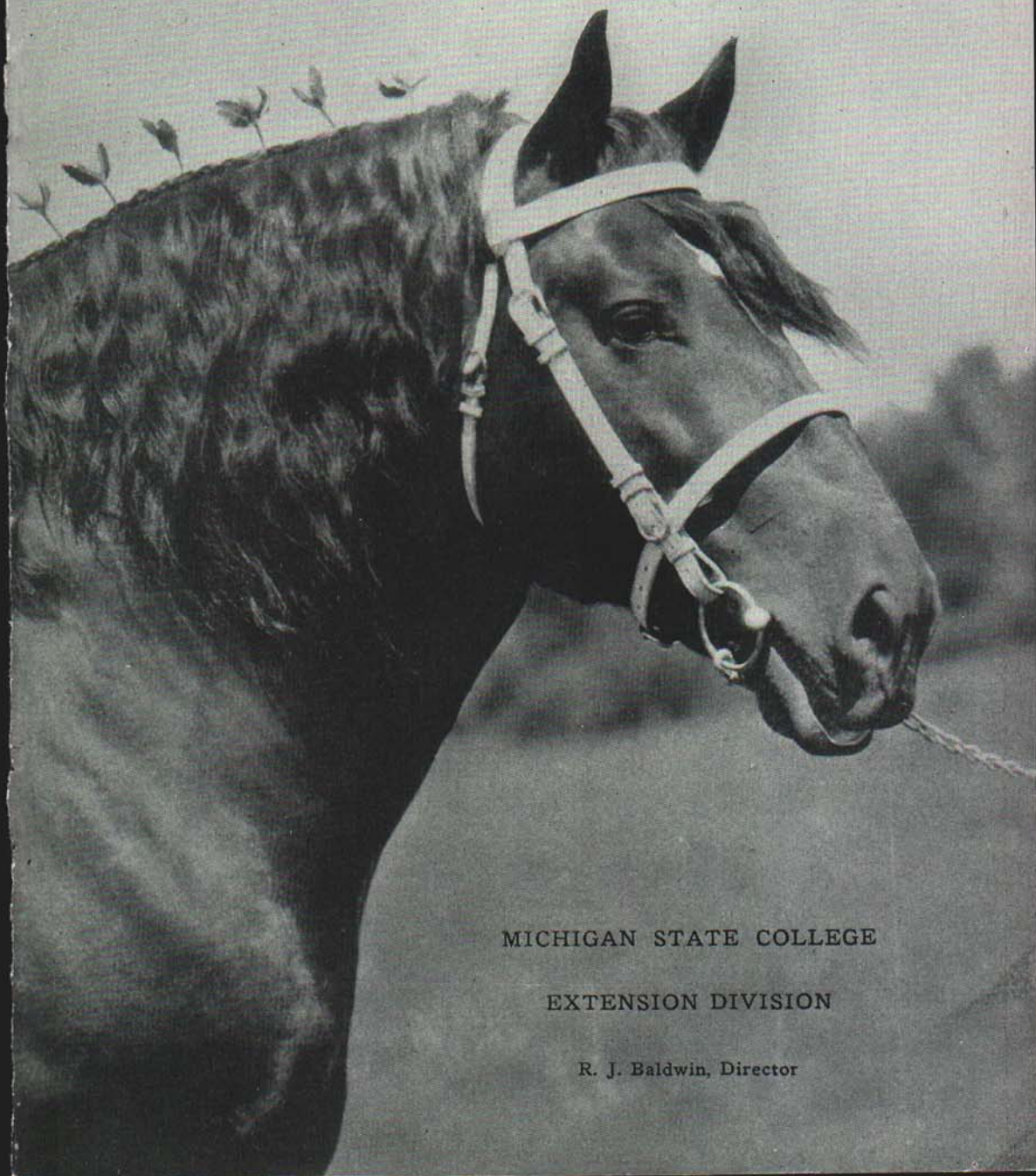


EXTENSION BULLETIN 167

AUGUST, 1936

STALLION MANAGEMENT

R. S. HUDSON



MICHIGAN STATE COLLEGE

EXTENSION DIVISION

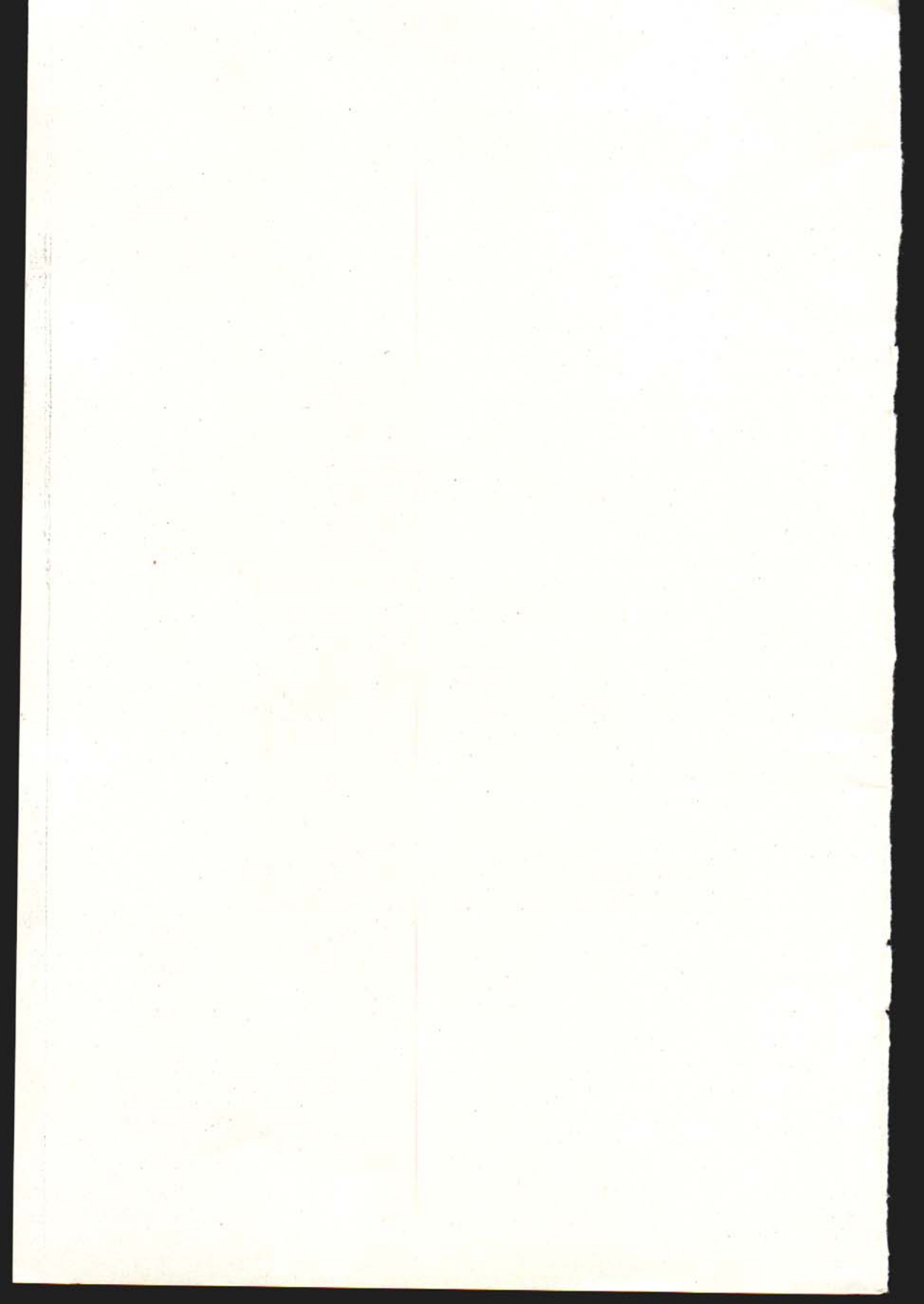
R. J. Baldwin, Director

“A good stallion is half of the Herd”

“A poor stallion is all of the Herd”

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STALLION MANAGEMENT

R. S. HUDSON¹

This bulletin is published in response to an increasing number of requests from new breeders and farmers for information concerning stallion care and management. Although the primary purpose is the instruction of those men who have never owned stallions before, the more experienced may find valuable suggestions in the material presented.

Strict hygiene and sanitation at the time of service is emphasized as a means of increasing the percentage of conceptions and decreasing the possibility of genital infection of the mare and of prenatal infection of the foal. Artificial insemination and dilation of the cervix ("opening" the mare) by the layman are discouraged because of the danger of producing these infections.

Only the phases of the care and management of the mare that directly concern the stallion owner are discussed.

Since it is impossible to discuss adequately each phase of the problem of stallion management, several additional publications are listed which pertain to particular subjects.

SELECTION OF A 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 pure bred, licensed for public service, **registered in a breed association, and transferred to the name of the owner in order that pure bred offspring may be registered** (figures 18, 19, and 20). 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. (Fig. 1.) (See score card.)
5. Good action and stylish appearance increase the value of a stallion.

¹The author is indebted to John J. Arnold, Junior student in the Veterinary Division, who is specializing in research connected with breeding problems of animals, for his assistance in preparing the manuscript and assembling the illustrated material.

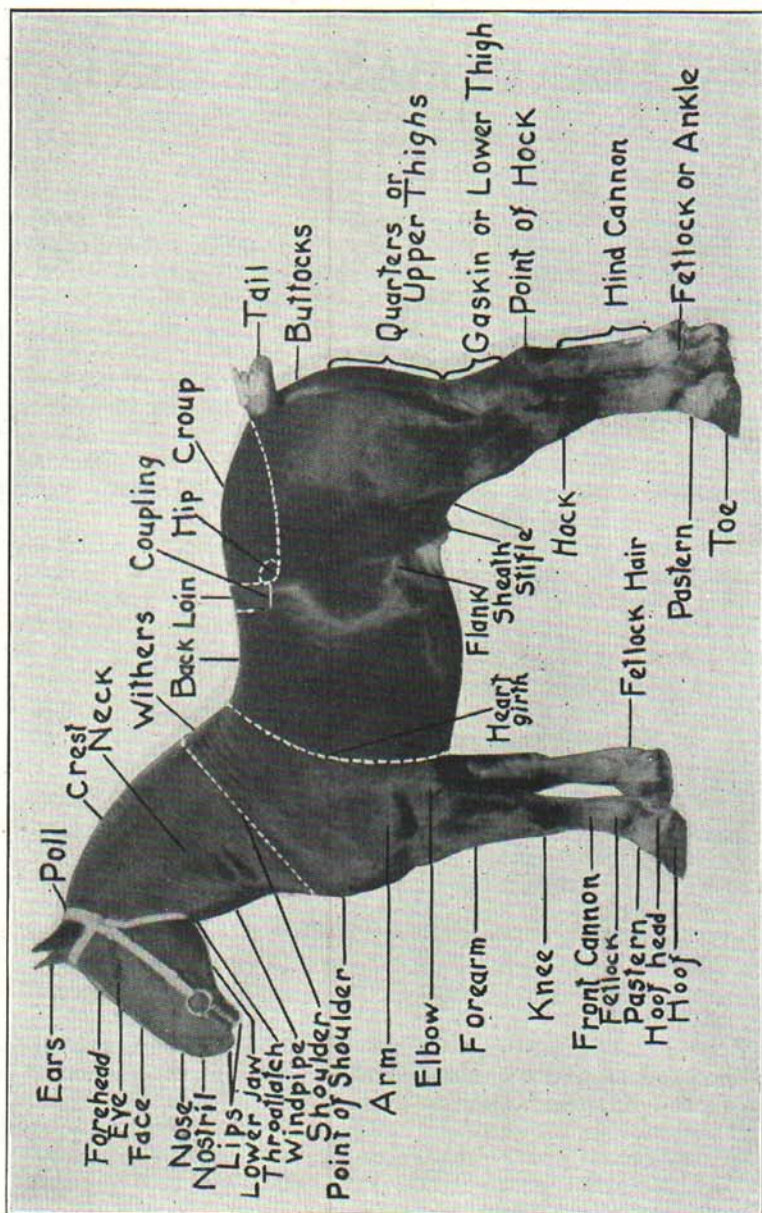


Fig. 1. Regions of the horse.

Michigan State College—Department of Animal Husbandry

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.....	2				
Fetlocks, wide, straight, strong, clean.....	1				
Pasterns, medium length, clean, not quite so sloping as in front.....	2				

Draft Horses—Continued

SCALE OF POINTS	Perfect Score	Student's Score		Corrected Score	
		No. 1	No. 2	No. 1	No. 2
<i>Feet</i> , 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				
<i>Hind legs</i> , 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: <i>Energetic</i> , straight, true, elastic; walk, stride long, quick, regular, trot, strong, free, springy, balanced, straight..	10				
Total.....	100				

6. Breed character and masculinity should be evident in the head and neck. 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 (Fig. 2) in order that well-mated 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.

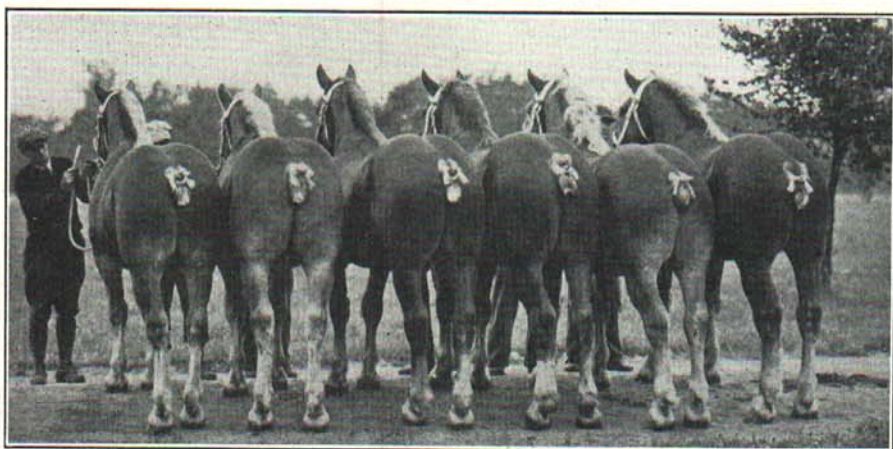


Fig. 2. Yearling stallions sired by Rubis 8004 when 22 years of age. An accurate estimate of a stallion's value as a sire may be formed after seeing a number of his offspring (See Fig. 5).

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

10. Never purchase a stallion of breeding age until live, motile spermatazoa have been found in his semen by microscopic examination, unless he is obtained from a reliable breeder whose guarantee is good.

To test a stallion for fertility, a small sample of semen may be obtained as the horse completes a service. A clean funnel closed with a clean stopper makes the best receptacle for catching the fluid from the penis as the horse dismounts. With a small, clean eye medicine dropper, which may be procured from any drug store, take a very small drop of the semen from the



Fig. 3. Spermatazoa in the semen of the stallion

funnel and place it on a glass slide, apply a cover glass, and examine the fluid under the microscope. The field (Fig. 3) should show innumerable active "polliwog-like" spermatazoa if the stallion is fertile.

ADVERTISING THE STALLION

It is obvious that the new stallion will not be well-patronized unless he is advertised in some manner. Advertisements should announce that the stallion is standing at public service and state a few facts that prospective patrons should know. Exorbitant claims and exaggerations must always be avoided.

The best advertisement is the stallion himself. He should be fitted and shown at local, county, and state fairs whenever possible. Take a good photograph of him when he is looking his best. The well-broke stallion hitched with a good mare always appeals to farmers who have mares to breed (Fig. 4). Keep the horse well-groomed so that he will always look his best when horsemen come to see him or when he is taken out to "try" a mare. Many stallion owners offer premiums at local shows for get-of-sire classes and encourage the owners of colts sired by their own stallions to compete. These premiums are sometimes offered in the form of credit on service fees.

Local newspaper space, post cards, bills, folders, and posters are all useful methods of advertising the stallion. Calendars bearing a good photograph of the horse have considerable appeal. A neat roadside sign is a good advertisement if the barn is near an important highway.

Printed advertisements should give name, registration number, license number, age, color, breed, height, and weight of the horse. The pedigree and show record may also be included. It is often advisable to assure patrons that every possible precaution will be taken in handling mares, but no liability will be assumed in case of accident. The distance and direction from two or three nearby towns will establish the exact location of the stand. If the stallion is to be traveled from place to place, the route he will follow during the season should be given. Patrons should be urged to make appointments in advance. The amount of the service fee and terms should always be included in the advertisement.



Fig. 4. Treviso 144394 working with mares. Working the stallion is not only a good method of advertising but makes him easier to handle, increases his virility, and helps pay for his keep.

AGE AND SERVICE

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 (Fig. 13). The well-developed three-year-old may make one service per day regularly (Fig. 11). The four-year-old may occasionally make two services per day. It is best to limit a mature horse to two services a day (Fig. 16), although it may sometimes be necessary to exceed this limit.

It is very difficult to make a hard-and-fast rule concerning the maximum number of services for a horse because individual stallions vary considerably in development and temperament. The nervous, easily excited stallion may be more exhausted after teasing a mare than a quieter horse will be after teasing and serving.

The famous Clydesdale stallion, Dunure Footprint, sired more than 200 living foals in one season and remained virile until his death at 19 years of age. Yet, the potency of other mature stallions may be injured by only two or three services per day. Stallions often remain virile until past 20 years of age if handled properly (Figures 2 and 5).

It is always well to remember that the true value of a sire is measured by the number of meritorious individuals he sires; not by the number of mares he breeds during a season.

EXAMINATION OF THE MARE

The stallioner should examine the mare closely and question the owner concerning her health, last foaling date, breeding record, and similar matters before accepting her for service. He should be well-acquainted with the symptoms of dourine and other venereal diseases.

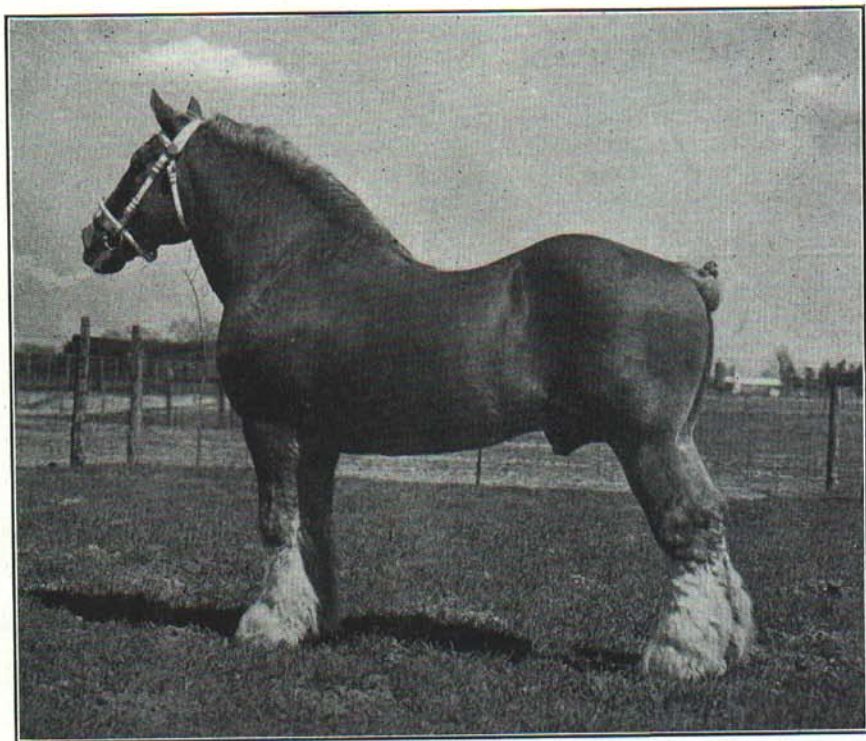


Fig. 5. Rubis 8004 at 24 years. Stallions often remain virile until quite old (See Fig. 2).

Even though these diseases are not common in this country, there is always danger of finding them in imported stallions and mares and western horses. The following types of mares should be rejected:

1. Mares showing the slightest symptoms of venereal disease.²
2. Mares that have an abnormal discharge (such as blood or pus) from the vagina, commonly known as the "whites."

²"Dourine of Horses," United States Department of Agriculture, Farmers' Bulletin No. 1146.

3. Mares affected with skin diseases and parasites.
4. Mares suffering from high fevers, which accompany colds, strangles, influenza, shipping fever and pneumonia.
5. Mares that have recently foaled colts affected with navel ill.
6. Mares that have recently suffered from retained afterbirth.
7. Mares that have suffered lacerations in foaling.
8. Mares that do not show definite signs of heat.
9. Mares under three years of age unless mature and well-developed.
10. Mares that have a very narrow or deformed pelvis.
11. Mares that stay in heat incessantly (nymphomaniacs).
12. Mares that are extremely thin or emaciated.
13. Mares that have severe unsoundnesses which may be hereditary.

PHYSIOLOGY OF REPRODUCTION

The genital organs of the mare (Fig. 6) consist of the vulva, vagina, cervix, uterus, Fallopian tubes, and ovaries. The vulva is the external portion. The vagina is a large canal from the vulva to the cervix. The uterus and vagina communicate through the cervix. The Fallopian

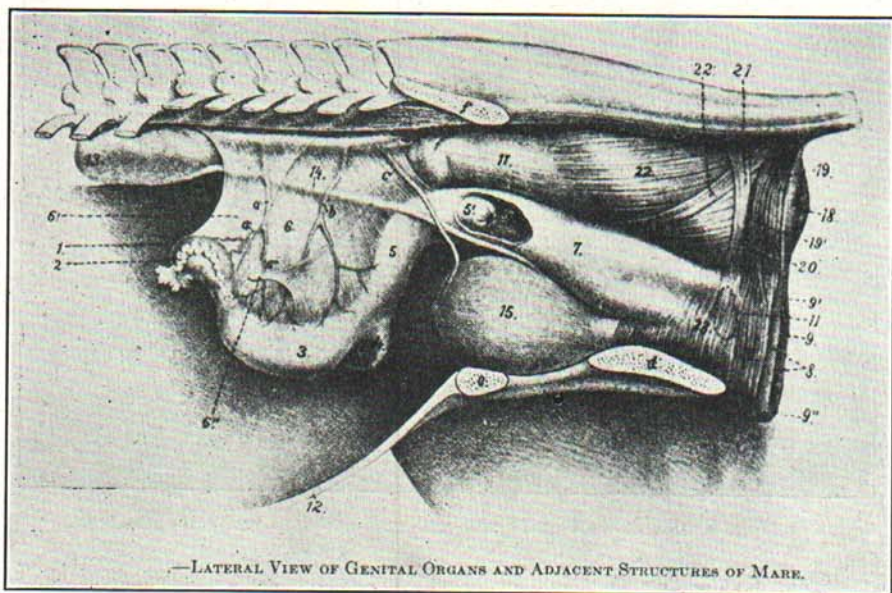


Fig. 6. Genital organs of the mare.

- | | |
|-----------------------------|-------------|
| 1. Ovary | 7. Vagina |
| 2. Fallopian tube | 8. Vulva |
| 3. Left horn of uterus | 13. Kidney |
| 4. Right horn of uterus | 14. Ureter |
| 5. Body of uterus | 15. Bladder |
| 5'. Cervix | 18. Anus |
| 6. Broad ligament of uterus | 22. Rectum |

(From Sisson's Anatomy of the Domesticated Animals)

tubes lead from the ovary to the uterus. Normally, the foal always develops within the uterus.

In normal mares during the breeding season, a minute single-celled egg is ejected from one of the ovaries every 18 to 21 days. This ejection is called ovulation. Ovulation usually occurs during the latter part of the heat period or shortly after the mare goes out of heat, and for this reason mares should not be bred too early in the heat period. The egg passes down the Fallopian tube toward the uterus, and then if it meets a spermatozoon from the semen of the stallion, it may be fertilized and become implanted in the wall of the uterus where it is nourished and developed into a foal.

Spermatazoa (Fig. 3) are produced in great numbers in the testicles of the male. During service the spermatazoa are forced from the testicles through two small tubes (vasa deferentia) to the urethra, the canal which carries urine from the bladder through the penis. At the same time a white, milky, alkaline secretion is thrown off by the accessory genital glands into the urethra and carries the spermatazoa out through the penis into the vagina of the mare. (Fig. 6.) The average ejaculation of a stallion is about four to six ounces and should contain many thousand spermatazoa. The spermatazoa soon pass through the cervix into the uterus and up the Fallopian tubes. **Fertilization occurs if a single healthy spermatozoon unites with the egg from the ovary of the mare.**

THE BREEDING PLANT

A large, roomy, dry, well-lighted, and well-ventilated box stall with a clay floor should be provided for the stallion (Fig. 7). If the stallion can see and hear all that is going on around him he is much less likely to contract bad habits and vices, such as masturbation, and cribbing. A manger is not an absolute necessity. Good quality hay may be fed in small quantities by placing it in one corner of the stall, thus eliminating the dangers and undesirable features of the manger.

The ideal arrangement is one in which the stable door opens directly into a large paddock. This allows the horse freedom in choosing between shelter and exercise since the door should never be closed except in inclement weather. The paddock should be as large as space and cost of construction will permit and long and narrow rather than square as the stallion will take more exercise in one of this type. Good grass sod is ideal. Never tease or breed mares in this paddock because the stallion will be uneasy and fret as long as the odor of the mare remains (Fig. 8).

Several types of fencing are suitable for building the stallion paddock. A seven- or eight-foot fence will hold the most active stallions. Quiet horses may be restrained by ordinary woven-wire fencing if it is fastened so that the lowest wire is 2 or 3 feet from the ground. A double run of heavy fencing, No. 9-10-47 with stays 6 inches apart, will make a satisfactory paddock for any stallion (Fig. 8). The board fence (Fig. 12) affords very little opportunity for the stallion to injure himself. A factory-made wire-link fence is satisfactory but more expensive than the other kinds of fencing.

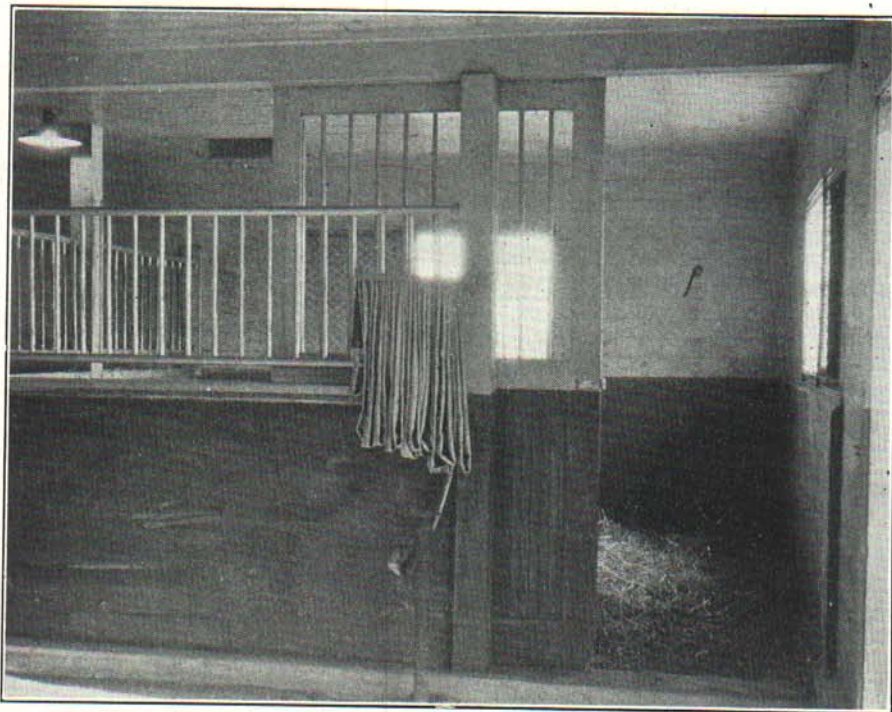


Fig. 7. A good box stall for the stallion.

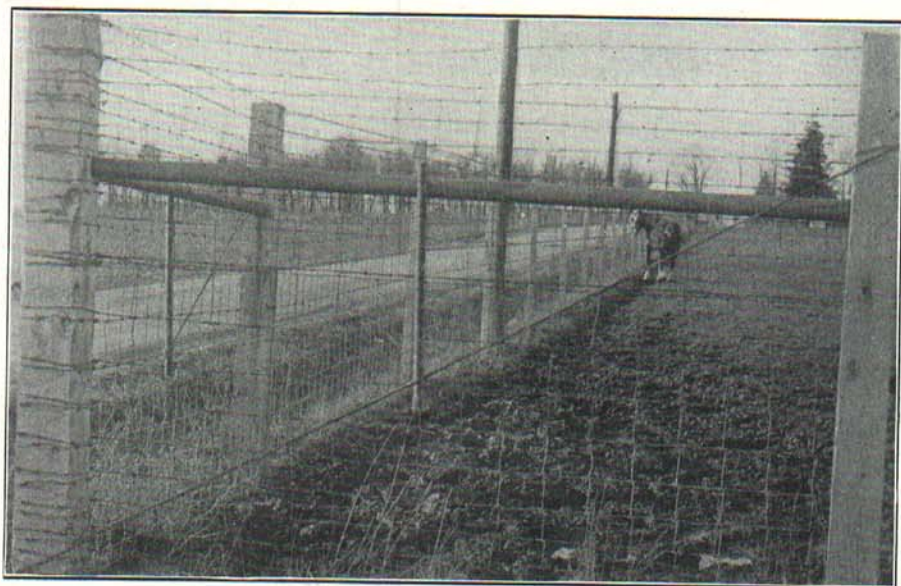


Fig. 8. Wire fencing for stallions. Double-run fence.

A breeding chute (Fig. 9) and teasing pole may be set up in some convenient place that is hidden from view of the house and road. The teasing pole should be 8 feet long, 6 or 8 inches in diameter, and securely bolted to two upright posts so that it will be about 3 feet and 6 inches from the ground. If placed about 3 or 4 feet from and parallel to the

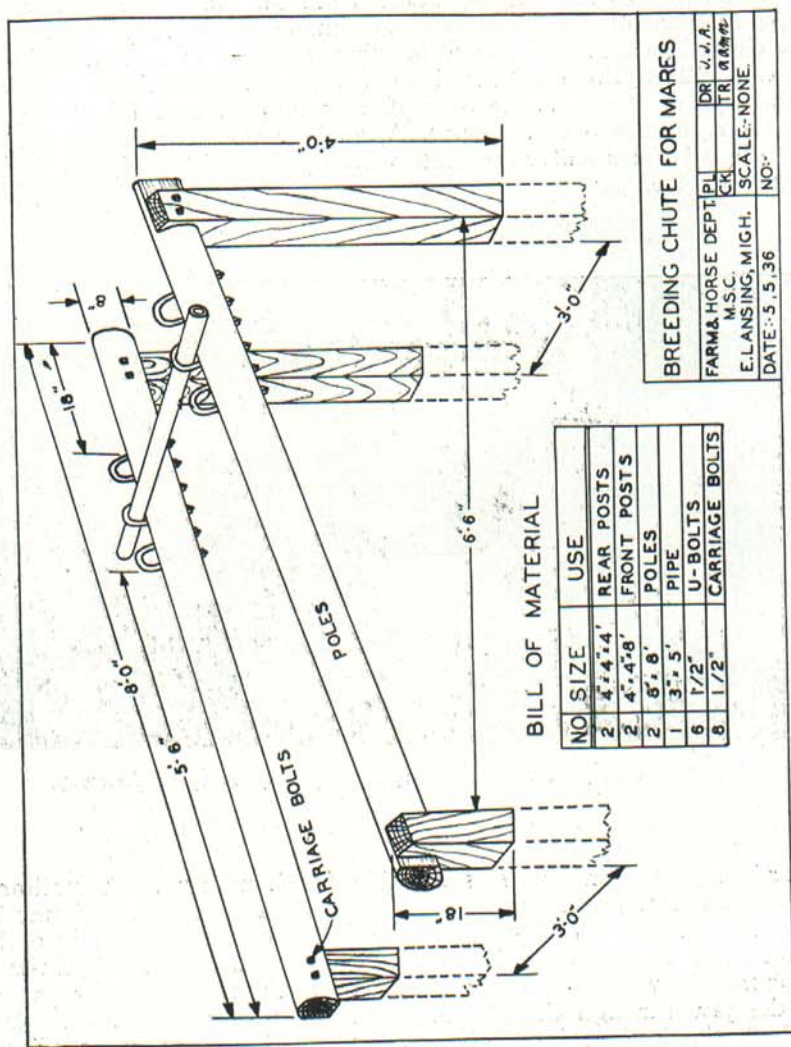


Fig. 9. An easily constructed breeding chute for mares.

side of a building or a fence, it will be more satisfactory because the mare will be forced to stand close to the pole. Remove any projections that might injure the mare, such as sharp corners and ends of bolts. Some stallioners prefer an open doorway or teasing gate (Fig. 10) for teasing mares, while others choose to "try" over a gate or pole.

A breeding chute is illustrated in Fig. 9. The gas pipe in front may be moved backward to shorten the chute for smaller mares. Breeding hobbles are easily made by any harness maker or the necessary rope, rings, and leather may be purchased and the hobbles made at home. Hobbles are not used by some stallioners, although when used wisely they may prevent accidents to both the mare and stallion.

An excellent twitch may be made from an old spade handle and window sash cord. Tail bandages are made by tearing good grade cheese cloth, bunting, or bleached muslin into stirps two or three inches wide and rolling them tightly into a compact roll. A quarter-inch manilla rope or heavy twine 8 or 10 feet long is useful in tying the tail to the right side before service. A good sponge, soap, white enamel-ware pail, and warm water facilitate washing the vulva and penis before and after service.

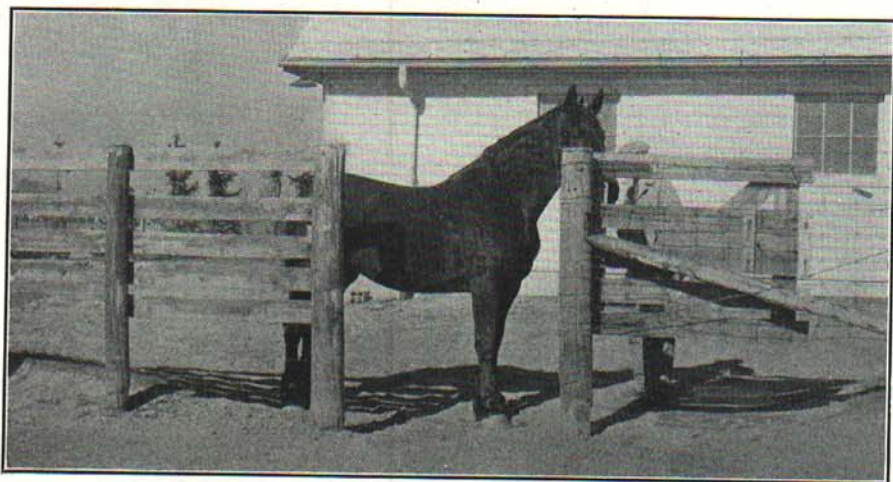


Fig. 10. Mares may be teased through an open gateway or doorway.

An ordinary stallion bridle is suitable for handling most stallions. The lead should be provided with a short chain and snap which may be passed through the left bit-ring, under the jaw and snapped into the right bit-ring. If the horse is difficult to control, a three-eighth-inch steel bar may be welded to a link, snapped into the right bit-ring, passed under the jaw through the left bit-ring, and welded to another link, into which the lead rein may be snapped. This arrangement affords great leverage and should not be used too severely since there is danger of fracturing the stallion's jaw. Such a bit should never be used on a young stallion when breeding his first few mares as he is liable to be restrained too harshly and thereby remain slow or even refuse entirely to breed mares resembling those with which he had the difficulty.

HANDLING THE MARE AND STALLION

The temperament of stallions varies so greatly that no two may be handled in exactly the same manner. Most stallions do not require severe handling, but they should always be kept firmly in hand and made to obey. Most stallions are unruly only because they have had careless and indifferent training as colts. Never allow the horse to tear and rant about, but make him do his work quietly and precisely.

Great precaution should be taken to make certain that the mare is fully in season, as a forced breeding, especially with young mares, by the use of the chute and hobbles is liable not only to frighten the mare so that she will always remain cross or stallion-shy but also result in a useless service which may put her out for the season.

After the mare has been found to be in season, return the stallion to his stall and wash his reproductive organs with soap and warm water. Rinse with clean, pure water. With an attendant holding the mare, bandage the tail for a distance of six or eight inches. Then wash the external parts of the mare with soap and warm water and rinse thoroughly.

Set a pail of clean, warm water to one side and bring out the stallion. Make the stallion approach the mare quietly and never allow him to mount until ready for service. Some stallions are trained to stand on the left side of the mare before mounting. The stallioner's hands should be clean if it is necessary to assist the horse, but some stallions learn to make their service without help if the mare's tail is held to one side. The reproductive organs of the stallion should always be washed thoroughly with soap and warm water immediately after service. Strict sanitation at time of service is absolutely essential for the production of a large number of healthy vigorous foals and is one of the best precautions against navel ill or joint ill in foals.

The use of the breeding hobbles and tail string are recommended only when the stallioner is inexperienced or dealing with a strange horse, starting a young stallion, or handling a mare whose habits are not known and are not intended for the replacement of methods used by the experienced groom. When the hobbles are to be used, place the mare in the breeding chute, if this plan is followed, apply a twitch to be held by the attendant, and adjust the breeding hobbles. Bandage the tail for a distance of 6 or 8 inches. It may be held to the right side by looping one end of a quarter-inch rope about it and tying the other end tightly to the shoulder strap of the breeding hobbles near the top of the withers. (The rope should be tied so that a single jerk will loosen it if the stallion should accidentally get his foot underneath.)

It is often difficult to find young mares in season by the usual methods employed at chute or gateway (Fig. 10). Some breeders lead the stallion into the field where fillies are in pasture and allow the stallion to cover them when they come to him for service.

SUGGESTIONS FOR THE MARE OWNER

The stallioner should make a few suggestions to the owner of the mare after she is bred. A higher percentage of conceptions will result if these suggestions are followed:

1. **Return the mare for retrieval exactly three weeks after service.** Give the owner a slip of paper or blank form bearing the name of the stallion, name of the mare, date of service, and date on which the mare is to be returned for trial. This exactness not only impresses

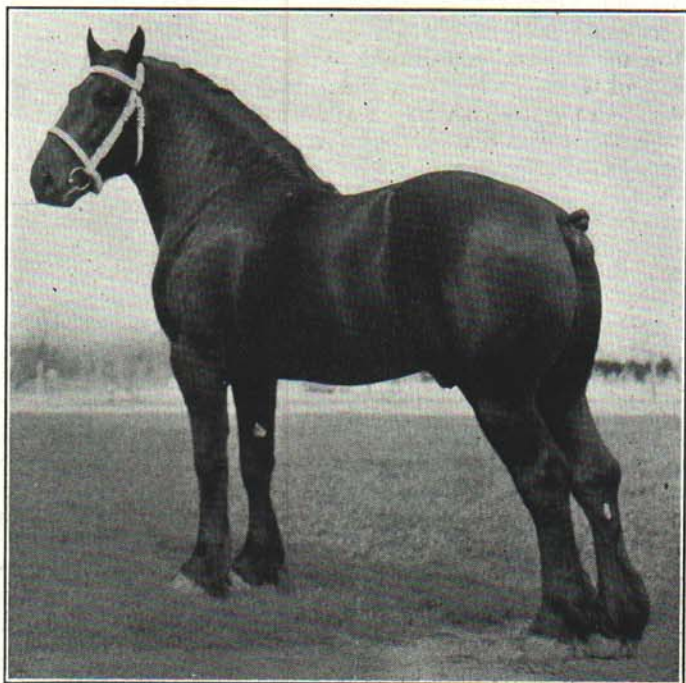


Fig. 11. Major H 209523 as a three-year-old. Note the short level top, heavy muscling, and correct underpinning.

the mare owner that the stallion's time is valuable, but prevents the return of several mares for retrieval on the same date and thus lessens the possibility of disappointing owners who have brought their mares a long distance. This plan also eliminates the chance that the return date may fall on Sunday. Since ovulation probably occurs during the latter part of the heat period or just after the mare has gone out of heat, it is usually better to rebreed the mare on the twenty-first day than on the eighteenth day.

Do not promise the owner breeding privileges on the return date, but assure him that his chances for a service will be better than if his

mare must be rebred. It is usually poor business to refuse to accept a new mare for service on a certain date merely because a mare is coming back for retrieval. The first mare may be in foal or the owner may neglect to return her for retrieval on that date; hence, a service would be lost and the horse remain idle. If it is convenient, the mare may be tried once or twice a week throughout the breeding season.

2. **Don't hurry or excite the mare after service.** It is always a good plan to allow the mare to rest quietly for awhile after breeding. Never advise the owner to trot the mare home behind an automobile or truck.

3. **Avoid drastic changes in feeding and caring for the mare immediately before and after breeding.** If the mare is accustomed to dry feed, she should not be turned on pasture. If accustomed to pasture, she should not stand idle in the barn after service. Mares on pasture should not be annoyed by other horses after breeding.

4. **If possible, avoid working the mare for a few days after service.** Conception will be more likely if the mare is kept quiet and away from other horses until she goes out of heat.

5. **Have the mare examined for pregnancy as soon as possible.** Highly trained veterinarians are able to tell definitely whether a mare is in foal or not by making a rectal and vaginal examination as early as 60 days after breeding. Any veterinarian can take 4-5 ounces of blood from a mare (during the period ranging from 47 to 90 days after breeding) and send it to a laboratory for a rabbit ovulation test.³ Blood samples may be sent to the Department of Bacteriology and Hygiene, Michigan State College.

6. **Read available literature concerning the care of the brood mare and foal.** Many bulletins and pamphlets are published on this subject. The stallion owner should procure a supply at the beginning of the season and distribute them to his patrons. These bulletins are available:

"Horse Breeding Suggestions for Farmers," by H. H. Reese. United States Department of Agriculture Farmers' Bulletin No. 803. Superintendent of Documents, Washington, D. C. Price: 5 cents.

"The Mare and Foal," by R. S. Hudson. Michigan State College Extension Bulletin No. 128. Michigan State College, East Lansing, Michigan.

"Care of Brood Mare and Colt," by George J. Baker. North Dakota Agricultural College Extension Bulletin, Circular 117. North Dakota Agricultural College, Fargo, North Dakota.

"Save the Foals," by L. P. McCann. Ohio State University Extension Bulletin No. 147. Ohio State University, Columbus, Ohio.

ARTIFICIAL INSEMINATION

Artificially inseminating mares as usually performed by the stallioner is often not only unsuccessful but is an excellent means of spreading infection from one mare to another. The Kentucky Experiment Station has shown that most of the theories of our older breeders and

³"Results of a Rabbit Ovulation Test for Equine Pregnancy" (preliminary report) by John J. Arnold, The Quarterly Bulletin, Michigan State College, August, 1935.

so-called "graduates" of breeding schools are erroneous. Exposure to light and temperature as low as 68 degrees F. for a short time has little effect on the fertilizing ability of spermatazoa. The limiting factor, therefore, is the difficult problem of obtaining a bacteria-free sample of semen for transfer to the mare. Artificial insemination is successful if properly carried out, but few men who handle stallions would care to take the precautions that are necessary.

The practice of dilating the cervix or "opening up" the mare before every service should also be discouraged. The hand and arm are never entirely free from bacteria no matter how diligently the operator washes with soap and water. The dark, warm, moist vagina and uterus are ideal places for these germs to grow. Some of these organisms produce acids that are fatal to spermatazoa. Others produce severe inflammations of the vagina, cervix, and uterus. There is evidence that prenatal infections of navel ill or joint ill are because of the introduction of bacteria into the vagina and uterus at the time of service.⁴ The cervix rarely needs to be dilated because it is always closed in normal mares. Most sterility of mares is due to pathological conditions of the ovaries and genital tract which should be treated by a veterinarian who is thoroughly familiar with the anatomy, physiology, and pathology of the reproductive system.

EXERCISE

The stallion must have plenty of exercise in order to sire a large number of strong- vigorous foals. Virility is closely associated with the general health and vigor of the stallion. Exercise increases muscular tone, prevents obesity, decreases the danger of digestive disturbances, and greatly improves the general health of any animal.

The ideal method of furnishing exercise is to put the stallion in harness and let him work for his living (Fig. 4). He may be led by hand for a five-or six-mile walk each day, but this method of exercising requires too much time and is usually a bit too strenuous for the groom. If it is impossible to work the stallion regularly, the paddock will be found very convenient and satisfactory (Figs. 8 and 12).

FEEDING

"Halve the ration and double the exercise when the stallion is not giving a vigorous sure service" is sometimes a good rule to follow in feeding the stallion. The demand for highly fitted heavy draft horses may tempt the feeder to keep his stallion entirely too fat to give satisfactory services. Obesity tends to produce sterility. On the other

⁴"Breeding Problems in Mares," by Dr. W. W. Dimock, University of Kentucky, Lexington, Kentucky.

"Some of the Problems With Which the Breeders of Horses Must Be Prepared to Deal," by Dr. W. W. Dimock, from *The Belgian Review*, March, 1935.

"Barren Mares and Breeding Hygiene," by Dr. John P. Hutton, from *The Belgian Review*, 1936.

hand, the stallion must never be allowed to become poor and rundown in condition. Many breeders like to keep their stallions gaining just a little throughout the breeding season.

The ration should be richer in protein and mineral matter during the breeding season. Linseed meal, wheat bran, cow peas, field peas, soybeans, and legume hays (alfalfa especially) have a high protein content. Mineral mixtures and patented medicines should never be fed in an attempt to increase virility.

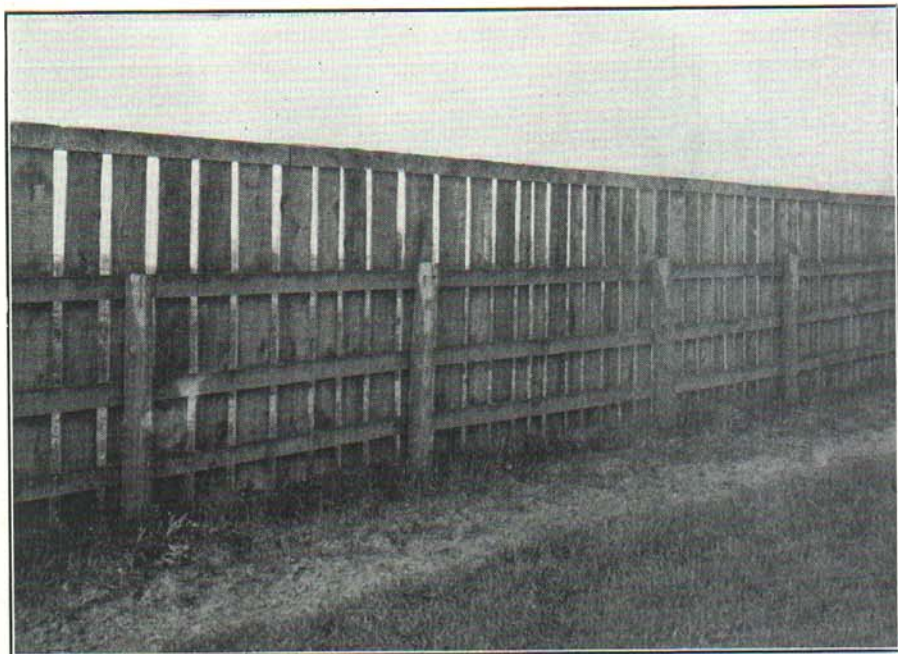


Fig. 12. Board fence for the stallion. Stallion paddocks offer the stallion excellent opportunities for exercise when he is not working.

Laxative feeds, such as wheat bran, linseed meal, alfalfa hay, grass, potatoes, or carrots, should be included in the ration when it is impossible to give the horse abundant exercise. Grass and soilage crops may be cut and fed daily during the spring and summer. Green feeds should be given in very small quantities at first because they are likely to produce digestive disturbances. Any change in the ration should always be gradual.

Immature stallions should be fed grain liberally at all times. The mature stallion should be fed grain at the rate of two-thirds of a pound per one hundred pounds of live weight when not in service. The amount may be increased to one and one-fifth pounds per one hundred pounds of live weight during the breeding season. However, it is often necessary to deviate from this rule because individuals differ considerably in temperament, feeding ability, and amount of exercise taken.

The following rations are suggested for stallions during the breeding season:

1. Oats 4 parts, bran 1 part, with mixed timothy and clover hay.
2. Oats 2 parts, ear corn 3 parts, bran 1 part, with alfalfa and timothy hay.
3. Oats 3 parts, barley 2 parts, bran 1 part, linseed meal 1 part, with timothy hay.
4. Corn 7 parts, bran 2 parts, linseed meal 1 part, with timothy hay.
5. Corn 7 parts, bran 1 part, with alfalfa hay.

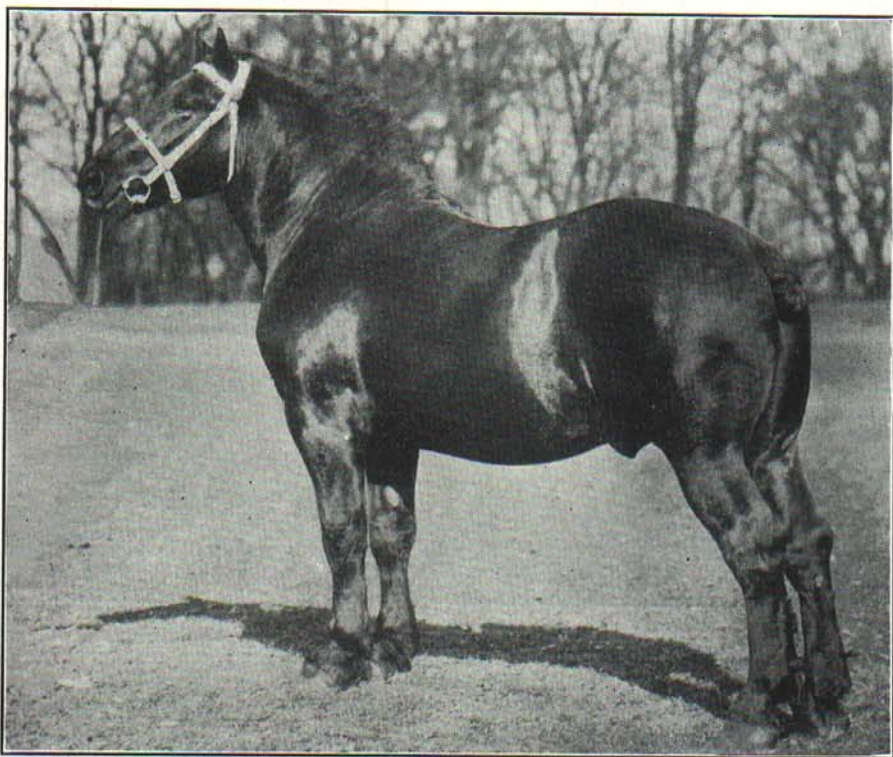


Fig. 13. Sir Laet 190277 as a two-year-old. Good care and liberal feeding promote early maturity.

The following rations may be fed during the winter while the stallion is idle:

1. Oats 3 parts, bran 1 part, with timothy hay and carrots.
2. Corn with alfalfa hay and carrots.
3. Oats 2 parts, corn 2 parts, with alfalfa and timothy hay and carrots.
4. Oats 2 parts, corn 2 parts, with alfalfa, oat straw, and carrots.
5. Oats 2 parts, corn 2 parts, with clover hay, oat straw, and carrots.

Grain may sometimes be almost entirely eliminated from the mature stallion's ration during the idle winter months if he is in good condition and an easy keeper. Good quality hay should always be fed liberally but no more should be given than is eaten before the next feed.

Fowler's solution and other drugs should never be fed unless prescribed by a veterinarian because continuous use of such drugs may produce sterility.⁵ If the stallion remains thin, even though he is well-fed and properly cared for, he is probably infested with parasites or suffering from a chronic disease which should be diagnosed and treated by a veterinarian.

The stallion should be fed and watered regularly three or four times a day. He should have free access to salt at all times.

The working stallion may be fed in much the same manner as any working horse.

Since some stallions are predisposed to digestive disturbances, such as colic and indigestion, it is advisable to avoid teasing or breeding mares immediately before or after feeding, since intense excitement disturbs secretion of the digestive juices.

GROOMING

Proper grooming improves the general appearance and health of the stallion. Grooming not only removes manure, dandruff, chaff, and other dirt, but stimulates the sebaceous or oil-producing glands of the skin. The secretion of these glands gives the hair coat a glossy and well-kept appearance.

If the stallion should begin to rub the hair out of the mane or tail, wash the parts thoroughly with soap and water and apply a soothing ointment, such as sulphur and lard. This may be prepared by melting the lard and stirring in as much sulphur as possible. If parasites are the cause, this condition should be treated as recommended in the next discussion.

CONTROL OF PARASITES

The stallion must be kept free from parasites⁶ if he is to enjoy good health (Fig. 14). Stallions, as well as mares, may be practically freed from infestation of bots and roundworms by the carbon disulphide treatment (Fig. 15). Oil of chenopodium combined with raw linseed oil, mineral oil, and oil of turpentine is effective in the control of strongyli or palisade worms when given after a proper fasting period. Both of these treatments should be administered by a competent veterinarian and his instructions carefully followed both before and after treatment.

An inexpensive louse powder may be made by mixing 1 pound of

⁵"Effect of Fowler's Solution on Animals," University of Illinois Agricultural Experiment Station Bulletin No. 413, Urbana.

⁶"Parasites and Parasitic Diseases of Horses," U. S. D. A. Agriculture Circular 148. "Common Parasites of Horses," Circular Bulletin No. 397, University of Illinois, Urbana.

"Controlling Parasites in Horses," Bulletin No. 212, J. F. Witter, University of Maine, Orono.

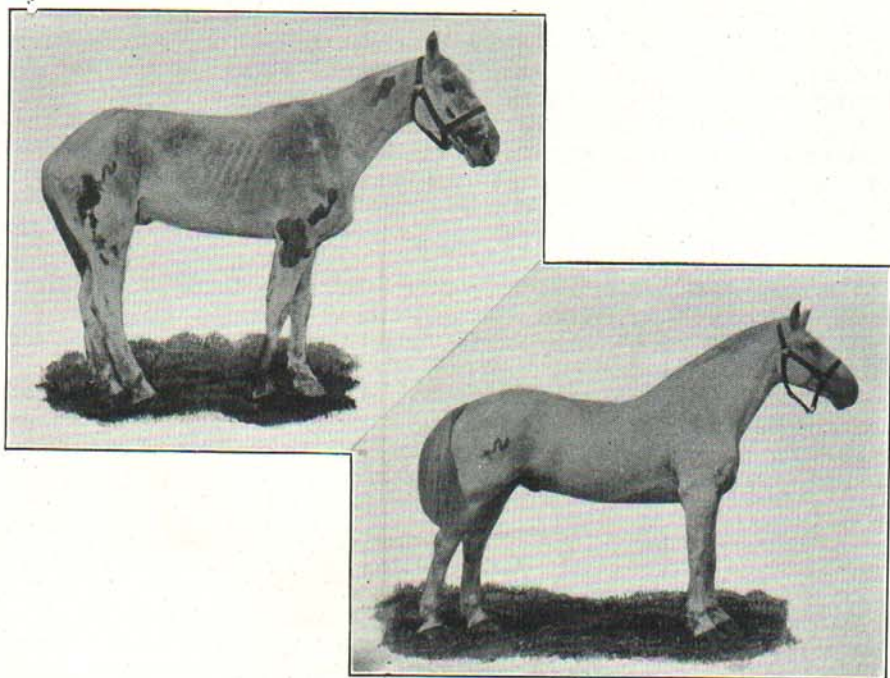


Fig. 14. Horse infested with internal parasites and same horse after proper treatment.

(Courtesy of the Illinois Agricultural Experiment Station)



Fig. 15. Administering carbon disulphid capsules for bots.

ground pyrethrum flowers with 3 pounds of flour. However, derris compound, though more costly, is much more effective. These mixtures should be dusted on freely. During warm weather a solution of 1 ounce of sodium fluorid in 1 gallon of water may be sprayed on or applied with a cloth. Since these treatments do not kill the eggs of the lice, they must be repeated in 14 days. Chickens should never be allowed to roost in the barn because their lice and mites are very annoying to horses. Great caution must be exercised in the use of any effective parasite.

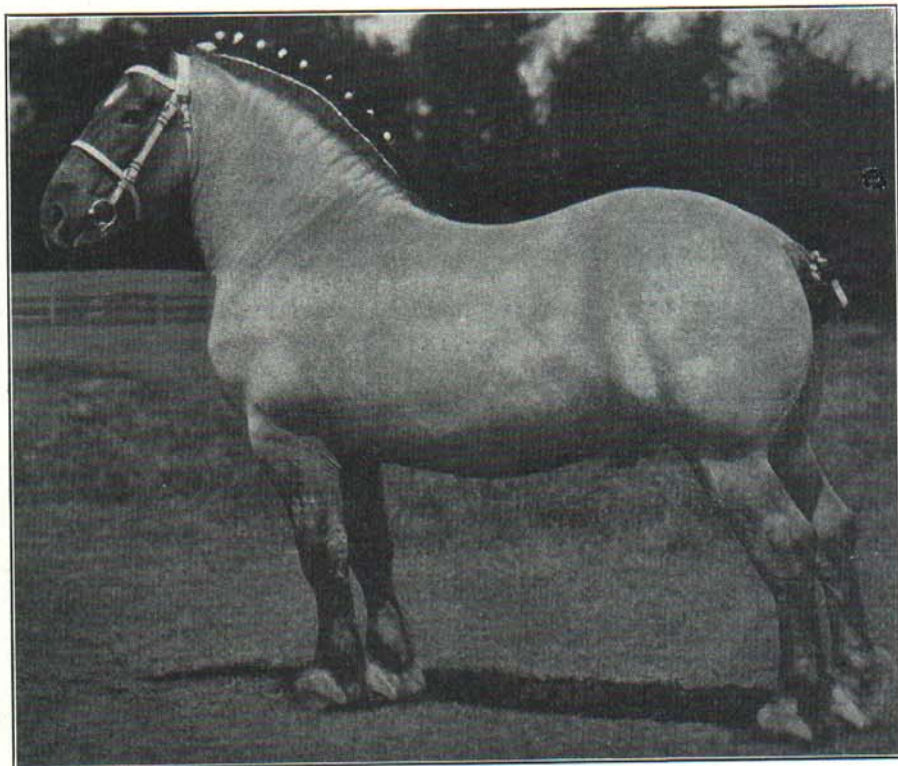


Fig. 16. Range Line Phoenix 12808 as a six-year-old. Note the full, deep chest, heavy muscling, sloping pasterns, and large round feet.

SERVICE FEES

In general, service fees for draft stallions are too low for the owner to realize profit from his investment. Too many farmers are inclined to patronize the stallion that stands at the lowest fee without regard to the true value of the stallion as a sire. A low service fee should never tempt one to breed his mares to an inferior stallion.

There are several plans for the payment of fees. Probably the most universal is the guarantee that the foal must "stand and suck" before

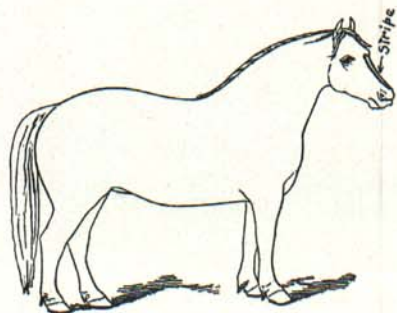
the fee is due. Some stallion owners give a 10 per cent discount if the fee is paid within 30 days after the mare foals. Other stallion owners merely insure the mare to be in foal, making the fee payable as soon as this fact is known. A fee payable before each service is sometimes charged.

Both parties should enter into a perfect understanding regarding the service fee. It is usually poor business to show partiality in this matter.

BREEDING RECORDS

In states where stallion enrollment laws are in effect, the stallion must be licensed by the state commissioner of agriculture or a state stallion enrollment board before he can lawfully be used for public service. These laws usually designate unsoundnesses which are regarded hereditary, regulate advertisements, and provide for filing liens against foals or mares for which service fees have not been paid. A penalty is provided for failing to enroll stallions. A copy of the Michigan stallion enrollment act may be obtained by addressing the State Department of Agriculture, Lansing, Mich.

Accurate breeding records should be kept. The name, color, age, and date of breeding of the mare should be recorded after each service. These records may be copied in a good grade notebook or journal at the end of the breeding season, together with the approximate date of foaling for each mare. A statement of this date should be sent to the owner of the mare about two or three weeks before the mare is due to foal.



Draw upon above outline such distinguishing, white or peculiar markings as will assist in identifying the mare bred.

Remarks *Bred on 9th day after foaling. Apparently normal.*

51

Owner of Mare, *M. S. C.*
 Postoffice, *E. Lansing*
 County, *Ingham* State, *Mich.*
 Name of Mare, *Venche de Wolfe*
 Color, *Sorrel* Age, *6*
 Bred to *Succes de Cognesau*
 Is Mare Suckling Colt? *yes*

DATE OF BREEDING	DATE RETURNED FOR TRIAL AND NOT BRED
March.....	March.....
April, <i>15-18</i>	April.....
May.....	May, <i>6, 27</i>
June.....	June, <i>17</i>
July.....	July, <i>8, 29</i>
Aug.....	Aug.....
Sept.....	Sept.....
Oct.....	Oct.....

Service Fee, to Insure.....

Season,

Leap,

Fig. 17. A typical stallion service record book.

Several good record books are on the market. Your county agent can tell you from whom they may be procured. A typical record book form is shown in Fig. 17. Another type of record book contains a note form which is signed at time of service. The note form is:

\$15.00	March 3 1936
<p>When above described mare is known to be in foal, for value received I promise to pay <i>Bill Jackson</i> or order, the sum of \$ <i>fifteen dollars</i> (\$15.00) with interest at the rate of <i>6</i> per cent if not paid when due.</p> <p>Above note becomes due and payable immediately if mare is sold, traded or about to be moved, and is a lien upon the mare and colt in any event.</p> <p style="text-align: right;">Signed <i>M. S. C., By R. S. H.</i></p>	

MICHIGAN STALLION REGULATIONS

Michigan Stallion Owners Should Know—

1. That all stallions and jacks offered for public service must be licensed (Fig. 18).
2. That stallions must be pure bred, registered in a breed association, and transferred to the name of the present owner in order to be licensed (Figs. 19 and 20).
3. That the "breeding of any mare with any stallion or jack shall be construed as offering said stallion or jack for public service," although nothing prevents the owner of any unlicensed stallion or jack from breeding any mares kept on his own premises provided he is the bona fide and sole owner.
4. That the Commissioner of Agriculture 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, broken wind); chorea (St. Vitus' dance, crampiness, shivering, string halt); bone spavin; ringbone; side bone; 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.
5. That a copy of the enrollment certificate must be posted in a conspicuous place both within and upon the outside of every building where such stallion is kept for public service.
6. That newspaper ads must contain the name of stallion with license number and all bills or posters advertising a licensed stallion shall contain a copy of the certificate of enrollment.
7. That every stallion or jack owner who keeps his horse licensed shall have a lien on each mare served and upon the offspring resulting

from such service, to the amount of the service fee. Stallion owners should take advantage of Section 10 of the law which provides for liens on mares served and the resulting offspring for a period of 18 months after date of service by filing at any time within 18 months after the date of service a statement of the account, together with a description of color and white markings of the female served and the name of the owner at the date of service, in the office of the township clerk wherein the owner of said female resided at the time of service. Blank forms for filing liens may be obtained from the State Department of Agriculture, Lansing.

8. That stallion and jack owners should report violations of the law to the State Department of Agriculture, Lansing. Blank forms will be furnished by the Department for this purpose.

How To Get A Stallion or Jack Licensed in Michigan—

1. Obtain application blank from the State Department of Agriculture, Lansing.

2. Fill out blank and mail with registration certificate and transfer, with \$5 to the State Department of Agriculture, Lansing.

(This \$5 fee provides for examination of the registry papers, examination of the stallion for soundness, and the issuance of a certificate of enrollment.)

No. 3320

STATE OF MICHIGAN
DEPARTMENT OF AGRICULTURE
STALLION REGISTRATION

Enrollment Certificate of Pure Bred Stallion

Laws of Michigan P. A. 72, 1929

The pedigree of the stallion MAJOR H. No. 209523 (
Owned by Michigan State College P. O. East Lansing R. F. D.
County Ingham
Described as follows: Percheron Color Black Markings
Weight 1800 Foaled April 30, 1932, has been examined and it is hereby certified
that said stallion is registered in a Stud Book recognized by the Michigan Department of
Agriculture. Said stallion has been examined by a veterinarian representing the depart-
ment and found to be of good breed type, and free from transmissible or
contagious diseases except as follows: None

James F. Thomas
Commissioner of Agriculture
By *W. C. C. C. C.*
Director Stallion Registration.

Dated at Lansing this 13th day of May, 1935.

This certificate is not valid after December 31st, 1936, and should be returned to this office about that date with fee of \$3.00 (if paid before March 15th following) which will pay fee to December 31st of the year following the one in which this one is issued.

Copies of this enrollment certificate must be kept posted on the inside and on the outside of every building where stallion stands for public service.

Transfer _____
Transfer _____

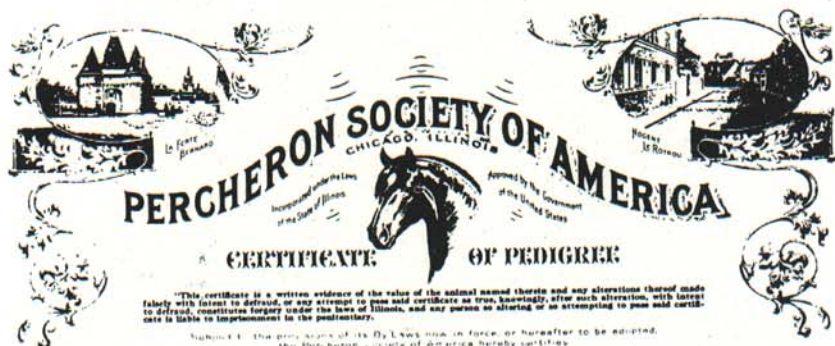
Fig. 18. Enrollment certificate of purebred stallion. All stallions and jacks offered for public service in Michigan must be licensed.

How To Get License Renewed—

1. Send to the State Department of Agriculture, Lansing, the original license certificate (do not send a poster) with \$3 to cover the fee. This should be done on or before the fifteenth day of March following the date of expiration, which is December 31st following the year in which issued. The license must be renewed every two years.

How To Get License Transferred—

1. Send to the State Department of Agriculture, Lansing, the original license certificate, with a fee of \$1 and a transfer from the registration society in the name of the new owner.



That the Percheron Stallion,
MAJOR H; is recorded by the PERCHERON SOCIETY OF
 AMERICA, and that his recorded number is 209523.

COLOR AND DESCRIPTION: Black.

PEDIGREE: Foaled April 30, 1932; bred and owned
 by Alva D. Webster, Russellville, Indiana.

SIRE: REUBEN 191016 (B-Purdue University), by JERSEY 89670
 (89118), by ANTICOSTO 57614 (67745), out of CASTILE (31683).

DAM OF REUBEN 191016: MAPLE GROVE JUNE 170860, by
 LAGOS 99093 (102369), out of MACELE 99068 (111540).

DAM OF MAJOR H. 209523: LULU GOLDEN 170923 (B-Alva D.
 Webster), by CROUCH 149649, by MALICIEUX 106213 (106465), out of
 MAY QUEEN 105592.

DAM OF LULU GOLDEN 170923: MABLE 114470, by PEARY
 79051, out of JUGERE 76172 (85914).

IN WITNESS WHEREOF, we have hereunto affixed the seal of the
 Society.

Dated at CHICAGO, ILLINOIS, this fourteenth day of JULY,
 Nineteen hundred and thirty three.

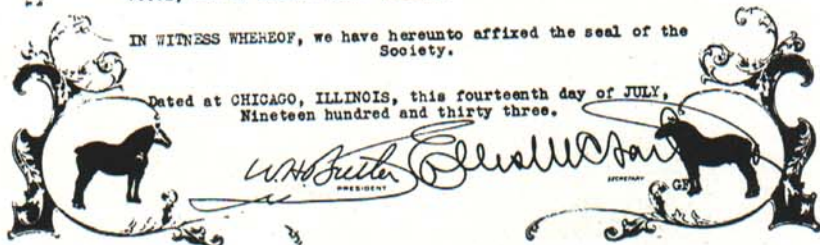


Fig. 19. Certificate of pedigree for a Percheron stallion.

<p align="center">CERTIFICATE OF TRANSFER ISSUED BY THE PERCHERON SOCIETY OF AMERICA.</p> <p align="center">THIS CERTIFIES that the ownership of the Stallion</p>	
Named	MAJOR H. No. 209523
<p>Has been transferred upon the records of the Association (Transfer No. 122169)</p>	
From	Alva D. Webster, Russellville, Ind.
To	S. L. Ellis, Dana, Ind.
Date of Sale	Mar. 21, 1934 Sale recorded Mar. 24, 1934.
<p><i>This transfer certificate should always be attached to the original certificate of pedigree.</i></p> <p align="right"><i>Ellis McFarland</i> Secretary, Union Stock Yards, Chicago, Ill.</p>	
<p align="center">CERTIFICATE OF TRANSFER ISSUED BY THE PERCHERON SOCIETY OF AMERICA</p> <p align="center">THIS CERTIFIES that the ownership of the Stallion</p>	
Named	MAJOR H. No. 209523
<p>Has been transferred upon the records of the Association (Transfer No. 123059)</p>	
From	S. L. Ellis, Dana, Ind.
To	Harry Stamp, Roachdale, Ind.
Date of Sale	June 21, 1934. Sale recorded July 19, 1934.
<p><i>This transfer certificate should always be attached to the original certificate of pedigree.</i></p> <p align="right"><i>Ellis McFarland</i> Secretary, Union Stock Yards, Chicago, Ill.</p>	
<p align="center">CERTIFICATE OF TRANSFER ISSUED BY THE PERCHERON SOCIETY OF AMERICA</p> <p align="center">THIS CERTIFIES that the ownership of the Stallion</p>	
Named	MAJOR H. No. 209523
<p>Has been transferred upon the records of the Association (Transfer No. 123638)</p>	
From	Harry Stamp, Roachdale, Ind.
To	Michigan State College of Agriculture & Applied Sciences East Lansing, Mich.
Date of Sale	Sept. 18, 1934 Sale recorded Oct. 20, 1934.
<p><i>This transfer certificate should always be attached to the original certificate of pedigree.</i></p> <p align="right"><i>Ellis McFarland</i> Secretary, Union Stock Yards, Chicago, Ill.</p>	

Fig. 20. Certificate of transfer for Major H from Alva D. Webster to Michigan State College.

AVAILABLE PUBLICATIONS

The following publications may be purchased by sending the proper remittance to the Superintendent of Documents, Washington, D. C. In ordering publications, please 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. (Agriculture 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 No. 128.
2. "Making History with Horses," R. S. Hudson, Special Bulletin.
3. "Economical Pastures for Horses," R. S. Hudson (Reprint from the Proceedings of the American Society of Animal Production, November 29-30, 1935).
4. "Iodine for Pregnant Mares," R. S. Hudson.
5. "Liberal vs. Limited Rations for Draft Colts in Michigan," R. S. Hudson, Special Bulletin No. 253.
6. "Equipment for Feeding Draft Colts," R. S. Hudson.
7. "Rations for Colts," Animal Husbandry Extension.
8. "Alfalfa for Horses," R. S. Hudson, Circular Bulletin No. 65.
9. "Stallion Management," R. S. Hudson.

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