

Guides for
HORSE BUYERS

By R. S. Hudson



MICHIGAN STATE COLLEGE
EXTENSION DIVISION
EAST LANSING

Cooperative Extension Work in Agriculture and Home Economics, Extension Service,
Michigan State College and the U. S. Department of Agriculture Cooperating.

FOREWORD

This bulletin is published in response to an increasing number of requests for information from farmers and inexperienced men who wish to buy horses, either for use on their own farms or for the foundation of purebred breeding establishments. So much uncertainty exists regarding age and soundness in horses that this publication is written and illustrated particularly to give assistance along those lines.

In purchasing any horse, it is well for one to formulate an idea of the age by examining the teeth and judge soundness by seeing the animal backed out of the stall, turned abruptly, and observed at both the walk and trot. Inspect the stall carefully to detect possible evidence of stable vices. The horse should be harnessed and hitched to test further his reliability for the intended work.

In addition to age and soundness, conformation, size, action, sex, color, training and disposition must always be considered to determine the true market value of a horse. It is generally recognized that compact, short-legged horses with short backs, deep middles, well-placed legs, good feet and correctly formed hocks command the highest market prices and make the most efficient individuals. Other desirable qualities are the animal's ability to endure heat and willingness to work. Breeding stock should be free from transmissible unsoundnesses. Work horses may become practically worthless if they have unsoundnesses which inhibit their activity. Treatment of the common unsoundnesses is not mentioned in this bulletin unless the knowledge that a condition is curable will affect the horse's sale value.

Encroachment upon the field of veterinary medicine is not intended. In fact, the author of this publication sincerely hopes that his efforts will help to bring about a better understanding between the veterinarian and the horseman and promote a feeling of appreciation, co-operation, and friendship.

The author wishes to acknowledge and express his appreciation of the constructive criticism of Dr. J. P. Hutton, Professor of Veterinary Medicine, Surgery and Clinic, and Mr. John Carter, veteran groom at Michigan State College. Thanks is extended to John J. Arnold, student in the Veterinary Division, for assistance in preparing the manuscript, and assembling the illustrations.

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GUIDES FOR HORSE BUYERS

R. S. HUDSON

ECONOMY AND EFFICIENCY OF HORSE POWER

Renewed interest has been shown recently in horse breeding. This interest is largely due to increased prices of horses, low prices of farm produce, shortage in horse numbers and economy in use of horses for power. It seems that farmers have realized that an acute shortage of horses exists; therefore, there is also a continued interest in horse breeding.

Good horses and mules long have been recognized as an efficient and economical source of power for the farm. Feed consumed by horses is not only cheap "fuel" but is an important factor in preventing the accumulation of surplus farm produce. Manure is an economical fertilizer and very important in maintaining soil fertility. The brood mare not only will do her share in the harness but will produce colts which add considerably to the farm income. Stallions may be used for work as well as for breeding purposes. The well-managed farm under a good system of crop rotation is especially adapted to the economical use of horse power since work on such farms is more evenly distributed throughout the year. Most farms should have approximately one work horse for every 25 to 30 acres of cultivated land if motor power is not used.

Many farmers find a combination of horse and motor power most practical, but there are very few "horse-less farms." There should be no argument about which type of power is best because each is adapted to certain kinds of work. Neither type of power will ever entirely replace the other on large well-managed farms. The present horse population will undoubtedly be maintained in this state either by breeding or by purchase.

In 1929 there were approximately 605,000 horses in Michigan, and this number had decreased to 378,000 in 1937 with more than 50 per cent of those past 10 years of age. Since the average life of a horse on the farm is 15 years, it is easy to understand that colt production is not keeping pace with mortality as farmers in Michigan are not raising much more than half a normal colt crop needed for replacements.

Although breeding has increased since 1932, 12,000 to 15,000 horses are purchased each year by Michigan farmers from sources outside the state.

The inexperienced buyer should always purchase from reliable dealers since even the more experienced horsemen are sometimes deceived by the unscrupulous transient type of dealer.

BREEDS OF DRAFT HORSES

There are so many requests for pictures coming to the College from young people in high school and college work that the author has included pictures of popular animals in this publication, hoping that the illustrations (furnished in part by the various breed associations) will serve also as a guide for those who are interested in the use and purchase of horses.

The common breeds of draft horses in the United States are the Belgian, Percheron, Shire, Clydesdale, and Suffolk. The Belgian and Percheron are considered by many the most popular breeds.

DRAFT BREED REGISTRY ASSOCIATIONS

Belgian—American Association of Importers and Breeders of Belgian Draft Horses, Wabash, Indiana.

Clydesdale—Clydesdale Breeders Association of the United States, U. S. Yards, Chicago, Illinois.

Jacks and Jennetts—Standard Jack and Jennett Registry, Scarritt Bldg., Kansas City, Missouri.

Percheron—The Percheron Horse Association of America, U. S. Yards, Chicago, Illinois.

Shire—American Shire Association, Bushnell, Illinois.

Suffolk—American Suffolk Association, Bushnell, Illinois.

LIGHT BREEDS

For information concerning the breeds of light horses, write to the following associations:

1. The Arabian Horse Club of America, Berlin, N. H.
2. American Hackney Horse Society, P. O. Box 536, Merrick, N. Y.
3. The Morgan Horse Club, 90 Broad St., New York, N. Y.
4. American Saddle Horse Breeders Association, Louisville, Ky.
5. American Shetland Pony Club, Lafayette, Ind.
6. American Trotting Registry, (Standard Bred), Goshen, N. Y.
7. The Jockey Club, (Thoroughbred), 250 Park Ave., New York, N. Y.
8. Welsh Pony and Cob Society of America, Lafayette, Ind.
9. Walking Horse Breeders Association of America, Lewisburg, Tenn.
10. The Palomino Horse Association and Stud Book Registry, Ojai, Calif.

Fig. 1. Loewenstein 16928 (32/2250), a typical Belgian stallion.

(Owned and shown by Michigan State College.)

The Belgian horse (Figs. 1 and 2) originated in Belgium, and large numbers of stallions are being imported from that country at the present time. Sorrel, chestnut, and the various shades of roan are the most popular colors, although there are many bays, browns and a few blacks. The Belgian is the most compact and drafty of the breeds and is equaled in weight only by the Shire. Deep and massive in body and on rather short legs with heavy muscling throughout, they are strong, easy keepers, good feeders and endure shipment well. The stallions are more popular in Michigan for crossing on grade mares than are those of any other breed. The most common faults of the breed are short heavy necks, occasionally low backs, and too much coarseness of head and ear. The feet are sometimes narrow and high at the heel, although much improvement has been made in this respect as well as in the style, action and refinement of the breed at the hands of the American breeder in the last few years.

Additional information may be obtained concerning this breed from the Belgian Draft Horse Corporation of America, Wabash, Ind.

Fig. 2. Pervenche 9030, a typical Belgian mare.
(Owned and shown by Michigan State College. This mare won a total of 21 championships in four seasons.)

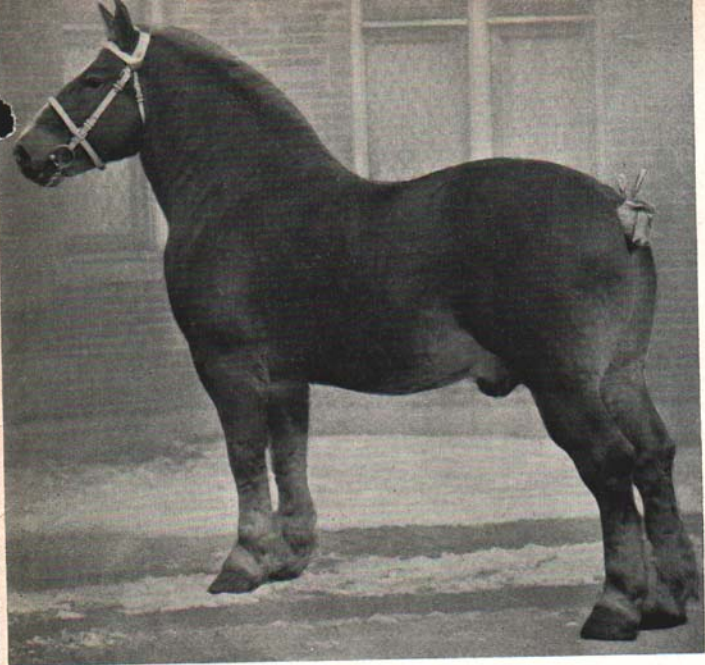


Fig. 1.

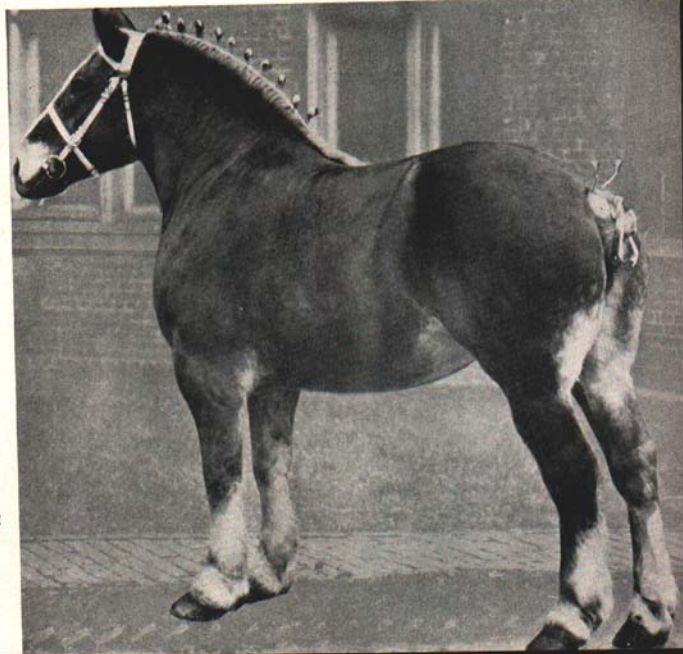


Fig. 2

**Fig. 3. Mediator (Major H.) 209523, a typical
Percheron stallion.**
(Junior Herd Sire at Michigan State College.)

The Percheron horse (Figs. 3 and 4) originated in France, and stallions and mares are being imported in large numbers from that country at the present time. The most popular colors are grey and black, although bay, brown, sorrel and roan are sometimes found. The Percheron shows more refinement of head and neck and is characterized by more natural activity than some of the other breeds. They possess, as a rule, feet of splendid wearing qualities and because of the light coat of hair, endure heat better than some of the other breeds. They are criticized often for having too much length of leg and body too shallow. While not quite equal to the Belgian in early maturity and feeding qualities, the breed is not generally criticized for lack of these qualities and is well liked by the average American farmer.

They are more widely distributed and exceed all other draft breeds combined in numbers, showing their wide range of adaptation to all kinds of work and climate. In many cases they are too long in the back, and a strong effort is being made to breed more compact Percherons.

For more detailed information concerning this breed, write the Percheron Horse Association of America, Union Stock Yards, Chicago, Ill.

Fig. 4. Doritea 199930, a typical Percheron mare.
(Bred by Michigan State College.)

Fig. 3

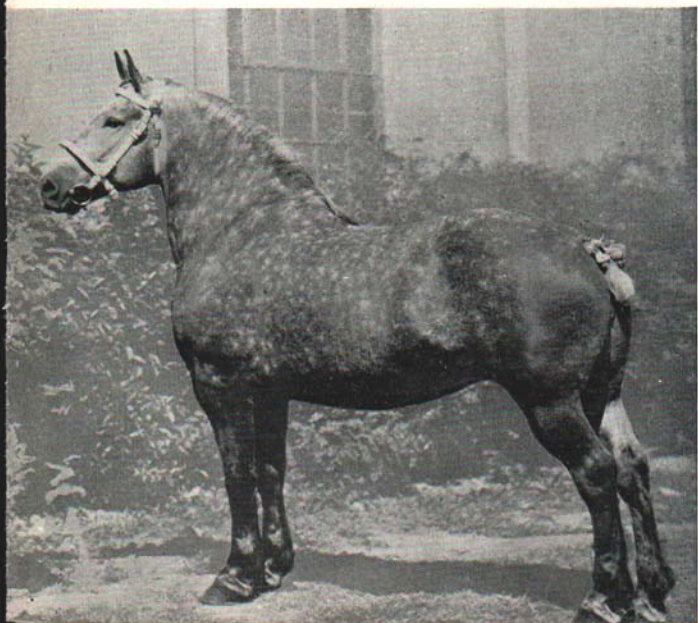
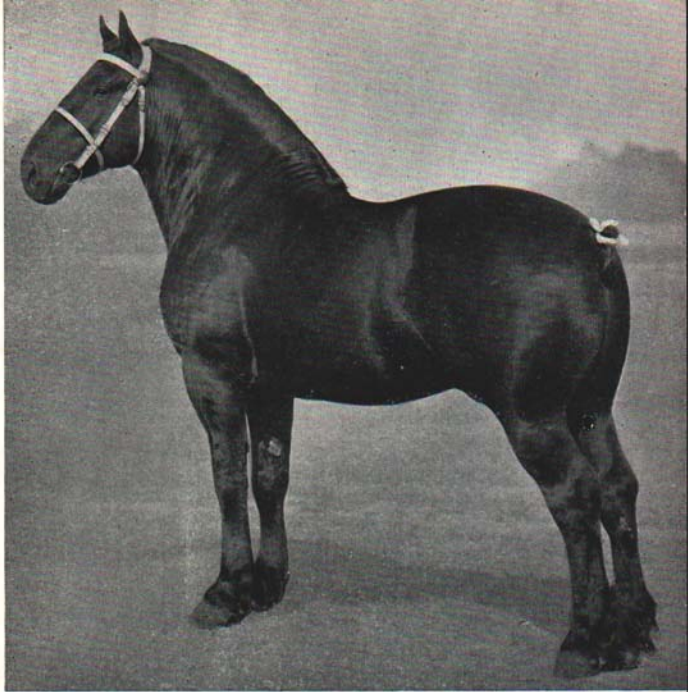


Fig. 4

**Fig. 5. Linton Marcellus 24241 (27411), a typical
Clydesdale stallion.**

(Owned by Craigie Brae Farms, Jackson, Mich. Photo, courtesy of the
Clydesdale Breeders Association of the United States.)

The Clydesdale (Figs. 5 and 6) originated in Scotland and is still bred in large numbers in that country. Excellent geldings for show purposes are exported in somewhat limited numbers to other countries to make up big hitches for advertising purposes for commercial firms. They are bay, brown, black and often roan in color. These colors are usually accompanied by white markings. They are noted for their strong tops, excellent heads carried on long beautiful necks, with a correctness of action and underpinning unequalled by any other draft breed. The rather heavy feather on the legs causes them to be criticized for farm use, but for cross-breeding to produce style and quality, they are unequalled. They are slower maturing than the Percheron or Belgian and often lack somewhat in muscling throughout the lower part of the body. At the present time they are staging a comeback in many sections of the country.

For further information regarding this breed, write the Clydesdale Breeders Association of the United States, Union Stock Yards, Chicago, Ill.

**Fig. 6. Green Meadow Blackgown 23351, a typical
Clydesdale mare.**

(Owned by Stringham Brothers. Photo, courtesy of the Clydesdale
Breeders Association of the United States.)

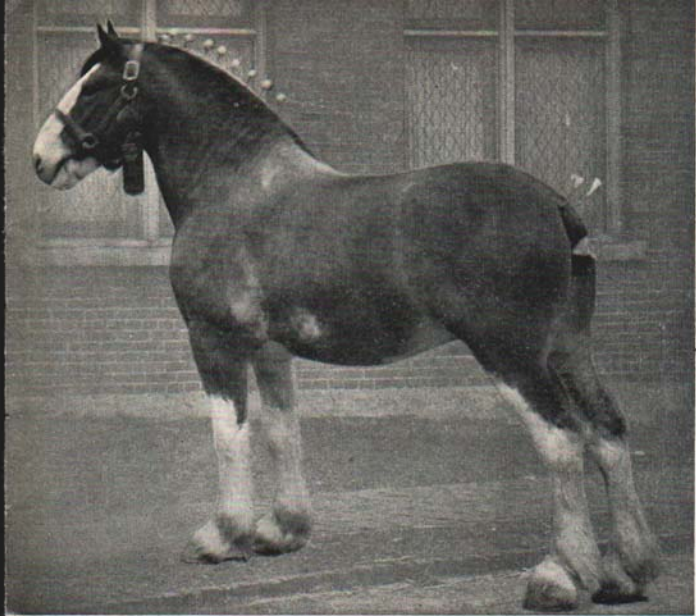


Fig. 5

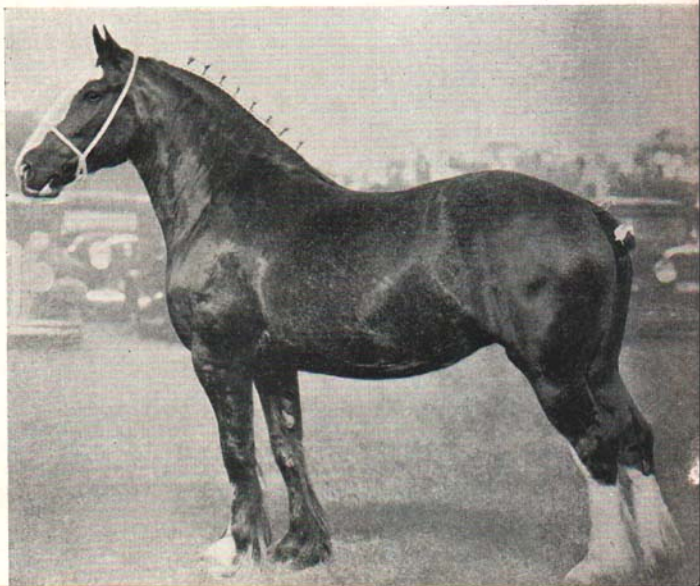


Fig. 6

Fig. 7. Elmdale Lad 21199, a typical two-year-old Shire stallion.

(Owned by the Truman Stud Farm. Photo, courtesy of the American Shire Horse Association.)

The Shire (Figs. 7 and 8) originated in England and is still bred and used in that country and in limited numbers throughout the world. Bay, brown and black, with or without white markings, are equally popular colors. There are sometimes roans and chestnuts. They are equal to, if not larger than, the Belgian in size and with more ruggedness than any of the other draft breeds. The body is long, wide and deep and the breed is sometimes criticized for lack of refinement and quality and the excessive amount of hair on the legs and body. Size and ruggedness, however, have made the stallions particularly valuable for mating with grade mares to impart more size, bone and draftiness to the off-spring. Grade geldings from Shire stallions usually top the market. Plainness in the head, neck, and crest and lack of masculinity characterizes the stallions in many cases. The legs often lack quality, which is also true of the feet. They are good feeders but do not mature so early as the Percheron or Belgian.

For further information regarding this breed, write the American Shire Horse Association, Bushnell, Ill.

Fig. 8. Tatton Empress 20577, a typical Shire mare.

(Owned by Mr. G. Babson. Photo, courtesy of the American Shire Association.)

Fig. 7

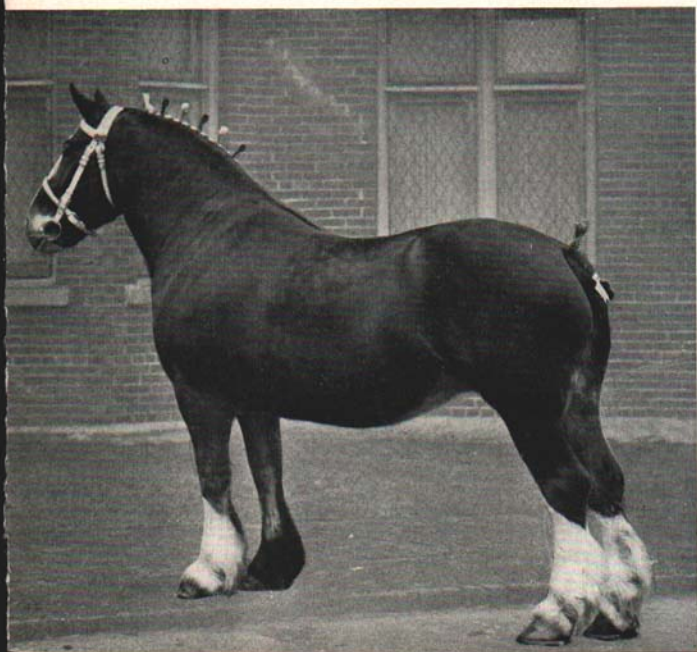
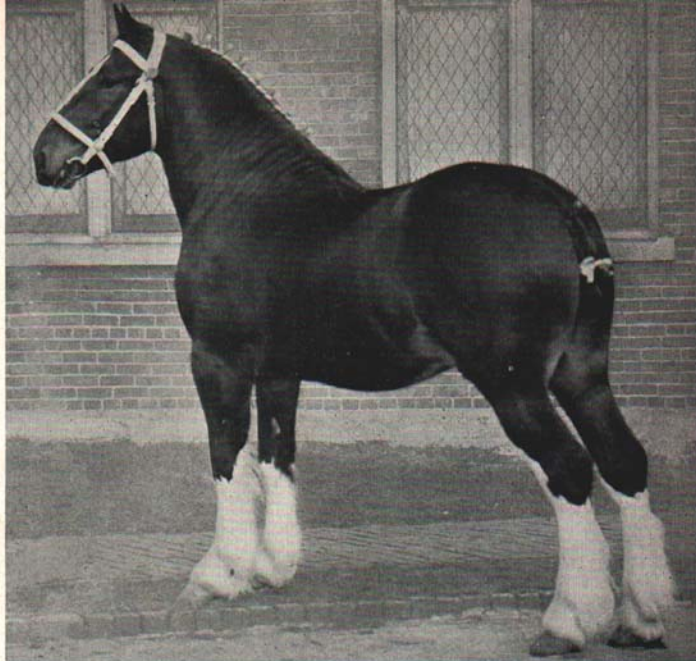


Fig. 8

**Fig. 9. Cherry Hill Knight 1724, a typical
Suffolk stallion.**

(Owned by Mr. R. J. Barr. Photo, courtesy of the American
Suffolk Horse Association.)

The Suffolk (Figs. 9 and 10) is a native of Suffolk County, England. Always chestnut or sorrel in color, they are noted for their good feeding capacity, easy keeping qualities and ability to last over a long period of years. Because they are the smallest and lightest of draft breeds, they are said to be especially useful for farmers. For some reason the breed has not been widely adopted in America and are not found in large numbers. Critics of the breed say that short croups, sickle hocks and lack of quality in the hocks are far too common and for the farmer who likes a heavy horse, they are too small.

For further information regarding this breed, write the American Suffolk Horse Association, Bushnell, Ill.

Fig. 10. Hawthorne Carol 1522, a typical Suffolk mare.

(Owned by Mr. R. J. Barr. Photo, courtesy of the American
Suffolk Horse Association.)

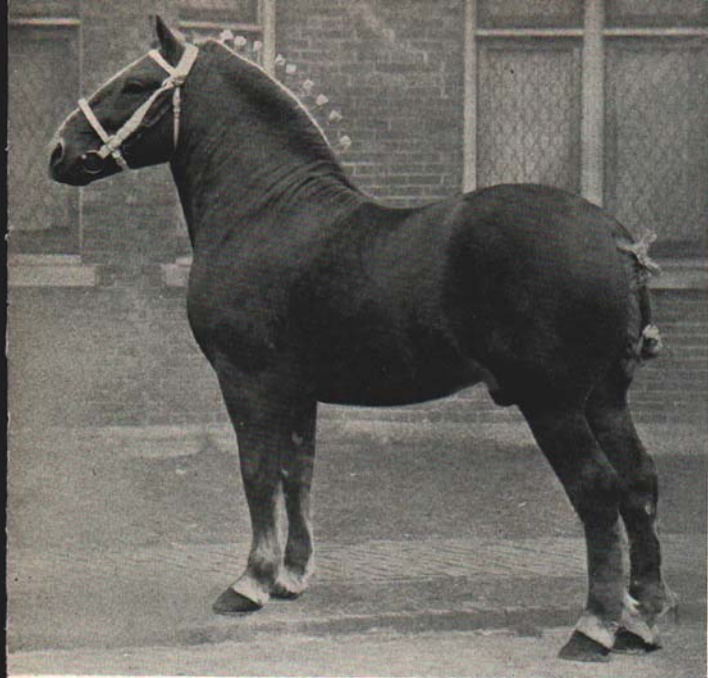


Fig. 9

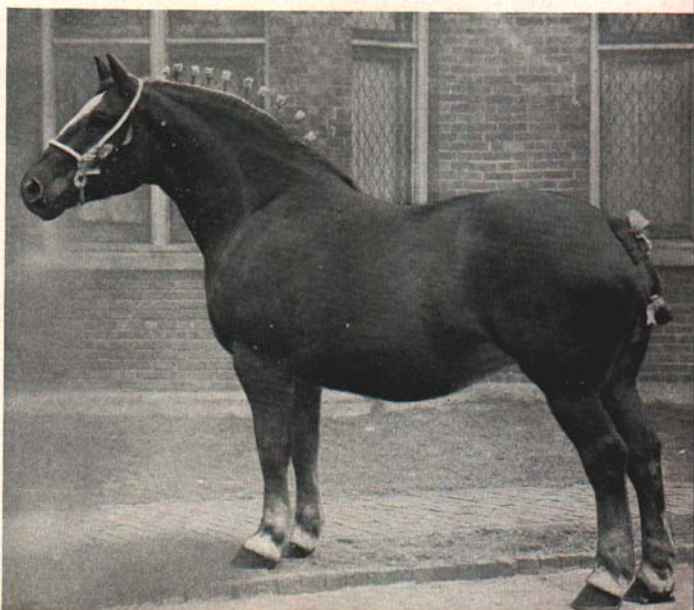


Fig. 10

GENERAL APPEARANCE

The ideal draft horse should be broad, deep, low-set, strongly muscled, powerful, well-proportioned and nicely balanced throughout. He should show good carriage, considerable style and spirit but not so much that he is unmanageable. Quality is greatly desired and is indicated by a smooth, fine, glossy hair coat, neat head and neck, clean well-defined joints and clean, wide, hard, flat cannons with prominent tendons. Weight is a very important factor in determining the value of a horse. However, it is well to remember that excess fat does not increase the power of a horse. Heavy draft horses weigh from 1,800 to 2,300 pounds. Fifteen hundred to 1,700 pounds is a popular weight for farm horses. Height is measured from level ground to the highest point of the withers and is always stated in terms of "hands." (A hand is equivalent to four inches.) Our largest draft horses measure 16 to 18 hands in height. Height should always be the result of a deep body rather than of long legs.

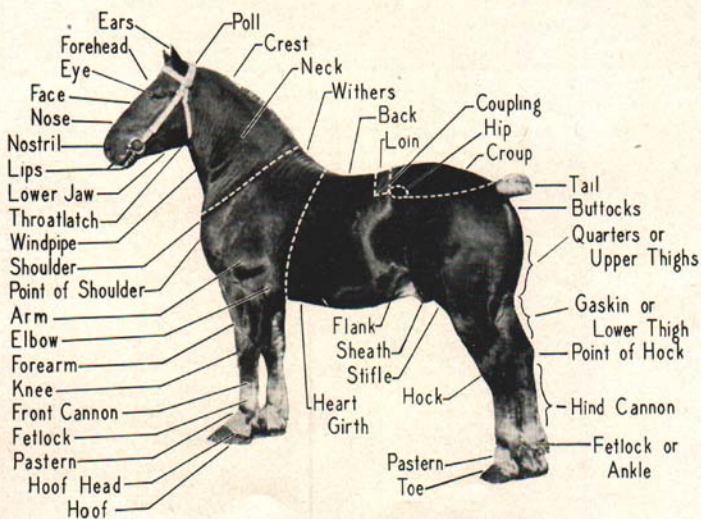


Fig. 11. Regions of the horse.

Fig. 12. Michigan State College Score Card for Draft Horses.

SCALE OF POINTS	Perfect Score	Student's Score		Corrected Score	
		No. 1	No. 2	No. 1	No. 2
Age, Years.....					
GENERAL APPEARANCE—19 Points:					
Height, hands.....					
Weight, over 1,500 lbs., estimated.....					
Weight, score according to age.....	5				
Form, broad, massive, closely coupled, blocky, low set, symmetrical.....	4				
Substance, heavy bone; broad joints; heavy muscling.....	3				
Quality, refined; bone clean and hard; tendons and joints well defined; skin and hair fine; feather silky.....	4				
Temperament, energetic, good disposition.....	2				
Style, stylish, graceful carriage.....	1				
HEAD AND NECK—8 Points:					
Head, proportionate size, clean cut, well carried, profile straight, intelligent.....	1				
Muzzle, broad, neat; lips thin, even; nostrils large, flexible.....	1				
Eyes, full, bright, clear.....	1				
Forehead, broad, full.....	1				
Ears, medium sized, pointed, well carried, alert.....	1				
Lower Jaw, angles wide, muscle large; space clean, open.....	1				
Neck, medium length, well muscled, arched; throat latch fine; wind pipe large.....	2				
FOREHAND (forequarters)—20 Points:					
Shoulders, long, moderately sloping, heavily muscled, smooth, extending well into back.....	2				
Arm, short, thrown back, heavily muscled; elbow close to body.....	1				
Forearm, heavily muscled, long, wide.....	1				
Knees, broad, deep, straight, well supported, clean.....	2				
Cannons, short, wide, flat; tendons large, clearly defined, well set back.....	2				
Fetlock, wide, straight, strong, clean.....	1				
Pasterns, medium length, strong, clean, oblique, 45 degree angle.....	2				
Feet, large, straight, uniform; horn dense, waxy; sole concave; bars strong; frog large, elastic; heel wide, high, one-half length of toe; hoof head large.....	6				
Fore 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 from the center of the elbow joint should fall upon the center of the knee and pastern and back of the hoof.....	3				
BODY—14 Points:					
Withers, same height as hips, extending well back, muscular.....	1				
Chest, deep, wide, low; girth large.....	3				
Ribs, deep, well sprung, closely ribbed to hip.....	3				
Back, broad, short, strong, muscular.....	3				
Loins, short, wide, strongly coupled.....	3				
Underline, long, flank, low.....	1				
HINDQUARTERS—29 Points:					
Hips, broad, smooth, muscular.....	2				
Croup, long, wide, heavily muscled, not markedly drooping.....	3				
Tail, attached high, well carried.....	1				
Thighs, deep, broad, strong, heavily muscled.....	2				
Stifles, strong, muscular, clean.....	1				
Quarters, deep, heavily muscled; gaskins wide and well muscled.....	2				
Hocks, wide, deep, strong, well supported, clean cut.....	6				
Cannons, short, wide, flat; tendons large, clearly defined, well set back.....	1				
Fetlocks, wide, straight, strong, clean.....	2				
Pasterns, medium length, clean, not quite so sloping as in front.....	2				
Feet, somewhat smaller and not so round as forefeet, straight, uniform; horn dense, waxy; sole concave; bars strong; frog large, elastic; heel wide, high, one-half length of toe; hoof head large.....	4				
Hind legs, viewed from the rear a perpendicular line from the point of the buttock should fall upon the center of the hock, cannon and foot; from the side a perpendicular line from the point of the buttock should touch the point of the hock and run parallel with the cannon.....	3				
ACTION—10 Points:					
Energetic, straight, true elastic; walk, stride long, quick, regular, trot, strong, free, springy, balanced, straight.....	10				
Total.....	100				

THE HEAD AND NECK

The head should be lean and proportionate to the body in size. Intelligence is indicated by a broad, full forehead with great width between the eyes. A straight face is usually preferable to a concave or to a convex profile (Roman nose). The jaw should be broad and strongly muscled. Thin, firm, even lips indicate quality. Large, open nostrils are desirable. The eye should be large, full, prominent, clear and bright. Small eyes that show a great deal of the white indicate a bad disposition. The ears should be of medium size, pointed, and



Fig. 13. Treviso 144394, a noted Percheron sire.

alertly carried. Horses that lay back their ears when approached are usually vicious.

The neck should be fairly long, slightly arched, lean, muscular and free from meatiness or thickness about the throatlatch. The windpipe or trachea should appear large and perfectly cylindrical. The head should be carried high. Avoid buying horses with short thick necks, long "mule" ears, meaty throatlatches, small "pig" eyes, sagging lips, small nostrils, bad teeth, and sunken, concave foreheads.

The head of the stallion (Fig. 13) should express boldness and masculinity. The crest should be fairly heavy and well-arched, but an unusually heavy crest may break over to one side as the stallion becomes older.

The brood mare's head should show more refinement and femininity. Thick, heavy, staggy necks are very undesirable in brood mares.

THE FOREQUARTERS

The forequarters include the shoulders, arms, forearms, knees, canons, fetlocks, pasterns, and feet. The shoulders should be smooth, well-muscled, sloping, and blend smoothly with the withers. The arms should be short, wide and strongly-muscled. If the elbows lie too close to the body the horse will toe-out. If they lie out too far, the individual will toe-in. The forearms should be fairly long, broad and strongly-muscled, especially in the upper portion. The knees should be broad, deep, straight, clean-cut, strongly supported and free from soft

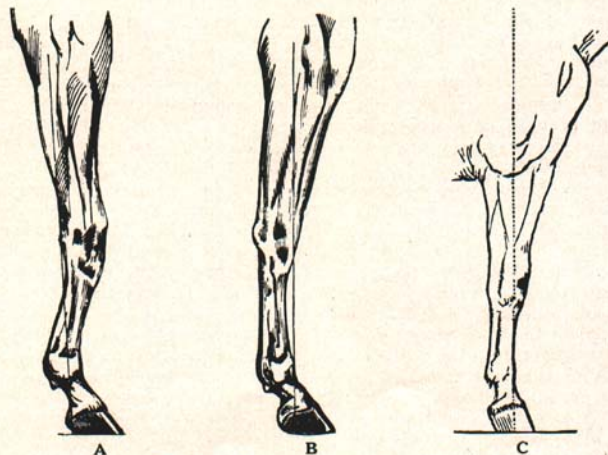


Fig. 14. Side views of the fore limb.

- A. Knee sprung, buck knees, or over at the knees.
- B. Calf knees or back at the knees.
- C. Pastern too upright.

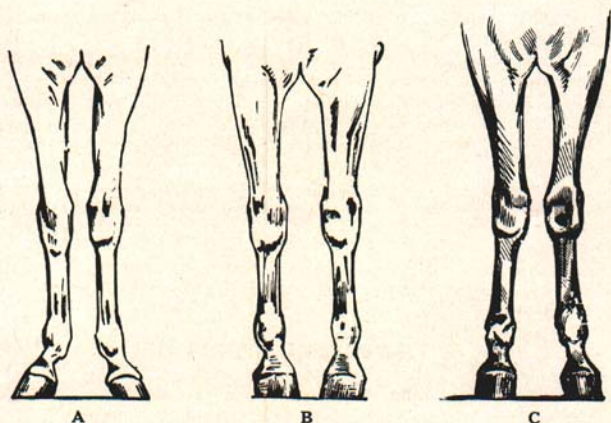


Fig. 15. Front views of the fore limbs.

- A. Toe-wide, splay-footed, or toed out.
 B. Toe-narrow, toed-in, or pigeon-toed.
 C. Knock-kneed.

fluctuating swellings. If the knees, when viewed from the side are bent forward, the condition is known as "knee-sprung," "buck knees," or "over at the knees" (Fig. 14A). The opposite condition is known as "calf knees" or "back at the knees" (Fig. 14B). The cannons should be short, wide, flat, and clean with large, sharply-defined cord-like tendons, and free from any indication of roughness or coarseness. The fetlocks should be wide, clean, and well-supported. Moderately long, sloping, strong, clean pasterns are desirable. The degree of slope of the pasterns is closely associated with that of the shoulders. Oblique shoulders and pasterns diminish concussion, lessening the possibility of the development of an unsoundness. The ideal angle of the shoulders and pasterns is about 45 degrees. When viewed from the 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 from the center of the elbow joint should fall upon the center of the knee and fetlock and strike the ground just back of the hoof.

Horses which toe-out, as in Fig. 15A, are very apt to interfere. In growing colts, the condition may be corrected by keeping the outside of the foot trimmed lower than the inside. Horses very commonly toe-in, as shown in Fig. 15B, giving them a tendency to "wing" or "paddle". This condition may be corrected by frequently trimming the feet as the colt grows, taking off more on the inside than on the outside. Horses close at the knee (Fig. 15C) are likely to travel too close, and to interfere. The same corrective measures should be used as for toeing-out. Since the front feet maintain about 60 per cent of the horse's weight and are subject to greater concussion, they should



Fig. 16. Ground surface of a normal front foot.

1. Ground border of wall.
2. Laminae of wall.
3. Heel.
4. Bar.
5. Sole.
6. White line (junction of wall and sole).
7. Point of frog.
8. Cleft of frog.
9. Bulbs of the heels.
10. Bulbs of the heels.

(From Sisson's "Anatomy of the Domestic Animals")

always be observed very carefully. The ideal foot (Fig. 16) should be large, round, uniform, and shapely, with dense, smooth waxy horn, concave sole, strong bars, wide heels, large, prominent, elastic frog, and clean soft hoofheads. Figure 17 shows how wear of the hoof

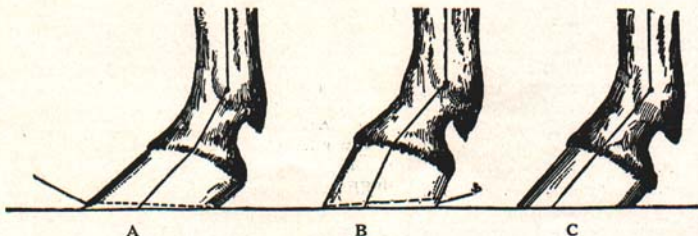


Fig. 17. Foot axes.

- A. Axis broken backward because the toe is too long.
- B. Axis broken forward because the heel is too long.
- C. The normal foot axis.

L-330 new Fig. 6 cut missing

affects the slope of pastern. If the toe is allowed to grow too long, the pastern is broken back (Fig. 17A). When the heels grow too long, the pastern becomes broken forward (Fig. 17B). Both conditions cause undue strain on the bones of the pastern, and may ultimately result in unsoundness.

THE BODY

The withers should be the same height as the hips, muscular, well-defined and extend well into the back. A deep, wide chest and a large, full heart-girth indicate a strong constitution and staying qualities. Extreme width, however, may produce a rolling movement at the trot. Long, deep well-sprung ribs give the chest its depth, width and capacity. A horse is said to be "closely-coupled" if the distance between the last rib and the hip is short. The back should be broad, short, heavily-muscled and strongly supported. A distinct arch over the loin is known as "roach back". A sagging condition is "sway back" or "easy in the back". Both of these conditions are very undesirable. The loin or coupling must be short, wide and heavily muscled. A long underline is desirable with low, deep, full flanks. High, shallow flanks make a horse "wasp-waisted," "tucked-up," or "cut up in the flank" and always indicate poor feeding qualities.

THE HINDQUARTERS

The hips should be level with each other, broad, smooth and well-muscled. A long, wide, full, heavily-muscled level croup is preferable to a short, narrow, markedly drooping one. The tail should be attached high and carried in a stylish manner. The quarters consist of the upper thighs and lower thighs or gaskins. They should be deep, broad, thick, strong and heavily-muscled with prominent, clean, well-set stifles.

Since the hocks are subject to so many unsoundnesses (bone spavins, bog spavins, curbs, and thoroughpins), good conformation in that region is especially desirable. The hocks should be wide, deep, flat, clean, hard, strong, well-supported, and correctly-set with prominent points. Many horses have large, round, thick, meaty, coarse, soft or puffy hocks which are not only very unsightly, but are subject to many serious unsoundnesses. A common malformation of the hocks is termed "crooked hocks," "sickle hocks," "saber hocks," or "set hocks," (Fig. 18B) a condition in which the angle of the hock is increased so that a line parallel to the back of the cannon would pass to the rear of the point of the buttock if extended upward. The opposite condition, "straight hocks," or "post-legged," (Fig. 18A) is much less common. A horse that has hind legs that stand base wide, with the points of the hocks too close together is said to be "cow-hocked," (Fig. 19A). The opposite condition is known as "bow-legged hocks" (Fig. 19B). Many horses show an undesirable tendency to become meaty, soft and coarse about the rear cannons as well as the hocks.

The fetlocks and pasterns should be similar to the front ones, although the pastern may be less sloping, presenting an angle of about 50 degrees. The hind feet should be similar to the front ones in quality

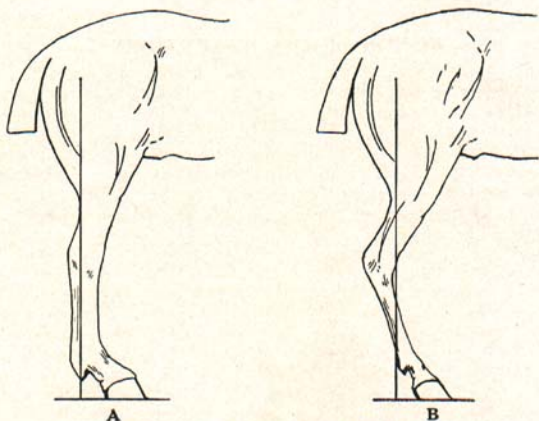


Fig. 18. Views of the hindquarters.

- A. Hock too straight, or "post-legged".
 B. Crooked hock, set hock, sickle hock, or saber hock.

and texture of hoof but may be somewhat smaller. If the hind legs have the correct conformation and are placed properly, a perpendicular line from the point of the buttock should fall upon the center of the hock, cannon, and foot when viewed from the rear. Viewed from the side, this perpendicular line should touch the point of the hock and run parallel with the back of the cannon.

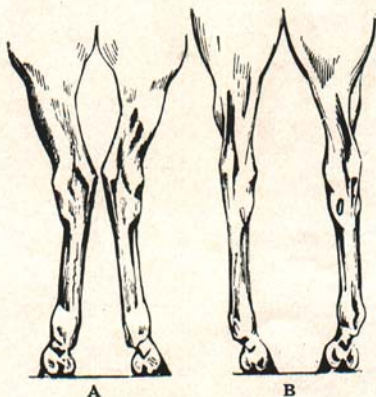


Fig. 19. Views of the hind limbs.

- A. Cow-hocked.
 B. Bow-legged.

ACTION OF THE DRAFT HORSE

Since action is largely dependent upon body conformation, age, placement of feet, shoeing, training and temperament, one can form a fair estimate of how a horse will move by observing him in the standing position. A horse that toes-in or stands "toe-narrow" or "pigeon-toed" in front may "paddle" or "wing" at the walk or trot. One that stands "toe-wide" or toes out may "interfere," that is, strike the supporting front foot with the moving foot as it passes. Horses that stand with their hocks wide apart may "spraddle" or "go wide at the hocks" when



Fig. 20. Carnot 66566 (66666) in action.

moved. Long, sloping, springy pasterns provide greater ease and freedom of movement, while short upright pasterns and straight shoulders cause the horse to move with a short, stubby stride and stumble frequently. Extreme width through the chest may cause a horse to "roll" when in motion. Very short-bodied horses may "forge," or strike the front supporting foot with the rear moving foot.

After one observes the horse in the standing position, he should be closely watched directly from behind, from in front, and from the

side at the walk and trot (Fig. 20). Action at the walk is of prime importance since this is the gait at which the draft horse must do his work. The walk should be free, straight, fast, and easy. Each foot should move straight forward in a long smooth stride with as little deviation from the line of movement as possible. The feet should be lifted fairly high and set squarely each time they return to the ground. The hocks should brush past each other as closely as possible without actually touching. The most common faults of draft horse action are "padding" in front and "going wide" behind.

Action at the trot usually accentuates the faults or good points of action at the walk. Slight lameness and diseases of the respiratory organs are also more apparent at this gait.

"Green" colts and untrained horses should never be expected to display as good action as well-trained show horses.

Many horses move poorly because they are improperly shod. On the other hand, if a horse is shod in an unusual manner, one should always suspect that an attempt has been made to correct a faulty gait or to relieve lameness. Heavily-shod horses usually show greater flexion of knee and hock than barefooted horses.

INFLUENCE OF CARE AND FEEDING UPON VALUE

The buyer must remember that the well-fed, properly-groomed horse always shows to advantage. If a horse has received excellent care for a considerable period but is still thin and rundown in condition, he may be either a very poor feeder and hard keeper, infested with parasites, suffering from a chronic disease, or has bad teeth. If no cause is obvious for the unthrifty appearance, it is advisable not to purchase the animal. On the other hand, many thin and poorly-cared-for individuals will respond quickly to good care and feeding and may become better animals than pampered highly-fitted horses.

TEMPERAMENT AND VICES

The disposition of a horse must always be considered in determining his value. The ideal draft horse should be well-trained, quiet and docile, yet always alert and willing to do his work. Horsemen believe a wide, full forehead, well-carried ear and large prominent eye indicate a good disposition. The buyer should always ask that the horse be tried at the different types of work which he will expect the horse to perform.

Many of the common vices and habits may be detected by a careful examination of the horse and his stall.

Cribbing and Wind Sucking: This condition is indicated by freshly chewed mangers or feed boxes. The incisor teeth of the confirmed cribber are sometimes worn fairly short.

Halter Pulling: Halter pullers usually wear a very heavy halter or are tied with a heavy rope or chain around the neck.

Kicking: A kicker may be detected by examining the stall partitions for hoof or shoe marks. Heavy chains or bags of straw are sometimes suspended from the ceiling in an attempt to discourage this habit. Capped hocks or scarred hind legs indicate that the horse may be a kicker.

LAMENESS

Lameness is any irregularity in gait which results from moving with pain or difficulty because of some defect. Severe lameness may make a horse worthless; any lameness lowers his value.



Fig. 21. "Pointing," an indication of lameness.

Severe lameness may often be detected by examining the horse in the standing position. If the lameness is severe enough, he will refuse to place any weight whatsoever on the affected limb. "Pointing," or placing the limb in an unnatural position indicates that pain exists in that limb (Fig. 21).

Most lameness may be detected at the walk, although the symptoms are usually accentuated at the trot. Since the individual is forced to carry most or all of his weight on the sound limb, there is always a sinking or "nodding" of the hip or head as the sound limb strikes the ground. When the lameness is in the left fore leg, for example, the head will "nod" as the right foot is planted on the ground but will jerk up as the left or lame leg touches the ground. Lameness in the rear limbs may be detected in the same manner by observing the motion of the hips. The hip opposite the lame leg always drops as the sound foot hits the ground. Always observe the horse carefully from in front, from behind and from the side.

Lameness in both front legs is indicated by stiff stilted action and short stride, which often gives the impression of stiffness in the shoulders. The head is carried higher than usual without "nodding". The hind feet are lifted high while the front feet scarcely leave the

ground as the horse moves. When at rest, the weight of the body is constantly shifted from one foot to the other and the hind feet may be cramped under the body in an attempt to relieve the pain in the front feet. Such symptoms are characteristic of navicular disease.

Symptoms of lameness in both hind limbs are short stride, awkward gait and lowered head. The front feet are raised higher than usual as the horse walks. It is very difficult or impossible to back a horse that is lame in both hind legs. When at rest the horse is very uneasy and constantly shifts his weight from one leg to another.

A swinging leg lameness is a symptom of pain resulting from advancing the limb. This type of lameness usually results from inflammation occurring **above** the knee or hock. A supporting leg lameness is characterized by pain when weight is put upon the limb. The source of this lameness is usually located **below** the knee or hock.

Shoulder lameness occurs occasionally but is less frequent than most horsemen believe. As the affected limb is advanced, pain is produced, resulting in a short stride and dragging of the toe of that limb.

The exact location of the lameness is usually more difficult to determine. Many common unsoundnesses of the limbs may be observed by carefully comparing the general outline of the opposite legs. Swellings or bony growths can usually be detected in this manner. Inflammatory areas can usually be detected by pressing the region firmly with the fingers. Many cases require the services of a veterinarian for a correct diagnosis.

Unscrupulous dealers often resort to many methods of relieving symptoms of lameness. If the lameness is slight, the sound foot is sometimes made equally lame by cutting the hoof to the sensitive portion in order to make the gait appear normal. Drugs are sometimes injected to deaden the nerves of the foot in order to relieve the pain which causes the animal to limp. Holding the rein close to the head when leading may prevent "nodding".

COMMON UNSOUNDNESSES

The horse buyer must be familiar with common unsoundnesses in order to evaluate a horse properly. The following discussions give a definition, description, and the usual causes of the most common unsoundnesses.

The subject of transmissible unsoundnesses is widely debated. Probably no disease is actually inherited, but the fact that individuals may inherit a predisposition to unsoundnesses through faulty conformation cannot be questioned. This predisposition to contract bone diseases is particularly marked; hence, breeding stock should be absolutely free from bone spavin, ringbone, sidebone, and similar diseases.

"The Commissioner of Agriculture of the State of Michigan may refuse to issue an enrollment certificate for any stallion in which the presence of any one of the following named diseases in a transmissible, hereditary or contagious form shall be shown so as to render such stallion unsuitable to improve the horse stock of the state: Cataract; amaurosis (glass eye); periodic ophthalmia (moon blindness); laryngeal hemiplegia (roaring or whistling); pulmonary emphysema (heaves,

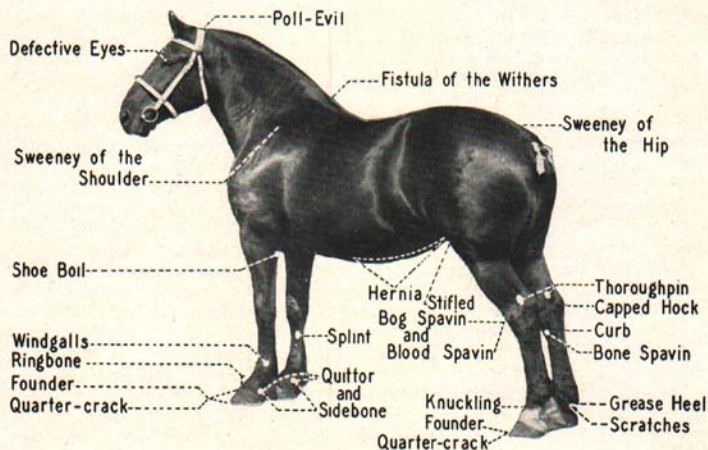


Fig. 22. Location of common unsoundnesses and blemishes.

broken wind); chorea (St. Vitus' dance, crampiness, shivering, string-halt); bone spavin; ringbone; sidebone; navicular disease; bog spavin; curb, with curby formation of hock; glanders; farcy; maladie du coit; urethral gleet; mange; melanosis; or any contagious or infectious disease."

LOCATION OF COMMON UNSOUNDNESSES AND BLEMISHES

I. Head:

1. Defective eyes
2. Poll-evil

II. Withers and shoulders:

1. Fistula of the withers
2. Sweeney

III. Front Limbs:

1. Shoe boil or capped elbow
2. Splint
3. Wind-gall, wind-puff or road-puff
4. Ringbone
5. Contracted tendons, cocked ankle or knuckling.
6. Sidebone
7. Quittor
8. Quarter-crack or sand-crack
9. Navicular disease
10. Founder or laminitis
11. Thrush
12. Scratches or grease heel

} front feet

IV. Rear Limbs:

- | | |
|--|-------------|
| 1. Stifled | |
| 2. Stringhalt | |
| 3. Wind-gall, wind-puff or road-puff | |
| 4. Ringbone | |
| 5. Contracted tendons, cocked ankle or knuckling | |
| 6. Thoroughpin | } hocks |
| 7. Blood spavin | |
| 8. Bog spavin | |
| 9. Bone spavin or jack | |
| 10. Capped hock | } hind feet |
| 11. Curb | |
| 12. Quittor | |
| 13. Quarter-crack or sand-crack | |
| 14. Founder or laminitis | |
| 15. Thrush | |
| 16. Scratches or grease heel | |

V. General:

1. White horse tumors, black pigment tumors or melanomas
2. Hernia or rupture
3. Thick wind and roaring
4. Heaves, asthma or broken wind

DEFECTIVE EYES

The eyes should always be examined very closely with a flashlight in a darkened stall, or by standing the horse in an open doorway. Cataracts and cloudiness of the cornea usually are easily detected. Other defects are not so easily observed, but the general expression of the head, with unnatural carriage of the ears, may indicate poor eyesight. The horse that is partially blind usually shies at objects, keeps his ears constantly moving, and stumbles frequently.

A pale blue or cloudy, watery eye is characteristic of periodic ophthalmia or "moon blindness". Since the eye may appear quite normal after recovery from the first few attacks, an examination of the interior of the eye by a veterinarian is necessary to determine if the horse is suffering from this disease. Repeated attacks of periodic ophthalmia usually produce permanent blindness in one or both eyes.

POLL-EVIL

Poll-evil (Fig. 23) is a fistula of the poll. It is similar to fistula of the withers except for location. Poll-evil usually follows a severe bruise of the poll or constant irritation produced by a tightly fitting halter or bridle. This condition must always be regarded as serious. Many cases of poll-evil can

**Fig. 23. Poll-evil.***(Courtesy of Pitman-Moore Company)*

be cured; the treatment, however, in most cases must be continued for many weeks under the direction of a veterinarian. Permanent scars are sometimes left as a result of the disease, and the horse may become "touchy" about the head and ears, making it difficult to halter or bridle him.

FISTULA OF THE WITHERS



Fig. 24. Fistula of the withers.

Fistula of the withers (Fig. 24) usually follows a sore on the neck caused by a collar that does not fit properly. The fistula first appears as a large, hot, painful, fluctuating swelling upon the withers, which finally ruptures, permitting pus to escape. Some fistulas heal, leaving a large, fibrous tumor but most of them continue to discharge pus indefinitely and show no tendency to heal. A large percentage of these cases may be successfully treated and cured by a veterinarian. The treatment, however, as in

poll-evil, often has to be continued for many weeks. In cases where a surgical operation is necessary, permanent scars may be left.

SWEENEY

Sweeney (Fig. 25) is an atrophy or decrease in size of a single muscle or a group of muscles. The term is commonly applied to the extreme atrophy of the shoulder muscle. It is usually caused by a blow, ill-fitting collar or severe strain. Sweeney of the hip may follow difficulty in foaling or an attack of azoturia. Some cases of sweeney recover after a few months' rest. Blisters and subcutaneous irritants applied under the direction of a veterinarian may hasten recovery.



Fig. 25. Sweeney of the shoulder.

Note the depression in the region of the heavy shoulder muscles.

(Courtesy, Pitman-Moore Company)

SHOE BOIL OR CAPPED ELBOW

Capped elbow or shoe boil is a swelling at the point of the elbow (Fig. 26). This condition is usually caused by constant irritation of the heel or shoe upon the point of the elbow when the horse lies with the front leg flexed underneath the body. Recovery usually follows proper treatment.



Fig. 26. Shoe boil.



Fig. 27. Splints.

SPLINT

A splint (Fig. 27) is a bony enlargement usually found on the inside of the upper part of the front cannon bone of young horses. It may occasionally occur on the outside of the front cannon bone but is rarely seen on the rear cannon. Splints usually follow kicks, over-exertion or concussions produced by working on hard surfaces. The bony growth may result from irritation between the large cannon bone and small splint bone. Splints are easily seen if one stands directly in front of the horse and observes the outline of the cannon. Splints are very common blemishes of draft horses. Aside from the slight lameness which rarely occurs during the first stages of formation, splints are of little importance since horse dealers and judges ignore them almost entirely.



Fig. 28. Wind-galls.

WIND-GALL, ROAD-GALL, WIND-PUFF OR ROAD-PUFF

Wind-galls (Fig. 28) are small, puffy swellings which usually occur on each side of the tendons just above the fetlock or knee. Wind-galls are much more common in the young, light-legged breeds of horses than in draft horses. They are formed by an excessive secretion of synovia which distends the sheaths surrounding the tendons. Severe strain, over-exertion or infectious disease may be predisposing factors. Wind-galls are not often considered serious since they usually disappear and cause no lameness unless pathological changes occur within them.

RINGBONE

Ringbone (Fig. 29) is a bony growth on either or both of the bones of the pastern which may involve the joints. The ringbone may appear as a hard bony swelling on any part of the pastern. It may be so small that it escapes notice or as large as a walnut or even larger. The outlines of right and left pasterns should always be compared in cases of doubt. Small ringbones may be felt by carefully passing the hand over the pastern. Lameness usually develops gradually but may appear suddenly after severe strain. The lameness produced may not be proportionate to the size of the growth, since a small ringbone may sometimes produce a more serious lameness than a larger one. The location of the swelling is of most importance. Ringbone at the front or rear of the pastern usually produces severe lameness because it interferes with the free movement of the tendons. Ringbone on either side of the pastern is usually less serious. Severe chronic lameness always results if the joints become involved. There is no treatment known which will remove the bony enlargement, but firing or blistering may cause the bones of the diseased joints to grow together, thus relieving the pain. Nerving is occasionally performed as a last resort.

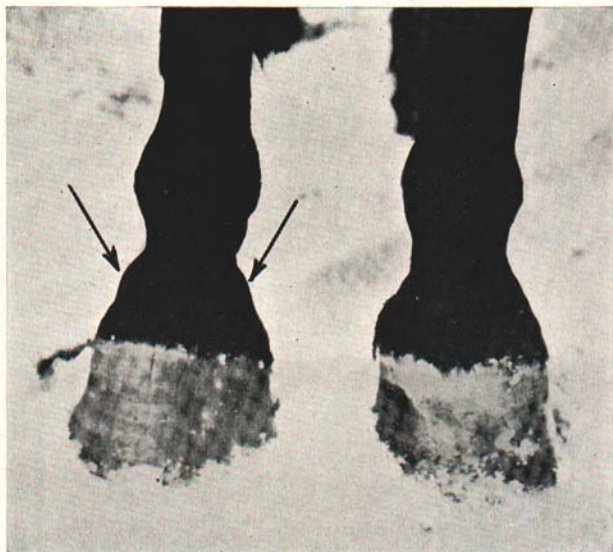


Fig. 29. Ringbone on the bones of the pastern.

(From "Veterinary Surgical Operations" by Dr. H. E. Bemis.
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CONTRACTED TENDONS, COCKED ANKLE OR KNUCKLING

Contracted tendons, cocked ankle, or knuckling (Fig. 30) is a partial dislocation of the fetlock or pastern joint produced by the shortening of the tendons at the back part of the cannon. The tendons may contract as a result of over-exertion, founder, or a local inflammation of the tendons. Knuckling must always be regarded as very serious, although some cases may be cured by expert veterinary surgery. Colts usually have a better chance for recovery than mature horses.



Fig. 30. Contracted tendons, cocked ankle or knuckling.

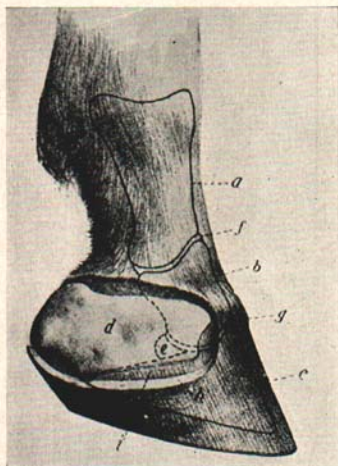


Fig. 31. A normal lateral cartilage.

- a. Long pastern bone.
- b. Short pastern bone.
- c. Coffin bone.
- d. Lateral cartilage.
- e. Navicular bone.
- f. Pastern joint.
- g. Coffin joint.
- h. Cut edge of wall of hoof.
- i. Fleshy leaves.

(From Sizoo & Grossman: "Anatomy of the Domestic Animals".)

SIDEBONE

Sidebone (Fig. 32) is an ossification of the lateral cartilage of the foot. The lateral cartilages (Fig. 31) extend upward above the margin of the hoof so that they may easily be felt under the skin. These cartilages are normally firm and elastic but yield to the pressure of the fingers. Depositions of mineral salts in these cartilages change them to bone so that they become very hard and unyielding to pressure, producing the condition known as sidebone. Sidebones usually occur on the front feet as a result of concussion or injury. They are common in draft horses more than two years old and vary greatly in size and severity. If lameness occurs, it is usually intermittent in character and rarely severe. Although sidebones are considered serious in show and breeding stock, they rarely produce lameness. Sidebones cannot be removed. "Nerving" is sometimes performed if the lameness is severe and persistent.

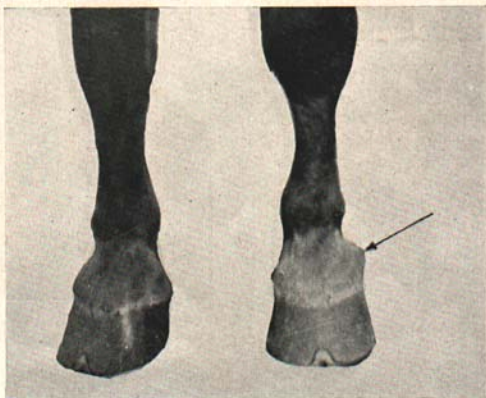


Fig. 32. A sidebone.

QUITTOR

Quittor is a decay of the lateral cartilage of the foot characterized by a discharge of pus through a fistulous tract extending from the cartilage to the coronet or hoof head. Quittor produces severe lameness and shows no tendency to heal. Quittor is more common in the front feet but may sometimes occur in the hind feet. The degree of severity of this unsoundness is dependent upon the structures of the foot which are involved, although all cases must be considered serious. Many cases may be cured by an operation, but several months of rest are required for complete healing.



Fig. 33. Quittor.



Fig. 34. Hoof showing sand-crack and the method of treatment.

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QUARTER-CRACK OR SAND-CRACK

Quarter-crack or sand-crack (Fig. 34), is a vertical split in the wall of the hoof which results from a dry or brittle hoof or improper shoeing. Proper treatment may hasten recovery, but lameness sometimes remains severe until the new hoof has formed. About 12 months are required for the growth of a new toe, while the heels grow in less than half that time.

NAVICULAR DISEASE

Navicular disease is an inflammation of the small navicular bone and bursa (Fig. 31) inside the hoof just behind the coffin bone and small pastern bone of the front foot. The symptoms of this condition are "pointing" when at rest (See Figure 21) and a short, stubby, painful stride which may give the impression that the horse is lame in the shoulders. Navicular disease is incurable. In selected cases, veterinarians sometimes perform a nerving operation that will relieve the lameness and increase the usefulness of the horse for a time.

FOUNDER OR LAMINITIS

Founder or laminitis (Fig. 35) is an inflammation of the sensitive leaves which attach the hoof to the fleshy portion of the foot. It is usually the result of over-feeding, infectious disease, long shipment or standing in a stall for long periods because of some other lameness. Founder may also follow foaling, as a result of infection and inflammation of the uterus. All the feet may be affected, but the front feet are more susceptible. If laminitis is properly treated as soon as it occurs, most cases will completely recover in a few days. If the disease is neglected, however, it will often become chronic, resulting in a dropping of the hoof soles and a turning-up of the toe walls (chronic deformities of the hoof that are incurable). A veterinarian should always be called immediately when founder or laminitis occurs.



Fig. 35. Founder hoof.

THRUSH

Thrush is a disease caused by decomposition of stable manure and other filth that is allowed to collect in the cleft of the horn frog, between the frog and the bars. Old, severe cases of thrush occasionally

produce lameness, but most cases respond to cleanliness and proper treatment.

SCRATCHES OR GREASE HEEL

Scratches or grease heel is an inflammation of the posterior surfaces of the fetlocks characterized by extensive scab formations. Heavy, highly-fitted show horses seem most susceptible to this condition. Most cases respond to treatment.



Fig. 36. Stified.

STIFLED

A horse is said to be stified when the patella of the stifle joint is displaced (Fig. 36). If the patella is displaced toward the outside of the leg the condition is serious and usually incurable. If the displacement is in an upward direction, the reaction to a sudden fright that causes the horse to jump may throw the patella back to its normal position. However, this condition is likely to recur quite frequently.

STRINGHALT

Stringhalt is a nervous disorder characterized by a sudden, involuntary flexion of one or both hocks in which the foot is jerked up much higher than normal. The symptoms are usually noticed as the horse is backing from his stall, turning on the affected leg, or when suddenly frightened. The exact cause is unknown, although many horsemen consider the disease hereditary. Stringhalt may be so mild that, the jerking is noticed only occasionally or so severe that the leg is jerked upward at each step. Some cases may be cured by surgery.



Fig. 37. Thoroughpin.

THOROUGHPIN

Thoroughpin (Fig. 37) is a soft puffy swelling which occurs on each side of the gaskin (Fig. 11) just above the hock in the region known as the "hollow". Pressure exerted on one side decreases the swelling on that side but increases the swelling on the opposite side. Lameness does not usually occur, but the condition greatly decreases the sale value of a horse and renders him worthless as a show animal. Most thoroughpins are incurable.

BOG SPAVIN

Bog spavin (Fig. 38) is a large, soft, fluctuating swelling which usually occurs on the front and inside of the hock. This condition is fairly common in heavy highly-fitted horses with soft, meaty hocks. It results from an excess secretion of joint fluids which produces a distention of the joint capsule. A bog spavin is very easily seen and is much larger than a blood spavin. Although a bog spavin does not usually cause lameness, its presence indicates a lack of wearing qualities and is the object of very unfavorable comment among judges and horsemen. Treatment is usually unsuccessful.



Fig. 38. Bog Spavin.

BLOOD SPAVIN

Blood spavin is a swelling over the front and inside of the hock caused by the dilatation of the large vein which crosses that region. Since lameness never occurs, this condition may be regarded as a blemish of very little significance.



Fig. 39. Bone spavin.

(From "Veterinary Surgical Operations" by Dr. H. E. Bemis.
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BONE SPAVIN OR JACK

Bone spavin (Fig. 39) is a bony growth which may occur on any of the bones which form the hock, although it is usually found on the inside and lower* portions. It is caused by an inflammation of the periosteum such as may be produced by strain or over-exertion. Since a predisposition to the disease may be hereditary, affected animals should not be used for breeding purposes. The spavin usually may be seen by one's standing directly behind or in front and a little to one side of the horse. In cases of doubt, lift the foot upward and forward in order to bend the hock as much as possible. After holding for two or three minutes, release the leg and start the horse at a brisk trot. A characteristic lameness will sometimes be noticed if the individual is

affected. Bone spavin is one of the most serious unsoundnesses of the draft horse. The lameness persists until the diseased bones of the hock grow together, preventing movement. Firing tends to make the bones unite and will often relieve lameness if only the flat bones of the hock are affected. If the spavin is extensive, the entire hock may become stiff, rendering the horse worthless.

CAPPED HOCK



Fig. 40. Capped hock.

Capped hock (Fig. 40) is a firm swelling which occurs on the point of the hock. This blemish may be as large as an apple or so small that it escapes notice. Capped hock usually results from constant irritation, such as might be produced by rubbing or kicking the walls of the stable; hence it may be indicative of the horse's disposition. Since lameness rarely occurs, the condition is not considered serious.

CURB

Curb (Fig. 41) is a hard, firm swelling on the back surface of the rear cannon, about a hand's breadth below the point of the hock. A large curb is easily seen by observing the hock and cannon directly from the side. A smaller one may be felt by passing the fingers over the region. Crooked or sickle hocks are most subject to this unsoundness since this faulty conformation throws a greater strain on the hock. A curb usually follows strain or over-exertion but may result from a kick or blow. The initial lameness disappears after the formation of the curb, but the condition must still be considered an unsoundness because an affected hock is thought to be less likely to endure severe strain. Horsemen and judges look upon a curb with a great deal of



Fig. 41. Curb.

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criticism, although some horses are useful for light farm work for many years after they develop this unsoundness for which there is no cure.

WHITE HORSE TUMORS, BLACK PIGMENT TUMORS OR MELANOMAS

White horse tumors, black pigment tumors or melanomas are common in old white horses but may occur in a horse of any color. They are usually found in the naturally black areas of the skin, especially around the anus. The tumor may remain small and harmless or become malignant and spread throughout the internal organs producing death. There is no effective treatment.

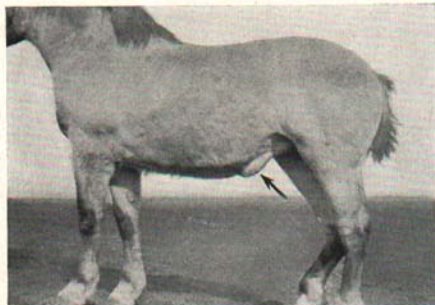


Fig. 42. Umbilical hernia.

HERNIA OR RUPTURE

A hernia (Fig. 42) is the protrusion of any internal organ through the wall of the containing cavity. The term commonly means the passage of intestine or omentum through an opening in the abdominal muscles. This type of hernia is usually caused by severe blows, kicks, or over-exertion. Death will occur if the hernial opening swells around the loop of intestine so that the circulation and passage of the intestinal contents is stopped. Umbilical, scrotal, and inguinal hernias are fairly common in young foals but sometimes disappear with age. Scrotal and inguinal hernias are often fatal in stallions if they become strangulated. **Mares suffering from any type of hernia should never be used for breeding purposes.** Many hernias may be cured by surgery. The operation, however, is usually a major one in which there is always an element of danger.

THICK WIND AND ROARING

All horses should be given fast exercise immediately before examining their wind.

"Thick wind" is difficult respiration due to any obstruction of the respiratory tract. The respiratory sound is usually made both on inspiration and expiration. "Thick wind" may be cured if it is possible to remove the obstruction in the respiratory tract.

"Roaring" is a whistling sound **made only on inspiration** of air. It is caused by a paralysis of the nerve which passes to the muscles of the larynx. As a result, the laryngeal muscles atrophy and allow the vocal cords to relax and vibrate as air is inhaled. A large percentage of "roarers" are cured or improved by the roaring operation.

HEAVES, ASTHMA OR BROKEN WIND

Heaves, asthma, or broken wind is an incurable disease of the lungs characterized by difficult expiration, characteristic movement of the abdomen and flanks, and a peculiar cough which is often accompanied by the expulsion of gas from the bowels. The disease is common in horses more than seven years of age. Improperly cured hay and strenuous work are believed to be predisposing factors. Contrary to popular opinion, the onset of the disease is usually gradual although the symptoms may appear suddenly after very strenuous work or over-heating, hence the term "broken wind" is often used. It is possible for unscrupulous dealers to "fix" heavy horses temporarily so that the symptoms are not apparent. However, the symptoms will usually reappear if the horse is given all the water he will drink and trotted briskly. Heaves is incurable although a veterinarian may prescribe drugs which will restore the usefulness of the horse for a time.

AGE OF THE HORSE

The age of a horse is one of the most important factors in determining his value. Age may be determined accurately up to five years by noting the number of permanent and milk teeth present (Figs. 43 to 47). The number of cups or indentations in the incisor teeth are used to determine the age of horses from six to twelve years (Figs. 48 to 52). The age of older horses may be estimated by studying the cross-section and slant of the incisor teeth (Figs. 53 and 54).

The well-developed three-year-old will do light work if he is broken and handled properly. No horse should be expected to do heavy draft work until four or five years of age. The average length of life of horses that pass three years of age is about 15 years.

The two-year-old stallion may breed 10 to 15 mares during the season if handled properly, although he should never make more than two services per week. The well-developed three-year-old may make one service per day regularly. The four-year-old may occasionally make two services daily. It is best to limit a mature horse to two

services a day, although it may sometimes be necessary to exceed this limit.

Well-developed fillies may be bred at three years of age. As a rule, mares more than 10 years of age which have not been breeding regularly do not make dependable brood mares.

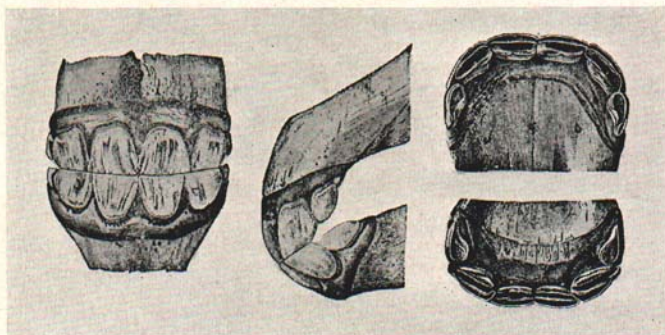


Fig. 43. Teeth of the yearling colt.*
The milk teeth are all present, although the corner teeth are not yet in full wear.

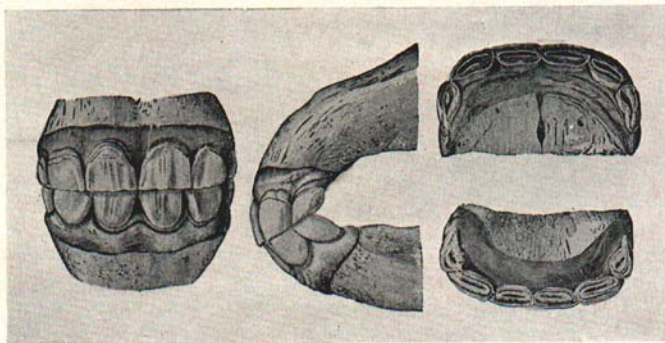


Fig. 44. Teeth of the two-year-old colt.
The corner teeth are in full wear.

*Figures 43 to 54, inclusive, are reproduced from "Productive Horse Husbandry" by special permission of the author, Dr. Carl W. Gay, and the publishers, J. B. Lippincott company, through the courtesy of Miss Mary Hinman.

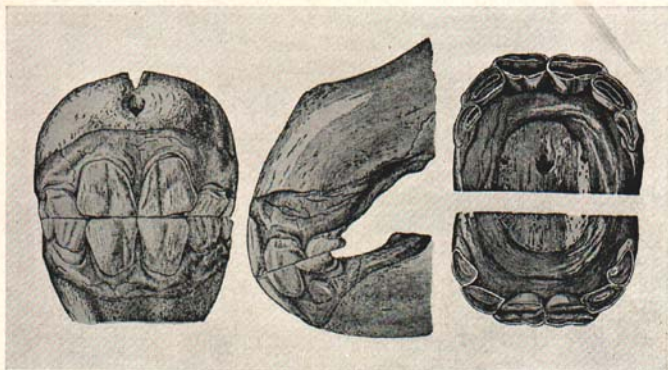


Fig. 45. Teeth of the three-year-old colt.
The permanent central incisors have emerged and are
just coming into full wear.

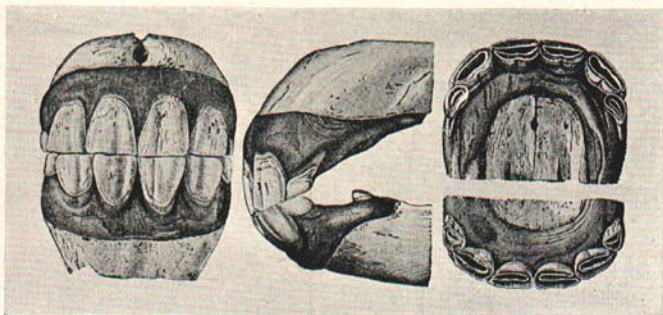


Fig. 46. Teeth of the four-year-old horse.
Both the permanent central and intermediate incisors
are in full wear.

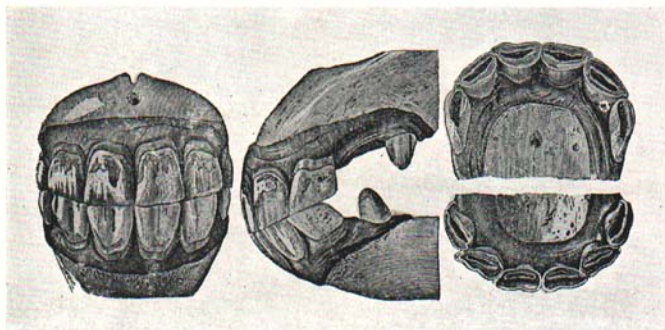


Fig. 47. Teeth of the five-year-old horse.

Since all of the permanent incisors are in wear, the horse is said to have a "full mouth." The canine teeth are usually present in the stallion and gelding but are rarely seen in the mare.

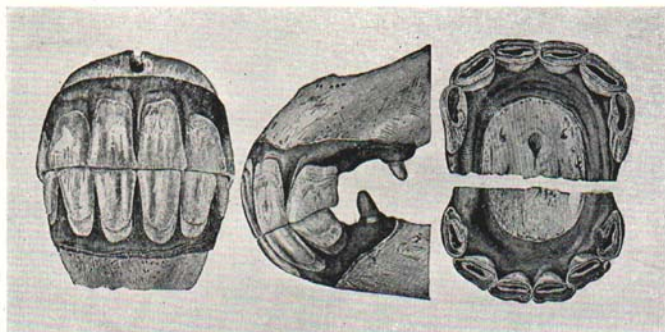


Fig. 48. Teeth of the six-year-old horse.

The cups or indentations of the lower central incisors are almost completely obliterated.

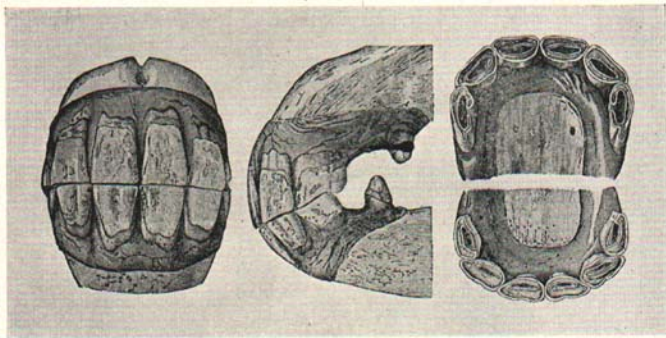


Fig. 49. Teeth of the seven-year-old horse.
The cups of the lower centrals are usually completely obliterated, and are very shallow in the laterals.

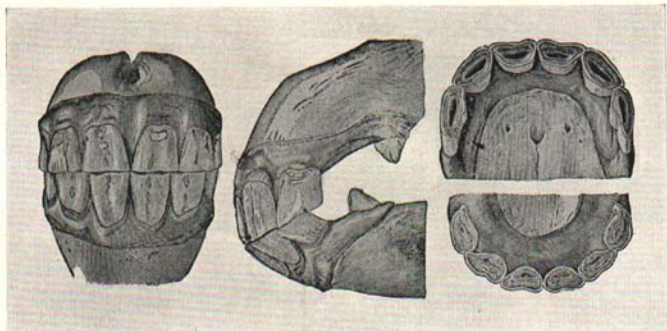


Fig. 50. Teeth of the eight-year-old horse.
The cups have completely disappeared from centrals, and laterals, and are partly gone from the corners. A small swallowtail, or hook is often apparent on the upper corner at seven and eight years.

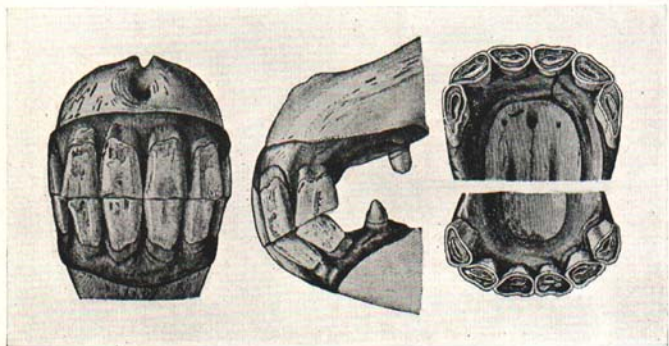


Fig. 51. Teeth of the nine-year-old horse.

The lower incisors are "smooth". The cups are beginning to disappear from the upper incisors, particularly from the upper central incisors.

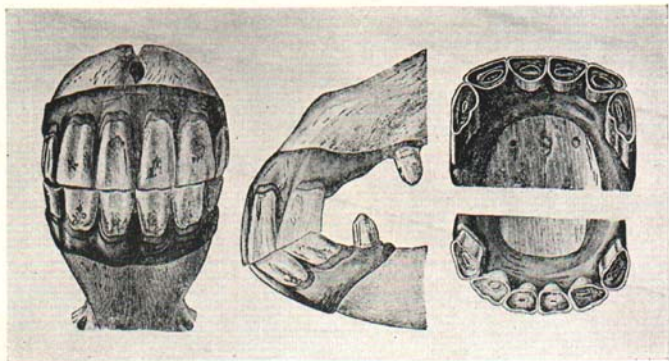


Fig. 52. Teeth of the twelve-year-old horse.

The twelve-year-old has a "smooth mouth" because the cups are entirely obliterated from both the upper and lower incisors.

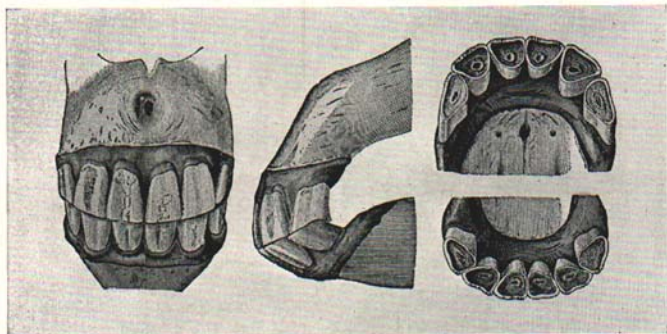


Fig. 53. Teeth of the fifteen-year-old horse.

The teeth appear slanting when viewed from the side. When the mouth is opened, the wearing surfaces of the incisors appear more triangular than the teeth of the younger horse.

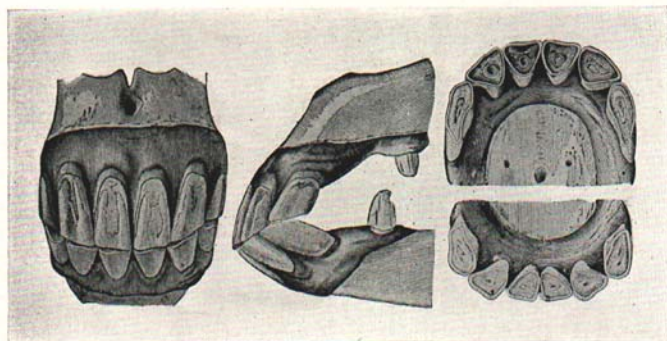


Fig. 54. Teeth of the twenty-one-year-old horse.

When viewed from the side, the teeth appear very slanting and oblique.

ERUPTION OF THE TEETH

Teeth	Time of Eruption
A. Milk Teeth:	
First or central incisors	At birth or one week
Second or intermediate incisors	Four to six weeks
Third or corner incisors	Six to nine months
B. Permanent Teeth:	
First or central incisors	Two and one-half years (Fig. 45)
Second or intermediate incisors	Three and one-half years (Fig. 46)
Third or corner incisors	Four and one-half years (Fig. 47)
Canines (usually absent in the mare)	Four to five years (Fig. 47)

DISAPPEARANCE OF THE CUPS OR INDENTATIONS

Age	Condition of Teeth
5 years	Cups in all incisors (Fig. 47)
6 years	Cups worn out of lower central incisors (Fig. 48)
7 years	Cups worn out of lower central incisors and lower intermediate incisors (Fig. 49)
8 years	Cups worn out of all lower incisors (Fig. 50)
9 years	Cups worn out of all lower incisors and up- per central incisors (Fig. 51)
10 years	Cups present in upper corner incisors only
11 years	Cups worn out of all incisors
12 years	No cups. "Smooth mouthed." (Fig. 52)

TAMPERED OR "BISHOPED" TEETH

Occasionally unscrupulous dealers drill or burn cups in the teeth of old horses in an attempt to make them sell as young horses. This condition may sometimes be recognized by noting the slanting position and triangular cross-section of the teeth as well as by the absence of the enamel ring around the cup. A veterinarian should be asked to examine the teeth if the buyer has any reason to suspect they have been tampered.

BUYING THE STALLION

In choosing a stallion for service, the following points should be remembered:

1. The value of a stallion depends largely upon the number and type of colts he will sire.

2. A stallion must be free from hereditary unsoundnesses in order to comply with stallion enrollment laws and produce colts with good wearing qualities. Quality and soundness of feet and legs are especially important.

3. He must be purebred, licensed for public service, registered in a recognized breed association, and transferred to the name of the owner in order that purebred offspring may be registered. Michigan and most other states not only refuse to license grade stallions for public service but provide penalties for their use.

4. A draft stallion should be very muscular, powerful, low-set, blocky and compact in appearance.

5. Good action and stylish appearance increase the value of a stallion.

6. Breed character and masculinity should be evident in the head and neck (Fig. 13). The good sire always looks and acts like a stallion. One that resembles a mare or gelding in appearance is likely to prove a failure.

7. Uniformity in size, color and conformation of the offspring of a stallion is desirable in order that well-matched teams will be produced.

8. Size and substance are desirable in a draft stallion, but quality and soundness must never be sacrificed in order to obtain weight.

9. Both testicles should be descended and well-developed.

10. In purchasing a stallion of breeding age, it is best to look for live, motile spermatazoa by making a microscopic examination of the semen. (See Extension Bulletin 167 "Stallion Management".)

Breeding guarantees are usually furnished with a stallion when he is purchased, but some of them omit desirable features, which may result in much ill-feeling and misunderstanding. Any contract or guarantee must be written in detail and every expression carefully defined and understood by each party. Most guarantees insure the stallion to settle at least 50 per cent of breeding mares provided certain conditions are fulfilled. The term "breeding mare" usually means those mares that are nursing foals. The mare must be returned at least three or four times for retrieval at 18 to 21 day-intervals following the first service. Care, management, feeding, exercise and number of services per day are specified for the stallion. If the stallion is to be replaced by a horse of equal value in case he does not prove to be a foal getter, the buyer should make certain that the term "of equal value" does not mean another sterile horse. Some stallion dealers carry insurance on the stallions which they sell and guarantee to replace the stallion if he should die within a year after the date of sale.

BUYING THE BROOD MARE

The profitable brood mare must be a regular producer of high quality draft horses (Fig. 55). In addition to good conformation, size, weight, style, action, popular color and freedom from transmissible unsoundnesses, she must possess distinct femininity and breediness. The good brood mare is usually a little smaller and more refined throughout than the stallion. Her disposition should be one of quietness and gentleness. Very small teats and udder usually indicate that the mare has never nursed a foal.



Fig. 55. Coreen 117580 at 21 years of age.
An excellent brood mare. The foal is her seventeenth which she has raised successfully.

If the brood mare is more than four years of age, she should have a foal by her side or be pregnant. This increases her value by proving definitely that she is a producer. There are several methods of determining definitely whether a mare is in foal. A mare usually shows no further sign of heat after becoming pregnant, becomes quieter, shows tendency to improve in condition, and has a pronounced enlargement of the abdomen during the latter part of the gestation period, but these signs are not always infallible. One positive way to determine pregnancy in the mare is to have her examined by a veterinarian who is familiar with this subject. Experts may diagnose pregnancy in the mare as early as 60 to 90 days after breeding, by making a rectal and vaginal examination.

Recent discoveries in chemical research have caused the perfection of a method whereby the urine of a mare may be tested, anytime after

90 to 100 days following breeding, and a positive or negative reading obtained. The test determines the presence or absence of the hormone *estrin* in the urine, and can be run by any chemist. A half-pint sample is an amount easily obtained, and enough that the chemist may make more than one test. Since both heat and pregnancy produce *estrin* in the urine, care should be used that the samples are not obtained at a time when the mare may be in season. In doubtful cases, it is well to test a second sample ten days to two weeks later.

PEDIGREES

Intensive study of breed history is necessary for one to gain a true appreciation of purebred draft horse pedigrees. The pedigree should always be carefully examined. If the description of the horse is not exact, the pedigree is of no value and the horse worth no more than a grade price. One should always make certain that it will be possible to obtain a transfer of ownership from the breed association before purchasing a purebred animal. An inexperienced buyer should consult his county agricultural agent, breed association, or a reliable breeder when he wishes information about a pedigree.



Fig. 56. A trailer for two horses.

SHIPPING THE HORSE

The truck offers the most convenient method of shipping a few horses a short distance. Automobile trailers (Figs. 56, 57 and 58) are becoming popular for hauling one or two horses. Railroad cars are suitable for shipping several horses for long distances.

Horses should not be fed within four hours before loading, since the excitement of shipping has a tendency to produce indigestion. Hay and water may be given enroute on long trips. The horse should be



Fig. 57. A single-horse trailer.

This trailer is 7 feet 6 inches long, 40 inches wide, and measures 85 inches from the floor to the top of the bows. The side walls are 58 inches high and the box in front projects forward 24 inches. The entire top is covered with canvas, which may be removed at will.

provided with a heavy leather halter, and two heavy rope reins for cross ties. A good heavy rope may be tied around the neck with a bowline knot as additional security. The tail should be braided tightly for a distance of six or eight inches from the base, and a piece of burlap wrapped around the tail and firmly sewed to the line of braiding. This prevents rubbing out the tail hair. If the weather is adverse, the horse should always be blanketed. Always examine a horse carefully for cuts or bruises before loading, and after unloading.

Horses may be loaded into a truck after backing the vehicle against a bank or regular horse loading chute. If several horses are to be shipped, they should be loaded crossways, alternating head to tail, and separated by three or four horizontal poles wired securely to the up-rights of the truck rack. A little gravel sprinkled on the floor makes better footing than straw or other bedding.



Fig. 58. Rear view of the single-horse trailer.

The same trailer with the canvas cover removed to show details of inside construction. Note that the trailer is built close to the ground to increase stability and to make loading easier.

AVAILABLE PUBLICATIONS

The following publications may be purchased by sending the proper remittance to the Superintendent of Documents, Washington, D. C. In ordering publications, quote the title, together with the classification number following the price at the end of the paragraph.

1. "Breeds and Breeding." Essentials of animal breeding. (Farmers' Bulletin 1167) 5 cents (A 1.9:1167)
2. "Breeds of Draft Horses." (Farmers' Bulletin 619) 5 cents (A 1.9:619)
3. "Dourine of Horses." (Farmers' Bulletin 1146) 5 cents (A 1.9:1146)
4. "Feeding Horses." (Farmers' Bulletin 1030) 5 cents (A 1.9:1030)
5. "Horse Bots and Their Control." (Farmers' Bulletin 1503) 5 cents (A 1.9:1503)
6. "Horse Breeding Suggestions for Farmers." (Revised October 1934. 20 pages, illustrated. (Farmers' Bulletin 803) 5 cents (A 1.9:803)
7. "How to Select a Sound Horse." (Farmers' Bulletin 779) 5 cents (A 1.9:779)
8. "Parasites and Parasitic Diseases of Horses." Revised 1934. 55 pages illustrated. (Agricultural Circular 148) 10 cents (A 1.4/2:148)
9. "Stables." Disinfection of stables. (Farmers' Bulletin 954) 5 cents (A 1.9:954)

The following publications may be obtained free by addressing: Department of Animal Husbandry, Michigan State College, East Lansing:

1. "The Mare and Foal," R. S. Hudson, Extension Bulletin 128
2. "Controlling Horse Parasites," B. J. Killham, Extension Bulletin 174
3. "Iodine for Pregnant Mares," R. S. Hudson
4. "Liberal vs. Limited Rations for Draft Colts in Michigan," R. S. Hudson, Special Bulletin 253
5. "Equipment for Feeding Draft Colts," R. S. Hudson
6. "Rations for Colts," Animal Husbandry Extension
7. "Alfalfa for Horses," R. S. Hudson, Circular Bulletin 65
8. "Stallion Management," R. S. Hudson

Other valuable publications are:

1. "Horse and Mule Power in American Agriculture," Book 228, 10 cents, Horse and Mule Association of America, Chicago, Ill.
2. "Using Horses on the Farm," Special Bulletin 145, by A. L. Harvey, Division of Animal Husbandry, University of Minnesota, St. Paul, Minn.
3. "Horses for the Farm," Circular 244, by James G. Fuller, Division of Animal Husbandry, College of Agriculture, University of Wisconsin, Madison, Wis.
4. "Feeding and Management of Horses," Circular 130, by A. B. Caine, Iowa State College, Ames, Iowa
5. "The Farm Horse," Circular 424, by J. L. Edmonds and C. W. Crawford, College of Agriculture, University of Illinois, Urbana, Ill.
6. "Horse Production," Leaflet 180, by M. E. Ensminger, Massachusetts State College, Amherst, Mass.
7. "Work Stock Feeding, Management and Production," Extension 95, by Newell and Goodell, Mississippi State College, Starkville, Miss.



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