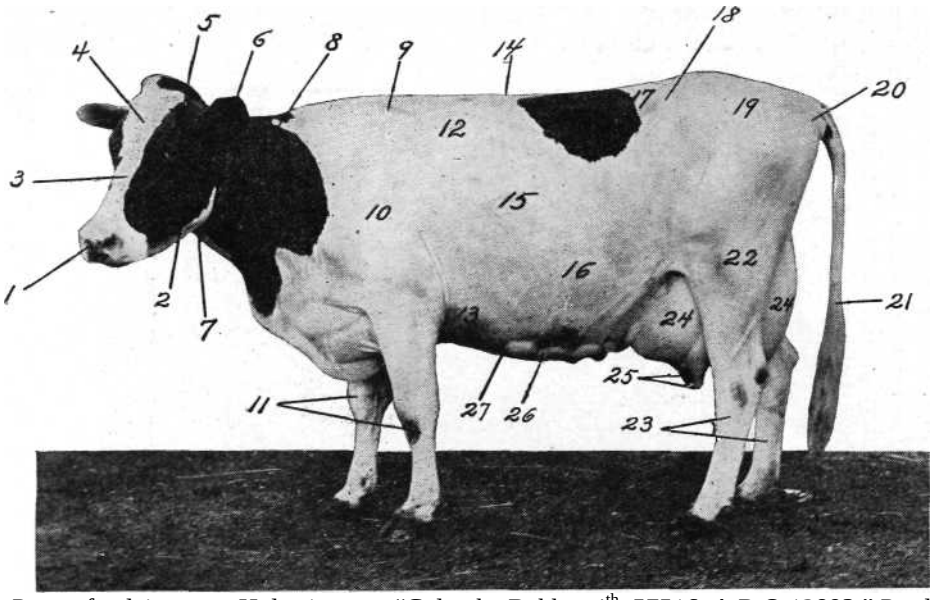

Fig. 53. Parts of a dairy cow. Holstein cow, "Colantha Bakker 4th, 57516, A.R.O 12893," Purdue herd

1. Muzzle	8. Neck	15. Ribs	22. Thighs
2. Jaw	9. Withers	16. Barrel	23. Hind legs
3. Face	10. Shoulders	17. Loin	24. Udder
4. Forehead	11. Fore legs	18. Hips	25. Teats
5. Eyes	12. Crops	19. Rump	26. Milk veins
6. Ears	13. Chest	20. Pin bones	27. Milk wells
7. Throat	14. Back	21. Tail	

THE SCORE CARD

DAIRY CATTLE COW

SCALE OF POINTS	Standard	Points deficient	
		Student's Score	Corrected
HEAD -8 per cent.			
1. Muzzle, broad ……. …….	1	…….	…….
2. Jaw, strong, firmly joined ……	1	…….	…….
3. Face, medium length, clean ……...	1	…….	…….
4. Forehead, broad between eyes, dishing ……	1	…….	…….
5. Eyes, large full, mild, bright ……..……	2	…….	…….
6. Ears, medium size, fine texture; secretions oily and abundant, yellow color ……	2	…….	…….
FOREQUARTERS -10 per cent.			
7. Throat, clean ……..……...	1	…….	…….
8. Neck, long, spare, smoothly joined to shoulders, free from dewlap …….……..……	2	…….	…….
9. Withers, narrow, sharp ……...…….	3	…….	…….
10. Shoulders, sloping, smooth; brisket light ……...……...	3	…….	…….
11. Fore legs, straight, clean, well set under body ...……	1	…….	…….
BODY -25 per cent.			
12. Crops, free form fleshiness …….……..	1	…….	…….
13. Chest, deep, roomy; floor broad ……..…….	6	…….	…….
14. Back, straight, strong; vertebrae open ……..	3	…….	…….
15. Ribs, long, deep, sprung, wide apart ……...……..	3	…….	…….
16. Barrel, deep, long, capacious ……	10	…….	…….
17. Loin, broad, strong ……...	2	…….	…….
HINDQUARTERS -14 per cent.			
18. Hips, prominent, wide apart ……..	1	…….	…….
19. Rump, long, level, not sloping ……..…….……..	4	…….	…….
20. Pin Bones, wide apart …….……..	1	…….	…….
21. Tail, neatly set on, long, tapering ……..……	1	…….	……
22. Thighs, spare, not fleshy ……..	3	…….	…….
23. Hind Legs, well apart, giving ample room for udder ……...	2	…….	…….
MAMMARY DEVELOPMENT -30 per cent.			
24. Udder, large, very flexible, attached high behind, carrying Well forward; quarters even, not cut up …….	15	…….	…….
25. Teats, wide apart, uniformly placed, convenient size ……...	5	…….	…….
26. Milk veins, large tortuous, extending well forward ……..	4	…….	…….
27. Milk wells, large ……..	6	…….	…….
GENERAL APPERANCE -15 per cent.			
28. Disposition, quiet, gentle …….	2	…….	…….
29. Health, thrifty, vigorous ……..	3	…….	…….
30. Quality, free from coarseness throughout; skin soft, pliable; Secretions abundant; hair fine ……..	4	…….	…….
31. Temperament, inherent tendency to dairy performance ……	6	…….	…….
Total ……	100	…….	…….

For convenience in the discussion of the different parts of the dairy cow, the same numbers are used in the score card and in Fig. 53, to indicate the parts of the cow.

Head—8 per cent.—Look at the muzzle by raising the cow's head slightly, if necessary. It should be broad, showing capacity, as a broad muzzle is associated with a good feeder. A pinched muzzle should be discriminated against as this character is transmitted very readily and is taken as an indication of lack of constitution and capacity. By running the hand along on the under side of the jaw from the mouth to the throat, the character of jaw bone may be ascertained. It should be strong of bone, muscle and attachment to the upper jaw, so that large quantities of feed can be properly masticated. The face of the cow can be seen best from the front. It extends from the muzzle to the forehead and should be of medium length and free from extra flesh, as a clean-cut face indicates quality and dairy temperament. From the same position, the forehead is seen and should be broad and slightly dished. Here is the seat of the important part of the nervous system, the development of which is a requisite of the high producer.

Note also the eyes, which should be large, full, mild and quiet, as they indicate temperament. The drowsy eye is not associated with milk production. In judging the ears, it may be necessary to handle them. Care should be taken at all times to be gentle and careful in handling a dairy cow. The ear should be of medium size, fine in texture, and show, especially on the inside, an abundance of yellow, waxy secretion. The size and texture of ear indicate quality, and the character of secretion is supposed to indicate, to some degree, the quality and coloring of the milk secreted.

Forequarters—10 per cent.—Step to one side and view the throat, supplementing this if necessary by grasping the throat in the hand. It should be clean-cut and thin. Frequently this part will be found thick and beefy, which shows lack of dairy character.

From about the same position, note the neck of the animal. It should be long, spare, and smoothly joined to the shoulders; a direct contrast to the short, thick neck of the beef animal. Frequently loose skin, known as the " dewlap," hangs in folds from the lower part of the neck. This is undesirable.

Take another step toward the rear of the cow, placing the hand on the withers. By an examination with the hand and by glancing down along the neck, withers and back, from above, a good idea may be formed of the conformation of this region. The top of the shoulders and spinal column should fit up together in such a manner as to form sharp withers. It is not uncommon, however, to find

cows with coarse or open withers, often times so wide across that this region can not be spanned with one hand. This should not be the case as it is an indication of either beefiness or coarseness.

Standing a pace or two to one side of the cow on a line with her head, observe the shoulders and fore legs. The shoulders should be sloping to insure capacity of chest, and smooth, to show quality and trimness. The brisket should be refined.

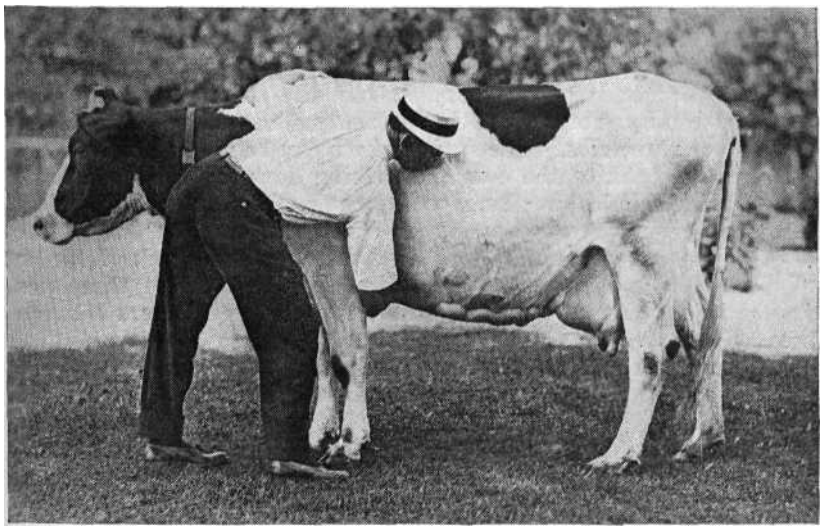

Fig. 54. Estimate width of chest floor with right arm

The fore legs should be set squarely under the cow far enough apart to give sufficient capacity of chest. They should be straight and trim, indicating quality and substance sufficient to strongly support the animal. Frequently they stand too close together, which is quite objectionable as it reduces the space for the heart and lungs.

Body—25 per cent.—Pass the hand along the spinal column, immediately back of the withers and note the condition of the chine. This portion should be free from fleshiness, but on a cow somewhat inclined to lay on fat, will often be full and rounding.

Judge the width of chest by passing the hand under the cow's body just back of the fore legs, as in Fig. 54; then step back about two paces and note the depth of chest. It should be broad and deep

giving great capacity for the heart and lungs which are important factors of constitution.

The back may be viewed from the last named position and should be straight and strong. By stepping up to the cow and passing the open fingers along the spinal column, the top of the spinal processes may be felt. These should be quite noticeable and not closely joined as the lateral nerves pass out between the vertebrae from the spinal cord and plenty of space for these nerves is desired. A very common defect is a weak back or one that is not straight. Although it is not considered a very serious defect for a cow to be a little low in the back, it is to be discriminated against.

Let the hand follow the ribs from the spinal column to the lower extremity, noting length, spring, and the width between the last two or three ribs. The spring of rib can be noted to advantage by stepping back of the cow and looking down on her body from above. She should have long, well-sprung ribs that are wide apart laterally, giving great capacity of chest and barrel. One of the most common defects of this part of the cow is the lack of spring of rib and lack of space between ribs. The last two or three ribs should be far enough apart to admit two or three fingers between them.

Bearing in mind the spring of rib, step to the side of the cow again at two or three paces distant and note capacity of barrel. It should be deep, long and wide, giving that roominess without which great consumption of feed is impossible. This point must be criticised severely if the cow does not show capacity.

The appearance of the loin as viewed from the side and rear is generally sufficient to give an idea as to its character. It should be strong and broad, as strength and capacity in this region are demanded to support the heavy load of the abdomen and prevent difficulty at time of parturition. The most common defect here is a narrow loin.

Hindquarters—12 per cent.—From the rear note the width between the hips. They should be prominent and wide apart. This is necessary to capacity of barrel and room in the pelvic region. Discriminate against lack of width.

Stand at the side of the cow, opposite her hindquarters, and look at that part of the cow between the hip point and pin bone, the rump. It should be long and level. The length is important as it is correlated with the space for attachment of udder below. A sloping rump is a frequent fault and detracts from the symmetry of the hindquarters.

Step back to the rear of the cow again to note the width of pin bones. They should be wide apart, as width in this region conduces to easy parturition.

From the same position as last indicated, note the length and quality of tail, and then by stepping to one side obtain a view of the tail setting. The tail setting should be level and neat, the tail dropping down squarely. The tail should be long, tapering, and of good quality. It is desirable to have the extremity of the bone of the tail reach the hock at least. The most common defect of this part is a high, or a sloping tail setting; the former is the less objectionable.

Get a view of the thighs, both from the side and rear of the animal. They should be thin and incurving as viewed from the side, and wide apart, the width being carried well up. The most serious fault usually found in this part is thick heavy thighs carried down low, lessening space for development of udder.

Stand back of the cow and note the position, conformation and quality of hind legs. They should stand well apart, showing trimness and good quality. The common defect with the hind legs is that they are liable to be close together at the hocks, which is objectionable as it limits the space for the udder.

Mammary Development—30 per cent.—A thorough examination should be made of the udder, as it is one of the most important parts of the dairy cow. Note the width and general character by standing at the left side and rear of the cow, then come to the cow upon the right side and make a thorough examination with the hand, noting quality, shape, attachments, and size of udder. It

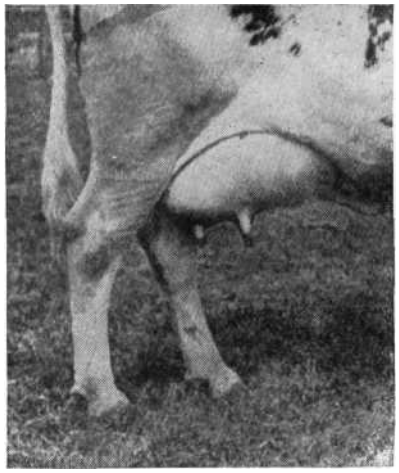

Fig. 55. A well developed udder with evenly placed teats. Note development of fore-udder. Ayrshire cow, "Florence Melrose 18975, Advanced Registry 368," Purdue herd

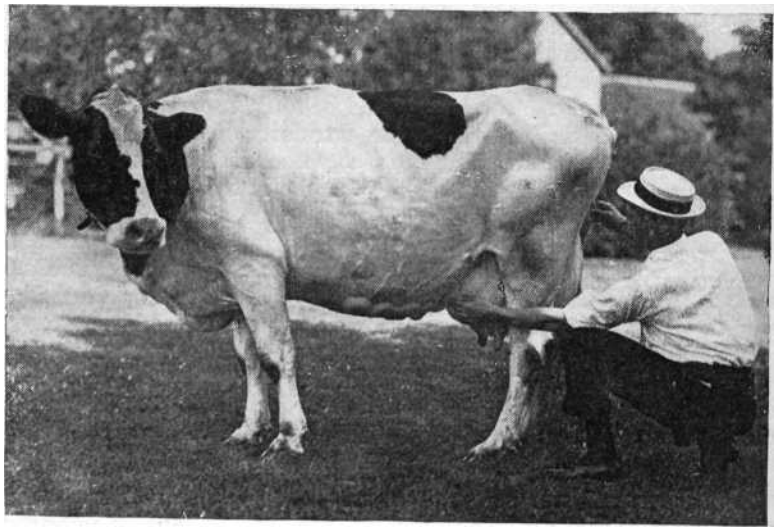

Fig. 56. Estimate length of udder, from attachment in front to attachment in the rear

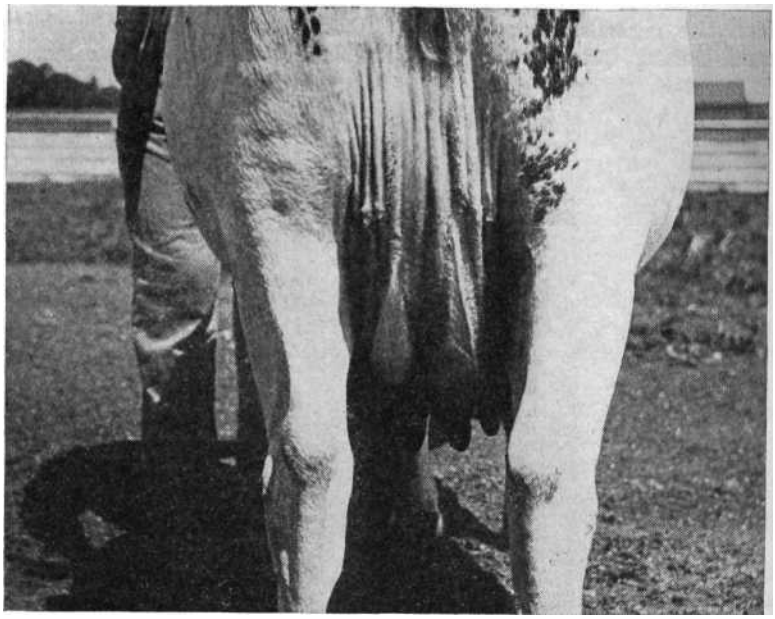

Fig. 57. Udder attached high behind and of good quality, shown by numerous folds when milked out. Ayrshire cow, "Florence Melrose 18975, Advanced Registry 368," Purdue herd

should be long, not pendulent, but long from the attachment in front to the attachment in the rear. It should have a level floor with quarters well balanced. It should be of fine texture and not meaty, so that when milked out it will hang in folds. (Fig. 57) There are a number of different types of udders that are not desirable. The pendulous udder (Pig. 58) gets dirty and is injured easily and the secretory organs are farther removed from the blood supply than is the case with the long udder that is closely attached to the body.

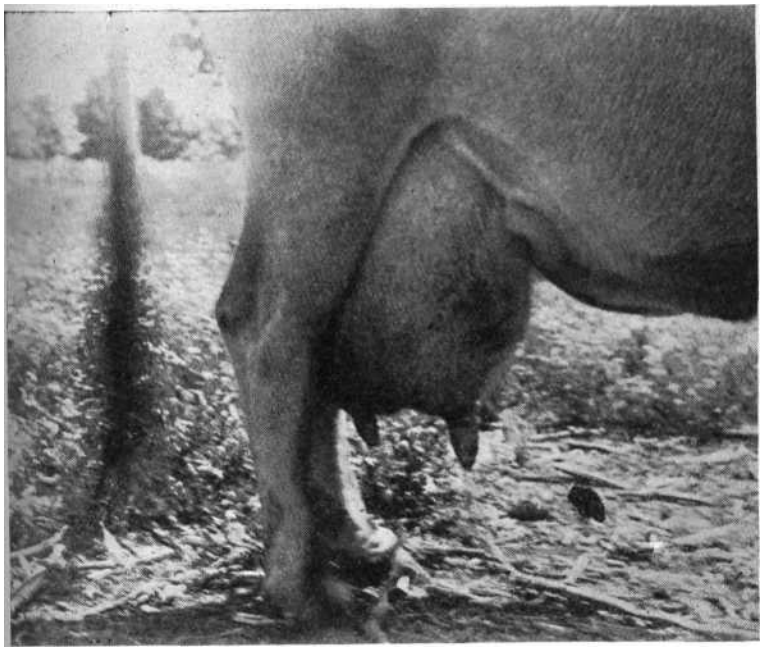

Fig. 58. A pendulous udder, easily injured and soiled

The funnel shaped udder (Fig. 59) is undesirable as it lacks capacity. The fleshy udder is objectionable because there is not enough room for secretory glands, the larger portion of it being taken up with connective tissue and fat. Then too, care must be taken to detect any bad quarters.

When the examination of the udder has been completed, the teats should be grasped and a stream drawn from each one. The teats should be evenly placed, of convenient size, and far enough apart to prevent interference while milking. Many times the teats are small, uneven in size, very tapering, or bunched, all of which

conformations are objectionable. By passing the hand along the cow's belly forward from the udder, the veins leading from the udder to the heart will be felt. These are known as the milk veins and are the only accessible indicators as to the amount of blood that can pass through the circulation leading to the udder. Although known as milk veins they do not have milk in them at any time,

Fig. 59. A funnel-shaped udder, with little capacity

but carry the blood from the udder to the heart. (Fig. 48) This visible indication of the circulation to the udder is important and should be long, large, tortuous and branched. Following the milk veins to their extremities, openings in the body wall can be found with the finger. (Fig. 60) These openings are where the milk veins pass into the body cavity and are known as the milk wells.

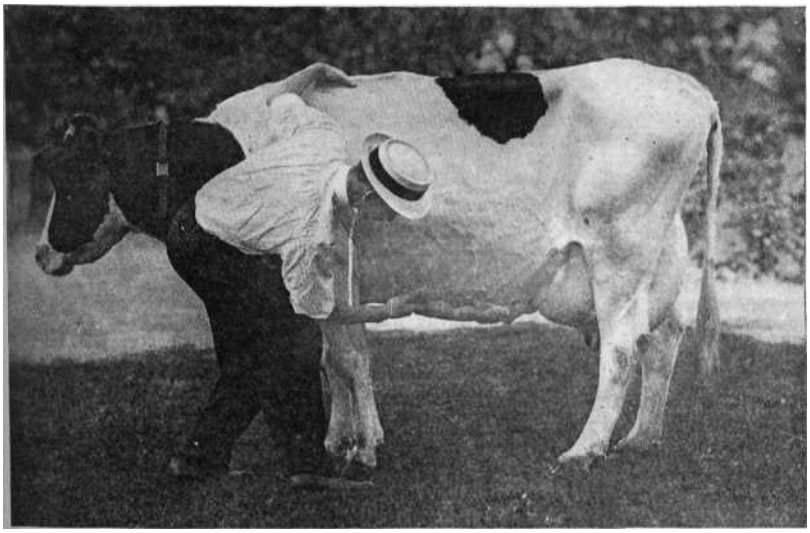

Fig. 60. Determine size of milk well with right fore finger

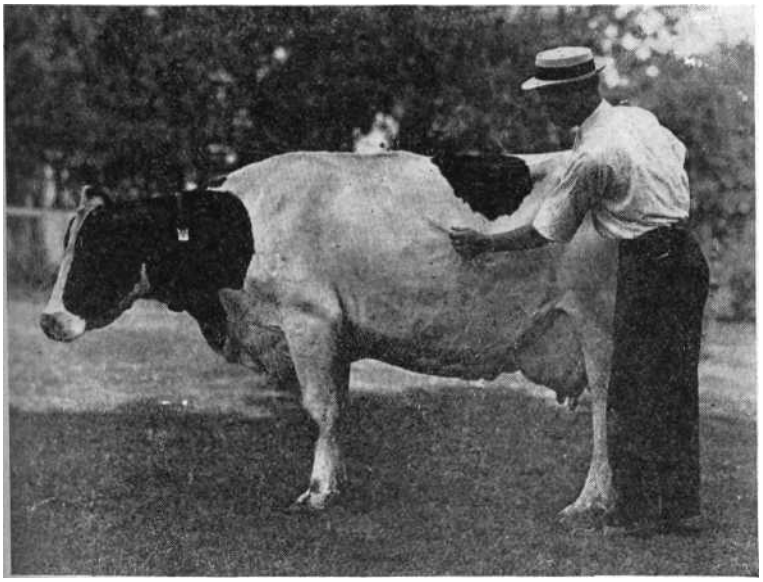

Fig. 61. Examine quality of hide and hair

These wells should be large and, naturally, as numerous as the branches of the milk veins. They regulate to a considerable extent the capacity of the milk veins, consequently small milk wells should be discriminated against.

General Appearance—15 per cent.—After the careful consideration of each individual part of the cow, it is well to consider the entire animal again in a little more accurate manner than in the beginning. From the behavior of the cow while being handled, an opinion can be formed as to her disposition. She should be gentle and quiet, but also show strong nervous temperament well under control, as such is necessary to high milk production.

The health and vigor will be indicated by her general alertness, character of hide and strength of constitution, as indicated by a deep, broad chest, strong frame and wide-awake appearance.

By the detailed examination already made of the various parts, the general quality is noted. In addition to this, the handling quality may be ascertained by gathering up a handful of the hide just over the last two or three ribs. (Fig. 61) The hair should be soft and fine, hide thin and mellow, and the secretion in the ear, and over the body, of a yellow, waxy appearance. All of these indicate that the animal is fitted to perform the particular function of converting feed into milk and butter fat in an economical way.

From a last general view taken by walking around the cow, the first general impression may be confirmed or changed as the case may be, as a result of a detailed study of the animal. She should make an impression of having that dairy temperament, or tendency to change her feed into milk instead of body fat, demanded in the dairy cow.

This character should be reflected in every part individually and in all parts taken collectively.

Comparative Judging.—Comparative judging of dairy cattle is the form of judging employed almost exclusively by the show ring judge, the breeder of pure-bred dairy cattle, in his selection of breeding animals, and by the dairyman in his selection of dairy cows.

It is the estimation of the relative merits of individuals as compared not only with an ideal but also with other individuals. For a fair comparison, the animals should be of the same sex, breed, of about the same age, and in about the same period of lactation.

A thorough examination of each individual is necessary before a comparison can be made. This should be systematically done as outlined in the preceding discussion. Weigh the merits and demerits of each animal with those of every other animal under consideration, paying particular attention to mammary development,

capacity of barrel, constitutional vigor, symmetry of form, quality and disposition, placing the animal in first place that possesses these important points developed to the highest degree, bearing in mind the relative importance of these different qualities in a dairy animal.

Good judgment must be exercised in determining the degree of difference in the same parts in the different animals, and the consideration that is due such difference in view of the relative importance of parts.

THE DAIRY BULL

There are two methods of judging the merits of a dairy bull, as has also been pointed out in the case of the dairy cow.

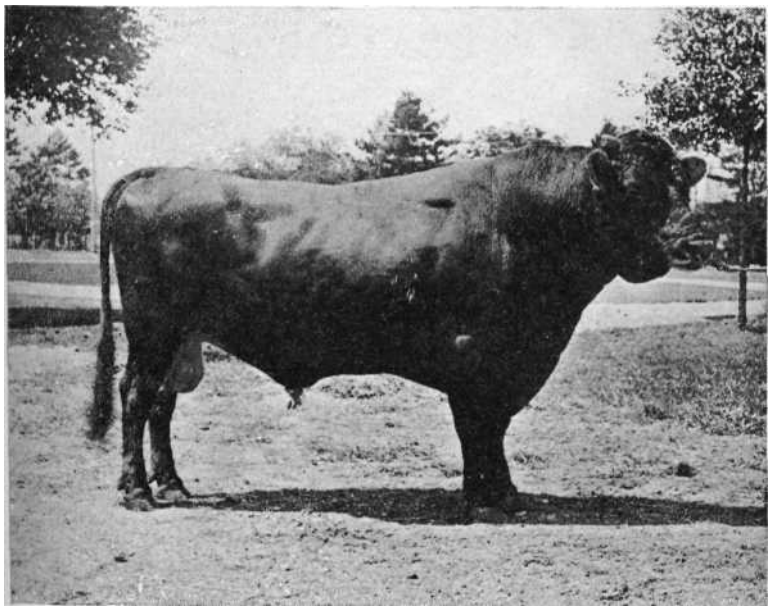

Fig. 62. A pure bred dairy bull, typical of the breed, the merit of which has been proven by the increased production of his daughters over their dams. "Gorgeous Boy 67767, Register of Merit 70," Purdue herd

The first is that method based upon performance or the ability of the bull to stamp his good characters upon his offspring. He should be able to increase the production of his daughters over that of their dams and maintain the breed characters of conformation.

When this method of selection is practiced, only aged bulls can be considered and records of his progeny must be known. This condition of affairs is very seldom found, so that it is necessary to resort to a second method of selection or judging the merit of dairy

bulls, that is, judging by pedigree and records of ancestors along with the conformation of the individual.

The dairy sire should be a pure-bred animal of the breed he represents and should have in his immediate ancestry females that have good yearly production records, and sires that have tested daughters. The records and conformation of the dam, granddam and their sisters are good indications of what may be expected of the bull. After the proper precautions have been taken, as to breeding and production records back of the bull, then the estimation of the merit of the animal as to his conformation can be taken up.

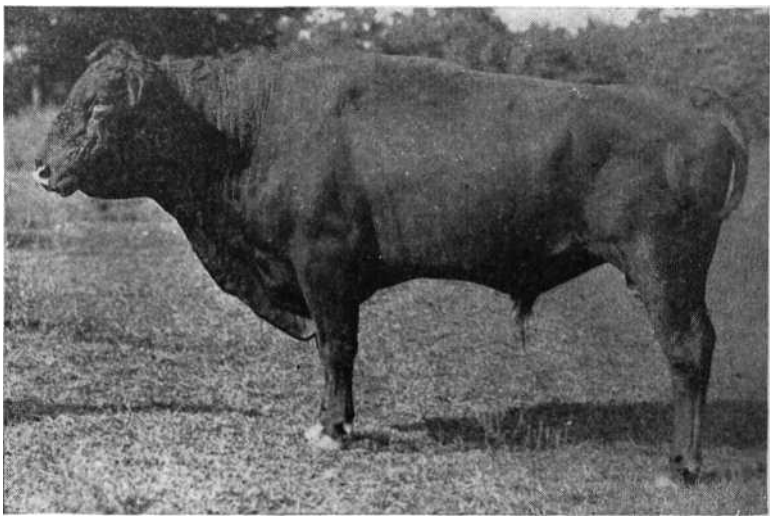

Fig. 63. A grade bull; a type that should go to the block, before further damage is done

The judging of the dairy bull from the standpoint of conformation, is done in much the same manner as the judging of the cow. The same system should be used in going over a bull in detail as given in the previous explanation of the score card, with a few necessary variations. The attendant should always handle the bull with a staff, and the judge should be careful while handling the animal.

The dairy bull should be typical of the breed he represents and should show, in general, the spare, angular form seen in the cow, with prominent indications of masculinity and constitution. These qualities are seen in a strong face, broad forehead, bright prominent eyes, heavily muscled neck, neatly joined to head and shoulders, a neat crest, deep, broad chest, and large barrel.

The hips do not show the same relative width as seen in the cow, but the thighs should be thin, incurving, and cut up well, making the bull high in the twist. The rudimentary teats should be of good size and evenly placed in front of the scrotum, as they indicate in some degree the size and position of the teats on the female offspring. The dairy bull should have quality as indicated by a soft, pliable hide, fine, glossy hair, strong, clean bone and abundant yellow, waxy secretions in the hair, and over the body in general.

Some of the common defects of the dairy bull, which should be discriminated against are:—a tendency to beefiness, lack of barrel, full outcurving thighs, coarseness in shoulders and head, and lack of that style and carriage which indicates strong nervous development. Greater progress can be made in the improvement of dairy stock by discriminating against grade bulls, and pure-bred dairy bulls of undesirable conformation, in favor of good, purebred dairy sires with desirable conformation and good production records back of them, than by any other one process.

PART V
JUDGING HOGS

W. W. Smith, Assistant Professor of Animal Husbandry

INTRODUCTION

Classification.—There are two general classes of hogs on the market, the fat or lard hog and the bacon hog. These are often spoken of as the lard type and the bacon type. The lard hog is broad, thick, low-set, and of medium length, while the bacon hog is inclined to be medium to thin in condition, narrow bodied, long and deep of sides and more upstanding. The lard hog furnishes the market with lard, cheap side meat, hams, and shoulders. The bacon hog, because of its light ham and shoulder and deep, long sides, furnishes bacon as its principal cut.

The type of hog best suited to the corn belt is the lard hog. This is largely because of the abundance and the fattening qualities of corn. For these reasons hogs of strictly bacon breeding are rarely seen on the Chicago or Indianapolis markets. As long as the demand continues for lard, therefore, the farmers of the upper Mississippi Valley will probably continue to produce the kind of hog which can use corn most satisfactorily in its ration. In Canada, where peas, barley and oats are used abundantly, and little corn, hogs of the bacon type are generally produced.

FAT HOGS

Market Demands.—The market prefers the fat hog that will "kill out" the most profitably. To yield profitable returns to the butcher or packer, the hog when killed must, first, "dress" a large proportion of carcass to waste and, second, supply a quality of meat which will please the consumer. High dressing percentage[1] and superior quality in the meat are largely what determine differences in merit and selling price. In judging fat hogs in the show ring or on the market, therefore, these two ideas—dressing percentage and quality of meat—are fundamental, and should be kept constantly in mind.

In order that high dressing percentage and superior quality of meat may be obtained, the lard hog must possess certain characters or "points". The attempt to describe or determine these essential requirements has led to the adoption of a standard. This standard, or ideal, for the lard hog is shown in the following score card.

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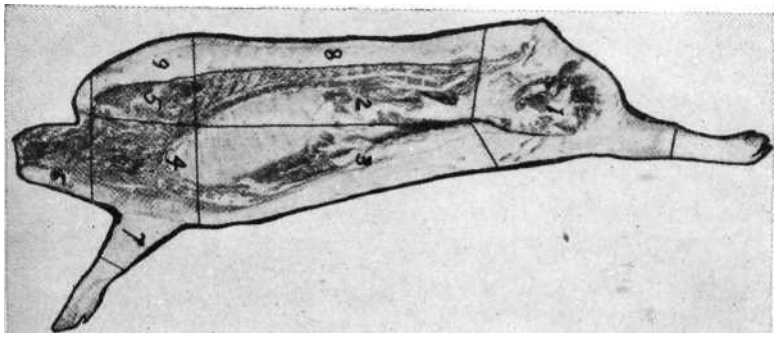
[1]Dressing per cent.—The proportion the weight of the carcass bears to the weight of the live animal. Obtained by dividing the number of pounds weight of the carcass, by the number of pounds live weight



Bulletin No. 147, Illinois Experiment Station
Fig. 64. Wholesale pork cuts

1. Short cut ham	6. Jowl	2, 8. Back
2. Loin	7. Hock	4, 7. Picnic shoulder
3. Belly	8. Fat back	5, 9. Shoulder butt
4. Picnic butt	9. Clear plate	8, 9. Long fat back
5. Boston butt	2, 3, 8. Side	4, 5, 7, 9. Rough shoulder

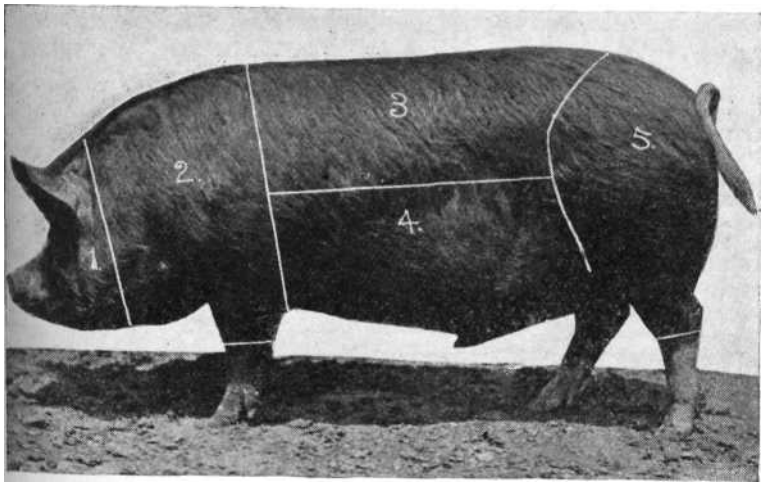


Fig. 65. Wholesale pork cuts located on the live animal. 1. Head 2. Shoulder 3. Loin 4. Belly 5. Ham Pure-bred Berkshire barrow

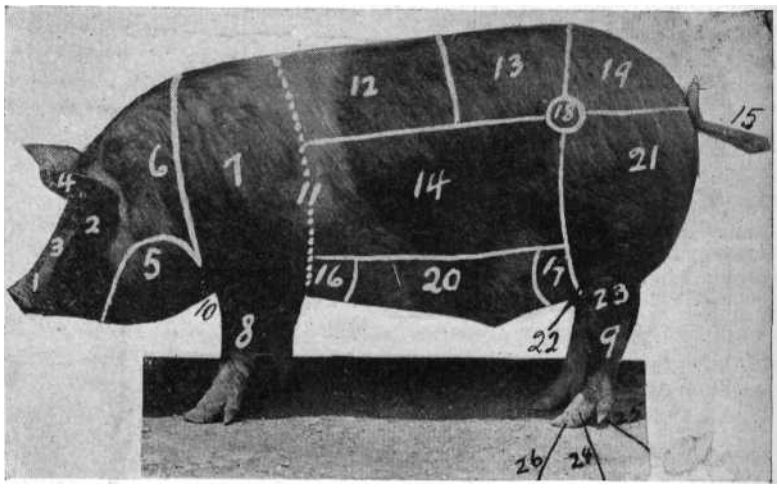


Fig. 66. Points of the hog

1. Snout	10. Breast	19. Rump
2. Eye	11. Chest line	20. Belly
3. Face	12. Back	21. Ham
4. Ear	13. Loin	22. Stifle
5. Jowl	14. Side	23. Hock
6. Neck	15. Tail	24. Pasterns
7. Shoulder	16. Fore flank	25. Dewclaw
8. Fore leg	17. Hind flank	26. Foot
9. Hind leg	18. Hip	

THE SCORE CARD

LARD HOGS FAT

SCALE OF POINTS	Standard	Points deficient	
		Student's Score	Corrected
GENERAL APPEARANCE -30 per cent.			
1. Weight, score according to age	4	…….	…….
2. Form, deep, broad, medium length; smooth, compact, Symmetrical; standing squarely on medium short legs ……	10	…….	…….
3. Quality, hair smooth and fine; bone medium size, clean strong; general appearance smooth and refined ……..…..	6	…….	…….
4. Covering, finished; deep, even, mellow, free from lumps and wrinkles …….	10	…….	…….
HEAD AND NECK -8 per cent.			
5. Snout, medium length, not coarse …….	1	…….	…….
6. Eyes, not sunken, clear, not obscured by wrinkles ……	1	…….	…….
7. Face, short; cheeks full ……..……..	1	…….	…….
8. Ears, fine, medium size, attached neatly ……..……	1	…….	…….
9. Jowl, full, firm, neat ……	2	…….	…….
10. Neck, thick, short, smooth to shoulder …..…….…….	2	…….	…….
FOREQUARTERS -12 per cent.			
11. Shoulder, broad, deep smooth, compact on top …..……..	8	…….	…….
12. Breast, full, smooth, neat ……...……	2	…….	…….
13. Legs, straight, short, strong, upright; feet medium size ...…….	2	…….	…….
BODY -33 per cent.			
14. Chest, deep, wide large girth …….……..	4	…….	…….
15. Sides, deep, full, smooth, medium length …..……	8	…….	…….
16. Back, broad, strongly arched, thickly and evenly covered …...	9	…….	…….
17. Loin, wide thick, strong ……..…….	9	…….	…….
18. Belly, straight, smooth, firm …..……..	3	…….	…….
HINDQUARTERS -17 per cent.			
19. Hips, wide apart, smooth ……..	3	…….	…….
20. Rump, long, level, wide, evenly fleshed …….……..	3	…….	…….
21. Ham, heavily fleshed, full, firm, deep wide ……...……...	9	…….	…….
22. Legs, straight, short, strong; bone clean, hard; pasterns short, strong, upright; feet medium sized …….……..	2	…….	…….
Total ……	100	…….	…….

A study of the score card is desirable as a preliminary to the actual work of judging a ring or class of fat hogs. After learning the various parts or "points" of the hog as shown in Fig. 66 and familiarizing himself with the descriptions of the principal points as given by the score card, the student is ready to begin the actual

work of scoring a single individual. (For general directions in the use of the score card the student is referred to page 8)

Weight; According to Age—4 per cent.—There is no fixed single weight which the packer or butcher can be said to prefer. On the Chicago or Indianapolis market, for example, there can be seen hogs ranging in weight from 50 pounds to 500 pounds. Usually, however, the pig weighing from 200 to 300 pounds commands the highest price, provided it has the form, quality, and finish which come from improved breeding and good feeding. This is a profitable weight for the farmer to produce, and should be attained by the best pigs when from six to 10 months of age. A good standard of weight for age is an average daily gain of one pound from birth. In scoring fat hogs it is not customary to make a 'cut' if the individual comes up to this standard.

Form—10 per cent.—In form, the ideal fat hog should be deep, broad, and of medium length; smooth, compact and symmetrical; standing squarely on mediumly short legs. The form or type, as it is often called, is quite well defined by these general terms. It is most important that the hog besides being broad, thick, and heavy in the back, loin, and ham, present an appearance of trimness along the belly line and jowl. His underline should be straight. He should have broad, smooth shoulders, a wide, strongly arched back, deep, full hams, full sides, and a straight, trim underline.

In scoring or judging the form of the fat hog, the student should be systematic in making his observations. It is better not to get too close, as the outline and general proportions can be more accurately observed at a distance of 10 or 15 feet. From in front, notice the width between the eyes, smoothness of shoulders, and width of back and loin. From this position, narrowness of head, rough, open shoulders, and narrow, weak back and loin will be most conspicuous. Passing a little to the left the student is in the best position to note any defect in the smoothness or fullness of the side. A straight edge applied to the side of the hog, in contact with the shoulder and ham, should touch all along the side. The width of back should be carried down uniform to the belly line. The top and bottom lines and depth of shoulder, side and ham, and length of legs can best be judged from the side. The most common and serious defects to be noted here are weak back, steep rump, high, 'cut up' flanks, narrow ham, a heavy, wrinkly underline, and a coarse, heavy jowl. They indicate excessive waste when the animal is killed and a small proportion of the most desirable cuts in the carcass. The manner in which the hog stands should also be observed. The hog that stands with his hind feet far under is usually steep and flat in the rump and does not possess the smoothness

and levelness of lines to make him symmetrical in appearance. Extremely long legs are to be criticised for they not only represent so much waste to the butcher, but are usually associated with a narrow back and light hams. From behind observe the width, depth and fullness of the hams, the set of legs, and the uniformity of the width throughout. The ham is one of the most important parts of the fat hog, and light, narrow, flat hams should be discriminated against. It will be observed that when a hog stands with his hind legs close together, his hams are usually lacking in weight and development. The fat hog should be as wide in the hams, loin and back as he is in the shoulders. Passing on around to the right side, the same observation should be carefully made as on the left.

The standard form or type of the lard hog is considered important by the market because of its relation to dressing percentage. The average hog on the Chicago market dresses only 70 per cent. of carcass to live weight when killed. The hog with the ideal form just described, if fat, should dress 85 per cent. or more. The range of average fat barrows is about from 78 to 82 per cent. Besides being lighter in total percentage of offal to live weight, the standard fat hog will be heavier in the more valuable cuts, namely, the back, loin, and ham. In scoring or judging the form of the fat hog, therefore, emphasis should be placed upon those things which indicate light offal or waste and superior development in the region of the back, loin, and ham.

Quality—6 per cent.—Quality refers to the character of the hair, skin, and bones and the general appearance of smoothness. According to the standard as shown by the score card, the hair should be soft and silky, the skin smooth and fine and the bone medium sized, dense and strong. The general appearance should be smooth and refined.

All of these points should be carefully observed by the student when scoring. The features of the face and head, the ears, hair, and legs are the parts especially important as indications of quality. The most frequent faults in quality are coarse, heavy head and ears, coarse bone, and coarse, curly hair and wrinkly skin.

Quality in the fat hog is an indication of the amount of offal or waste when the animal is killed. The hog with large, coarse bone, with heavy head, that is rough and coarse in general appearance is always an unprofitable animal for the butcher to handle unless bought at a low price. In addition to causing heavy offal in dressing, coarse quality of hair and bone is thought to be associated with inferior quality and texture in the meat itself. The most important considerations in quality are general smoothness, refinement about the head and ears, and clean, strong bone.

Covering—10 per cent.—Covering refers to the condition or degree of fatness and is most important in determining the selling value of the lard hog. The fat covering should be deep and even, especially along the shoulder, back, and loin. The fattest hog usually sells for the most money on the market, other things being equal, and as long as lard continues to command a high price, hogs of extreme condition will enjoy the keenest demand from the buyer. Besides being desirable in itself as lard, high finish or condition guarantees a high dressing percentage and improves the keeping and shipping qualities of the meat when cured.

The fat hog should also be smooth in his covering. If the fat covering is not smooth and free from lumps, creases, and wrinkles, the carcass when hung on the hooks will not be smooth and attractive.

The degree of fatness is judged or indicated by general plumpness and fullness of form, development of fat in jowl, belly line, and hams, and the depth of covering over the back and loin. The student may use his hand to advantage here in determining the thickness in the regions of the shoulder, back, and loin, as well as determining the mellowness of the covering. Condition or covering is of importance to the packer or butcher because of the demand for lard and its close relationship to the dressing percentage.

Head and Neck—8 per cent.—According to the score card the head and neck constitute a rather unimportant part of the fat hog. To the butcher the head is chiefly waste, and the more refined, therefore, the better. The most important things for the student to observe here are the shape or form of the head, and the quality. A broad head, short neck and snout are usually associated with a broad back, deep, heavy hams, and feeding capacity. Quality and refinement in all the features are especially desirable because they not only indicate refinement in the carcass, but also light offal or waste.

Forequarters—12 per cent.—The shoulders are the most important part of the forequarters. This is indicated by the figure at the right of this point on the score card. Though the student may already have criticised the shoulder or legs when scoring the 'form' under 'general appearance,' it is the practice to make another 'cut' when the parts or details are thus considered. A full breast, deep, smooth shoulders, and straight legs showing quality are the chief considerations here.

Body—33 per cent.—All parts of the body are important to the butcher, for they represent the largest part of the dressed carcass. A broad, thick, strongly arched back; deep, smooth sides; and a trim, straight underline are the most important features to be desired. In scoring the several points here the student should ob-

serve the body from all sides—especially from behind and from the side. The most common faults in the average hog are a 'wasty' underline and heavy paunch, thin, narrow back, weak loin, and a lack of depth of fore and hind flanks.

Hindquarters—17 per cent.—The hams represent the largest part of the hind quarters. They should be viewed from both the side and rear, and the length, width, and thickness determined as accurately as possible. The hips of the fat hog are usually smoothly covered, but should usually be wider apart. This would insure a broader rump and thicker hams. When the legs and feet have been criticised, the scoring is completed, and the sum of the score will represent the student's estimate of the pig's merit or degree of perfection.

Comparative Judging.—After the student has had the practice of scoring several individuals, especially with an experienced judge, he is ready for the more practical work of placing a ring or class of fat hogs. Since the things which constitute merit in the packer or butcher's hog, as already indicated, are dressing percentage and quality of meat, only those important factors which determine these should be considered by the judge. The character of the hog, or the points of the score card, which bear an important relationship to these two qualities are all included by the general points of weight, form, covering and quality. In judging a class and discussing reasons for placing, therefore, it is best to observe these important essentials and dispense with the details as much as possible. Weight, form, quality and covering are, therefore, the conditions that should be emphasized in practical judging.

THE BROOD SOW

The most valuable brood sow is the one which regularly produces large, strong, uniform litters of pigs. In addition to regular and prolific breeding qualities, it is also important that she transmit to her pigs, quick, easy feeding traits and those qualities which indicate profit when sold. The brood sow herself must, therefore, first, be a good breeder, second, a good feeder, and third, represent the general form and quality demanded by the market. All breeders of lard hogs agree in attempting to produce these important essentials. As a result the principal breeds of lard hogs are similar in their general characters. Breed differences are due more to variations in color, set of ear and dish of face than to those things which determine the real usefulness of the sow.

In judging brood sows the following general plan may be followed to advantage in making the observations, attention being here given to those essentials common to all the lard breeds.

Size.—A good standard for a mature brood sow in strong, breeding condition is from 350 to 400 pounds. When carrying an excess of fat, as is common when fitted for show, they should exceed this weight. Sows of this size are thought to be most able to produce pigs which will combine the ability to grow rapidly with a tendency to fatten early. Sows that are extremely small are usually too fine, lack constitutional vigor, and produce pigs lacking thrift

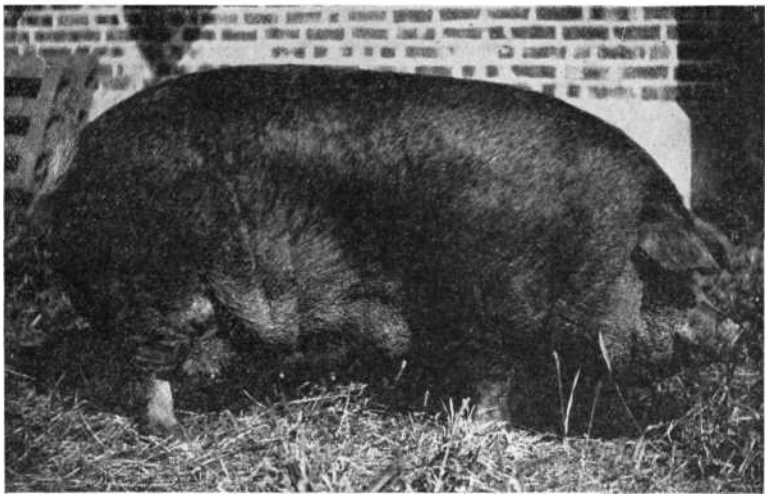


Photo by Hildebrand

Fig. 67. Unusual combination of size and substance with refinement and quality. Pure-bred, prize winning Duroc-Jersey sow

and growing qualities. On the other hand, sows of extreme size are usually coarse in quality and produce pigs lacking the smoothness and early maturity demanded by the market.

Form.—The form or type of the brood sow should in general be similar to that of the finished fat hog. There are important differences, however, which should be observed. The brood sow should have more length, and because of thinner condition, should not have the same appearance of compactness and thickness which is shown in the fat hog. She should be deep bodied, broad and uniform in width, and roomy. Smooth shoulders, a strong, arched back, a wide loin, level rump, and deep, full sides are especially desirable. She

should be wide between the eyes and not long in the snout. Depth and width of chest and a roomy middle indicate strong constitution, superior feeding qualities, and, usually, ability to produce large litters. A full development of 12 teats is of the greatest importance.

The legs should be squarely placed, straight, and strong. A sow with weak pasterns, extremely light bone, and crooked feet and joints is objectionable as a breeder. It is very desirable that the sow have strong, upright pasterns. A medium sized bone of quality is to be preferred. It is even more necessary to shun light bone of too much fineness than it is bone which is too heavy and coarse.

Quality.—General smoothness, fine, straight hair, refinement about the head and ear, and clean, dense bone are all indicative of quality in the brood sow as in the fat barrow. Quality in the brood sow is usually associated with improved breeding and easy keeping qualities. It is also a guarantee of quality in the pigs. In judging brood sows, however, quality should not be insisted on to the extent of sacrificing sufficient size and substance of bone. Extreme refinement is undesirable. A good guide is to value quality so far as it results in general smoothness and increased strength and density of bone.

Femininity and Disposition.—Femininity is indicated by refinement about the head and face, a light neck, a roomy middle, well developed udder and teats and wide hips. Femininity is opposed to masculinity. It includes all of those things which indicate the female sex. The most feminine sows are usually free breeders and the best mothers.

The sow with the most pronounced femininity is apt to have the most desirable disposition, and will usually succeed in saving her pigs. The brood sow should have a gentle, active, vigorous disposition. A sow that is wild and nervous, or that naturally has a bad temper, is a pig killer. For the same reason the sluggish, lazy, awkward sow should be discriminated against.

In judging brood sows, therefore, we should consider primarily their *size, form or type, feet and legs, quality, femininity, and disposition.*

THE BOAR

The same general method employed for the examination of the brood sow may be followed in judging the boar.

Differences which exist in the standard for the boar as compared with that of the brood sow are the result of differences in sex. Femininity in the sow should give place to pronounced masculinity

in the boar. The boar which has a weak, feminine, or staggy appearance about the head is usually not able to impress his own characters upon his offspring.

As compared with the sow the boar is heavier and stronger in appearance about the head, neck and shoulders. Refinement and femininity of the sow should give place to strength and masculinity in the boar. It is characteristic of the boar, also, to be shorter bodied and more compact than the sow. This appearance of compactness and strength in the boar is aided by the development of shields on the shoulder sides with approaching maturity.

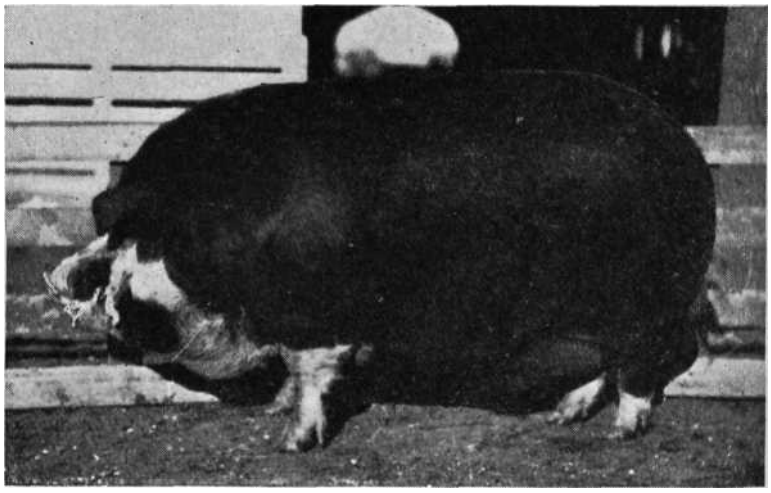


Photo by Hildebrand

Fig. 68. The extreme lard hog type. Pure-bred Poland China boar in show condition

The boar should *weigh*, on the average, from 75 to 100 pounds more than the sow when in the same degree of flesh. A boar of rather the medium weight for the breed will usually prove the most satisfactory breeder. Extreme size is apt to be associated with undue coarseness or lack of quality.

The *form* of the boar should indicate a strong, vigorous constitution and good feeding qualities. As with the sow, it is especially desirable that the boar be wide between the eyes, wide and full in the chest, and strong in the back and loin. A level rump, full hams, straight sides, and low flanks are essential and add to his appearance of symmetry.

Feet and Legs.—He should have plenty of bone, and stand wide and straight. It is very important that he be strong in the hocks, for when breeding, much strain is borne by these parts, Medium-sized bone with quality is to be preferred to either fine bone or extreme size of bone.

Quality.—This is of the same value in the boar as in the sow. The indications of quality are the same in both. The boar, however, because of his heavier shoulders and masculine character, should not be expected to show the same degree of refinement as

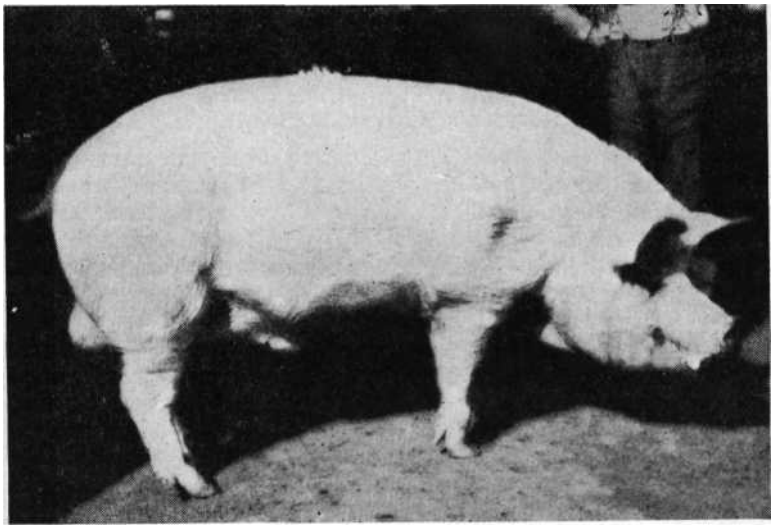


Photo by Hildebrand

Fig. 69. The bacon type. Pure-bred Yorkshire boar

the sow. General smoothness of form and covering, fine, straight hair, and clean, hard bone are the important indications of quality.

Disposition.—In judging boars the importance of an active, vigorous dispositon should not be overlooked. For this reason the boar should be made to move about and his ease and freedom of action observed. A boar that is weak on his feet and legs is an unsafe investment for the breeder and should be discriminated against.

Weight, form, feet and legs, quality, masculinity, and disposition are the important general points to be observed when judging the boar.

PART VI
JUDGING SHEEP

H. E. Allen, Assistant Professor of Animal Husbandry

INTRODUCTION

In taking up the study of sheep judging the first thing to do is to become familiar with the names and location of the various parts of the animal's anatomy. This is necessary in order that the descriptions of the parts and the instructions as to how to go about their examination may be readily understood. Make a thorough study of the Figs. 73 and 74 on page 92 until the points of the sheep are well in mind before trying to do any scoring or judging.

CLASSIFICATION OF SHEEP

After getting the points of the sheep clearly in mind the next thing to consider is the classification. It is necessary to become familiar with these classifications before you can judge sheep according to their utility and merit. Two classifications are given: first, grouping them according to types and breeds; and second, according to how they are sold on the market.

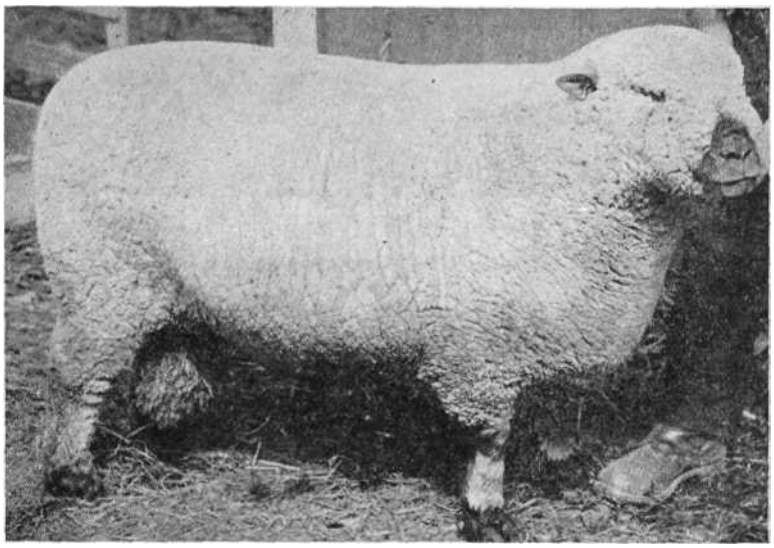


Photo by Hildebrand

Fig. 70. A good mutton, medium wool type. Shropshire ram

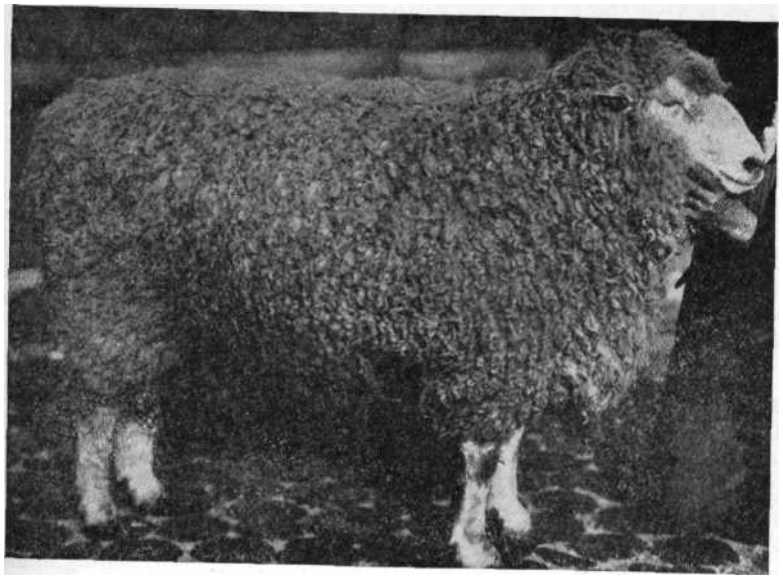


Photo by Hildebrand

Fig. 71. A good mutton, long wool type. Lincoln ram

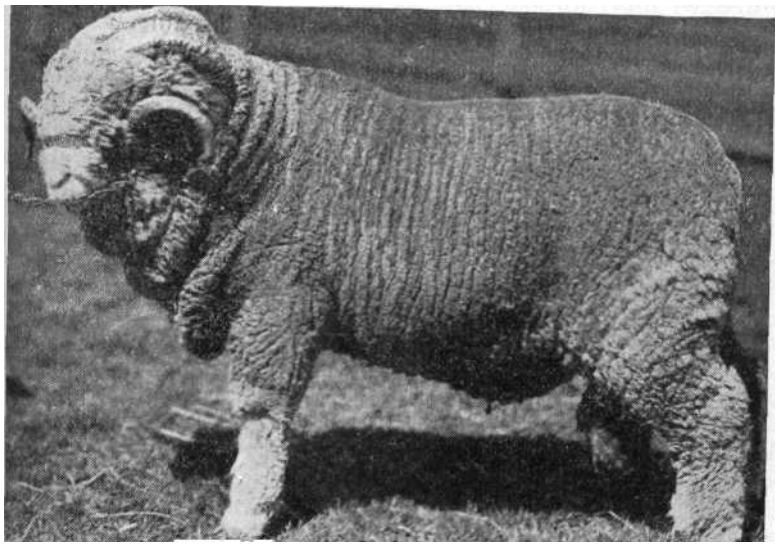
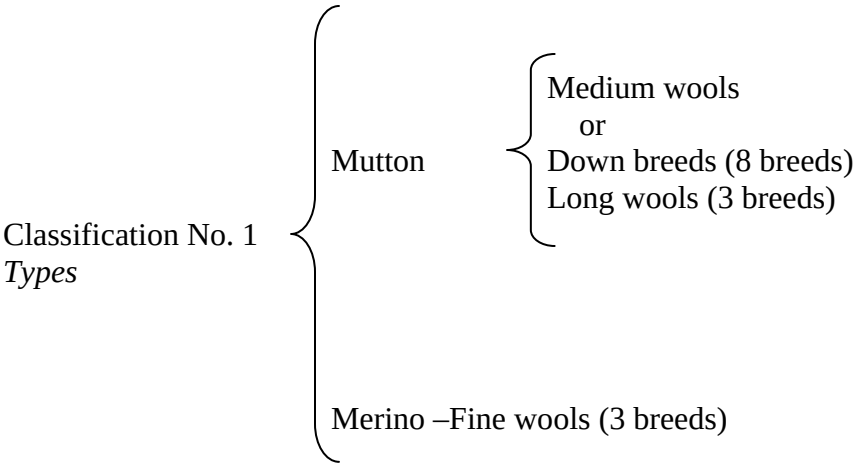


Fig. 72. A good fine wool type. Rambouillet ran



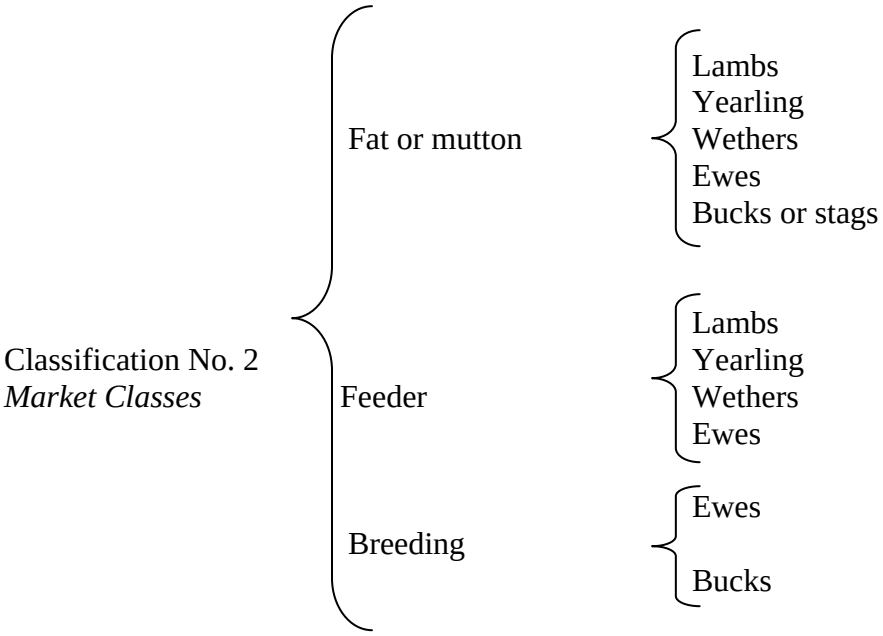
The names and a brief description of the breeds that belong to the various sub-types are given in a table on page 124 of this circular.

Two General Types.—The above classification divides all sheep into two general types on the basis of the purpose for which they are bred. The breeders of the mutton type breed primarily for mutton, with the fleece as a secondary consideration.

The breeders of the Merino or fine-wool type emphasize first of all the wool producing qualities with mutton production as of secondary importance. The ultimate result has been a wide difference in the make-up of the two types which from the judging standpoint must be considered separately.

By the above classification note that the mutton type of sheep is divided into two sub-types or groups, medium wools and long wools. This division is made on the basis of the nature and length of the wool and not on the basis of conformation or utility. Although the breeds within these two groups differ materially in character, what is known as the mutton type or form is essentially the same in both groups and the advocates of each breed have the same ideas as to what constitutes good form, quality, and constitution regardless of the breed to which the animal belongs. In these essentials of the mutton sheep, breeders of the several mutton breeds have many things in common and all agree on a common ideal in most respects.

The market cares nothing for breed characters and it never asks to what breed the animal belongs. However, some markets do prefer the black faced type. What it demands is the best development of those parts which make for good mutton. As a result sheep that go on the market are not classified with respect to breed type. They are classified on the basis of their utility according to the following outline:



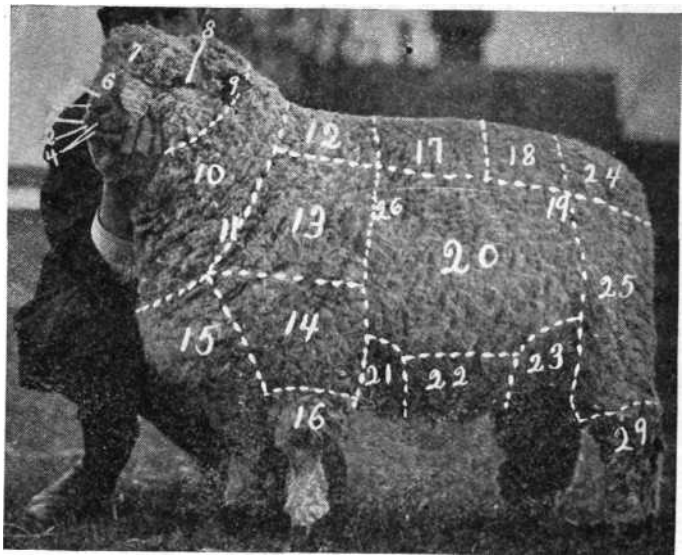
By *market* sheep is meant all those sheep that are sold on the live stock market. The names of the classes indicate the use to which they are put, while the names of the sub-classes suggest difference of either age or sex between sheep put to the same use.

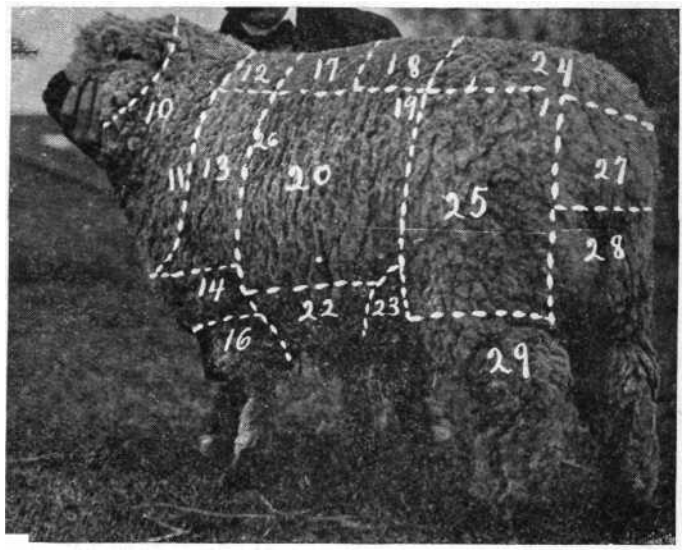
After the parts of the sheep, and the classifications according to breed types and market demands are clearly in mind, you are ready to proceed with the scoring and judging.

According to classification No. 2, market sheep are divided into three classes,—*fat, feeder, and breeding*, according to the use to which they are put when sold.

FAT SHEEP

Market Demands.—It is the ultimate aim of all breeders of mutton sheep to produce that type best suited to fill the demands of the butcher. The main feature demanded in a sheep by dealers in high-class mutton are, proper *age and weight, form, condition, and quality*. Each of these features will now be taken up separately and discussed. These discussions will aim to give instructions on (a) what constitutes the ideal; (b) how to examine the parts to determine how nearly they approach the ideal; and, (c) some of the more common faults or defects that are often present and should be discounted in determining the true merit of the individual. Therefore, we will first take up a detailed description of that type and in connection with this give directions as to the best method of examination to secure a definite idea whether or not the animal fulfills all the requirements of the fat sheep as indicated in the butcher's or market's ideal. This ideal is best represented in the score card, page 93.





Figs. 73 and 74. Points of the sheep

1. Muzzle	6. Face	11. Shoulder vein	16. Fore leg	21. Fore flank	26. Crops
2. Mouth	7. Forehead	12. Top of Shoulder	17. Back	22. Belly	27. Dock or tail
3. Nostril	8. Eye	13. Shoulder	18. Loin	23. Flank	28. Twist
4. Lips	9. Ear	14. Chest	19. Hip	24. Rump	29. Hind leg
5. Nose	10. Neck	15. Brisket	20. Ribs or side	25. Leg of mutton or thigh	

THE SCORE CARD

MUTTON SHEEP FAT

SCALE OF POINTS	Standard	Points deficient	
		Student's Score	Corrected
1. Age ……..			
GENERAL APPEARANCE -38 per cent.			
2. Weight, score according to age	8	…….	…….
3. Form, long, level, deep, board, low set, stylish ……	10	…….	…….
4. Quality, clean bone; silky hair; fine, pink skin; light in offal, yielding high percentage of meat…….…..…..	10	…….	…….
5. Condition, deep even covering of firm flesh, especially in regions of valuable cuts. Points indicating ripeness are, thick neck, full purse, full flank, plump breast …….	10	…….	…….
HEAD AND NECK -7 per cent.			
6. Muzzle, fine; mouth large; lips thin; nostrils large and open ……	1	…….	…….
7. Eyes, large, clear, placid ……..…..……..	1	…….	…….
8. Face, short; features clean-cut ……...…….……	1	…….	…….
9. Forehead, broad full ……...……	1	…….	…….
10. Ears, fine alert ……...…….……	1	…….	…….
11. Neck, thick, short, free form folds ……..……..	2	…….	…….
FOREQUARTERS -7 per cent.			
12. Shoulders, covered with flesh, compact on top, snug ……...…	5	…….	…….
13. Brisket, neat, proportionate; breast wide ……....…….	1	…….	…….
14. Legs, straight, short, wide apart, strong; forearm full; shank smooth, fine ……..…….……..	1	…….	…….
BODY -20 per cent.			
15. Chest, wide, deep, full ……..…..……	4	…….	…….
16. Ribs, well sprung, long, close ……..…..	4	…….	…….
17. Back, broad, straight, long, thickly fleshed ……...…….	6	…….	…….
18. Loin, thick, broad, long ……..……..	6	…….	…….
HINDQUARTERS -16 per cent.			
19. Hips, far apart, level, smooth ……..……..	2	…….	…….
20. Rump, long, level, wide to tail-head ……..…..……..	4	…….	…….
21. Ham, heavily fleshed, full, firm, deep wide ……...……..	4	…….	…….
22. Twist, plump, deep ……..……..	5	…….	…….
23. Legs, straight, short, strong; shank fine, smooth ……..	1	…….	…….
WOOL -12 per cent.			
24. Quantity, long, dense, even ……..……	4	…….	…….
25. Quality, fine, pure; crimp close, regular, even …….	4	…….	…….
26. Conditions, bright, sound, clean, soft, light …….	4	…….	…….
Total ……	100	…….	…….

Study the score card and use it in the scoring of several animals until you become familiar will all its parts and the relation they bear to each other and to the live sheep.

Method of Examination.—On account of the length of the fleece it will be necessary to carefully handle every part of the sheep to determine its form, quality, and condition. Moreover, all exhibitors practice trimming to give their animals a smoother and more attractive appearance than they would have otherwise and thereby are able to cover up many defects of form, and, in case the wool is long enough, can give their sheep almost any shape desired. Fig.

Fig. 75. Noting general appearance and breed type

76 illustrates a ram lamb before trimming and Fig. 77 the same lamb after trimming. These illustrations suggest the necessity of careful handling, and demonstrate the fact that sheep judging is a very different proposition from the judging of other classes of live stock, in that the hands and not the eyes must be depended upon, thus necessitating a different method of examination.

It is all the more important, then, that a definite plan of procedure be adopted in order that no part be overlooked and that no defect escape notice. Note in all the figures illustrating the manner in which a judge should handle a part, that when examining

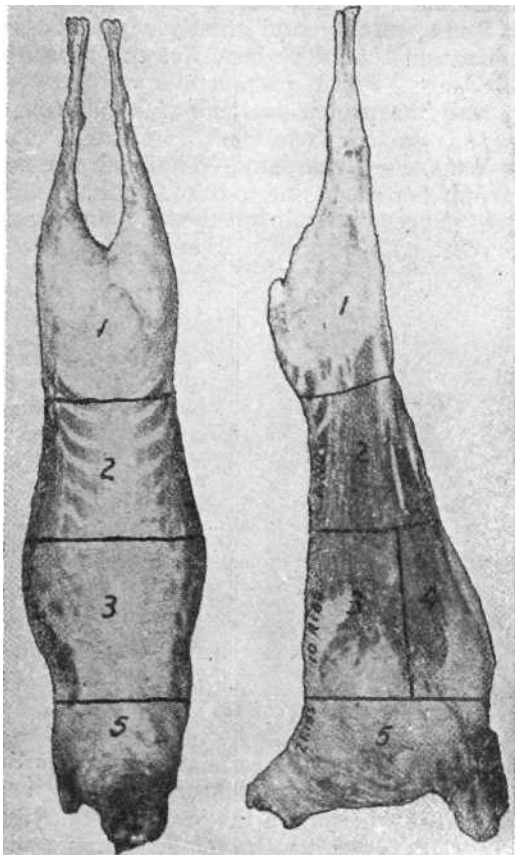
it, he holds his hands flat with the fingers together in a sloping manner. In this way it is possible to feel the form of the sheep without disturbing or breaking the fleece. Sticking the fingers into the fleece makes holes in it, which gives access to rain and dirt, detracts from its appearance, and greatly annoys the shepherd.

The examination should be begun at the head and continued over the whole body. Figures which follow illustrate the position of the judge and the proper method of handling a sheep when judging.

Age and Weight—8 per cent.—The lamb age is the most desirable age for butcher sheep due to the fact that it is the most profitable for the producer and is in greatest demand by the consumer. About 80 per cent. of all sheep marketed are lambs. Sheep pass from the lamb state just after they are a year old.

Figs. 76 and 77. Ram lamb before and after trimming. The general appearance may be improved by a judicious use of the shears

The age of a sheep is best estimated by the order of the appearance of the front teeth, called "nippers" or incisors. Sheep have eight permanent incisors in the lower jaw, having none in the upper. By permanent teeth we mean those that replace the baby, temporary, or milk teeth. The milk teeth can easily be distinguished from the permanent ones in that they are narrow, while the permanent incisors are broad and wide, widening out considerably toward the top. The permanent teeth take the place of the temporary in regular order by pairs as the sheep grows older. The first pair consisting of the two front teeth, one on either side of the medium line of the jaw supplants the milk teeth when the sheep is slightly over one year old. The next pair, that is, one on each side of the central or first pair, appears one year later or when the sheep is two years old; the third pair appears when the sheep is a little



Bulletin No. 147, Illinois Experiment Station
Fig. 78. Mutton and lamb cuts

1, 2. Saddle	1. Leg	4. Breast
3, 4, 5. Rack	2. Loin	5. Chuck
1, 2, 3. Long saddle	3. Short rack	4, 5. Stew

over three years or between the ages of three and four; and the fourth pair, when the sheep is between four and five years old. Every judge should familiarize himself with the age of an animal as determined by its teeth, so that he will be better able to pass on other parts more or less dependent on age.

To estimate the age, observe the teeth by holding the sheep with the hand under the jaw and pressing down the lower lip with the thumb and forefinger.

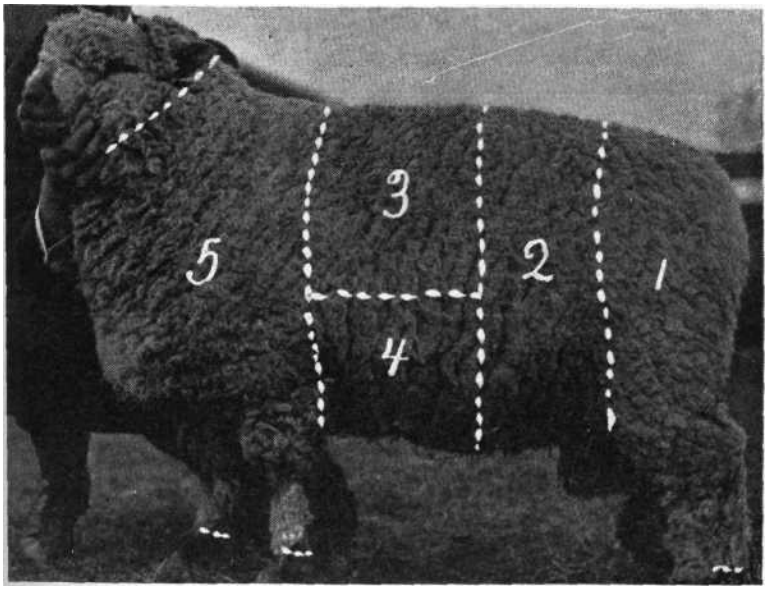


Fig. 79. Mutton cuts located on a live sheep

1, 2. Saddle	1. Leg	4. Breast
3, 4, 5. Rack	2. Loin	5. Chuck
1, 2, 3. Long saddle	3. Short rack	4, 5. Stew

Lambs weighing about 80 pounds, in prime quality and condition, sell at the highest prices on the market. They should reach this weight at as early an age as possible. Mature wethers should weigh 140 pounds or more. Weight varies depending on various conditions, but is principally influenced by age, breed, and degree of fatness. Plenty of weight is desired to insure healthy, vigorous, and early maturing qualities, but too great weight is objectionable, in that it is likely to be associated with coarseness, and low dressing percentage, and also giving too large cuts for the retail meat trade.

Form—10 per cent.—To form a basis for estimating the good and bad qualities of a fat sheep or lamb, it is best to consider the carcass from the point of view of the butcher. The different parts of the animal show a wide variation from the butcher's standpoint.

Fig. 78 shows the names and location of the wholesale cuts of meat on the dressed carcasses, and Fig. 79 shows the same thing on the live sheep. The accompanying table gives the per cent. weight of the dressed carcass, the wholesale price per pound, and the per cent. value of the dressed carcass that each wholesale cut represents.

WHOLESALE MUTTON AND LAMB CUTS

Mutton and lamb cuts	Names of wholesale cuts	Per cent. weight of carcass	Wholesale price per pound	Per cent. value of carcass
Saddle	Legs	30.36	13 ¼ cts.	43.16
	Loin	21.43	8 ¼ cts.	18.97
	Hotel or short	14.28	12 ¼ cts.	18.76
Rack	rack (10 ribs)			
	Stew (chuck and breast)	33.93	5 ¼ cts.	19.11

A study of the above table and Figs. 78 and 79 will show that the most valuable meat is found on the hindquarters and loin. The butcher, therefore,, requires in the mutton carcass a heavily fleshed leg of mutton, a broad back and a broad, full loin deeply covered with flesh, in order to secure the greatest percentage of valuable cuts. However, there is always a close correlation between all the parts of an animal and in order to secure high development in the desired regions a relatively high degree of development must be had in all parts. In general, then, the sort that are not too heavy boned, that do not have too large frames, and that do not show a tendency to be paunchy, but present a smooth, even, plump appearance, of the broad, low-set, thick type with special development of the leg, back, and loin, possess the form most desired by the butcher because they carry the least amount of waste and so dress out a higher per cent. of carcass to offal. In general appearance then the animal should present a general fullness and smoothness of outline, both of which indicate the desired thickness and evenness of flesh. A flat ribbed, narrow chested, drooping rumped, up-standing individual with peaked hindquarters, should be discriminated against, because such will carry a large amount of waste in proportion to the valuable cuts. Openness at the top of the shoulder, roughness, and angularity invariably go with bareness of shoulder, back, and loin, a thin leg of mutton and an excess of bone in the carcass.

Head and Neck—7 per cent.—The head should be short and broad, showing character. The eyes should be bright, full and placid, indicating a quiet disposition.

The muzzle should be large with open nostrils and strong lips, showing thrift and feeding capacity. The ears should be medium sized and covered with fine soft hair. Although the neck is a cheap part, it should be short and thick, which feature is likely to characterize the entire carcass.

To examine the neck, place both hands on either side as represented in Fig. 81 and note its fullness, length, and manner of blending into the shoulder at the shoulder vein.

Fig. 80. Typical mutton bead. Notice breadth and shortness; large muzzle, open nostrils, large placid eyes, and fine ears

A long narrow head with a pinched muzzle and a thin neck are undesirable, because they indicate weakness of constitution and lack of thrift, and a thin neck usually goes with a slender body.

Forequarters—7 per cent.—Although the forequarters, consisting of the shoulder, brisket, and legs represent a small part of the value of a mutton sheep, yet a proper development of these parts is essential to give the required smoothness of form that goes with the best type of fat sheep. The shoulders should be smooth, well laid in at the top and evenly covered with flesh and well filled out in the crops and shoulder vein. The brisket should project forward and present a wide, full breast indicating health and vigor. The legs should be short, straight and set wide apart with a broad and well fleshed arm, the whole showing as little waste as possible.

With the hands on either side of the shoulders an idea of their width and covering can be obtained. The fullness of the crops and

Fig. 81. Examine the neck, noting fullness, shortness, and smoothness of blending into the head and shoulder

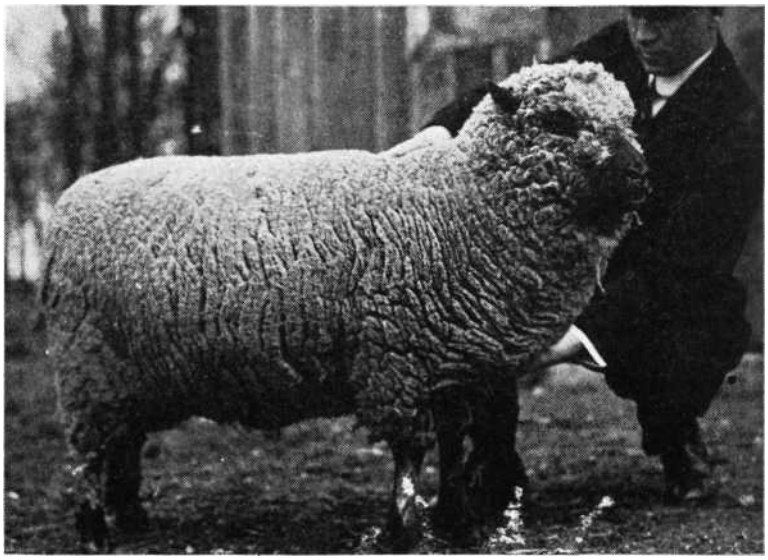


Fig. 82. Note the depth of chest, and with the left hand feel the width of the floor of the chest

shoulder vein may also be noted. The position to take to judge this part is indicated in Fig. 83.

A rough, bare shoulder indicates lack of quality and a large amount of waste, while narrow shoulders, and long, crooked legs, indicate low vitality and poor fleshing qualities.

Body—20 per cent.—The body is an important region in that it contains some of the highest priced meat along the back and on the ribs, and also contains the vital organs as the' lungs, heart and digestive organs. You should look for a deep, full chest and a large heart girth because these indicate an abundance of heart and lung capacity. A narrow, shallow chested individual is almost sure to be low in condition and lack thickness of flesh. The back should not only be straight and strong, but covered thickly with firm, smooth flesh with the spinal column well hidden. A rough, open shoulder is usually accompanied by a narrow, weak, bare back. The ribs should be well sprung, giving ample space for the laying on of flesh. Flat ribbed animals are to be avoided in that they give a small amount' of the high priced meat included in the short rack. A broad, thick loin is desired in order to be in keeping with the back and ribs and give a good connection between the heavily developed hindquarters or leg of mutton and the short rack, as well as to furnish a large amount of relatively high priced meat.

Weak, short, thin loins are found in up-standing, angular individuals, lacking depth of flesh in all parts of the body.

Hindquarters—16 per cent.—The hindquarters, consisting of the hips, rump, thigh, twist and legs constitute the wholesale mutton cut known as the leg of mutton. The value of this part to the butcher has already been emphasized by pointing out the fact that it represents over 43 per cent. of the value of the carcass, and it will be readily understood why an individual must show superior development in this region in order to meet with favor. The hindquarters should be long and continue straight and full both on the top and side lines. Drooping rumps are frequently seen and are most undesirable whether the falling away is toward the tail-head or down the thighs. The sheep should be especially strong from the hip to the hock. Not only should the leg of mutton be plump and full with flesh on the outside, but between the legs, in the twist, the flesh should fill well down to the hock, compelling the legs to stand well apart. When grasping the leg of mutton, a decided plumpness should be found.

Thin fleshed legs on the outside and a high, undeveloped twist often occur, giving the animal a leggy, narrow appearance behind. Such are undesirable because they indicate lack of constitution and

Fig. 83. Note width of chest, covering and smoothness of shoulders, fullness of the crops, and size of heart girth

Fig. 84. Feel top of the shoulder for compactness. Moving the hand back in a flat position, note strength and straightness of top line to end of body, and evenness, thickness, and firmness of fleshing

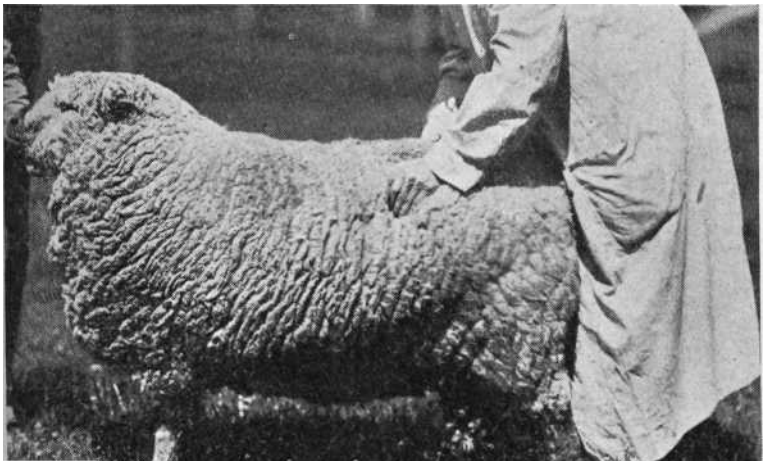


Fig. 85. Judge width, length, thickness and firmness of flesh of loin

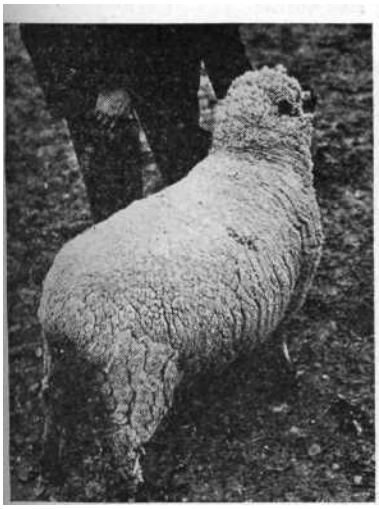


Fig. 86. Before shearing, the hand Must be used to judge

Fig. 87. After shearing, the eye may judge

Note well sprung ribs, straight top line carried level to end of body, full twist, and well developed leg of mutton. A case where clipping could hide no defects

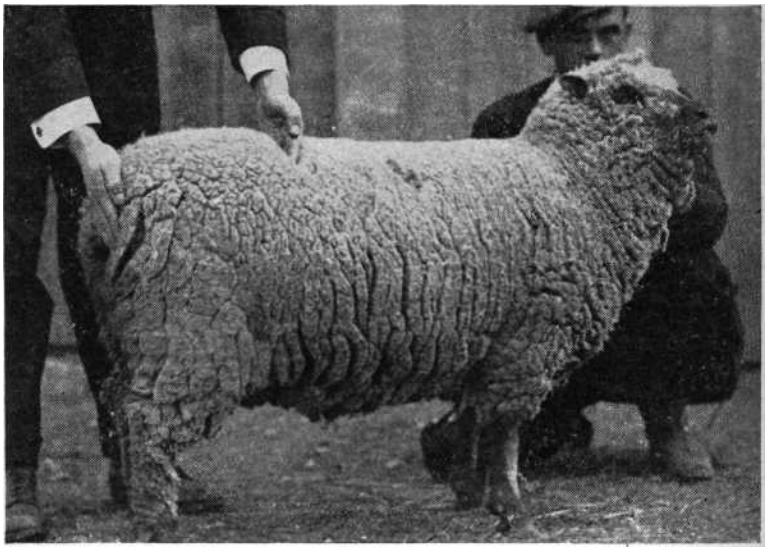


Fig. 88. With one hand at the hip joint and the other at the tail-head, note the length of the hind quarter.

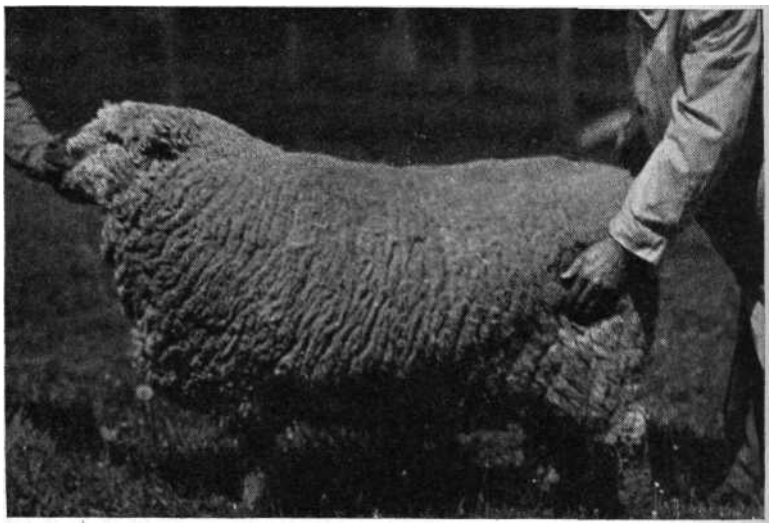


Fig. 89. At the thighs, note the degree to which the width is carried to the end of the body, and the depth and firmness of flesh on the outside of the leg of mutton

Fig. 90. Grasping the leg of mutton with both hands well up, not thickness and firmness of fleshing, and lowness and breadth of the twist

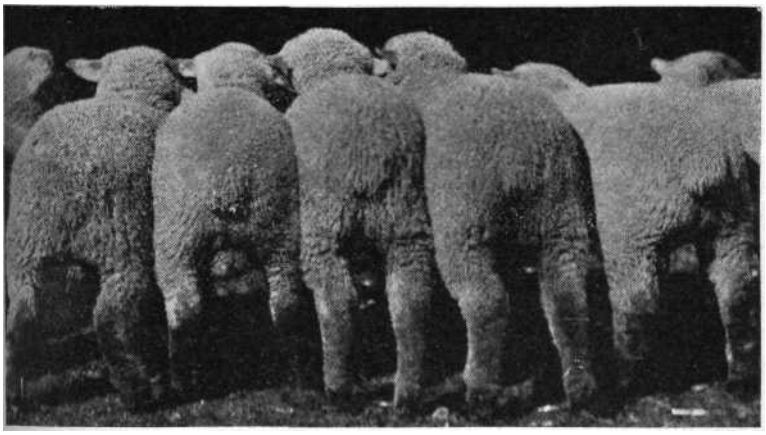


Fig. 91. Well developed hindquarters, broad, full twist, and thick leg of mutton. Winter or “hot-house” lambs ready for slaughter at three months of age; average dressed weight, 35 pounds. Spring of 1911, Purdue

represent such a large proportion of the carcass that its value to the butcher must necessarily be low.

Condition or Finish—10 per cent.—The terms quality and condition are frequently used interchangeably when used in connection with fat sheep because the quality of flesh is largely dependent upon condition. By condition is meant the degree of fatness and there are five reasons why the butcher demands that animals be fat: (1) other things being equal, the animal will dress a higher per cent. of edible meat to offal than in a half fat or thin animal; (2) fat adds to the appearance of the meat thus making it more salable; (3) fat carcasses will lose less in weight when cooling out

Fig. 92. Fat lambs finished for market, showing high condition and fine quality (Lot from Purdue feeding experiment 1910-11)

in the refrigerator and in cooking; (4) the keeping and curing qualities of the fat carcass excel those of the thin carcass; (5) when a considerable amount of fat is distributed through the lean meat the edible qualities are improved making it more tender, juicy, and of better flavor.

High condition is indicated by a deep, even covering of firm flesh, especially in the regions of the valuable cuts. Points showing ripeness and finish are a thick dock, a full, mellow purse, a well covered back-bone, thickness and smoothness on the back and shoulder, fullness at the neck and flanks, and a plump, well filled breast. Condition is a very important consideration and is probably emphasized by the butcher more than any other feature.

It is impossible to tell condition by merely looking at the sheep hence it is necessary to use the hands freely in examining the points above mentioned, in order to draw conclusions not only of the degree of fatness but also of the nature and quality of the flesh. The most desirable quality of flesh is indicated by firmness

along the back, at the loins, over the sides and at the leg of mutton. Many sheep men describe this firmness as being "hard as a board" but the novice must be careful that he does not mistake bareness or lack of flesh for this hardness. While the flesh should have that firmness which would impress an inexperienced man as being hard, it should have enough springiness to yield lightly to the touch. The flesh should extend well down over the sides, without softness due to excessive fat or oily tissue. Then too, very often, rough, blubbery patches will be present about the tail-head. These are very objectionable in that they are entirely waste and are usually associated with carcasses in which the fat and lean are not well marbled, thus giving low quality meat.

Quality—10 per cent.—Good quality is indicated by medium sized, lean, clean-cut head and ears; fine, dense bone of medium size; soft, silky hair on the face, ears, and legs; a fine, pink colored mellow skin or pelt; and a smooth, even covering of firm flesh. Quality is important because it is usually associated with good breeding and rapid fattening ability, and because the waste is always less from a sheep of good quality than it is from one of inferior quality. Lightness rather than heaviness of pelt is desired in fat sheep. By pelt is meant the skin and wool combined. To secure a pelt of light weight the skin should be thin and free from folds and wrinkles, and the wool should be abundant but not too oily. Quality is usually associated with style and " breeding" and is an evidence of refinement as opposed to coarseness and grossness, which in turn are objectionable because they represent a high degree of waste. Quality is very essential to the best mutton type, as indicated by the fact that it is given 10 per cent. on the score card.

Since the quality of the flesh and skin can only be determined by touch, it should be kept in mind at the same time the animal is being examined for form and condition. General quality which is indicated by the features of the head, the fineness of the hair and the density of the bone is determined by the eye.

Coarseness, grossness, and sluggishness which are indicated by a heavy, rough head, covered by coarse, harsh hair, and large, coarse ears; a thick, wrinkly skin covered with coarse wool; a large, open frame with heavy bone and rough joints, standing on long, crooked legs, and an uneven distribution of flesh, detract from the appearance and quality of the individual and should be discriminated against because they add to the waste or offal and materially detract from the value of the animal.

Wool—12 per cent.—Quantity.—The factors which determine the quantity of the wool are length and density, and the evenness in both over all parts of the body.

Fig. 93. Manner and place of opening fleece to examine the densest and finest quality of wool. Note also color and condition of skin

Fig. 94. Manner and place of opening the fleece to examine the poorest quality of wool

Length is an important feature both from the commercial point of view and from the shepherd's standpoint. The manufacturer of woolen goods desires a short-stapled wool, for such has better felting qualities. On the other hand the manufacturer of worsted goods, desires length of staple because it gives a yarn of strong, even texture. Other things being equal, a long staple, will afford more protection to the sheep. By density is meant closeness of the fiber, or the number of fibers that grow on a square inch. A heavy fleece is secured by density and such a fleece affords greater protection to the sheep. Quantity is further increased by the fleece being of uniform length and density all over the body, avoiding uneven and bare points.

Quality.—The fleece should be fine, pure and soft, with a close, regular crimp, and should be of uniform quality all over. Quality and quantity are not usually found together in their highest state of development in the same types or breeds and the shorter fleeces are usually those that show the most quality. In order that high grade goods may be manufactured from wools, the fibers must be soft and fine and of uniform texture. By the crimp is meant the wave in the fiber. The crimp should be regular and close together, the finer quality fleeces usually having the closest crimp.

Condition.—By condition is meant the brightness of the fleece, and its healthy appearance. It should be clear, soft and light, being free from harshness and foreign matter such as dirt, burrs, and hairy fibers; The amount and character of the yolk, grease, or oil determines to a great extent, the condition. Too much yolk is not desired, but a sufficient amount is necessary to give the fleece a soft texture and a bright lustre, which are indicative of health. The skin beneath the wool should be of a bright pink color. A bluish tint is often found in the skin but should be discriminated against because it may indicate lack of vigor and health.

Comparative Judging.—The foregoing discussion has dealt almost exclusively with observations on and descriptions of the good and bad qualities of a single individual; also methods of examination of same. It has taken up the various features and considered them more or less in detail. It is essential to become familiar with all these details of an animal before a fair estimate of its true merit can be made. The work so far has been a study of the ideal and a detection of faults and deviations from the standard required. In other words, the work has consisted of accurate observations, which is an analysis of conformation, quality, condition, etc. In actual sheep judging, however, where several animals are brought together for the judge to rate and place, the judge must balance

these observations already made. This is altogether a matter of comparison and may be called comparative judging.

In the show ring, the judge must inspect each animal separately, then make a draft of the likely winners, by considering, balancing and comparing each of the main points separately and collectively, until he is able to decide which animal, on the average, comes most nearly to filling all the requirements of the standards for that class. Such animal will be the first prize winner, the next best will be the second prize winner, and so on until all the animals are placed relative to their respective merit.

In doing this work the judge keeps uppermost in mind the more important features of general appearance, style, size, and conformation, quality, condition, and wool, at the same time, keeping in mind that these features include collectively all details which he may consider if made necessary by the presence of evenly balanced animals in the ring.

FEEDER SHEEP

When judging *feeder* sheep, always keep in mind the type that best meets the demands of the butcher. The feeder that will come nearest to doing this when fat will be the most profitable.

Constitution and Form.—From the market standpoint the chest, breast, or underline requires little consideration but in the view of the feeder, these points are of great importance. To be profitable to the feeder, a sheep must have a vigorous constitution, be able to consume a large amount of feed and transform it into valuable meat at the lowest possible cost. These characters are invariably associated with a wide, deep chest, good depth of barrel, and well sprung ribs to give ample room for the lungs, heart, and digestive organs. Good size is desired because an animal is wanted that will attain a good weight at an early age. A short, broad head with fine quality ears, full, bright eyes, open nostrils, strong lips, and a, short, thick neck, deep body and short legs, all indicate a vigorous, thrifty animal which will give a good return for feed consumed and kill out a valuable carcass of mutton when fat.

Quality.—Quality is indicated in the feeder in the same way that it is in fat sheep. It is very important in that it adds to the value of the carcass when fat, both in dressing per cent. and the edible quality of the meat. It is also very closely associated with the growth and feeding qualities of the animal.

Condition.—By no means should feeder sheep be fat. However, the better type shows fairly straight, full outlines because they indicate good growth and a rapid feeding tendency. Then too the very thin lamb is not likely to finish in a normal feeding period

and is less likely to possess the thrift and constitutional vigor necessary to make fast and economical gains in the feed lot. The animal that carries some flesh and is in a growthy condition is preferred, at the same price per pound, to the very thin animal because it will finish quicker and to a higher degree, even though the gains per day are not so great.

BREEDING SHEEP

All the marks of excellence in conformation, constitution, and quality, that are required in butcher and feeder sheep, are just as important in the breeding classes. Because of the action and workings of the law "like begets like" you cannot expect to raise high class feeders that will finish into high grade butcher sheep from an inferior lot of breeding stuff.

Besides the above mentioned requisites, special attention must be given to breed type and sex characters. Then too, greater emphasis must be placed on the character of the fleece, the color of the skin, and the constitutional vigor and thrift of breeding sheep, for without such qualities all excellence of form, quality, etc., will avail nothing if the animal is not strong enough to transmit these good features to its offspring. Straight, strong legs, set well apart, with strong pasterns, are also very necessary to the general health and utility for breeding purposes.

The Ewe.—When judging the ewe from the breeding standpoint it should be remembered that she must possess not only the requisites of the fat sheep in general form and quality, and the constitutional vigor and feeding and fleshing qualites of the feeder, but she must also possess all those characters that indicate a long-lived, regular, and prepotent breeder. To insure a long life and regularity in breeding, the ewe should be rugged in constitution, of good form, sound in mouth and udder, and bear an abundant fleece of healthy wool. In addition to this she should have a strong maternal nature and feminine appearance. This is indicated by rather fine features about the head, a slender neck as compared to that of the ram, especially deep, round ribs, with a rather long, capacious body to provide room for the developing fetus. The ewe that will milk well and rear early maturing lambs, tends towards the wedge shape, being deeper in the chest,, larger bodied, and wider across the loin and hips than the ram. She should not carry excessive fat. The flesh should be firm and evenly distributed, and not gathered in blubbery patches about the tail-head.

Ewes should adhere very closely to the type of the breed to which they belong, possessing in a marked degree all the breed characters that are laid down in the standards of the breed association.

Such ewes give evidence of purity of breeding through several generations along definite lines for a definite purpose, having the breed characters so fixed as to be uniformly transmitted to the offspring. Rough ewes with plain, heavy heads and necks, lacking in general refinement and feminine appearance are rarely satisfactory breeders. On the other hand, short, shallow bodied ewes with narrow hindquarters and an undersized, stunted appearance should also be avoided for they lack the necessary breeding essentials of size, form, quality and constitutional vigor as pointed out above.

Photo by Lantz

Fig. 95. Note uniformity, close adherence to breed type, apparent thrift and constitutional vigor. Flock of Chevoit breeding sheep

The Ram.—The ram is the head of the flock and might well be called half of it. Type and breed characters are the first considerations in judging a ram. He should be pure-bred and possess, to a high degree, all the characters of the breed to which he belongs, as in the case of the ewe, because this indicates prepotency. He should have plenty of size, and as opposed to the ewe, have a strongly developed forehand and a decidedly masculine appearance, indicated by general burliness of the head, thickness of neck, general massiveness, with a bold, energetic outlook, a bright, clear eye, much quality, and a brisk movement, denoting vim and vigor. He should have widely distended nostrils, a thick, heavy loin, twist and crops, broad, full chest and brisket, a level, strong back, hips well laid in, a straight, deep, level flank, and a fine, long, dense

Photo by Hildebrand

Fig. 96. Showing good breed type, mutton qualities, size and constitution. Cotswold ram and ewe

fleece of good quality. Such a ram will leave his impress indelibly on the offspring. An effeminate ram is a decided objection because he usually lacks prepotency and is rarely a sure and strong breeder.

THE MERINO OR FINE WOOL TYPE OF SHEEP

The purpose of the Merino or fine-wool sheep is essentially different from that of the mutton type. The former is bred almost exclusively for its wool while the latter is bred principally for mutton with the wool as a secondary consideration.

Form.—The general conformation of the Merino may be con-pared to that of dairy cattle. It lacks fullness of breast, breadth of back, and general thickness throughout with a leg of mutton that lacks fullness, and has rather long neck and legs. An angular, muscular development of the entire body prevails rather than the smoothness and heavy fleshing of the mutton type. However, the head is short and should be broad at the muzzle, with large nostrils; the nose short and inclined to be wrinkled, and somewhat Roman shaped in the ram. Horns occur on most males of the fine wool type and on the females of some breeds. They have a more or less cork screw shape and should have a waxy, dense texture denoting quality. The neck is rather long and thin in the ewe but should show decided strength and masculinity in the ram with more or less 'throatiness.' Although the shoulders are narrow they tend to be prominent with sharp withers. The breast and chest are narrow but should gain capacity by depth. Crooked legs coming together at the knees, with the toes spread out are objectionable, indicating

as they do a narrow chest. The body usually carries a narrow back and flat rib. The ribs should be long to give ample feeding and breeding capacity. The sheep is usually inclined to be droopy and narrow behind with a thin leg of mutton carrying a small amount of flesh. The head and neck, forequarters and body are given about the same rating on the score card for both the mutton and fine-wool types. However, the hindquarters are given only eight per cent. for the fine-wool type as compared to 16 per cent. or double the amount for the mutton. This is readily understood when we consider that it is in the leg that we get the greatest amount and the highest priced meat in the mutton type, and that meat is of little importance in fine-wools.

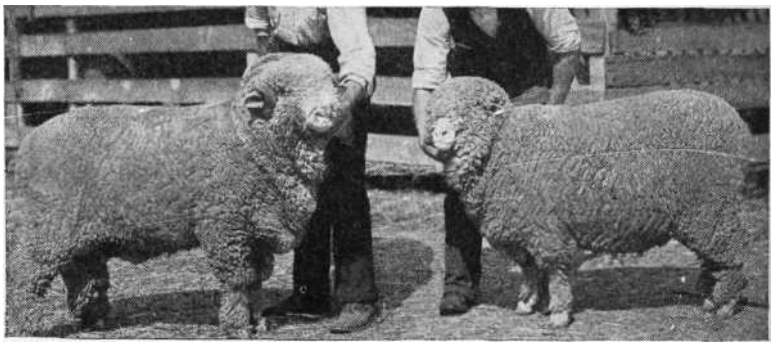


Photo by Hildebrand
Fig. 97. Showing excellent fine wool type. Delaine Merino ram and ewe

Wool.—Since the wool is the principal source of income from the Merino sheep, it must be given special consideration. It is the most important factor in the true Merino type. When judging a ring of fine-wools almost half the rating is based on the fleece. The score card gives the wool a value of 45 per cent. in the Merino as compared to only 12 per cent. in the mutton type. The wool of the Merino is shorter than in the mutton type, but is very thick over the entire body, carrying well down on the face and legs and is remarkably fine in quality, having a very close crimp and an exceedingly soft texture. The yolk is abundant and gives the sheep a dirty and oily appearance because it collects and holds dust and foreign particles. Many sheep of this type possess folds on the neck and shoulders, and in some cases they appear on the body and thighs, affording more area for the growth of the wool.

APPENDIX
A METHOD OP LIVE STOCK IMPROVEMENT

W. W. Smith

The quickest, cheapest, and surest method of live stock improvement is *up-grading*. By this is meant the mating of the common grade stock of the farm with a pure-bred sire. It is not practicable nor possible to replace all the live stock of the farms of Indiana with purebreds, for less than two and one-half per cent. of the live stock of the state is registered. It is possible, however, and would be highly profitable, to replace all the grade, cross-bred, and scrub males which are being used as sires, with males which possess the breeding that will insure improvement.

Up-grading is economical because the sire mates with the entire female herd, while the influence of the female is limited to a few. The well-worn expression, "the sire is half the herd" is more than true. The influence of the sire extends to all the offspring produced. Since the sire is pure in breeding, the young will resemble the sire more than the dam; i.e., the pure-bred sire is prepotent over the dam. It requires nearly as much feed to keep a poor animal as it does a good one. The annual cost of maintenance is practically the same. The greater cost of the pure-bred sire over the scrub is more than returned by the increased market value of his first crop of offspring.

The rate of improvement in up-grading is rapid and certain. The first cross with a pure-bred sire produces an animal that is one-half pure. When this animal is mated with a pure-bred sire the offspring is three-fourths pure. The third cross produces a seven-eights pure-bred, or a very high grade, and the next, an animal which is fifteen-sixteenths pure. For market purposes, the high grade is practically the equal of the pure-bred. Though good in individuality, he, however, is unreliable as a sire. The problems of live stock improvement very largely center upon the selection of the sire.

SELECTING THE SIRE

Since the sire must be largely depended upon as the source of improved breeding, his selection should be intelligently and carefully considered. Since his influence is equal to the influence of the entire female herd or flock taken collectively, his selection is the most vital consideration of live stock improvement.

Performance.—The *first* essential of the sire is that he possess the ability to transmit his characters regularly and surely. It is the most fundamental quality of the sire. Due to the fact, also, that it is the most common and conspicuous weakness, it is of first importance.

The only reliable test of fertile, prepotent breeding powers is actual *performance.* The appearance of the sire as an individual, particularly his masculinity and vigor of disposition, and the character of the animals in his pedigree, are considered as general indications of breeding ability, but they should never be relied upon when the actual performance record is available. For this reason tested sires are much more reliable than sires of immature age. A fuller appreciation of this fact on the part of the breeder will not only prevent further sacrifice of promising sires just approaching the period of their greatest usefulness, but will greatly conserve and extend the service of those sires whose breeding qualities have been demonstrated. In buying a sire, therefore, the character and uniformity of his get should be considered of first importance and the most reliable single guide to his future breeding powers. Performance is the only real test of value.

Individuality.—The *second* consideration in buying or selecting a sire is his *individuality*. He should be a good individual. By this we mean that he possess the size, form and quality which indicate strong constitution, thrifty growing and feeding capacity in the offspring, and in addition, insure the production of the sort of animal which sells best on the market. He should be strong in masculinity and vigorous in appearance, for many believe that they reflect fertile breeding powers and prepotency. The ultimate test, for example, of the beef sire for up-grading is the character of the market steers he is able to get; the ultimate test of the stallion is the serviceability and market value of the geldings which he produces. In addition to possessing these fundamental requirements, the pure-bred sire should possess the characters of the breed to which he belongs, such as size, pecularities of color, form, shape of head, and set of horn, etc., i.e., his breed type characters should be strongly represented. When typical of a breed, we have good reason to expect his breeding to be more desirable than that of the individual lacking the characters of a breed.

Individuality means everything about the animal which can be seen with the eye or felt with the hand. Individuality is entirely depended upon by the judge in placing a class of animals in the show ring. In buying a sire, however, we should not depend upon individuality alone, for sometimes individuals which are good enough to exhibit in the show ring prove disappointing as breeders.

"Like produces like" only within very wide limits, and so individuality should be supplemented, when possible, by performance and pedigree.

Pedigree.—The *third* essential of the pure-bred sire is that he have a *good pedigree*. A pedigree is simply the record of an animal's ancestry. Besides the names of the sire and dam, and grand-sires and grandams, etc., it usually includes also the color and date of birth of each animal, and the names of the breeders. A pedigree in itself is not a guarantee of merit, for all pure-bred animals may have recorded pedigrees. The most important thing in studying a pedigree, is to learn of the merit of each animal as a breeder and as an individual appearing in the immediate ancestry. If the immediate parents were good individuals and the grandparents were uniformly good, we have good reason for calling it a good pedigree. If we add to this, good animals of the third and of the fourth generations we have a still stronger guarantee of merit. Uniformity of individuality in the pedigree usually means similarity of blood lines, and this usually means strong, prepotent breeding powers for the animal under consideration. The most essential feature of a good pedigree is good individuality in the immediate ancestry.

Summary.—In buying a sire, therefore, *performance*, or actual breeding ability, should be considered of first importance. *Individuality* is second in importance and a most reliable guide to merit for persons unfamiliar with pedigrees, or when the animal is too young to have been tested. Thirdly, a knowledge of the individual should be supplemented by a knowledge of the *pedigree*. When good individuality is supported by a good pedigree we have the strongest possible guarantee of good performance.

TABULATIONS OF BREEDS OF LIVE STOCK
WEIGHTS OF MATURE ANIMALS IN SHOW CONDITION

HORSES

Breed	Type	Range of height in hands and weight in pounds	Uses	Origin	Registered by	Secretary	Address
Arabian	Saddle	14-14½	Riding	Arabia	The Arabian Horse Club of America	Henry K. Bush-Brown	Newburg, N.Y.
Thoroughbred	Saddle	14½-16½ 900-1050	Racing, hunting	England	The Jockey Club	W.H. Rowe	5th Ave. and 46th St., New York, N.Y.
American Saddler	Saddle	15-1½ ins.-15-2½ ins. 950-1050	Business and pleasure riding	United States	American Saddle Horse Breeders' Association	Roger H. Lillard	Lawerenceburg, Ky.
American Trotter	Light harness	15¼ -15¾ 900-1150	Business and pleasure driving; racing	United States	American Trotting Register Association	W.H. Knight	355 Dearborn St., Chicago, Ill.
[1]Morgan	Light harness	14¾ -15¾ 900-1150	Business and pleasure driving; racing	United States	American Morgan Register Association	T.E. Boyce	Middlebury, Vt.
Hackney	Heavy harness	15½ -15¾ 1000-1200	Park driving	England	American Hackney Horse Society	Gurney C. Gue	308 W. 97th St., New York, N.Y.
French Coach	Heavy harness	15-16 1200-1350	Carriage driving	France	French Coach Horse Society of America	Duncan E. Willett	Oak Park, Ill.
German Coach	Heavy harness	16-16½ 1350-1450	Heavy carriage driving	Germany	German, Hanoverian and Oldenburg Coach Horse Association of America	J. Crouch	Lafayette, Ind.
Cleveland Bay	Heavy harness	16-16¾ 1200-1550	General utility	England	Cleveland Bay Society of America	R.P. Stericker	Oconomowoc, Wis.
Percheron	Draft	15½ -17 1800-2300	Heavy hauling	France	Percheron Society of America	Wayne Dinsmore	Union Stock Yards, Chicago, Ill.
French Draft	Draft	15½ -17 1800-2300	Heavy hauling	France	National French Draft Horse Association	C.E. Stubbs	Fairfield, Ia.

[1]Sometimes considered merely as a family of the American Trotter

HORSES (continued)

Breed	Type	Range of height in hands and weight in pounds	Uses	Origin	Registered by	Secretary	Address
Clydesdale	Draft	16-16½ 1800-2300	Heavy hauling	Scotland	The American Clydesdale Association	R.B. Ogilvie	Union Stock Yards, Chicago, Ill.
Shire	Draft	16-17 1800-2300	Heavy hauling	England	American Shire Horse Association	Chas. Burgess	Wenona, Ill.
Belgian	Draft	16-17 1600-2300	Heavy hauling	Belgium	The American Association of Importers and Breeders of Belgian Draft Horses	J.D. Connor, Jr.	Wabash, Ind.
Suffolk	Draft	16-17 1800-2000	Heavy hauling	England	The American Suffolk Horse Association	Alex. Galbraith	Janesville, Wis.
Welch	Pony	12½-15½	Riding, saddle or driving	Wales	Welch Pony and Cob Society of America	John Alexander	Aurora, Ill.
Shetland	Pony	9-11 300-400	Children's riding or driving	Shetland Isles	American Shetland Pony Club	Miss Julia M. Wade	Lafayette, Ind.

CATTLE

Breed	Type	Average Bulls	Weight Cows	Color	Origin	Registered by	Secretary	Address
Shorthorn	Beef dual purpose	2300	1800	White, red roan, or red and white spotted	England	American Shorthorn Breeder's Association	Roy G. Groves Acting Sec'y	Chicago, Ill.
Polled Durham	Beef dual purpose	2300	1800	White, red roan, or red and white spotted	United States	The Polled Durham Breeders' Association	J.M. Martz	Greenville, Ohio
Hereford	Beef	2225	1700	Red with white faces, crest, stocking and underline	England	American Hereford Cattle Breeders' Association	R.J. Kinzer	Kansas City, Mo.
Aberdeen Angus	Beef	2075	1550	Black	Scotland	American Aberdeen Angus Breeders' Association	Chas. Gray	817 Exchange Ave., Chicago, Ill.

CATTLE (continued)

Breed	Type	Average Bulls	Weight Cows	Color	Origin	Registered by	Secretary	Address
Galloway	Beef	1875	1425	Black	Scotland	American Galloway Breeder's Association	Robt. W. Brown	817 Exchange Ave., Chicago, Ill.
Jersey	Dairy	1300	900	Fawn and black; white markings allowed	Isle of Jersey	The American Jersey Cattle Club	R.M. Gow	324 West 23rd St., New York, N.Y.
Holstein-Friesian	Dairy	1950	1250	Black and white	Holland	The Holstein Friesian Association of America	Fred L. Houghton	Brattleboro, Vt.
Guernsey	Dairy	1500	1000	Fawn-white	Isle of Guernsey	American Guernsey Cattle Club	Wm. H. Caldwell	Peterboro. N.H.
Ayrshire	Dairy	1500	1000	Red, white and brown or spotted	Scotland	Ayrshire Breeders' Association	C.M. Winslow	Brandon, Vt.
Dutch Belted	Dairy	1500	1000	Black with white band	Holland	Dutch Belted Cattle Breeders' Association	G.G. Gibbs	Marksboro, N.J.
Brown Swiss	Dairy	1800	1350	Brown and mouse	Switzerland	Brown Swiss Cattle Breeders' Association	Ira Inman	Beloit, Wis.
Red Polled	Dual purpose	2000	1250	Red	England	The Red Polled Cattle Club of America	H.A. Martin	Gotham, Wis.
Devon	Dual purpose	1800	1400	Red	England	American Devon Cattle Club	L.P. Sisson	Charlottesville, Va.

HOGS

Breed	Type	Color	Size	Origin	Registered by	Secretary	Address
Berkshire	Lard	Black with white points	Medium large	England	American Berkshire Association	Frank S. Springer	510 E. Monroe St., Springfield Ill.
Poland China	Lard	Black with white points	Medium	Ohio	National Poland China Record Association	A.M. Brown	Winchester, Ind.
					Standard Poland China Record Association	Geo. F. Woodworth	Maryville, Mo.
					American Poland China Record Association	W.M. McFadden	Union Stock Yards Chicago, Ill.

HOGS (continued)

Breed	Type	Color	Size	Origin	Registered by	Secretary	Address
Duroc Jersey	Lard	Red	Large	New York Vermont Connecticut New Jersey	National Duroc Jersey Record Association The American Duroc Jersey Record Association	J.R. Pfander T.P. Pearson	Peoria, Ill. Thorntown. Ind.
Chester White	Lard	White	Large	Pennsylvania Ohio (O.I.C.)	Ohio Improved Chester White Swine Breeders' Association	J.C. Hiles	Cleveland, Ohio.
Cheshire	Lard	White	Medium small	New York	Cheshire Swine Breeders' Ass'n	Ed. S. Hill	Freeville, N.Y.
Victoria	Lard	White	Large medium	Indiana New York	Victoria Swine Breeders' Association		
Essex	Lard	Black	Small	England	American Essex Association	F.M. Strout	McLean, Ill.
Small Yorkshire	Lard	White	Small	England	The American Yorkshire Club	Harry G. Krum	White Bear Lake, Minn.
Suffolk	Lard	White	Small	England			
Large Yorkshire	Bacon	White	Large	England	The American Yorkshire Club	Harry G. Krum	White Bear Lake, Minn.
Tamworth	Bacon	Red	Large	England	American Tamworth Swine Record Association	E.N. Ball	Ann Arbor, Mich.
Hampshire	Bacon and lard	Black with white band at shoulders	Medium	Obscure	American Hampshire Swine Record Association	E.C. Stone	Armstrong, Ill.
Mule foot	Bacon and lard	Black	Small	Obscure	National Mulefoot Hog Record Association	W.H. Morris	Indianapolis, Ind.

SHEEP

Breed	Type	Wool	Average Ram	Weight Ewe	Color of points	Origin	Registered by	Secretary	Address
American Merino	Merino	Fine wool	150	100	White	United States	Vermont, New York and Ohio Merino Sheep Breeders' Association	Wesley Bishop	Delaware, Ohio
Delaine Merino	Merino	Fine wool	150	100	White	United States	National Delaine Merino Sheep Breeders' Association	J.B. Johnson	248 West Pike St., Canonsburg, Pa.
Rambouillet	Merino	Fine wool	185	155	White	France	American Rambouillet Sheep Breeders' Association	Dwight Lincoln	Milford Center, Ohio
Southdown	Mutton	Medium	175	135	Gray	England	American Southdown Breeders' Association	Frank S. Springer	Springfield, Ill.
Shropshire	Mutton	Medium	225	155	Dark brown	England	American Shropshire Registry Association	Miss Julia M. Wade	Lafayette, Ind.
Oxford	Mutton	Medium	325	200	Brown	England	American Oxford Down Record Association	W.A. Shafor	Hamilton, Ohio
Hampshire	Mutton	Medium	250	190	Dark brown	England	American Hampshire Sheep Association	Comfort A. Tyler	310 E. Chicago St., Coldwater, Mich.
Dorset-Horn	Mutton	Medium	225	165	White	England	Continental Dorset Club	Joseph E. Wing	Mechanicsburg, Ohio
Cheviot	Mutton	Medium	225	155	White	England and Scotland	American Cheviot Sheep Society	F.E. Dawley	Fayetteville, N.Y.
Tunis	Mutton	Medium	150	120	Tawny	Africa	American Tunis Sheep Breeders' Association	Chas. Roundtree	Crawfordsville, Ind.
Leicester	Mutton	Long	240	180	White	England	American Leicester Breeders' Association	A J. Temple	Cameron, Ill.
Cotswold	Mutton	Long	265	215	White frequently spotted with gray	England	American Cotswold Registry Association	F, W. Harding	Waukesha, Wis.
Lincoln	Mutton	Long	350	275	White mottled	England	The National Lincoln Sheep Breeders' Assocation	Bert Smith	Charlotte, Mich.

AGE OF THE HORSE

R. A. Craig, Professor of Veterinary Science

In judging the age of a horse we depend on the changes that take place in the development and wear of the front, or more properly, the incisor teeth. In the colt these changes are the eruption of the milk or temporary teeth, and their replacement by the permanent teeth.

A colt of one year of age has a full set of temporary incisors, and at the end of the second year all of their table, or wearing surfaces, show marked wear. The next important change is the replacement of the middle pair, or pincers, by the permanent pincers. This occurs six months later, and when the colt is three years old the permanent pincers have pushed up to the same level as the other teeth in the row. The other incisors, the dividers and corner teeth, are replaced at yearly intervals. (See diagrams page 325) At the age of four years and six months the horse should have a full set of permanent incisors. In about six months from the time the permanent tooth first appears through the gums, it becomes fully developed, and it is not until the horse is five years old that the corner incisors are up and in wear.

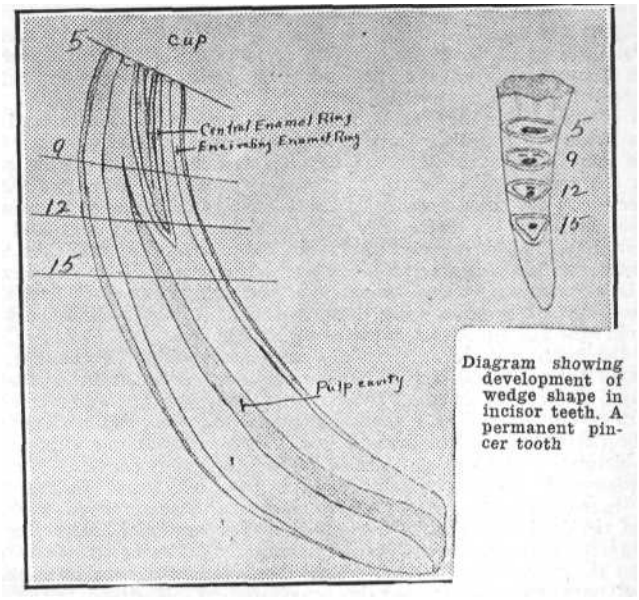
After the horse has its full set of permanent teeth, the changes in the appearance of the teeth are due to a wearing away of the table surfaces and a pushing out of the teeth in order to maintain the length of their free portions or that part of the tooth visible above the gums. In over-shot and under-shot jaws, or the parrot mouth and lantern jaw, the teeth wear unevenly and it is difficult to determine the age of animals having these deformities. Variations in the hardness of the enamel and dentine (see diagrams) that form the teeth may cause them to show more or less than the average wear. The character of the food may also influence wear. For example, horses that graze on short sandy pastures wear their teeth rapidly. These variations in the wear due to the above conditions need not be taken into consideration. For all practical purposes a horse may be considered as old or as young as his teeth indicate.

The appearance and shape of the table surface (see diagram) vary from year to year, and the angle with which the upper and lower rows of incisors meet becomes more acute as the horse becomes older. The general changes in the table surfaces noted are a wearing away of the cups and central rings of enamel; the appearance of the dental star or cross-section of the pulp cavity; a shortening in their lateral diameters; and an increase in their diameters from before to behind. (see diagram)

In examining the teeth for the purpose of determining age, it is advisable to first separate the lips with the fingers and note the angle with which the teeth meet. The mouth should not be handled roughly, and it is advisable for beginners to examine the mouths of horses of known age, for it is only by such practical methods that a person can learn to determine the age of mature animals.

The following is a brief statement of the changes in the shape and appearance of the lower incisors. At six years of age all of the teeth show wear, but the wear is not marked in the corner teeth until the year following. The teeth of the eight year old horse show marked changes. The wearing surfaces are oval and leveled and the cups are narrow. In the nine year old horse, the table surfaces may be termed smooth. The cups are small and all of the teeth are round and oval in shape. From this time on there is a very noticeable increase in the obliquity of the teeth, and marked changes in the shape and appearance of the table surfaces. At twelve years of age the tables are round and the central enamel rings are close to the posterior borders. At 15 years of age, the pincers and dividers are triangular, and the dental star has taken on a definite shape and is present in all of the table surfaces. (See diagrams page 125)

Fig. 98. Diagram to show how the cup disappears and the dental star gradually appears with the wearing away of the tooth. Starting with a lower pincer tooth from a five year old mouth. Compare with the tables shown in Figs. 102, 103, 104 and 105



5—Table at five years. Cup in center of tooth. Not worn smooth. Large, and as seen from above, has the general shape of the tooth
9—Table at nine years. Cup present but worn. Dental star just appearing
12—Table at 12 years. Cup still present near posterior wall of the tooth. Dental star pronounced, at center of tooth
15—Table at 15 years. Cup entirely disappeared. Dental star pronounced in center of tooth Pulp cavity appears on the table as dental star at about nine years

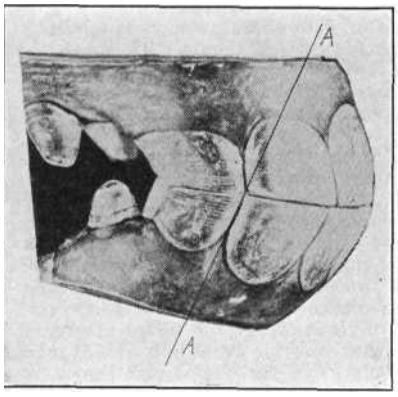


Fig. 99. Five-year-old. Note the upright direction of Right direction of the line AA, denoting the slope of the teeth. Compare with the twenty-year-old mouth represented in next figure

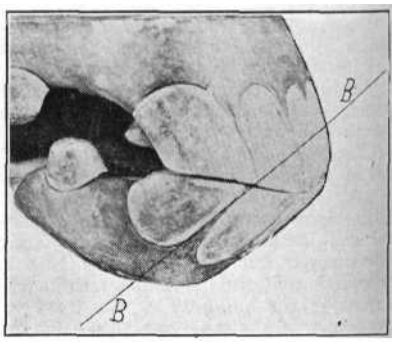


Fig. 100. Twenty-year-old. Note the slope of the line BB, denoting the slope of the teeth. Compare with the five-year-old mouth represented above. As the horse advances in age, the slope increases

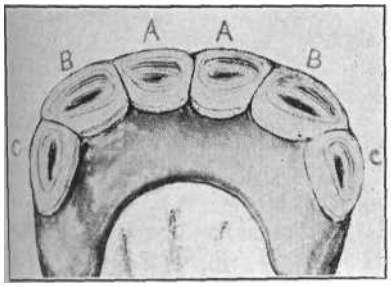


Fig 101. Temporary incisors at two years. All free from the gum and in wear. AA, temporary pincers. BB, temporary dividers. CC, temporary corners

At two and one-half to three years AA, temporary pincers are dropped and DD, the permanent pincers come in

At three and one-half to four years BB, temporary dividers, are dropped, and EE, the permanent dividers, come in

At four and one-half to five years, CO, temporary corners, are dropped, and FF, the permanent corners come in

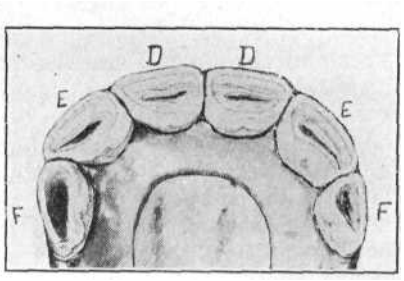


Fig. 102. Permanent lower incisors at five years. All permanent and in wear. DD, permanent pincers. EE, permanent dividers. FF, permanent corners

Note the size and shape of the cups. In the next three figures, note how the shape of the cup becomes more nearly circular, the position moves toward the posterior wall of the tooth, and how the cup finally disappears entirely at about 13 to 15 years of age. Note elongated shape of the tables, and in the following figures note how the shape of the tables change until they become triangular. Note reasons for these changes in Fig. 98

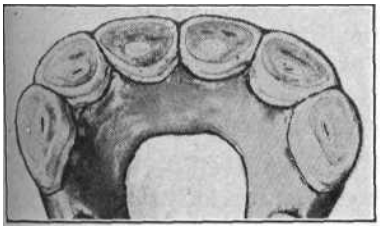


Fig. 103. Lower incisors at nine years. Note oval form of tables and of cups. Cup approaching posterior wall of tooth, and dental star appearing, as brown lines along the center of the tooth between the cup and the anterior wall. For reason for this see diagram in Fig. 98

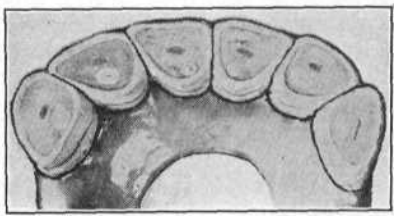
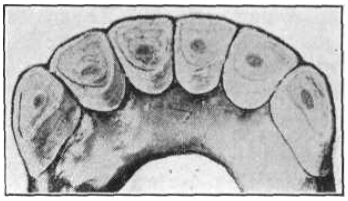


Fig. 104. Lower incisors at 12 years. Note triangular shape of tables. Cups appear as circular spots near posterior walls. Dental stars prominent at center of teeth

Fig. 105. Lower incisors at 15 years. Note marked decrease in lateral diameter of the teeth and commencement of triangular shape of tables. Cups entirely disappeared. Dental stars well marked at center of teeth



BOOKS ABOUT LIVE STOCK

Title	Author	Price
Types and Breeds of Farm Animals	Plumb	$2.00
The Study of Breeds	Shaw	1.50
How to Judge a Horse	Bach	1.00
Judging Live Stock	Craig	1.50
Farm Animals	Wilcox	2.00
Points of the Horse	Hayes	8.50
The Horse Book	Johnstone	2.00
The Horse	Roberts	1.25
Modern Sheep	“Shepherd Boy”	1.50
Sheep Management	Kleinheinz	1.50
Swine in America	Coburn	2.50
Farm Live Stock of Great Britain	Wallace	4.00
Breeding Farm Animals	Marshall	1.50

The above books are excellent aids to the study of live stock judging and breeding. There are other very estimable books on this subject. A long list, however, would only tend to confuse the person desiring information as to good books; therefore, the above are submitted with the remark that they are among the best contributions to the literature on this subject. Any of the above may be obtained postpaid from the Agricultural Extension Department of Purdue University upon receipt of price quoted.

BULLETINS ABOUT LIVE STOCK

The following are some of the bulletins which have been published treating of the types and breeds of farm animals, and methods of judging. Whenever available, they are an excellent source of information to the student.

Draft Horse Judging, Alexander, Wisconsin Experiment Station, Circular No. 17, Madison, Wis.

Improvement of Utah Horses, Caine, Utah Experiment Station, Bulletin No. 107, Logan, Utah.

Factors Influencing the Value and Cost of Feeders, Skinner and Cochel, Purdue Experiment Station, Circular No. 14, Lafayette, Ind.

The External Conformation of the Horse, Grange, Michigan Experiment Station, Bulletin No. 110, Lansing, Mich.

Market Classes and Grades of Cattle, Mumford, Illinois Experiment Station, Bulletin No. 78, Urbana, Ill.

Market Classes and Grades of Horses, Obrecht, Illinois Experiment Station, Bulletin No. 122.

Market Classes and Grades of Sheep, Coffey, Illinois Experiment Station, Bulletin No. 129.

Market Classes and Grades of Swine, Dietrich, Illinois Experiment Station, Bulletin No. 97.

Market Classes and Grades of Meat, Hall, Illinois Experiment Station, Bulletin No. 147.

Swine Husbandry, Critchfield, Pennsylvania Department of Agriculture, Bulletin No. 186, Harrisburg, Pa.

Practical Swine Management, Fuller and Alexander, Wisconsin Experiment Station, Bulletin No. 184, Madison, Wis.

The Score Card in Stock Breeding, Rommel, Bureau of Animal Industry, U. S. Dep't of Agriculture, Bulletin No. 76, Washington, D. C.

American Breeds of Beef Cattle, Rommel, Bureau of Animal Industry, U. S. Dep't of Agriculture, Bulletin No. 34, Washington, D. C.

Breeds of Dairy Cattle, Rommel, Bureau of Animal Industry, U. S. Dep't of Agriculture, Bulletin No. 106, Washington, D. C.

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[*]Preliminary work on parts 2, 3, and 4. respectively, while at Purdue

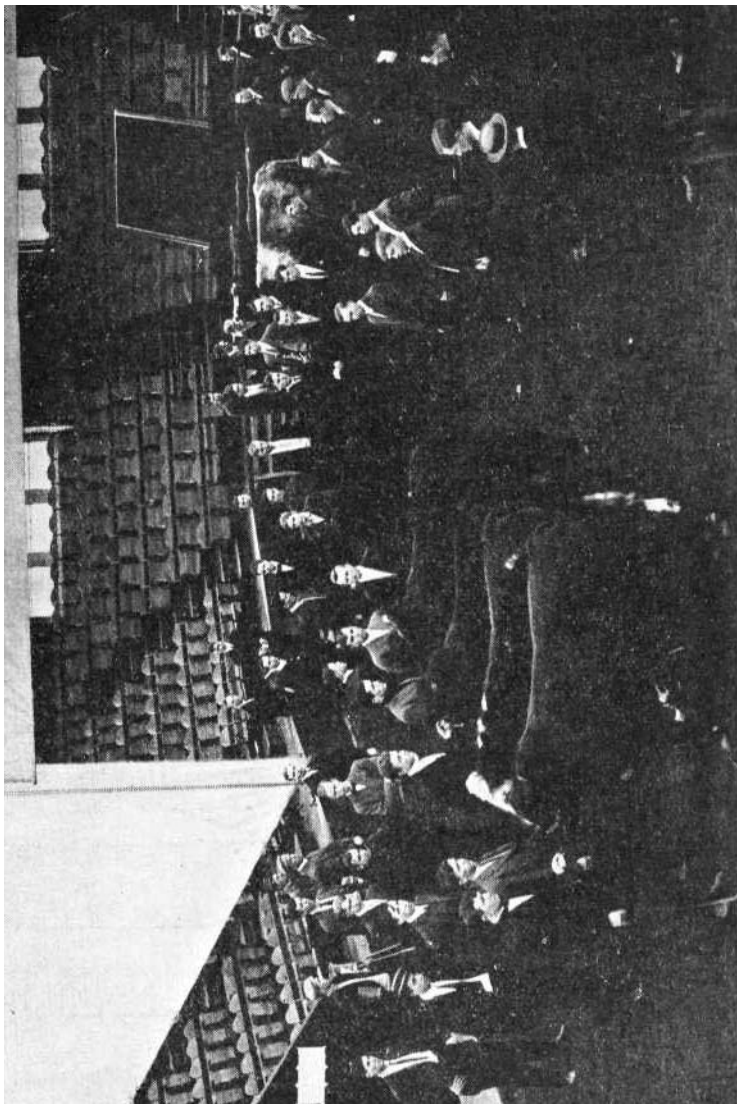

Fig. 106. Judging beef cattle. Winter Course contest, Purdue University