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Bulletin 76

The Horse Industry in New York State

Issued by the Bureau of Farmers' Institutes and Compiled under the Supervision of the Director

JOHN A. SEAVERNS

STATE OF NEW YORK

DEPARTMENT OF AGRICULTURE

CHARLES S. WILSON, Commissioner

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ILLUSTRATIONS

THE HORSE

Braced in the sinewy vigor of thy breed,
In pride of generous strength, thou stately steed;
Thy broad chest to the battle's front is given,
Thy mane fair floating to the winds of heaven,
Thy stamping hoofs the flinty pebbles break;
Graceful the rising of thine arched neck,
Thy bridle-bits white flakes of foam unlock:
From thy moved nostrils bursts the curling smoke,
Thy kindling eye-balls brave the glaring south,
And dreadful is the thunder of thy mouth;
Whilst low to earth thy curving haunches bend,
Thy sweepy tail involved in clouds of sand,
Erect in air thou rear'st thy front of pride,
And ringst the plated harness at thy side!

JOANNA BAILLIE.

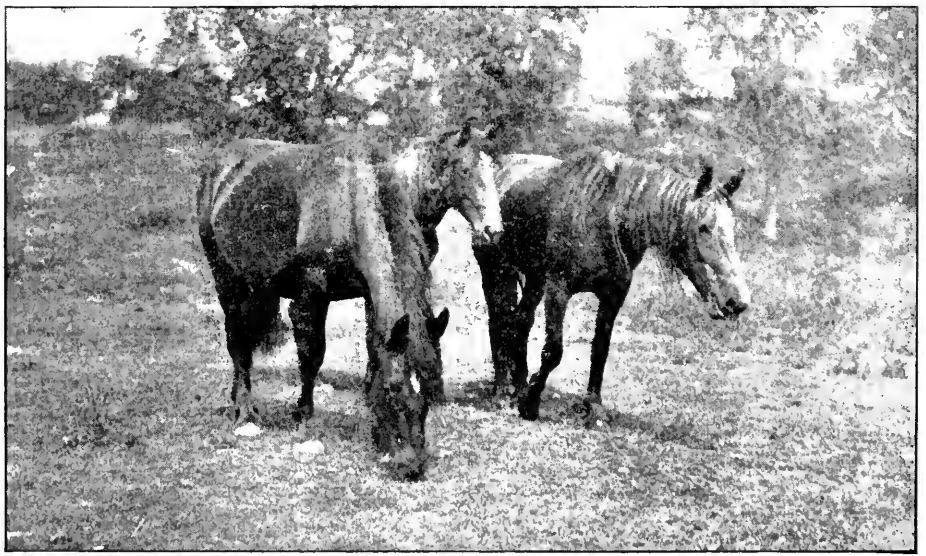


Fig. 1. Seven-eight Percheron Colts Bred on Farm of Edward van Alstyne, Kinderhook, N. Y.

INTRODUCTION

"A horse! a horse! my kingdom for a horse!" are the words Shakespeare put in the mouth of the defeated Richard. This has been the sentiment, if not the exact words, of many a better man before and since. We believe the Psalmist was in error when he said, "A horse is a vain thing for safety, and neither shall he deliver any by his great strength." Both assertions have been disproved again and again.

Down through the ages the horse has been associated with man in his savage or semi-savage state, as well as in his most civilized. He has played a most important part as a means of transportation, an engine of war, and as a beast of burden. In all of these there has been interwoven with the intensely practical, a touch of the romantic that has set the horse upon a pinnacle among our domestic animals. Were we to give our fancy and pen free rein we might discourse at length of his associations with man in some of the most important events in the world's history. Who can think of Napoleon in war apart from his milk-white charger, Rarus; or disassociate Paul Revere, on his historic ride, from his steed

> "—Flying fearless and fleet
> And the spark struck out from the steed in its flight
> Kindled the land with flame with its heat."

Or, what thought of Marcus Whitman on his pilgrimage across the continent to inform the American Congress of the value of the Oregon country, does not bear with it the horse that carried him over mountains and through deserts?

Time and space would not avail to tell of McCormack riding on horseback from Chicago to Palmyra, N. Y., seeking aid to finance his proposed reaper; of Sheridan at Winchester; as well as a host of other instances where man's best efforts, without the aid of the horse, would be as water spilled upon the ground.

Among the kingdoms in which the horse has been a most important subject, we must not forget the farm. Here, as time and

labor grew more valuable, he supplanted the patient ox, and made possible the "winning of the West," before steam and electricity — neither of which have or will altogether supplant this valuable animal — were harnessed for farm purposes.

As indicated above, the part he has played would well entitle him to a place among the series of bulletins being issued by the Farmers' Institute Bureau of the New York State Department of Agriculture on stock and crops. Since a publication of this kind must deal with present-day utilities, we feel that at this time in our agriculture the horse should loom large, because of the fearful destruction of these animals on the battlefields of Europe, thousands of them being drawn from this country. The war and its results will prevent importation for years to come.

That the horse may be properly esteemed, classified and understood as to his breeding, handling and utility, this bulletin has been prepared. We have endeavored to set forth the above concerning him in some detail, and from many viewpoints; yet in simple language, easily to be understood. While designed primarily for the people of our own state, we have endeavored to make it broad enough to be of value to readers everywhere. To this end we have sought contributions from a wide field; eight different states have furnished them. As in previous bulletins from this bureau the compiler has laid tribute on some of his many friends both in and out of the state. His only apology for such — if there need be apology — is that he might avail himself of their knowledge for the service of others. To all such he would here record his thanks and appreciation, which he is certain the many readers will second. Particular mention should be made of Prof. M. W. Harper of Cornell University and Mr. E. S. Akin of Syracuse, who have not only contributed leading articles, but without whose advice and assistance this bulletin would not have been possible.

It is sent out with the threefold hope that it may lead to a better appreciation of the horse in New York state's agriculture; a better understanding of his requirements, and hence a better attention to his needs; and withal an increased income and a decreased outlay from our farms.

EDWARD VAN ALSTYNE.

EVOLUTION AND HISTORY OF THE HORSE

M. W. Harper

Professor of Animal Husbandry, Cornell University, Ithaca.

The early history of the horse is both interesting and instructive. It is interesting because of the marked changes that have taken place in size and conformation. It is instructive because it affords a good example of the adaptation of a race of animals to their environment. It shows clearly the influence of selection, whether it be natural or artificial.

PREHISTORIC DEVELOPMENT

By means of fossil remains, the earlier history of the horse has been worked out farther back into the past than that of any other farm animal. Moreover, the horse was one of the first animals to receive the attention of progressive breeders, his improvement antedating that of cattle, sheep, and swine. This is not strange when we consider the intimacy of horse and man, their constant companionship, and the dependency of man upon his horse in the chase, in the pursuit of his foes, and in escape from his enemies.

The prehistoric development of the horse has been thoroughly investigated by the American Museum of Natural History. The horse family has been traced back without a single important break to the Eocene epoch of the Tertiary period. During this long period, estimated at 3,000,000 years, the animals of the horse family have passed through important changes in all parts of the body, especially in the feet and teeth, adapting them more perfectly to their environment. Thus the earliest known ancestors of the horse family differed widely from the horse of the present time. These ancestors were very small, possibly no larger than the domestic cat. They possessed four complete toes on each front foot and three on each hind foot. The teeth of this early

ancestor were short-crowned and covered with low rounded cusps of enamel somewhat similar to those of swine, and differing widely from the long-crowned, rather complicated molars of the modern horse.

A number of stages are recognized in the evolution of the horse from this early period to the present, each stage being characteristic with the horse becoming more and more developed toward the present-day type as the times become more and more recent. Some of these stages are especially interesting because of the changes brought about by the changes in natural conditions, showing the adaptation of the animal to his environment.

Thus with the disappearance of the side toes there was a considerable increase in the length of the legs, especially the lower part. The increased length of the lower leg increased the length of the stride without decreasing its quickness, thus giving the animal greater speed. The heavy muscling in the upper leg in connection with the increased strength at the joints gives the animal greater strength.

The increase in the length of limb made necessary a similar increase in the length of head and neck in order to enable the animal to reach the ground when grazing. The increase in the length of crown development of the teeth enabled the animal to subsist on the hard grasses of the dry plains, which required much more thorough mastication before they could be used as food than did the softer green foods of the swamps and forests, the horse's early habitat.

Such changes in the evolution of the horse adapt him to live in the regions of level, smooth, and open grassy plains. In the beginning the horse was better fitted for forest life, but it has become more and more completely adapted to live and compete with its enemies or rivals under the conditions which prevail on the high dry plains. The increase in size which has occurred during this evolution has depended upon the ability of the animal to secure an abundance of food. This end was provided with the changes in form which enabled the horse to cover larger areas in a shorter length of time.

Natural causes of evolution

It is interesting to note the probably natural cause of the evolution of the horse. During the early Tertiary period much of the western part of the North American continent was not as high above the sea as now. Indeed, much of the country had but recently emerged from the Gulf of Mexico which stretched far up the Mississippi Valley. The climate was probably very moist and warm and tropical, as is emphasized by tropical forest trees found fossil often as far as Greenland. Such a climate, with a low elevation of land, would favor the growth of dense forests, and to such conditions of life the animals of the beginning of the mammalian period must have been adapted.

During the Tertiary period the continent was steadily rising above the sea level. At the same time other influences were at work rendering the climate continually colder and drier. The coming of a cold, dry climate thinned and restricted the forests and in their place appeared the open grassy plains. The early forest inhabitants were forced to either retreat and disappear with the forests or adapt themselves to life on the plains. Most of the horse's early relatives followed the former course and disappeared, while the horse himself followed the latter course, changed with the changing conditions, and the race became as it is today, perhaps the most specialized of animals in its adaptation to its environment.

PRINCIPLES OF HORSE BREEDING

M. W. Harper

Professor of Animal Husbandry, Cornell University, Ithaca.

The development of the modern breeds of the horse dates back about three centuries when the English began to improve their horses, which resulted in the formation of the present thoroughbred breed of running horses. Most of the early attempts at improvement were for an increase in efficiency of the horse for sport and war. During the eighteenth century, however, much attention was given to horse breeding for economic purposes.

To Robert Bakewell we owe much for this movement. About 1760, Bakewell assumed the management of the estate on which his father and grandfather had resided at Leicestershire, England. Young Bakewell conceived the idea that he had only to select the most valuable strains, such as promised the greatest returns to the breeder, and that he should then, by careful attention to progressive improvement, be able to produce a breed from which he could derive maximum advantage. Bakewell recognized two cardinal principles of animal improvement: first, that similar produces similar, and second, that form bears close relationship to function. Based upon these principles, he originated a system, the application of which has resulted in our specialized breeds of horses.

SELECTION

In the improvement of our horses, selection plays an all-important part, since it enables us to encourage the production of those horses that meet the demand, and to prevent, in part at least, the production of undesirable animals. Thus in selecting horses for breeding purposes there are four important factors to be considered: first, individual merit or the perfection of the animal as a representative of its race, type, or breed; second, the pedigree or purity of ancestry, and the probable capacity of the individual to reproduce itself or show improvement; third, the suitability of the two animals to be mated; and fourth, breeding performance when offspring are available for observation.

INDIVIDUALITY

In selecting breeding horses the perfection of the animals should be carefully considered. Occasionally we give too little attention to this and select an animal on the basis of his pedigree. Such practice often proves disappointing as many inferior individuals are recorded simply because such animals command a good price on the market.

PEDIGREE

In choosing horses for breeding purposes the purity of ancestry is an important factor, since the capacity of a horse to produce superior offspring will depend largely upon his ancestry. Thus, there are four possible conditions that should always be borne in mind: first, the offspring of a superior individual with a good pedigree is likely to possess merit; second, the offspring of an inferior individual with a good pedigree may possess merit; third, the offspring of a superior individual with a poor pedigree is likely to be inferior in merit; and fourth, in all probability the offspring of an inferior individual with a poor pedigree will be distinctly inferior.

MATING

To be suitable for mating, the horses should be as nearly alike in general characters as it is possible to select, otherwise the outcome cannot be foretold. When the offspring shows good qualities the mating is considered a fortunate *nick*; when there is no resemblance to either parent, but to some near ancestor, it is called *atavism*; and if to some far removed ancestor, it is called *reversion*. Some persons are very skilled in selecting animals that mate to advantage.

BREEDING PERFORMANCE

In selecting mares or stallions for breeding purposes we can obtain a very good idea of the suitability of the animals by an examination of the offspring, if such are available. Thus in choosing a stallion, a careful examination should be made of his get, and, if they are deficient or otherwise unfit, he should be rejected. The same procedure should be followed in selecting

a mare. This practice may necessitate choosing an animal of some age, but it is preferable, as we know for a certainty what to expect of the offspring.

PREPOTENCY

There is a wide variation among horses in their power to stamp their characteristics upon offspring. When the offspring resembles one parent more than the other, the one transmitting it is said to be prepotent over the other parent. Thus prepotency becomes of importance in improvement, and the influences that tend to produce it in the individual are worthy of careful consideration. While many of the factors that influence prepotency are little understood, those that do aid and are under the control of man are: first, purity of breeding which favors stability; second, strong constitutional development which strengthens the characters; and third, limited inbreeding which aids prepotency as it strengthens dominant characters, both good and bad.

In breeding horses the prepotency of the stallion is given more consideration than that of the mare. This is due to the fact that the sire is the parent of more individuals than the dam, and not to individual resemblance. This is fortunate, as improvement can be more cheaply secured through a good sire from the mere fact that he is represented in more progeny. Furthermore, since comparatively few males are needed for breeding purposes, they are usually much more carefully selected than are the females, practically all of which are bred. This also favors the prepotency of the stallion.

STERILITY

Perhaps the horse breeder's greatest difficulty is the failure of his animals to breed freely. The causes which lead to sterility are many, some of which are understood and are more or less under control; others — and by far the larger and more serious number — are little known and beyond control. Some of the known and preventable causes of sterility are: first, confinement and lack of exercise; second, irregular food supply; third, food lacking proper nutrients; fourth, animals too fat; fifth, close inbreeding; sixth, excessive breeding, particularly with the stallion; and like causes. To lessen sterility, the breeder should make a careful

study of the conditions likely to produce the ailment, and carefully avoid them.

SOUNDNESS

Both sire and dam should be free from all forms of unsoundness and disease that is hereditary, transmittable, or communicable to the offspring. While absolutely perfect animals can rarely, if ever, be found, and few horse breeders can afford to reject breeding stock for some unimportant defect; yet, not until both mare and stallion are free from unsoundness can we hope to raise the excellency of our horses to the degree possible as the result of intelligent breeding. Many persons have fallen into the grievous way of considering any broken-down, halt, maimed, blind, or otherwise unsound mare fit for breeding purposes when no longer able to work. It is certainly poor policy to knowingly use unsound breeding animals and thus promote unsoundness in the offspring.

BREEDING YOUNG FILLIES

Among horse breeders there is much difference of opinion as to the advisability of breeding the two-year-old filly. It would seem that this practice would depend upon at least three factors, namely, the breed, the individual, and the object sought. As a rule draft-bred mares mature younger than those of the lighter type. Draft fillies at two years of age are often as mature as a light-bred filly at three years of age. Individual mares differ in the way they mature; a smoothly turned, neat and well-finished one matures much younger than a rough, coarse and growthy individual.

Since the feed and care influence the maturing, the filly that is kept growing continuously from birth will mature earlier than one imperfectly cared for and which receives a set-back each winter.

Finally, if breeding pure-bred animals and the object sought is to improve the strain, the advisability of breeding the two-year-old filly would be questionable. From this it would seem that if one desires to produce draft horses for market, there is no reason why fillies cannot be bred at two years of age if they are well grown and mature, and the owner is willing to feed and care for them properly during their pregnancy.

Possibly one reason for so much discussion as to the wisdom of breeding a mare at two years of age is from the fact that a filly at this age breeds with much irregularity. From experience it seems that only about one filly in four will conceive at so early an age.

THE PREGNANT MARE

The management of the pregnant mare should have for its object the feeding of such a ration as will supply her demands for energy, and in addition allow ample nourishment for the development of the foal both before and for a short time after birth, together with such a regulation of the work as will protect the mare from becoming stagnant, tired or injured in any way. The breeder who is painstaking and can accomplish this, will experience little or no difficulty in managing brood mares during and after parturition. There is no secret in raising colts further than the feeding of a moderate amount of nutritious food and providing sufficient exercise to keep the mare and foal in perfect health.

In our attempt to favor the pregnant mare we often subject her to very adverse conditions. Often she is placed in a stall, fed most nutritious foods, and denied exercise, particularly in winter, as we are afraid she will slip and injure herself or her foal. Under these conditions she soon stocks up, her legs become swollen and stiff, she takes on fat rapidly, and becomes soft and flabby — all of which serve to increase the difficulty at parturition time. It is much better to keep the pregnant mare at moderate work even up to the day of foaling as this will provide the needed exercise which is so essential to the well-being of both mare and foal.

SPRING FOALS

Mares breed naturally in early spring. At this season their breeding condition is more readily observed and they conceive more frequently than at any other time during the year. While the spring of the year is the natural breeding season, on many farms it is an inconvenient time because of the season's work, this being the busiest time of year. This often necessitates breeding the mare so that the colt will be dropped in the fall.

Thus, when convenient, the spring is the proper time to breed the mare, being attended by many advantages. The foal comes at a time when it is much more easily managed, the housing is simplified, since, if the weather is warm, the mare and foal may be turned into a small paddock or pasture. The grass the mare gets will serve to keep her in good physical condition and will stimulate the milk flow. This also gives the foal the range of the field and the much-needed exercise, without which no foal can develop endurance. Soon the foal will learn to nibble the grass, which will prove very beneficial, since grass is a very good supplement for milk for a nursing foal. If the foal is given a little grain at the same time the dam receives her ration, he will thrive and develop in a manner difficult to equal with a fall colt.

FALL FOALS

When fall foals are to be raised the mare should be bred so as to foal as soon as convenient after the season's work is done, providing the foal does not come when the flies are so cruelly annoying. To encourage the mare to breed, she should be fed an abundance of nutritious food which should be of a rather laxative nature. She should be blanketed and regularly exercised or moderately worked. Her physical condition can be much improved by feeding a moderate amount of succulent food, the object being to make the conditions as spring-like as possible.

If the foal comes in the winter it will need extra warm quarters and extra attention. The dam will need milk-producing foods such as clover or alfalfa hay, oats, bran, and a few carrots if possible. She should be exercised regularly. If the breeder has a succulent food such as carrots, and provides sufficient exercise for mare and foal, it is possible to raise a winter colt that will be a strong rival of the average spring colt. The winter colt has one advantage over the spring colt in that he is weaned in the spring of the year and may be turned to pasture where he should thrive, particularly if given a small allowance of grain.

THE STANDARDBRED HORSE

CARL W. GAY

Professor of Animal Industry, University of Pennsylvania, Philadelphia, Pa.

The Standardbred has a peculiar significance to New York State farmers. America has produced comparatively few breeds of live stock, our demands in milk, meat and power being met by representatives of foreign breeds that have been transplanted. To be sure some, as the Holstein cattle, may be so successfully bred here as to practically render importation unnecessary. Our supply of pork products is derived chiefly from breeds of our own creation and we think we have developed a saddle horse without a peer in his class, but the only American breeds which have attracted marked attention and demand abroad are Standardbred horses and Merino sheep, both of which have been exported in large numbers.

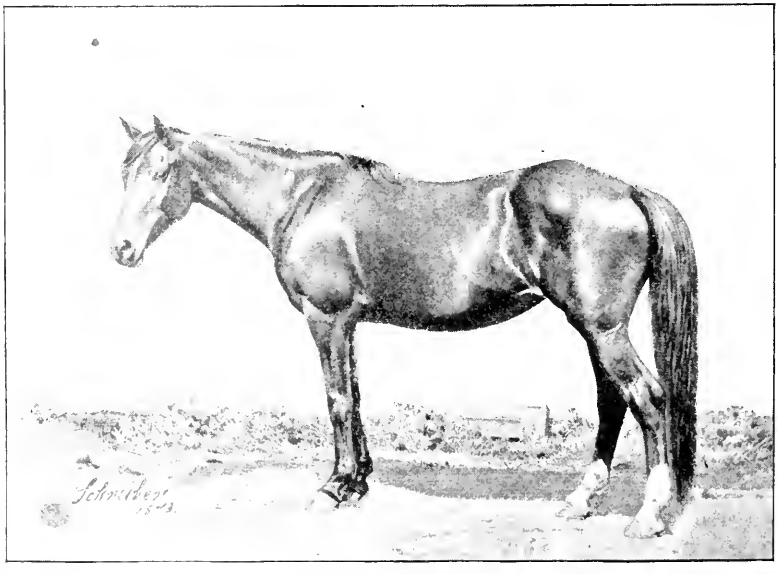


FIG. 2. GREEN MOUNTAIN MAID IN 1873

(From "Productive Horse Husbandry" —Courtesy of J. B. Lippincott, Publishers)

NOTABLE CENTERS OF STANDARD BREEDING

It is impossible to divorce in our minds Standardbred and New York State. Not only in Orange county the cradle of the breed, figuratively speaking, but the very sentiment for road driving of which the "light harness" idea was born, had its inception on the improved roads about New York City.

That ideals are essential to successful breeding, and that these ideals are most cherished where greatest successes have been achieved, is made plain by a visit to that part of New York State made famous by Standardbred history. Naturally among the older pre-motor-day generation the American trotter is idealized. Goshen, the county seat, has been dubbed "The Lexington of the North" in recognition of the important part it played even after the formative period of the breed, as a centre of light-harness-horse activities. Its historic half mile track and stables where many champions have been trained and quartered, as well as championship honors contested, is directly across the way from the Court House, and apparently has been an institution of equal rank in the affairs of the town. The streets are broad, and time was when a lively brush straight away down the street was a common occurrence. Conversation with old-timers elicits inspiring accounts of this horse or that, his achievement and a character sketch of the man who bred him. About the countryside, and even in the towns, are monuments in granite to the memory of the most notable horses. Most conspicuous among these shafts are those erected to Green Mountain Maid at Stony Ford and Hambletonian 10 at Chester.

More local color is added to the picture of the history of the Standardbred by the part played by the old race tracks on Long Island and about New York City. The initial performance of Lady Suffolk, Flora Temple and Dexter, as well as many lesser lights, were at Beacon, Union and Fashion courses respectively, while one of the first trotting matches recorded was on the Jamaica Road (Long Island) 1824.

From southeastern New York, as the original center in which the Standardbred was established and his foundation blood lines laid down, the sentiment for the trotter, and consequently some breeding stock, was carried to Kentucky and especially to California. Philadelphia has always figured more or less intimately

with New York. During a half century or less Standardbred horses have become most generally distributed throughout every state, and are so firmly established as to meet the strongest opposition from promoters of other breeds for which it is desired to gain a foothold.

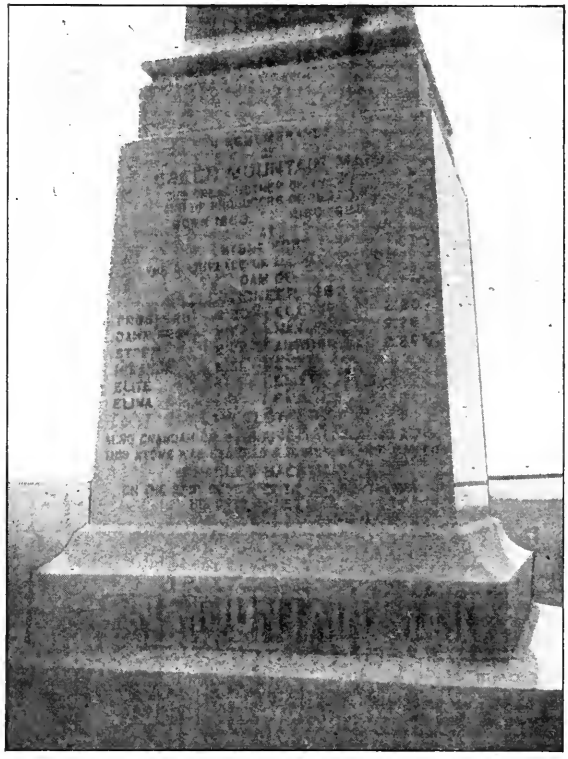


FIG. 3. INSCRIPTION ON MONUMENT TO GREEN MOUNTAIN MAID AT STONY FORD—"GREATEST MOTHER OF TROTTERS."
(From "Productive Horse Husbandry" — Courtesy of J. B. Lippincott, Publishers.)

STANDARDBREDS ENTITLED TO A PLACE

One of the generally accepted policies of the later-day agricultural education is to oppose the Standardbred. He is tabooed for the farmer, and treated with the utmost contempt by many who are responsible for an unprejudiced exposition of the merits and claims of all breeds of live stock. We cannot deny some reason for this. Probably lower net profits have been returned to the credit of the farm accounts by trotters than by any other

class of animals produced on the farm; yet draft horses pay well. However, to ignore or to depise the Standardbred is to deny deserved recognition to the horse which has, at least until we have been shown a better way, tilled our fields, furnished our chief means of transportation, mounted our troops, and been the central figure in one of our most popular and liberally patronized sports. And there are yet farmers who find the Standardbred of the right type to be of greater usefulness to them than horses of any other type or breed.

NOTABLE STRAINS

The history of the Standardbred is very well known and little need be said of it here. Every New York farmer knows the

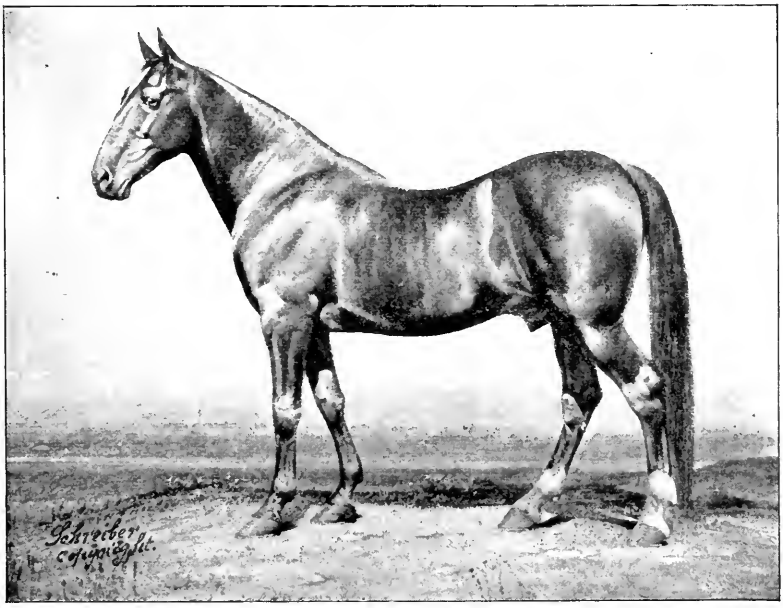


FIG. 4. HAMBLETONIAN 10 AT TWENTY-THREE YEARS OF AGE.
(From "Productive Horse Husbandry" — Courtesy of J. B. Lippincott, Publishers.)

Hambletonian, the Abdallahs, the Mambrinos, the Wilkes and a score of others. However, that these farmers do not fully understand how the fabric of the breed is woven in these lines is exposed in their frequent reference to a Wilkes or a Hambletonian. There was a time when to be a Wilkes or Hambletonian was some distinction, but the different branches of the family tree have

ramified into so many twigs that to say that a horse is Wilkes-bred signifies that he is Standardbred and that is about all. It may, therefore, be worth while to run out some of these family lines.

DESCENDANTS OF MESSENGER

So far as the Hambletonians, the Wilkes, and the Mambrinos are concerned the focal point is found in Messenger — a gray Thoroughbred imported from England in 1788. While he was a running race horse, many of his sons and grandsons out of the common trotting road mares of that time, became trotters and begot trotters. The most notable of all sons of Messenger was Mambrino, at whom the family tree first divides. Mambrino, sired both Abdallah and Mambrino Paymaster. From the former comes Hambletonian 10 and his 1287 descendants; while Mambrino Paymaster sired Mambrino Chief, a cousin of Hambletonian and progenitor of a blood line known collectively as the Mambrinos, which nicked especially well with the get of Hambletonian himself.

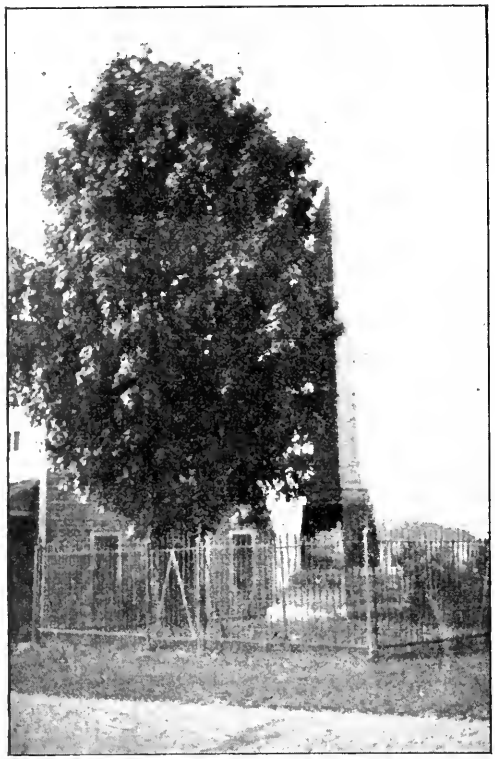


FIG. 5. MONUMENT OVER GRAVE OF HAMBLETONIAN 10 AT CHESTER, N. Y.
(From "Productive Horse Husbandry"—Courtesy of J. B. Lippincott, Publishers.)

Of the numerous sons of Hambletonian fourteen became noted as producing sires, and George Wilkes was the greatest of them all. Here again the tree branches and subdivides through the sons and daughters of George Wilkes and their succeeding generations, which are almost legion. The prepotency in this family is remarkable.

THE MORGANS

Other Standardbred family lines not akin are the descendants of Justin Morgan whose best blood comes down through Sherman Morgan, Black Hawk, Ethan Allen, and, in Daniel Lambert, is engrafted onto the Hambletonian stalk, Fanny Cook, the dam of Daniel Lambert being by Abdallah and therefore half sister of Hambletonian. The more light there is thrown on the ancestry of the early Standardbreds the more credit attaches to Justin Morgan. He is ranked by some authorities along with Messenger, they being claimed as the two breed-foundation sires.

DESIRABLE CHARACTERISTICS

The present status of the Standardbred is subject to some discussion. While he is primarily a light-harness race horse, the percentage of those bred that make good in this capacity is low, and hardly sufficient in itself to justify the breeding of them to the extent that they have been bred.

Harness racing seems to be as popular as ever, but the demand for road horses, misfits in the breeding of race horses, has been more impaired by the general use of motors than has that for any other type of horse. Without an outlet for the ninety-nine, the one hundredth one, that is good enough to race, becomes an expensive proposition to produce. No one is unwise enough to advocate the breeding of race horses by farmers, but the economic importance of the breed depends as much upon what is to become of the majority of the colts as upon the successful careers of the exceptional few. This is the problem in this breed at present.

The high-class road horse or gentleman's driver stands a fair chance to come back, perhaps, but the road horse which serves only as a means of rapid transit can never hope to compete again with the roadster car. There is, however, a practically new field opened up to the good-gaited, well-mannered trotter. For some time trotters have been used in a limited way as saddle horses, but they have been backed chiefly by trotting, not saddle, horsemen. Now riders of much experience have been heard to say that if more people had experienced the delightful sensation of riding trotting horses more would be ridden. The extended trot of the light-harness horse is so distinct from the collected, weight-carrying

trot of the true saddle horse, and they are so different in the way they are set up, that it seems inconsistent to interchange the use of either. Yet there is ample and proper endorsement of the trotter as the horse to ride to warrant his recommendation for such use. Business men who have limited time in which to ride for exercise are especially warm in their commendation.

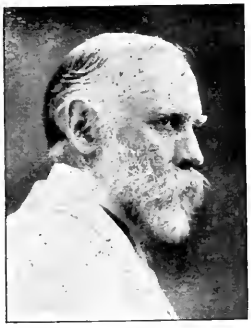
Much has been heard of the remount problem of late. The Standardbred has always given a good account of himself in service and appears to be leading in the solution of this problem today, notwithstanding Thoroughbred and Saddle Horse contention to the contrary. If a census of the thousands of horses recruited for foreign service in this country the past few months were taken, Standardbred breeding would be found to predominate. This fact does not attest the greater suitability of the Standardbred grades as mounts, but is accounted for by the very good reason that they are available in greater numbers and in more different parts of the country than any other horses that will serve the purpose at all. The country is already stocked with good Standardbred mares. Are they not our greatest asset in the remount contingency?

We, of New York State, hold the Standardbred in highest esteem, for sentiment and state's sake, for the glory that has been his, and we protest against counting him down and out, as some would do, for time to come.

THE ARAB HORSE

H. K. Bush-Brown, Washington, D. C.
Secretary-Treasurer, The Arabian Horse Club of America

ORIGIN



The earliest histories and sculptural records depict the horse, and usually the Arab horse. There is some question as to whether this ancient type of horse was first known in Assyria or in Northern Africa. He is sometimes spoken of as the African horse to distinguish him from the Forest horse, which originated in Europe, and is therefore called the European horse.

So far as can be determined there are four species of horses: first, the Forest horse from which we have the draft types, commonly called "cold-blooded"; second, the Arab horse or hot-blooded horse, from which we have all the light and fleet horses, and the admixtures of these two giving the coach types; third, the Arctic horse or pony, represented by the Norway horse, the Connamara pony, and the small horse from the North British Islands; fourth, the Prezwalski horse, recently discovered in a wild state in Central Africa, only a few of which are to be found and these are in zoological parks.

ANATOMY

The earliest fossil type of horse had five toes and five developed hoofs; he was small, long-bodied with arched back. Then came the three-toed fellow, and finally the one-toed horse as we know him, with the two side toes only in rudimentary form and called the splint bones. These fossil types had one more vertebrae than the modern horses, which peculiarly reasserts itself now in our sometimes finding seven instead of six lumbar vertebrae. The draft types have the regulation twenty-four vertebrae; still they are further elongated in the body by the thicker padding between the bones, and are from four to eleven per cent longer than they are high at the withers. In contrast to this the body of an Arab

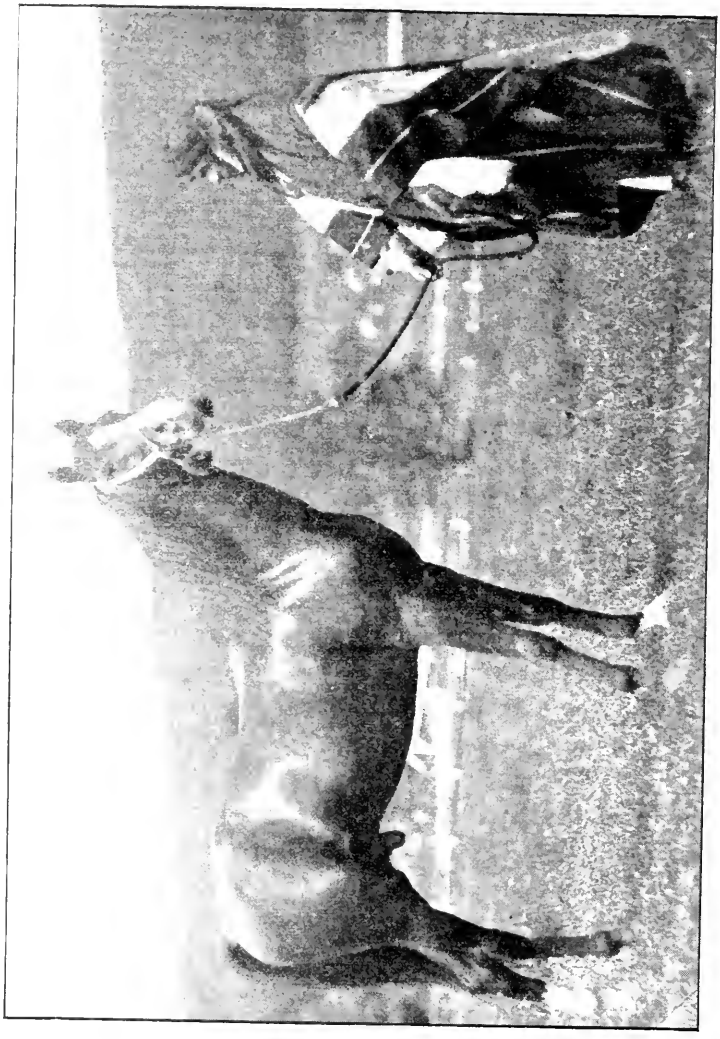


FIG. 6. IMPORTED ARAB HORSE, HOUTAN, OWNED BY HAMILTON CARHART, Detroit, Mich.

horse just fills a square, and he has one less vertebrae in the back — twenty-three instead of the twenty-four common to all other horses, even those so closely bred to the Arab as the Thoroughbred.

In the evolution of the horse we find, as we go from the early and lower types to the later and higher types, this course of evolution is in the elimination of the extra toes and the shortening

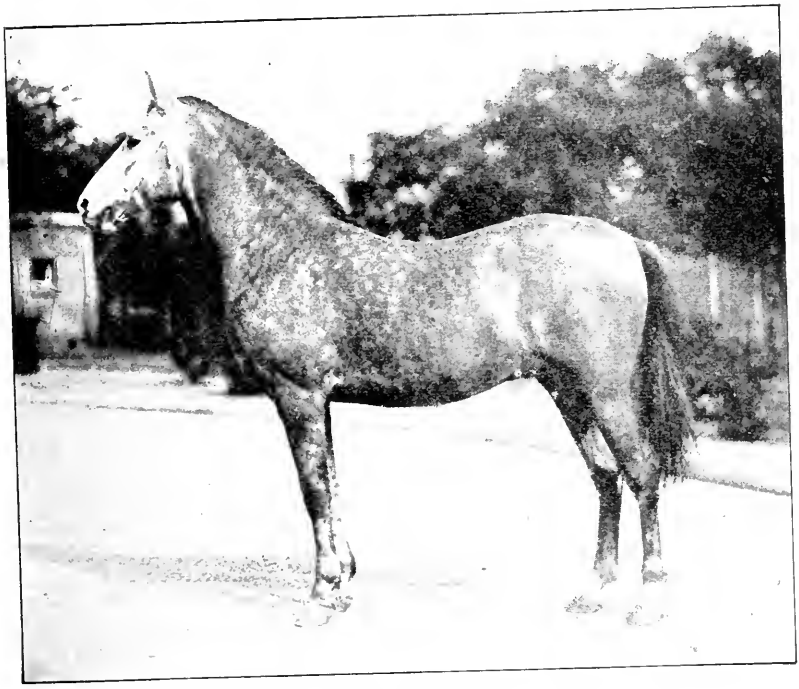


Fig. 7. Three-Year-Old, Cibolo. Bred by Anita M. Baldwin. Santa Anita, Cal.

of the back by reducing the number of vertebrae, until we arrive at the highest type the Arab with only twenty-three vertebrae in the back.

CAPACITY

The relation of proportion and anatomical detail to capacity has always been recognized by the trained eye of men who have lived with horses, but reducing it to mathematical terms is yet to be accomplished. The research which I have made along these lines has been only sufficient to disclose the largeness of the field that must be cultivated by those who wish to work therein.

It is accepted as a truism, however, that a long-waisted horse is not a strong or enduring one — that is, long in the loins or lumbar vertebrae. Some of the fossil types had seven or eight lumbar vertebrae. William Cavandish, the Duke of New Castle, in 1654, depicts the horse of that time with seven. This probably was an accidental revision or sport, for the later fossil types had the regulation six common to all modern horses except the Arab which has five, or, if six are developed, only seventeen dorsal vertebrae.

This shortness of the back of the Arab sufficiently explains his great weight-carrying capacity and endurance, which, with his extended ribs and deep chest with big trottle and open-nostrils, gives him great lung capacity.

It is in the transmission of some of these qualities to his offspring, the Thoroughbred and Trotter, that we have the speed and endurance of these types. With three centuries of artificial selection for special functions of racing we have produced these separate types of horses, but the present stock remains a distinct type by itself, largely on account of the anatomical differences.

HEREDITY

In the horse we have the wonderful opportunity for the study of heredity, because of the anatomical differences that exist between the Arab and even his nearest of kin, the Thoroughbred and Trotter. For three hundred years we have, by special selection for capacity, produced our modern types, using the dams of the European horse with the sire of the Arab horse, constantly refining and reenforcing from the Arab, until we have in the Thoroughbred 99 per cent and more of Arab blood; but with all this selection I fail to find a Thoroughbred skeleton with the twenty-three vertebrae of the Arab. On the other hand, we have the Arab horse bred with religious care by the desert tribes, always tracing their pedigrees from the dam, and for three thousand years they have maintained a pure type with twenty-three vertebrae.

These facts have forced me to accept this theory until the contrary is proved true: that the dam has more control over the pro-

portion and anatomy of the foal than the sire. The investigations I have made so far have gone to support this theory. The details of this research I cannot give in the space allowed for this writing.

The pure and intense type will also more surely dominate the characteristics of the foal, and diagonally crossing the warp and woof of inheritance is the law of cross sex similarity so frequently apparent. Thus the son favors the mother's family and the daughter the father's.

Fig. 8. Cross Between a Kentucky Saddle Sire and a Pure-Bred Arab Dam.

To return to the opportunities of horse breeding—we have to find out something by breeding the pure Arab mare with twenty-three vertebrae to the Thoroughbred, the Trotter and Morgan, which are kindred types with twenty-four vertebrae, and, by research, discover how many, if not all, of the produce will have twenty-three vertebrae; also what the result would be from the second generation by breeding to each of the original types.

FUTURE POSSIBILITIES IN HEREDITY

My observation leads me to believe we can produce an American Arab or Thoroughbred — whichever it may be decided to call the family having the additional size and the anatomy and proportion of the Arab — which, by reason of this increase of size and shortening of back, will be a more enduring and better horse than either of his ancestors. To accomplish results on such lines certain individuals must be selected for anatomical research, and their skeletons preserved in some museum so that those who follow the investigation may do so from generation to generation. It cannot be accomplished by any haphazard or catch-as-catch-can method. To show the value of continuous careful study, let us review the influence of the Arab on horse breeding of the last few centuries in this country.

REVIEW

The influence of Arab blood in this country goes back to colonial times when all the importations of race horses to this country had been bred in England, from the ten recently imported Arab sires. The one who had the greatest influence on American horses was Messenger, who was thrice a grandson of Godolphin Arabian and also bred to Byerly Turk, Greyhound, Curwan Arab, and Darley Arabian. He was imported in 1788, and all Thoroughbreds, all Trotters, All Kentucky Saddle Horses — and one may safely say all the horses that are good for anything — carry the blood of Messenger.

Scarcely less important was the importation from the desert of the stallion Grand Bashaw, who came a few years after Messenger and was mated to his daughters. In 1811 he was bred to Pearl, the daughter of First Consul who was herself six times bred to Godolphin Arabian and carried the blood of Byerly Turk, Lands Arabian and Darley Arabian. The produce was Young Bashaw who was bred to the descendants of Messenger, and thus produced the families of Andrew Jackson, Long Island, Black Hawk, and Henry Clay.

All the Trotters of this country carry the blood of Grand Bashaw and the best of them go back to him on almost every line of ancestry.

FIG. 9. DAUGHTER OF DEYR. SIRE AND DAM IMPORTED BY HOMER DAVENPORT.

I have no information of Arab horses that may have come to this country between the time of Grand Bashaw and about 1856, when Keene Richards of Kentucky imported quite a number of stallions and mares. His breedings were destroyed or scattered by the Civil War, yet their influence can be traced as important factors in the Kentucky Saddle Horses of today. One of Keene Richards' horses produced the race horse Limestone, and another the dam of Dorsey's Golddust.

After the battle of Pittsburgh Landing (Shiloh) General Breckenridge escaped from capture by the federal troops, who were on Thoroughbred horses, by driving two half-bred Arab fillies of Keene Richards that were only green three-year-olds.

Umbark was presented to President Van Buren. While Hon. William Seward was Secretary of State under Lincoln he was presented with the Arab stallions Meaneke Hedragi and Siklany. Leopard and Linden Tree were given to General Grant by the Sultan of Turkey.

In 1856 Mr. Randolph Huntington imported Naomi, and in 1893 her daughter Nazli and grandson Nimr. These important importations were followed by others of Mr. J. A. P. Ramsdell and Colonel Spencer Borden of Fall River, Mass.

In 1893 a large number of high-class Arabs were imported for the World's Fair under agreement that they were to be returned to Assyria, but they were sold for debt, only a few being rescued from oblivion by Peter B. Bradley and Homer Davenport.

Descendants of all these horses have figured very prominently in the show ring in many parts of the country, and in the long distance test of 300 miles in Vermont last year, they held first, third and fourth places, second place being given to a Morgan horse.

In 1906 Mr. Homer Davenport imported the most important and largest bunch of horses that ever left the desert of Arabia. There were some twenty-five mares and stallions, counting the foals at foot and in utero. Their value may be gauged by stating that the Italian Government paid in Assyria $10,000 for the brother of Deyr, one of the horses Davenport brought home.

It is too soon to estimate the importance of these horses or the influence that they will have, but, judging by what has been

FIG. 10. ABDALLA NO. 52. OWNED BY N. J. HESS, NEW YORK CITY.

accomplished, they are going to impress themselves on the stock of this country just as the earlier importations have done. For instance, one of these desert-bred horses, Haleb, was shown in Rutland in the Class for the best type of Morgans, and was given the cup over the Vermont-bred Morgan horses.

The value of these horses to the American people will be in proportion to the intelligence with which they are bred, and it would seem to be the duty of the state experiment stations to take hold of this necessary research breeding in a really scientific spirit, where its pursuit will not be influenced by the whims of individual breeders or be subject to the limitations of one man's lifetime.

Heretofore we have been content to accept our types of horses largely from Europe, and continue their studbooks with slavish contentment and gratitude. In spite of this tendency we have

demonstrated our capacity to be independent by creating the American Trotter, which has gone all over the world, and the Morgan horse, which, for general purposes, has had no superior. The Kentucky Saddle Horse is also a recognized type. With this history before us is it too much to predict that horse breeders should not close the doors of research, and say they know all there is to know about horses and horse breeding?

BEAUTY AND INTELLIGENCE

There are two essential characteristics of the Arab horse which have intrinsic merit and financial value. They are intelligence and beauty. As the use of electricity and gasoline for motive power relieves the horse of his former position of universal drudge, he returns to his own original position — the companion of man in his pleasure in times of peace, and the salvation of man in time of war.

If there ever was the need of considering the maximum efficiency of a war horse, now is the time. The test given last year in France of 1,000 kilometers, under hard military service, showed the Arab-bred horse to be the most enduring; but this has been demonstrated so many times and in so many ways, that it is only a question of how best to use and continue the Arab blood we already have in this country.

In addition to attaining these most useful qualities of endurance by use of Arab blood, we have also the marked advantage of beauty and intelligence which he possesses, and, if we will follow the laws of heredity and carefully record the results, we can improve on the horses we have in any direction of utility and beauty we may desire. At present the state experiment stations would seem to be the means of carrying out such work and dividing the many methods of procedure.

Let us take up this work in a cooperative spirit of research that we may make the most of this most interesting science.

THE THOROUGHBRED

Lieutenant N. C. Shiverick, "Ashantee," Avon, N. Y.

ARABIAN FOUNDATION

In speaking of horses one often hears the word "thoroughbred" misused. There can be no such thing as a thoroughbred Percheron, a thoroughbred Clyde, Shire or other type; "pure-bred" is the term which should be used, and this term pure-bred may be applied to any type of horse, each of whose parents is pure bred and of the same type — pure-bred Percheron, pure-bred Clyde, etc. Thoroughbred is the name of a distinct type of horse, developed through centuries of breeding and racing. All Thoroughbred horses trace their lineage through the records of the American and English Studbook back to one of the three great foundation sires, either the Godolphin Arabian, the Byerly Turk or the Darley Arabian. The Thoroughbred's foundation was Arab, and it might be said that it practically began where the Arab left off. I mean that the Thoroughbred, resting its foundation on the Arab, thence forward until now, has been developed through the science, care and wealth of the most enlightened, wealthiest and ablest nations of the world.

TRANSMITS ENDURANCE

In developing the Thoroughbred, there has always been the one definite object, namely, to breed an individual gamer, stronger, hardier and more intelligent than his forebears. Thus for centuries the one object of Thoroughbred breeders has been to intensify in the "get" the best of its ancestors, and in each generation to eliminate minor defects and to cull out the undesirable points or characteristics. Since no other breed has been so favored, it is unintelligent to even suggest that any breed can be considered equal to the Thoroughbred in what we might call racial transmission.

Throughout all nature and all activities of natural things, improvement occurs in consequence of care and selection. Why breed to a Thoroughbred? Because he transmits more desirable qualities, physical and mental, than does any other horse. This

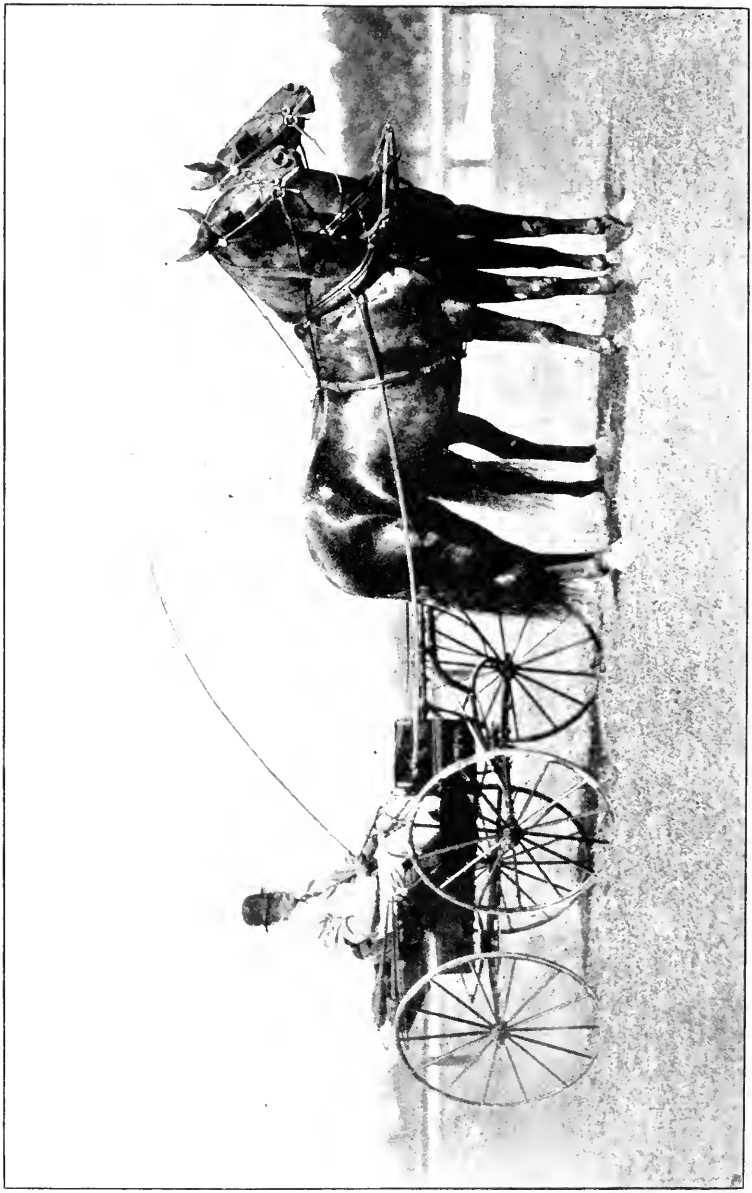


FIG. 11. A GOOD PAIR OF THOROUGHBRED DRIVERS.

does not reflect on any one or all of the recognized breeds, as each has its definite function, but, in the general case, the Thoroughbred as a sire will give the farmer better returns than any other breed, due to his athletic ancestors, and the quality of bone, muscle, nerve, blood and intelligence which they have transmitted. The Thoroughbred, pound for pound of food consumed, will wear out any other type of horse at the same kind of work. This does not mean to say that the poorest of the Thoroughbreds will kill off the best of the Clydes, Shires or other breeds in heavy farm work, but it means that the best of the Thoroughbreds against the best of the others, or the average of the Thoroughbreds against the average of the others, will certainly deliver a much higher efficiency in proportion to his weight, his food and his care, than any other breed. He will outdo any type of horse, be it at the plow, on the binder, in the hunting field, or in military service. His gameness, toughness and intelligence will bring him in the winner.

One may have certain very slow heavy work to be done. In this case the weight is required; hence, use a draft horse — a big, slow-moving, cold-blooded Percheron, Shire, Clyde, or other of their kind. One may want a very fast trotting road horse; then take a Standardbred, and so on in special cases. But where there is need of a general utility horse,— one that will plow today, reap tomorrow, drive to church on Sunday, and one which pulls more, goes farther and gets there faster for the amount of feed consumed — use the infusion of Thoroughbred blood.

TRUE TYPE

This bears no reference to the weed type of Thoroughbred. The weed is the outcast of the breed. He comes from the patronage given two-year-old racing, and is the result of the breeding which seeks to produce speed, speed, and more speed, at the expense of wholesome balance. Under the tremendous strain of training for racing during his immaturity, he becomes a victim of arrested development, and the only reason he does not succumb to this forced or too rigorous course is his inheritance of spirit, which can strive against great odds.

The Thoroughbred in mind is the fully-developed survivor of rigorous work and training, whose inherited constitution, stamina and will, carry him on to a full, wholesome development; whose physical points include a big, roomy lung cavity, and a bread-basket affording comfortable space for a properly-working digestive apparatus, which indicates that he is a "good doer" or an "easy keeper." This is the type which for years the German Government has bred for army horses. The Germans have paid

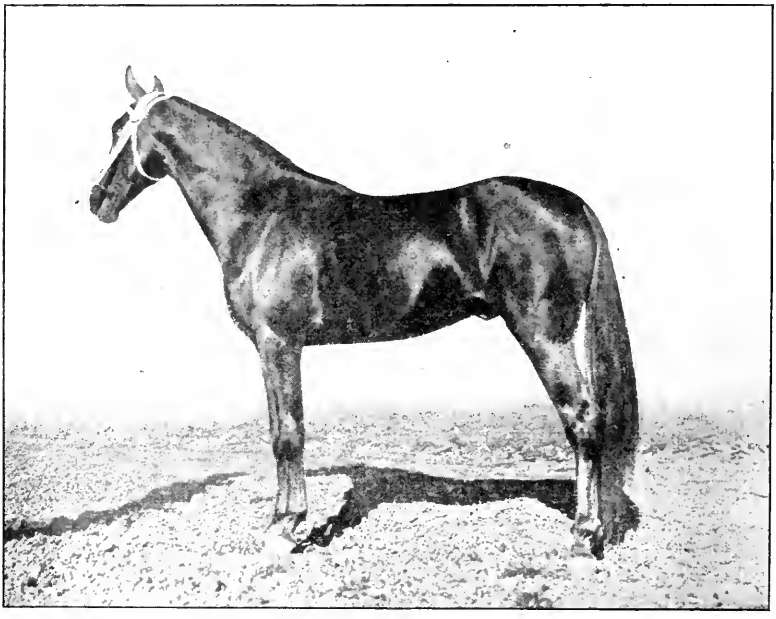


FIG. 12. PRIZE-WINNING TWO-YEAR-OLD.

as high as $230,000 for a single Thoroughbred stallion to use in their great government studs, and now, in the bitterness of war, their breeding policy proves its correctness — the efficiency of their methods in building a war machine. With their superior horses, they have made superior marches, attacks, etc., and their horses are of Thoroughbred sires. We have heard no word of Germany suffering from want of horses. Of course they sustain losses from all war causes, but I think future histories will show that their percentage of losses through fatigue, etc., is much lower than the percentage of the Allies' horse-losses from similar causes,

just as past history proves that the Thoroughbreds of the South were immeasurably superior to the cold-blooded, cross-bred horses of the North. Northern cavalry began to be effective in the Civil War only when the limited supply of southern Thoroughbreds began to be exhausted.

PREPOTENCY

Prepotency is known to intensify in direct proportion to the established purity of an individual's ancestors, and the purity of ancestors is manifested by their pedigrees, which means an accurate knowledge of ancestors. We find in the Thoroughbreds, more than in any other breed, the longest line of known ancestors bred from selected performers, and each generation bred to intensify the development of those qualities most desired in any type of horse, namely, intelligence, gameness, constitution, and ability to perform in proportion to environment.

Breeders know that the percentage of uncertainties increases in a geometrical ratio with every outcross, hence when breeding a female of unknown lineage, wisdom prescribes the use of a sire of definitely determined prepotency, and this is necessarily best established in the Thoroughbred.

THOROUGHBREDS ARE INTELLIGENT; THEY WILL NOT STAND ABUSE

The only objection to the Thoroughbred, as a general-purpose horse, that I have ever heard expressed by farmers is, that they are too hot-headed; that they require more careful driving and handling than animals sired by an individual of the draft breeds. Upon consideration of this statement, one must conclude that these farmers desired cold-blooded, low-spirited beasts which would not resent abuse. Animals of gameness will not stand abuse, but neither will they lie down when they are tired. Horses, like men, and like other animals which have no fighting spirit and which will stand abuse without resentment, will also quit when their work becomes tiring. They have neither determination to do their work nor the heart to go on to a finish.

While the cold-bred horse takes abuse from a brutal driver, and sullenly, half-heartedly plods on, the Thoroughbred makes known that he will not be mistreated. The farmer hears of it

and has a basis for discharging a brutal employee, and getting in his place a man who will take his employer's interest to heart as well as his own, and who will keep his team doing a full day's work with a light and happy heart. The man who drives his team with curses, whipping, jerking and abusing, keeps them in a mental state which only a sluggard can stand, and the world knows that sluggards are not performers. This does not mean that the pure-bred drafter is a sluggard; no pure-bred animal is. There may be exceptions, but no class of pure-breds are sluggards. The pure-bred drafter, due to his enormous size, has a bullying effect on a brutal driver, as brutal people are generally not courageous at heart.

MANY NOT TRUE THOROUGHBREDS

Too often opinions are expressed which are founded on some special case, instead of being the outcome of a really comprehensive knowledge and due regard for the facts in general. The Thoroughbred does not enjoy the reputation among farmers that he is entitled to, and this is largely due to the fact that, generally speaking, the Thoroughbreds found in American rural districts are outcasts from racing studs — and even Thoroughbreds follow the laws of the universe inasmuch as all cannot be up to standard — while the specimens of draft breeds in our rural districts are usually of the best. Had our government made a practice of selecting excellent Thoroughbred stallions, and through them fostering the breeding of horses, the position of the Thoroughbred would be established throughout the land.

LESS AFFECTED BY AUTOS OR TRACTORS

At this time, with the fast development of farm tractors, many thoughtful people express the belief that the need for farm horses must necessarily decrease, and, if the advance in tractor manufacture approaches the progress of the automobile, there can be no doubt about it. A motor converts its food into a known amount of work. It never eats while idle, whereas the horse must eat daily, work or no work. There are no epidemics of diseases or unknown ailments of motors as is the case with horses.

Hence, what is the profitable horse for the farmer of today to

raise? It is the type of horse whose utility cannot be supplanted by any machine — the horse which is in demand and the demand for which is increasing, such as a hunter or a military horse. If he is wanted for farm use he is available, as well as for any other purpose, especially military.

VALUE FOR ARMY PURPOSES

The present strife in Europe insures a splendid demand for our horses for years to come, as, after the war, Europe will for

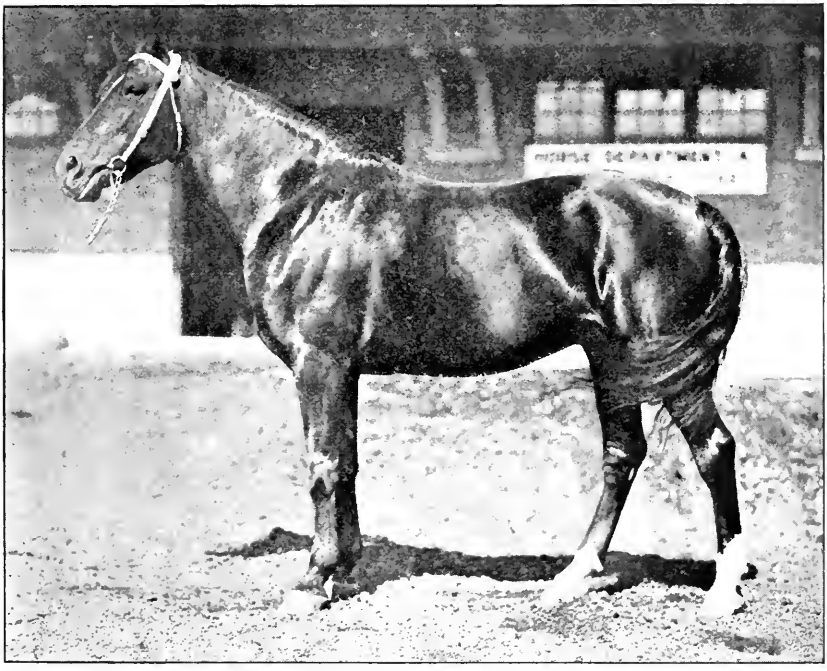


FIG. 13. THOROUGHBRED SHOWN AT STATE FAIR.

a long period be unable to meet its own demands for military horses. All such horses are increasingly valuable as their proportion of Thoroughbred blood is greater, whether for cavalry or artillery. In gun horses, intelligence, spirit, speed and gameness as well as size are wanted; hence a horse having a grand-dam of draft breeding and a grandsire and sire of Thoroughbred, is the type most desired, while the cavalry mount is ideally a hunter,

and a hunter means anywhere from one-half-bred to clean-bred Thoroughbred.

The essentials in military horses and hunting horses can be had only from strong infusions of Thoroughbred blood. One may smile at the idea of breeding a draft mare to a Thoroughbred stallion, but it is due to ignorance. That cross may produce an excellent gun-horse, and the second Thoroughbred cross is sure to.

Of course there are instances of individuals of all breeds having exactly the qualities generally sought in other breeds, due to the fickleness of nature in cross-bred matings; but business which depends on exceptions is not business. There is no question but that marvelous performances will be found in badly bred horses, but they are rare, and only foolish people try to get these "sports" by cross-breeding. More good in more cases comes from Thoroughbred breeding than from any other.

All farmers breed some horses — perhaps only one mare, and that may be only every other year. Even so, it is poor business and bad farming if the owner does not breed to get a marketable type of horse. There is no question but that the most salable horse today is the horse suitable for hunting or for military service. The inexpensive autos have destroyed the usefulness of the roadster from an economical standpoint, and similarly the motor-truck in cities and the tractor on farms are crowding out the draft horse.

While automobiles are generally said to be replacing horses, one must accept this statement with a qualification as to Thoroughbred horses; the demand for this type is greater today than ever before. It is constantly increasing, due to the demonstrations of the present war that horses are as necessary today in the conduct of warfare as ever before, and probably more so; and it will be generations before the enormous loss of the present war can be made up.

Then, too, the demand for hunters is greater than ever, and, with the growing popularity of hunting and racing, this demand must grow. It offers a lucrative field for breeders of horses suitable for hunting or for military service, and these, pre-eminently, must have strong infusions of Thoroughbred blood.

CARE OF FOAL MOST IMPORTANT

After the foal arrives, do not turn him out to be forgotten, but see that he has sufficient food to help him grow, and, in the winter, that he has access to shelter for protection against wet and against cold winds. Cold without winds probably tends to make well-fed colts hardy horses. Size is attained by care and feeding, and size means increase in selling price. The foundation given during the first year gives the youngster a start in growing that cannot be over-estimated. Neglect the weanling, and double the food during the second year will never make up for the vitality lost while struggling through the first winter.

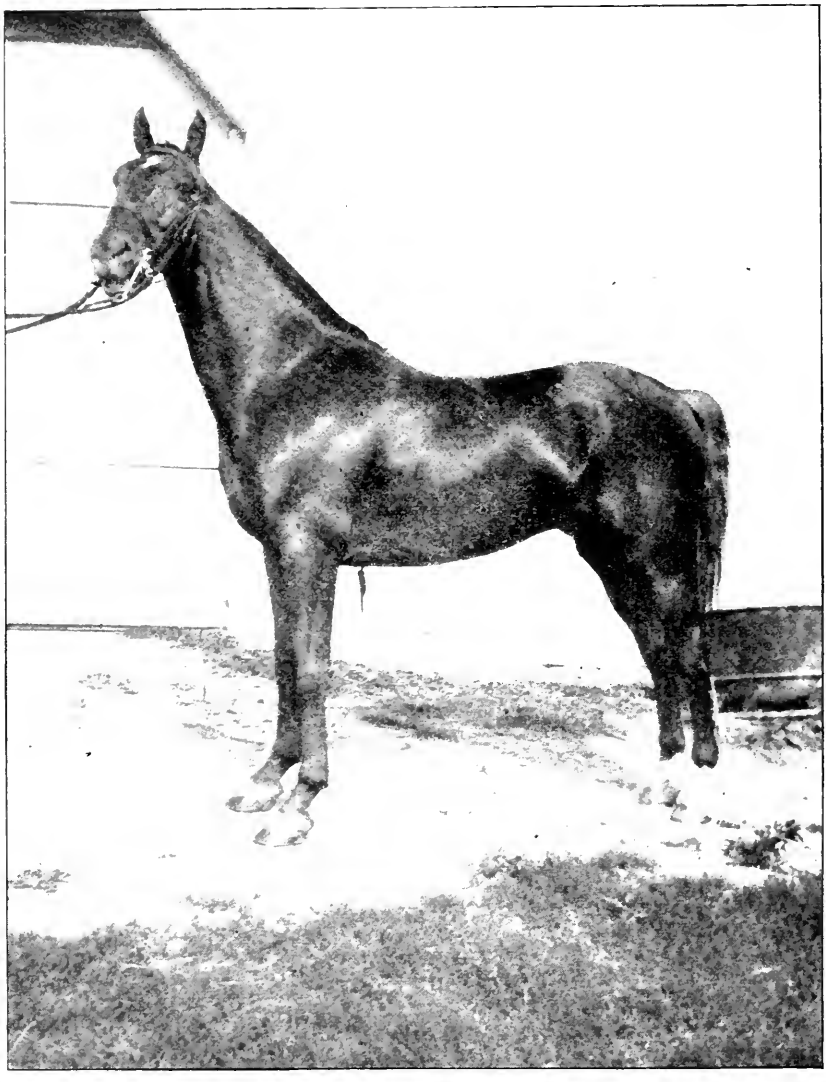


FIG. 14. GOLDEN FLIGHT.

THE AMERICAN SADDLE HORSE

ELISE CASTLEMAN RAILEY, Lexington, Ky.

DERIVATION

The American Saddle Horse Breeders' Association was organized in the city of Louisville April 7, 1891, a number of the leading breeders of saddle horses being present and participating in the preliminary proceedings. The association was duly chartered according to Chapter 56 of the Revised Statutes of Kentucky. In article three of the constitution and by-laws of the association is found under the heading "objects," the following: "The objects of the association shall be to collect, record and preserve the pedigrees of saddle horses in America, and to publish such register in such form as shall be adopted by the association, and such other matters pertaining to the breeding, exhibition and sale of saddle horses as may be deemed advisable."

In order to establish rules for the registration of animals by breeding it became necessary for the directors of the association to select certain great sires and enter them as the source of saddle stock. The intention was to get back to the source, so it was not desirable that the list be a long one. Only progenitors of what were known to the board to be saddle strains of horses were selected for the foundation list. The list originally selected in 1901 comprised the names of seventeen stallions. In 1902 this list was revised, and the names of seven stallions were removed and numbers were set opposite their names. This list of foundation sires stood until the annual meeting in 1908 when the names of nine stallions were removed from the register and numbers set after their names. Thus all were eliminated except the great Denmark, and he was made the sole foundation sire of the American Saddle Horse.

Quoting from David Castleman, reproduced from "The American Saddle Horse:" "In eighteen years since the formation of

this association, it has been fully demonstrated that no horse was worthy to stand by Denmark's side as a foundation sire. Proof of this statement is conclusively given in the first volume of the register, for, of the two thousand nine hundred and eighty-one entries, one thousand six hundred and fifty-three — or practically fifty-five and one-half per cent — have direct male trace to Denmark by Imp. Hedgeford out of Betsy Harrison by Aratus. The fact that the sire of Denmark was imported makes it im-

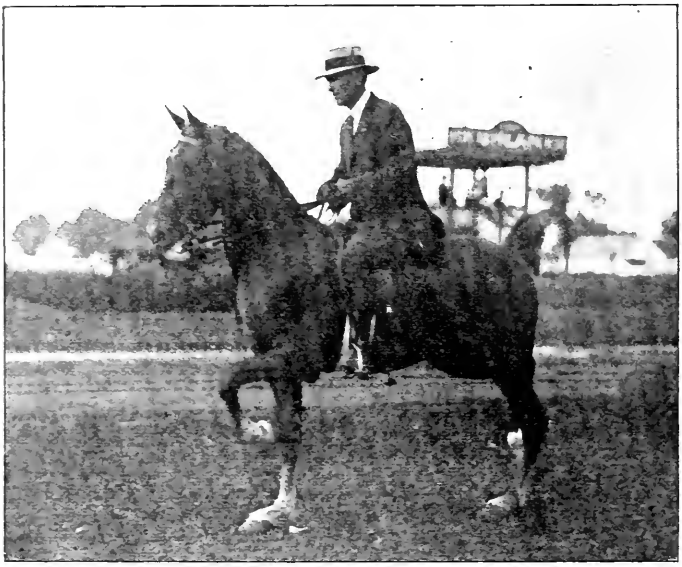


FIG. 15. DAINTY PEANINE BY GOLDEN KING OUT OF BETTY HACKADAY BY REX PEANINE.

possible that the blood lines which produced him should find large representation in the thoroughbred blood which has gone to make the American Saddle Horse. However, that he sired Denmark places us heavily in his debt."

Imp. Hedgeford was a brown colt foaled in 1825, bred by a Mr. Mytton. He was imported by William Jackson and brought to Kentucky where he died in 1840. It is deplorable that we have no accurate description of him other than that he was very beautiful. Mr. John B. Lentz, who was still living in 1905, remembered Imp. Hedgeford, and said of him: "He was a horse of wonderful style and beauty, and a great two-ended one."

Betsy Harrison, the dam of Denmark, was a bay mare foaled in 1828, and was owned, in 1839, by Samuel Davenport of Kentucky. Thus Mr. Davenport has the honor of breeding the great Denmark. Betsy Harrison was by Aratus and out of Jenny Cocracy by Old Potomac.

Denmark was a brown colt: a game and consistent four-mile race horse. Individually he is said to have been a horse of great beauty. He has built a monument to himself as a sire of prepotency never excelled, and as a consequence is the founder of a great breed of horses.

Gaines Denmark by Denmark is out of a mare by Cock-spur, known as the Stevenson mare, who was foaled on the farm belonging to Mr. William V. Cromwell of Fayette County in 1851. Gaines Denmark was a coal black horse with both hind ankles white. He is the live wire of the Denmark family. Denmark got other sons of note who produced great Saddle Horses, but their work is insignificant in comparison with *the* Denmark. It is worthy of note that Gaines Denmark and John Dillard served in the Civil War in General Morgan's command, and these two old stallions set a worthy example of courage and loyalty to many of their descendants who served with them.

The four most notable sons of Gaines Denmark were Washington Denmark, Diamond Denmark, Star Denmark and Sumpter Denmark: of these Washington Denmark and Diamond Denmark are of outstanding importance. The two most notable sons of Washington Denmark are King William and Cromwell, and of Diamond Denmark, Montrose and Mark Diamond. King William was the sire of Black Eagle, whose dam was Kitty Richards by Young Eagle, and he by Gray Eagle. Black Eagle was the sire of Black Squirrel: Black Squirrel was the sire of Chester Dare, Highland Denmark and many other famous horses.

The daughters of Chester Dare are in the greatest demand because they invariably transmit the incomparable beauty of the Chester Dare head — the flaring nostril, the breadth between the eyes betokening rare intelligence, slightly dished face, and the well-carried, beautiful ears. Caroline is Chester Dare's most famous daughter. Chester Dare sired My Own Kentucky and he sired Kentucky's Choice and Kentucky's Best. These two beau-

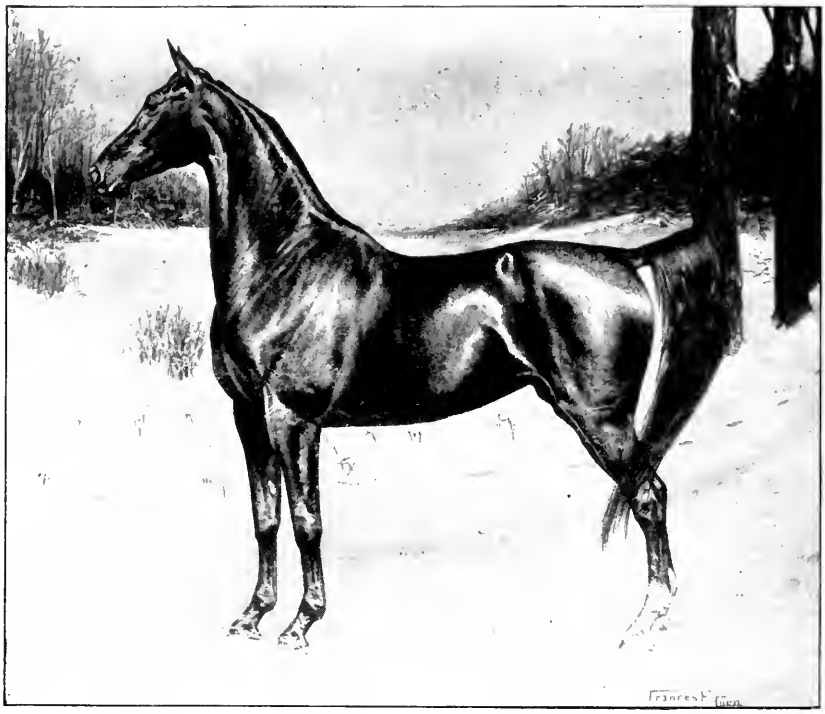


FIG. 16. CAROLINA BY CHESTER DARE OUT OF NELLIE BLACK HAWK.

tiful black horses are full brothers, both being out of Little Kate by Prince of Denmark, a great-grandson of Washington Denmark. Chester Dare sired My Dare who sired My Major Dare who is out of Lilly Rosebud and she by Elastic, a grandson of Black Squirrel.

To breeders and students of the Saddle Horse, the meanings of the terms "the Denmark Family" and "the Chief Family" are clearly understood, but to horsemen not familiar with the Saddle Horse pedigrees these terms are confusing. The name Harrison Chief is in the list of sires originally set aside by the board of directors of the American Saddle Horse Breeders' Register, but, as I have already written, because of the overwhelming number of Saddle Horses that trace direct to Denmark, he is known as the foundation sire. However, a horse that traces to foundation stock — to any one of the stallions whose names are given in Volume I of the American Saddle Horse Breeders' Register — is eligible to registration.

The term Chief Family usually means the descendants of Harrison Chief. The sire of Harrison Chief was Clark Chief by Mambrino Chief. Both of the latter horses are in the Trotting Register. They breed back to Imp. Messenger, one being his great-grandson, and one his great-great-grandson. Imp. Messenger was one of the great Thoroughbreds of his time and is said to have had a trot of unusual action, speed and balance. This he has transmitted with marvelous precision to the eighth generation.

Young Bill, now owned by the government, was the champion harness horse of Kentucky; and Golden Flight, who like Young Bill is by Golden King, is just beginning a career. King, the sire of Golden King (therefore the grand-sire of Golden Flight and Young Bill), and Bourbon Chief, the sire of Bourbon King and Montgomery Chief, are the two stallions descended through Harrison Chief from Imp. Messenger, who have had the most far-reaching influence on the Saddle Horse of today.

Bourbon King is the sire of Astral King, Richlieu King, Roosevelt and Bohemian King, who are world famous. Bourbon Chief sires Emily, the World's Fair champion, who is now in her twenty-eighth year, but is cared for as fits her desserts — lives knee deep in clover and blue grass. Emily in her show days had a world of action at the trot, which comes both through her sire's sire, Harrison Chief, and through John Dillard the grand-sire of Delia, Emily's dam. Dillard Dudley, the sire of Delia, goes back on his dam's side to Aratus, the sire of Betsy Harrison who was the dam of Denmark.

Bourbon King and Montgomery Chief are full brothers, both being by Bourbon Chief and out of Annie C. Annie C. is by King; thus she is a granddaughter of Harrison Chief on her sire's side. Her second dam was sired by Kentucky Chief whose dam Betty was by War Dance, a son of Lexington. The second dam of Kentucky Chief was Nettie by Oceola, and he was a son of Imp. Hedgeford the sire of Denmark, so it can easily be seen that just as all roads lead to Rome, all Saddle Horses lead to Denmark.

The question that most often confronts the present-day breeder of Saddle Horses is, Have we improved on Gaines Denmark? The answer has been handled in a masterly way by a horseman of note

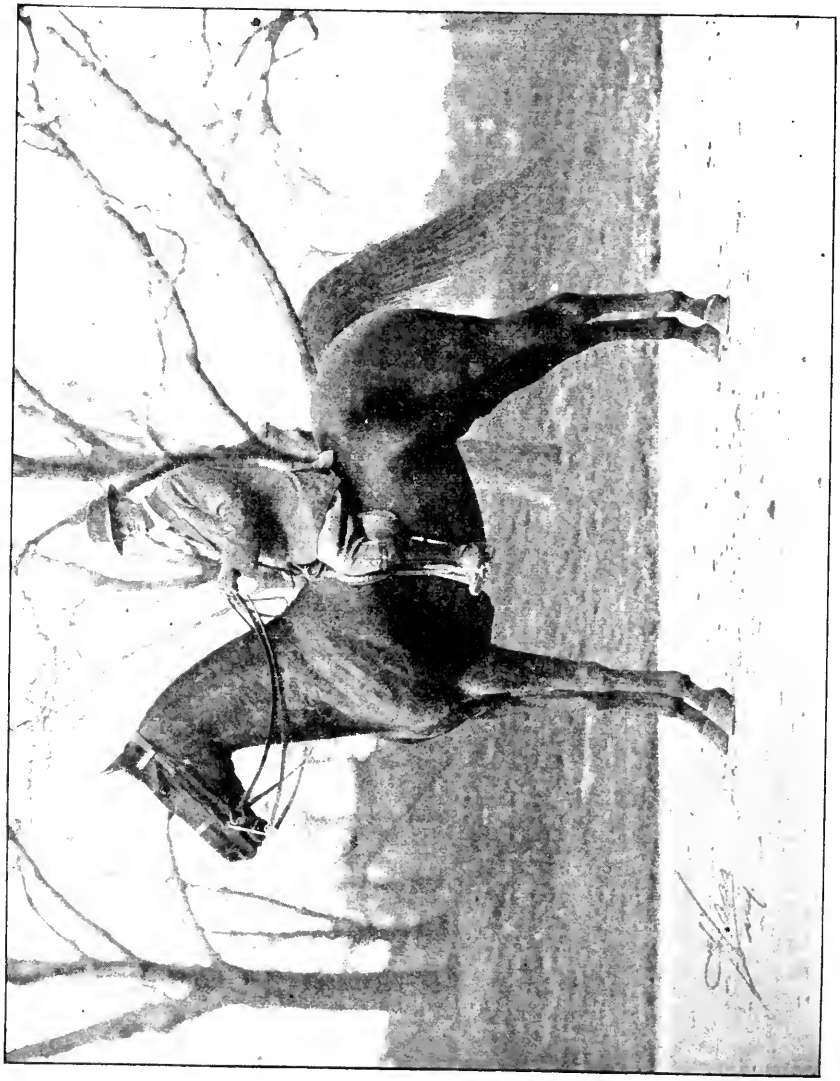


FIG. 17. BEECHWOLD BAB BY A SON OF HIGHLAND DENMARK OUT OF MOLLIE NICHOL.

in a recent horse paper. His conclusion carefully lead up to and logically explained is: the Saddle Horse of today is an improvement on Gaines Denmark only in step. This is due to careful, painstaking, arithmetically correct breeding by selection; by the

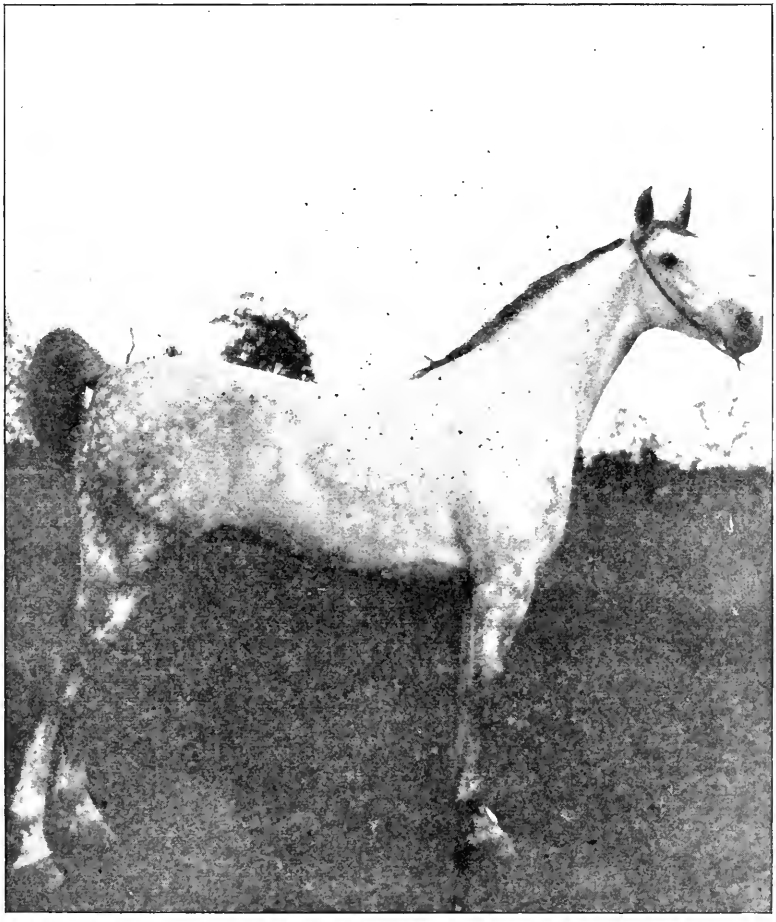


Fig. 18. Quicksilver by Boyd Lynn, Tracing to Grey Eagle on His Dam's Side.

judicious infusion of the blood of the descendants of the incomparably beautiful Imp. Hedgeford, and of the descendants of Imp. Messenger — the race horse with the unusual trot — and of Eclipse — the race horse of indomitable courage and splendid bone and substance.

So much for the derivation of the American Saddle Horse.

POINTS OF EXCELLENCE AND NOTABLE HORSES

The points of excellence of the American Saddle Horse are, that he is the most beautiful horse in the world, the most intelligent, the most companionable, the most versatile and the most useful. I shall not go into a list of horses whose names are household words in Kentucky, but, for the benefit of the people of New

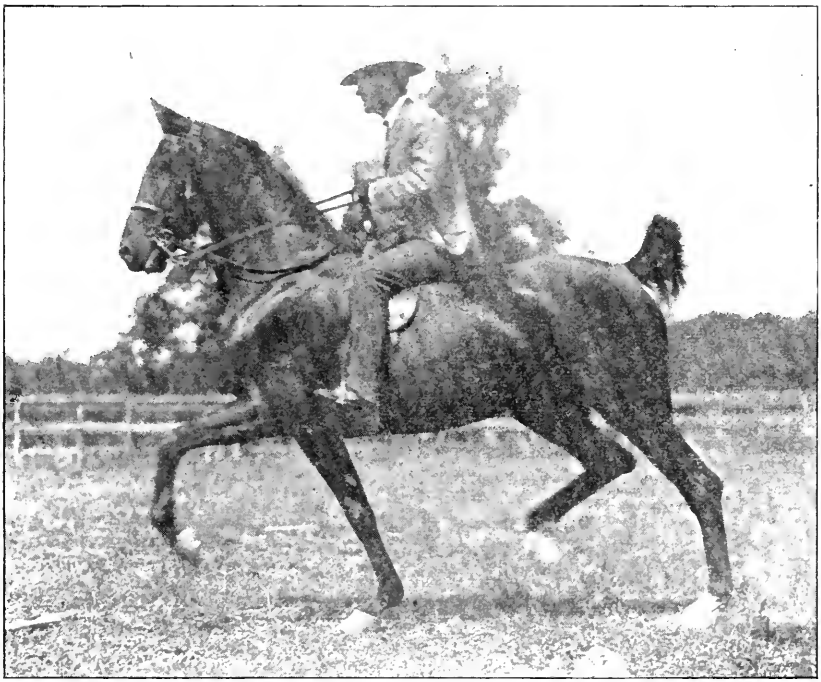


FIG. 19. GENEVA C. BY HIGHLAND DENMARK.

York State, shall mention some of the horses that have made horse show history within its borders: Oriflamme by Black Squirrel, champion and return champion at the Garden; Patsy McChord by Black Squirrel, champion of the Garden; Fayette McChord by Chester Dare and he by Black Squirrel; Elsa by Highland Denmark and he by Black Squirrel; Geneva C. by Highland Denmark and he by Black Squirrel; Mayo by Shropshire's Kentucky Squirrel and he by Black Squirrel; Petroleum by Monte Christo, Jr., a grandson of Montrose; Corinne by Red Eagle, a grandson of Black Squirrel; Dixie by King Lee Rose;

Flashlight by Eureka Lad; Poetry of Motion by Montrose; The Cardinal by Forrest Denmark; Nickel Plate by King Lee Rose; Margaret Tate by Highland Denmark; Beechwold Bab by a son of Highland Denmark; Gossip by King Chieftain and he by Bourbon Chief. On her dam's side, too, Gossip goes back to Imp. Messenger, for she is a great-granddaughter of Harrison Chief.

From this list, dating from the first Madison Square Garden champion to the present day, the show horses that are most firmly impressed on one's memory are American Saddle Horses. They have a uniformity of type, beautiful head, eye and ear, long neck, oblique shoulders, sharp withers, short back, smooth quarters and the best of legs and feet. In size they vary scarcely an inch. From Oriflamme to Gossip the height is from fifteen hands, one and one-half inches, to fifteen hands, two and one-half inches; the weight from a thousand pounds to a thousand and fifty.

UTILITY

The utility of the American Saddle Horse is without limit — to ride for pleasure, in the show ring, to drive either for speed or "step," and as a cavalry mount.

The peerless Uhlan is a great-grandson of Black Squirrel on his dam's side. Uhlan, in his markings, his color, his conformation, and the way in which he carries his tail, is the ideal Saddle Horse.

A daughter of Roosevelt recently made a record of 2:16 on the Lexington Trotting Track, after a few weeks' work.

CARE

From his colthood the American Saddle Horse is associated daily with man. He is taught to eat grain before he is weaned. After he is weaned, during severe weather he is fed grain daily. Receiving the greatest care and daily handling from man develops, to a high degree, his intelligence, and, having no fear of man, he is wonderfully quick to learn. Having blue grass to eat and pure running limestone water to drink, his blood is pure and his bone strong. There is a quality either in the soil or in the water, or in both, which is of incalculable benefit to our horses' feet. What-

ever the reasons may be it is a fact that no country in the world so develops a horse in mind and body, bone and endurance, as this Blue-Grass country. Proof of this statement is found in the fact that seventy per cent of the great horses in this country — runners, trotters, and saddle horses — are reared within a radius of thirty miles of Lexington, the capital of the Blue Grass.

THE HUNTER*

FRANK SHERMAN PEER, Ithaca, N. Y.
Author of *Soiling, Ensilage and Stable Construction*

Leave us the chase, where, in harmony blending,
Men of all classes ride on to the end,
Men become brothers, each brother contending;
Every true sportsman is counted a friend.

HIS CONFORMATION

A hunting man is apt to have rather fixed notions as to how a hunter should be built. His ideal is generally the likeness of some good, faithful beast that has carried him with the greatest ease and safety; which is only another way of saying that a good hunter, whatever he is like, however he is formed, however he is bred, whatever his color, if he suits and fits us, is not a bad horse.

There are some points in the conformation of a hunter that can hardly be ignored. Some general rules, mostly with numerous exceptions, it will be well to keep in mind when passing judgment on a horse for cross-country work.

BRAINS AND INTELLIGENCE

A large brainy head with a broad forehead and mild outstanding eyes, is, as far as my experience goes, one of the points to insist upon. Some horses with a thimbleful of brains are made to hunt, but without sufficient intelligence to go with judgment as well as courage. One who possesses mere valor can never attain more than a moderate degree of proficiency.

Some fools of horses may be driven through a run, but they do not enjoy it; they are simply slaves. Deliver me from keeping company with such a one in the hunting field! Hunting is, or should be, a partnership game, in which you and your friend the horse go out for a day's sport. The more intelligent the horse, the more level-headed, the more capable he is of entering into the spirit of the game, and of enjoying the day's run as well as his master. It must be remembered, however, that, besides size

* Extracts (by permission of the author) from *Cross Country with Horse and Hound*, by F. S. Peer.

of brain, quality also should be looked for. There are big basswood-headed horses, and there are small hickory-headed horses. Quantity must not be confounded with quality. Some brainy horses have from past bad management had their nerves shattered, so to speak, and what brains they have are a damage to them. On this point a study of physiognomy is a help.

There are many rattle-headed, nervous, high-strung horses that make good jumpers, but not every good fencer is, by that same token, a good hunter. Almost anything in the shape of a horse can pull a harrow or go in harness, but for cross-country work a horse must possess the very highest qualities and the sum total of all the virtues of the equine race. He should possess the courage that stops just short of recklessness, great nervous force with coolness, great energy with judgment, light-heartedness without foolishness, staying qualities of the best, good breeding, perfect manners. These are the qualifications of a high-class cross-country horse. These are also the qualifications of a high-class cross-country rider. If they are to be omitted from either, the horse should not be made the one to suffer, for he has to look out for himself and the rider as well. Besides all this, the horse must have suitable conformation for the work, be a good feeder, and sound.

RIDER SHOULD FIT THE HORSE

One can hardly hope to find so many qualifications in a single animal, but if a horse that approaches this standard is found, forgive his shortcomings and be consoled with the reflection that if he is not as good as he should be, he might have been worse. Remember this, too, that it is the part of horsemanship to fit the rider to the horse rather than to try to make the horse fit the rider. The greatest and best thing of all is to find in a horse an agreeable companion. A man will get on better with an old farm horse that fits him than with a two-thousand-dollar qualified hunter that does not.

ADAPTABILITY TO HUNTING

I have heard some men declare that no horse likes hunting. I am positive this is a mistake. No horse would like hunting with some men, but most horses with the proper conformation for saddle work do enjoy hunting when they are properly ridden. I

have seen and schooled many green horses that from weanlings took readily to jumping, and several that when turned into a runway would jump back and forth over the hurdles of their own accord. I have had several green horses that, as soon as mounted, would of their own accord start away to the schooling-ground. Of some of these it has been hard to say whether they enjoy the sport or not until they met hounds, and then they were as am-

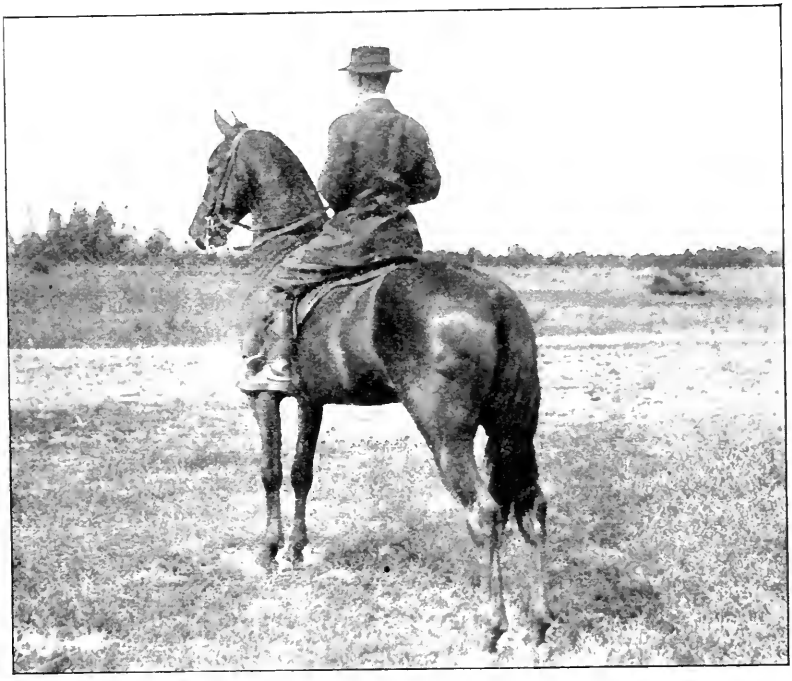


Fig. 20. Ready for a Cross-Country Run.

bitious to get on with them as the rider, and not from excitement or fear, as one could tell by the collected way in which they jumped, but from sheer love of the sport. At a check other horses could come and go, but directly hounds moved they were off. I am speaking now of green horses. To some horses hunting is an irksome task that never becomes anything but work or

drudgery; yet I believe that a large number of well-bred horses, providing, mind you, they are not punished at their jumps by severe hands or spurs, really enjoy the sport. It also goes without saying that there must be a great difference between a horse that has his heart in the sport and goes at it like a schoolboy from his books, and one that has only a poor gizzard for the work.

NECK AND CARRIAGE OF HEAD

Horses with short, thick necks do not make good hunters. I do not know of any exception to this rule. They are not easily brought to hand; they invariably rein badly, and are apt to have hard, unyielding mouths. Avoid also a horse that carries a high head. This is another rule without an exception. The head of a hunter is quite high enough when his eyes are on a line with the height of his withers. This low carriage of a hunter's head is very important, and for several reasons: (1) It enables the rider to lean well forward as his mount begins to spring at a jump and still have room for the horse to throw up his head with freedom in the natural act of jumping, without hitting the rider in the face. (2) High-headed horses must be ridden with a shorter rein than horses with their necks straight. This is an objectionable feature, because the longer the rein the better and easier the control. (3) When a high-headed horse is ridden at a jump, especially if he pulls and his head comes higher than its natural carriage, the animal is in a most awkward position to take his fence. He does so at the expense of an unnecessary amount of exertion, while the rider's control of his mount is gone.

Horses with very slim necks generally bend them too easily. Nothing is more annoying than a horse that turns only his head in answer to a pull on the reins while his body goes straight on.

I have dwelt upon this point because it is one seldom, if ever, mentioned by writers, and because we hear so much nowadays about having "plenty of horse in front of you." So there should be; but look well to the substance of a hunter's neck. "There is ain thing aboot a hunter a canna forgie," said a keen hunting friend of mine in Scotland, "and that is a neck with na strach in it!" The neck can hardly be too long unless too thin; it can hardly be too low unless too short and thick, and of two evils

better a horse that bores than a horse that soars. You sometimes see in a dealer's stables these up-headed horses. They are generally clean trotting-bred animals that have had their manes pulled and their tails chopped off, and these are their principal qualifications as hunters. Some of them can jump, and we have seen this sort win at Madison Square when conformation counted fifty or sixty per cent. To an experienced cross-country rider, however, they look sadly out of form.

SHOULDERS

"Slanting shoulders" is everywhere the cry. Every author I have read, and nearly every man that rides to hounds, if he hardly knows the fetlock from the forelock, will tell you a horse is no good for hunting without slanting shoulders. So universal has this cry become that it suggests the parrot. "Slanting shoulders! Look at his slanting shoulders!" But when you ask a man why he is so fond of slanting shoulders, the usual answer is: "Well, because a hunter should have slanting shoulders!" Occasionally a man will venture to say a horse with slanting shoulders can gallop faster. This is manifestly incorrect. Some of the fastest horses that have ever turned a track have had rather upright and sometimes even loaded shoulders.

We must look further than simply the slant of a hunter's shoulders. I am sorry to antagonize this most common belief in slanting shoulders; one dislikes to sow seeds of discord among pet theories. But this slanting-shoulder craze has gone beyond all reason.

POSITION OF RIDER

Let us see if we cannot find a better reason than *because,* or *speed,* or *jumping qualities.* Let us see if we cannot set up a hypothesis that will stand more of an assault than the present theories for slanting shoulders. A little reflection will prove that the proper position of a saddle on a horse for cross-country work, where there is jumping to be done, is one that places the rider well back so that his weight comes as near the center of gravity as possible. Flat racing and cross-country riding are things of entirely different color. The forward seat, over the horse's

shoulder,— a seat, in fact, where the position of a jockey lying along the neck of his mount brings the rider's center of gravity well over, if not forward of, the fore legs of his mount,— has been demonstrated beyond question to be the very best position under which a horse on the flat can extend himself. Doubtless a horse with the weight on the shoulders makes the lift of the weight with a spring of the forelegs, which leaves the hind legs and quarters to do the propelling with the least possible hindrance. On the other hand, while a horse may be ridden with the center of gravity over his fore legs, across a field, it is obvious that in taking a fence the best, the easiest, the most secure position of the rider must be well back.

The position of a boy on a rocking-horse, or a person in a rocking-chair, best illustrates my meaning. When the center of gravity on either the wooden rocking-horse or rocking-chair is forward of the center, the motion is labored and all in one direction. If a person sits too far forward in a rocking-chair, the forward rock corresponds to the landing side of a jump, and assists greatly in producing a spill. Seated too far back, one cannot make the rocker go forward without an undue exertion. This illustrates the taking-off position of a jump: the horse, like the person in the rocker, must make an unusual effort to carry the rider forward. This is so plain and simple a condition that it seems almost absurd to mention it. However, it best illustrates the point under discussion.

The theory of slanting shoulders is that they usually (but not always) have the effect of keeping the saddle well back, so that the rider does sit nearly at the center of gravity of his mount. This he is able to maintain, when the horse is jumping, by simply leaning well forward as the animal rises to the obstacle, sitting upright when over the center, and leaning well back as the animal descends. So far, I venture to say, the majority of my readers will agree. But, I ask, what is the value of slanting shoulders when, as sometimes happens, a horse is low in the withers, letting the saddle well forward? It is evident that, for keeping the rider back near the center of gravity, high, sloping withers have quite as much virtue as slanting shoulders, for a horse may have the latter without the former.

Personally, I prefer a rather straight shoulder-blade, with high, full, sloping withers, to the most slanting shoulder-blade with low withers that lets the saddle forward on the shoulders. It is not enough to go strong on slanting shoulders, when it is quite as much a question of the conformation of the withers, and more a question of the setting on of the fore legs. That many men confound withers and shoulders there can be little doubt. Nor is this all; if a horse, as is quite often the case, has slanting shoulders, and also a long oblique true arm that brings the setting on of the fore legs well back, you have lost at this point all you have gained by the slanting shoulders. In other words, when you have a slanting shoulder with a long oblique true arm, it may bring the fore legs so far back that the center of gravity has practically been moved ahead. So far, therefore, as gravity is concerned, you might just as well have either a straight shoulder with high, full withers, or a straight shoulder with a short upright and true arm. Or, again, if you have a slanting shoulder with a long oblique true arm, or a slanting shoulder with low withers, the end in view has been defeated.

I have dwelt on this at length because slanting shoulders are everywhere so much in favor, as if they were the alpha and omega of a hunter's conformation.

The reason why ladies in riding cross country to hounds are so uniformly successful in negotiating fences without falls is owing undoubtedly to their sitting sideways on the horse; that is to say, the center of gravity of the rider is more generally brought over the center of gravity of the horse than in the case of men, who, riding astride, sit more forward, especially if they ride with long stirrups.

HIPS

As for hips, do not turn your back on a horse with ragged hips and a sloping rump. They are not pretty or symmetrical, but if they carry the muscle well down to the hocks, you generally find that such a horse can gather his legs well under him for a spring. This is one of the chief characteristics of the Irish hunter, and for fencing he has no equal.

LEGS

It is hardly necessary to mention legs, those necessary auxiliaries of a horse. Plenty of bone and especially large knee and hock joints are most desirable. Pasterns on the long side for choice, and plenty of room between elbow-joint and body, are desirable. Do not be over particular about splints or even curbs. The former are found on three- and four-year-olds more often than in horses of six and seven years. They usually disappear by absorption. That a young horse has them is as much to his credit as it is for a child to have the measles or chicken-pox.

Splints, and curbs too, lame horses sometimes when they first appear. Do not condemn a horse with sickle hocks if there is plenty of bone. They are very often found on the most powerful jumpers.

BACK

Do not require a hunter to be too short-coupled. This is another threadbare sign that is always quoted as desirable. If a horse is to gallop he must have length somewhere. If he has a short top line or coupling, he must have length underneath or he cannot stride away. There must be room to get the stifles forward, or you will have a short choppy-gaited horse, and a most uncomfortable one. The short back is well enough theoretically, but not in practice. Three and even four inches between the last rib and hip are not too much, unless the horse has a weak loin. A light, slack loin is to be avoided in a horse, whether his back be long or short.

PROPORTIONS

A horse is usually as long in the body as he is high from the ground to the top of the withers. In many Standardbred trotters and in some Thoroughbreds length exceeds height. This proportion is also desirable in a hunter.

A well-formed horse usually measures as far from the top of the withers to the under side of the body just back of the fore legs as he does from that point to the ground. If there is any difference in this measurement, let it be added to the body, not to the legs. A sixteen-and-one body, both in height and length, on fifteen-three legs is far preferable to the reverse.

A hunter, to be comfortable, should not unduly spread the legs of his rider by being too wide through the heart. However, the other extreme is equally bad, for there must be lung capacity; and whatever a horse lacks in breadth through the heart he should make up in depth; the deeper the better. The round-backed and thick-hearted horses so desirable in harness are not to be considered for a moment for saddle work, especially if they have, and is usually the case, low withers. When you have had a saddle turn with you once or twice, you will, like the writer, have learned this lesson by heart. Broad-chested horses are very apt to roll in their gait.

SIZE

For size, the question depends somewhat on the country to be hunted. A rough country requires a smaller or shorter-legged horse than a country which is flat. My own experience is that a horse from fifteen-two-and-a-half to fifteen-three is invariably the best in jumping and staying qualities. To a man on a horse of sixteen hands the fences do not look so high, but this is of slight advantage when other aspects of the problem are considered. The truth is, there seems to be just about so much force or endurance in a horse, and this lessens as you spread it over more than the natural size of the family to which the horse belongs. Increased size invariably brings coarseness, putting the animal, so to speak, out of balance with himself.

DISPOSITION

As to disposition, the best in the world is none too good. A man may have ridden all sorts of horses and first-class jumpers, but if he has never found a partner with intelligence enough to enjoy the sport as well as he himself does, he has yet to enjoy one of the principal delights of a day with hounds. Such horses are not plentiful. When a man finds one, he will probably regret it as long as he lives if he parts with him. Out of a hundred hunters you can probably count the genuine sportsmen, the genuine hunters, on the fingers of one hand. In this respect the Irish hunters outclass all others. They are like the people who breed them, always ready for a lark, yet having the keenest instinct for self-preservation. They are light-hearted to a degree, and nothing

suits them better than to have a hurly-burly rough-and-tumble scurry across country. They are just reckless and bold enough for such a game, and when mouthed and educated as only Irish hunters are, they will give you a day's hunting to be remembered as long as you live. I have seen them so joyous at the sight of hounds as fairly to squeal with delight, jumping and playing from sheer effervescence of light-heartedness. Such a one is the horse for a companion, the horse for a partner in a day's sport. A genuine sportsman himself, he will pull you through. His heart as well as yours is in the game.

SUITABILITY TO RIDER

There remains the final test of what may be called "the personal equation." If he fails to pass this, reject him on the spot. You may be surprised to find your supposed ideal hunter not at all to your liking. He does not fit you, and you cannot seem to make yourself fit him. You feel uncomfortable on him, just as you would on a rocking-horse or a rocking-chair that pitched you too freely forward or backward. Seated on a horse that feels comfortable under you in all his paces, you have found the horse for you. Look no further; let size, color, markings, or conformation be what they may. You will be surprised, in trying twenty fine-looking horses, to find, perhaps, that only four or five seem to fit you. A personal trial is the supreme test of excellence in a hunter.

THE SHETLAND PONY

JULIA M. WADE, Lafayette, Ind.
Secretary-Treasurer, American Shetland Pony Club

ORIGIN

The origin of the "right Shetland"— as a Shetlander calls a pure-bred — is unknown, but the story is told that sometime in the sixteenth century some ships of the Spanish Armada went ashore on the islands leaving some fine horses belonging to the Admiral's Stud. This cross, it is claimed, gave to the Shetland much of its beauty and fleetness.

CHARACTERISTICS

By nature the Shetland has a remarkably good temperment, a fact probably due to conditions in his native home, where he is often about, or even in, the house or hut of his owner; or running about with the children or house dog.

He is a good traveler, patient, gentle and sure-footed as he travels up and down miles of hills, carrying half his own weight or more. The year around he runs over the hills, living, in many cases, only on heather and whatever grass he may find. Very little hay or grain, if any, is fed during the long cold winters.

The mares seldom breed oftener than every alternate year, but are good breeders to an advanced age.

A pure-bred Shetland should measure not more than 42 inches. He has a symmetrical head, rather small and fine, wide between eyes which are clear; ears are short and erect. He has a well-rounded barrel; short level back, and deep chest; muscular, flat-boned legs, and carries a heavy foretop, mane and tail.

IMPORTATIONS

The first Shetlands imported for breeding purposes were brought into the United States in the early eighties, and during the succeeding ten years the little animals became so popular that their owners organized a club for the purpose of improving the breed. Since this American Shetland Pony Club was organized about five hundred owners and breeders have become members, and over sixteen thousand ponies have been registered in the recognized studbook of the club.

THE WELSH PONY

JULIA M. WADE, Lafayette, Ind.

ORIGIN

In letters to a friend, afterwards printed, Mrs. Olive Tilford Dargen, who has made an exhaustive study of the Welsh pony, writes, regarding their origin, that they were probably results of a cross between the descendants of a species which Professor James Corsar Ewart has named the Pony Celticus, which once overspread Western Europe, and the military animals of the Romans, which in general were Gallic; that for four hundred years the acclimated Arabian blood crept up the hills and among the wildest herds — a slow infusion that left the pony still a pony, retaining all the hardihood that made life possible on the scanty-herbaged peaks.

Later the Welsh exchanged horses with the Celts, and "the once noted Irish hobbie was often brought into Wales."

The enthusiasm of the breeders of the eighteenth century improved conditions. "Merlin, a descendent of the Byerly Turk, after his brilliant years on the turf, was brought to Wales and turned out with the ponies on the Ruabon hills to become the founder of a famous and prolific line."

RECENT HISTORY

In 1900 The Welsh Pony and Cob Society was organized. King George became a patron. Lord Tredegar was made first president of the society which represented all the Shires of Wales and the counties of Monmouth, Shropshire and Hereford. As a result of this influence, parliament enacted certain laws beneficial to the breed. Committees were appointed with power to pass on stallions and clear the commons of all undesirables. In Longmynd Range it has been the custom for the last twenty-five years to have an annual drive and round-up, when all the ponies are brought down, selected, sorted, the undesirables cast out, and the others, excepting those picked for market or exchanged for ponies of another run, sent back to freedom.

DEVELOPMENTS IN THE UNITED STATES

First importations of Welsh ponies were made into the United States between 1880 and 1885. The increasing interest of admirers caused the subsequent organization of the Welsh Pony and Cob Society of America.

In the meantime Congress enacted a law which went into effect January 1, 1911, by which animals considered pure bred and imported for breeding purposes were admitted through our ports free of duty.

Then followed the recognition by our country of the Welsh pony as a pure-bred.

CHARACTERISTICS

Having for a foundation the indestructible material of the mountain pony, these little animals will do more work for their weight than any other breed of horses, and thrive on half the food.

They are strong, well built, have much courage and wonderful endurance, requiring no housing or blanketing; a prolific breed transmitting to their descendants their many desirable qualities with marked regularity.

APPEARANCE

The true Welsh pony has a refined head, large intelligent eyes, dainty ears, graceful neck, strong full body, clean straight legs with bone like steel. The required height is from eleven to thirteen hands.

ACTION AND TEMPERAMENT

These ponies have a graceful action, quick, free, straight, and showing finish.

Without sacrificing any of their qualities of intelligence or spirit, the Welsh pony is of docile nature and has manners remarkably perfect. His cheerful friendliness makes him an ideal companion for growing girls and boys, as a medium to health, strength and happiness.

FIG. 21. TYPICAL FARMYARDS AND OLD STONE BARN OF A PERCHERON BREEDER IN LE PERCH DISTRICT, FRANCE.

(Photo by E. S. Akin, Syracuse, N. Y.)

THE DRAFT BREEDS OF FRANCE

E. S. Akin, Syracuse, N. Y.

President, New York State Draft Horse Breeders' Club

France has several distinct breeds and types of heavy horses which are bred in different districts or departments. These different breeds or families of draft horses are not bred in all parts of France, but only in a few widely separated small districts. It is probably true that all of the heavy breeds of France had a common origin, and, when first introduced in the United States, were not so distinct in breeding, type, size, etc., as they are at the present time.

In the early days all of the horses were imported under the name of Norman, and, from the strife over admitting all heavy breeds to registry as Normans, between the principal importers of 1870 and 1880 and those favoring only the Percheron horse, has been evolved the General Draft Horse Stud Book of France, and the present National Register of French Draft Horses of this country, which admit for registry all heavy French breeds including Percherons.

The Society Hippique Percheron of France, and the Percheron Society of America, records only horses bred in the Perche district, or their produce.

At the government horse show held at Paris, June 17–21, 1914, under direction of the Minister of Agriculture, the draft breeds of France were classified as follows: Ardennais, Boulonnais, Breton, Nivernais, and Percheron. While it may be true that all of these breeds have not been kept pure and distinct, I can see in the past thirty years a very successful effort by the breeders, encouraged by the government, to establish and improve the character and type of each of the French breeds.

THE BRETON

These horses are bred principally in the Finistere and Coles du Nord districts, the most eastern department of France. The Breton horses are many colors: chestnut, bay, roan, gray, and black with some white markings. They average in weight between 1,300 and 1,500 pounds, and the average height is from 15 to 16 hands. They are smooth and active. They could be called more of the general purpose than the draft type, and, like all of the other French horses, are clean and free from hair or feathers on the legs.

THE ARDENNAIS

The Ardennais is the smaller type of Belgian horse bred in southern Belgium and in northern France, principally in the provinces of Nord, Ardennes, and Meurthe et Moselle. They are not so large as some of the other French breeds, but are of the deep-bodied, short-backed Belgian type and quality. The Arden-

FIG. 22. PRIZE COLLECTION OF ARDENNAIS MARES OWNED BY M. GABET AND TAMBOISE, PARIS SHOW, JUNE, 1914.
(Photo by E. S. Akin, Syracuse, N. Y.)

nais country where these horses are bred and used is poor and mountainous; a country where a draft horse of medium size, very active and of great endurance, is needed. Of all the European draft breeds I believe the Ardennais horse would be especially

adapted to the agricultural conditions in our New England states. Some Ardennais horses have been imported to this country as Belgians, as they are recorded in the Belgian Draft Studbook. The colors are principally chestnut, bay and roan, with some white markings. Their height ranges from 15 to 16 hands and their weight from 1,400 to 1,700 pounds.

THE BOULONNAIS

Boulonnais horses are bred in the department of Pas de Calais, a district in northern France just across the channel from England. The French government recognizes the Boulonnais as a pure bred, and they are considered in France as next in importance to the Percheron. The Boulonnais are fully as large as the Percheron, with exceptionally good bone, and are very even as to type, size, and color. The color is mostly light gray with slight traces of dapple. Their height ranges from 16 to 16¾ hands and their weight from 1,700 to 2,000 pounds.

THE NIVERNAIS

Nivernais horses are bred in the department of Nievre in central France, a district especially noted for its Nievernaise cattle — a pure breed of white beef cattle unknown in this country. The Nivernais horses are perhaps a trifle more rangy than the Percheron, not quite so deep in the flank, but with a level topline, and wide, flat, clean bone. This breed is all black, and is little known in this country except indirectly as they were used in changing the color of the Percheron horse in response to the craze for blacks some years ago. Probably some Nivernais horses have been imported as Percherons, which they closely resemble. It is said the Percheron stallions have been used to improve the Nivernais breed, which, if true, would account for the two breeds averaging about the same in height, weight, style and action.

FIG. 23. PRIZE COLLECTION OF PERCHERON MARES OWNED BY M. PERRIOT, PARIS SHOW, JUNE, 1914

(Photo by E. S. Akin, Syracuse, N. Y.)

THE PERCHERON

France perhaps more than any other country takes a hand in the efficient management and control of her great live-stock industry. The government inspection, pensions and ownership must be given much of the credit for the development of the Percheron horse, which is the most important of the heavy breeds of France. While Percherons are found in many other parts of France they are bred more extensively in the Le Perche district, which consists of four departments — Orne, Eure et Loir, Loir et Cher, and Sarthe — and is only about fifty to seventy-five miles in extent.

The origin of the Percheron, although more or less obscure, was doubtless from the same Flemish source that was the fountain head of all of the draft breeds. As there was no studbook for Percheron horses in France, and no pedigrees of records kept, up to thirty years ago, much that has been written of the early history of this breed may be considered as more or less speculative; the accuracy of some of the traditional Percheron history has occasionally been questioned. To whatever foundation stock the origin of the Percheron horse is due, it is probable that the tastes and ideas of the French breeder, and the feed, climate and class of work required, had a much greater influence in establishing the early type of this breed.

The early service for which the Percheron first attracted attention was rapid draft work. The work of hauling heavy loads long distances at a rapid pace did not require horses of great size so we find the Percheron of eighty years ago weighing from 1,200 to 1,400 pounds, but very active and of great endurance. Much credit is due the breeders of Le Perche in meeting the later demands for horses of greater size and power and retaining most of the earlier character and action which had made the breed popular. The improvement of the Percheron in France is due both to public and private methods.

Government Control

Horse breeding is under the direction of the Minister of Agriculture, as are also horse shows held throughout France. Large

government studs are maintained, and a certain number of the best Percheron stallions are purchased each year. During the breeding season these stallions are distributed in Le Perche and other breeding districts, and only a nominal fee is charged for their services.

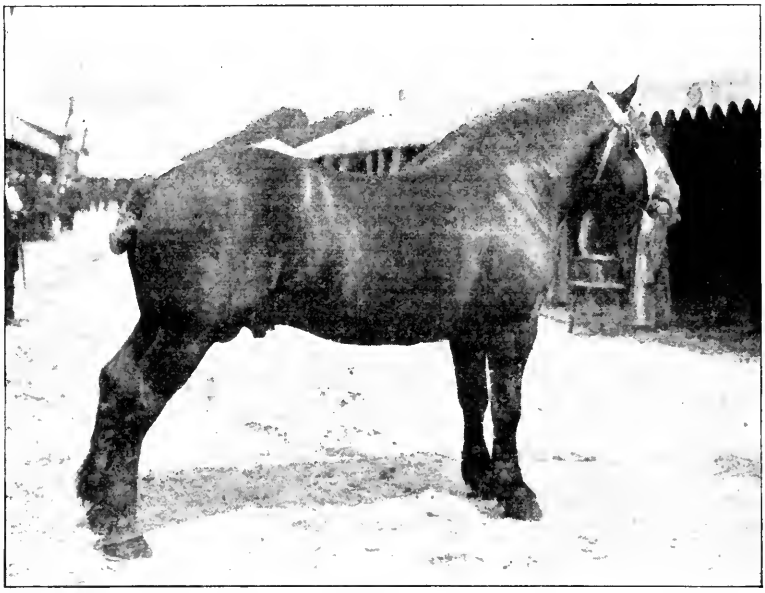


FIG. 24. PERCHERON STALLION, KALOT, FIRST PRIZE FOUR-YEAR-OLD, PARIS SHOW, JUNE, 1914
(*Photo by E. S. Akin, Syracuse, N. Y.*)

Stallions owned by individuals must be examined by a board of government veterinarians, and only those up to a certain standard and free from moon blindness and thick wind are allowed to stand for service. Those passing inspection are classed as "approved," which carries with it a pension from $50 to $150 from the government. "Authorized" and "certified" are two classes which are not pensioned.

Exhibitions

There are many horse shows held in France each year. The principal event is the government live-stock show held in Paris in June. This show includes all of the French breeds of horses, as well as cattle, sheep and hogs. At the last Paris show there

were 1,095 horse entries of which 443 were of the draft breeds.

Next in importance is the Percheron Society Show held in the district of Le Perche for Percherons only. The last show was held in the old town of Nogent le Rotrou, July 2 to 5, 1914, at which there were 433 entries. Classes were for two-, three- and four-year-olds, stallions and mares; no yearlings are shown. Competition was very keen, especially among the large dealers who are the principal exhibitors.

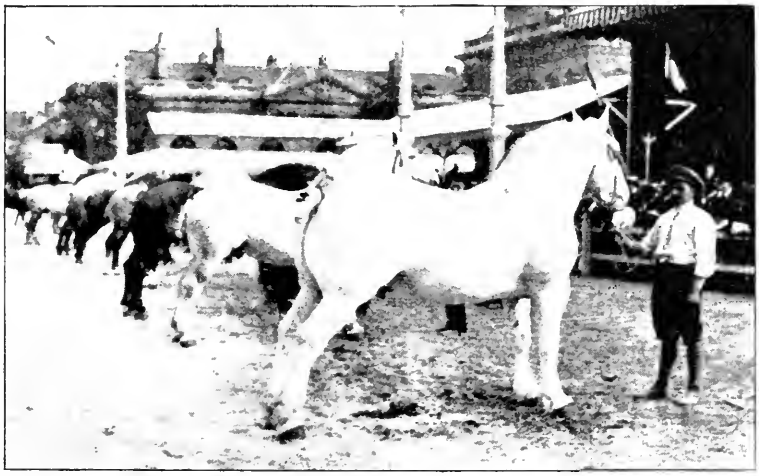


Fig. 25. Percheron Stallions in the Great Four-Year-Old Class, Called Back for Prizes at the Last Paris Show, June, 1914. The White Stallion Standing First Won Second Prize and Was Sold to German Buyers for $2,000

(*Photo by E. S. Akin, Syracuse, N. Y.*)

The Percheron breeding industry in France is entirely in the hands of the small farmer who often keeps but one or two brood mares. The few men who are heard of in a large way as successful exhibitors and principal sellers to the American trade are not breeders but dealers, depending on the small breeder for the large number which they handle. These dealers buy principally stallion colts as weanlings, and from many exceptionally good mares the colts are usually contracted for a year or more in advance. The long line of prize winners which these few dealers bring out each year show with what accurate judgment these young colts are selected. There are no more keen, earnest,

progressive breeders than the French, and their ability in growing, developing and showing has done much for the success of the Percheron breed.

The French breeders are also favored by the rich pastures of Le Perche district. These pastures are among the best in Europe, especially in the valleys and along the rivers and streams with which this section is well supplied.

Early Importations

The first Percherons were imported to New Jersey in 1839, but, since this early importation included only a few animals, the breed did not become well established until after the later importations in Illinois in 1851. A Percheron stallion colt from

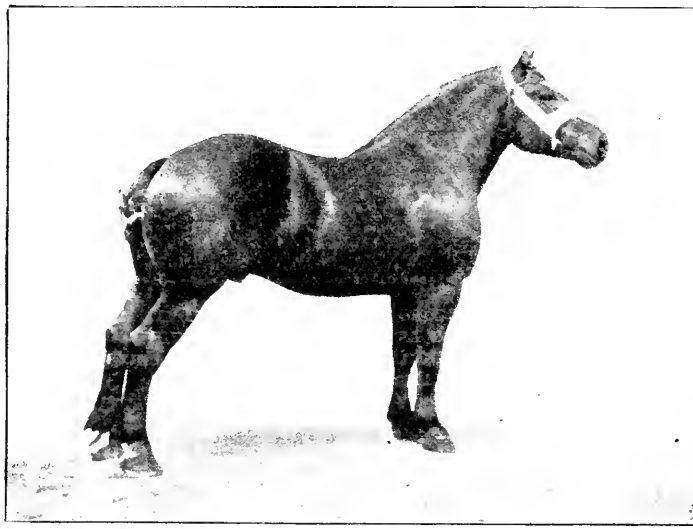


FIG. 26. PERCHERON STALLION, MANDARIN, FIRST PRIZE TWO-YEAR-OLD, PARIS SHOW, 1914

(Photo by F. S. Akin, Syracuse, N. Y.)

the New Jersey stock was taken to central New York and traces of this blood could be found fifty years later in grades of exceptional quality.

From the early importations, which only assumed importance less than sixty years ago, the Percheron has been the favorite drafter, and its distribution has been rapid and widespread. That

Percherons outnumber in this country all other breeds combined is due, largely, to the cooperation of the French breeder with the American supporters of their breed in furnishing the type of horse required. In size, color, type and character, the American trade has dominated the development of the Percheron more than any other draft breed, but in catering to the American demand the French breeder has been amply rewarded. Much credit for the early popularity and good start given the breed is due to the enterprise and ability of the pioneer importers and breeders, but the present importance of the Percheron breed may be said to rest solely on its suitability to the needs and requirements of the American people.

Among the earliest and mose earnest workers for state-wide improvement in horse breeding conditions was John W. Akin of Scipio, N. Y., who from 1877 until his death in 1893 was the largest breeder, importer and exhibitor of Percherons in the East.

Desirable Characteristics

As a clean-legged breed of finish, energy and action, easy-keeping, early-maturing, crossing well with our native mares, the Percheron early found favor with the average American farmer. The demand from the cities for the highest class of draft horses is largely for Percherons. Grades of this breed last longer on the streets than those of any other breed.

Another point in their favor is the gray color. While other colors are to be found in the breed, grays were most popular up to twenty-five years ago. In meeting the later demand for blacks it is said that the black Nivernais were used in crossing with the Percheron, which was unfortunate, since grays were soon in favor again.

The average Percheron stallion stands 16½ hands, and ranges in weight from 1,600 to 2,000 pounds. The popular weight for Percheron mares is from 1,600 to 1,800 pounds; in the West mares of heavier weights are popular. While Percherons are fully up to the draft requirements as to size, they do not possess the bulk or form of the Shire or Belgian. They have a little more range of good width, a rounded contour, short back closely

coupled, a fairly level top-line, well arched neck, head of medium size, small ear, large full eyes somewhat heavily capped, good flat bone free from long hair, feet of medium size, shapely, and of the very best quality of any of the draft breeds. Other distinctive Percheron features are a combination of size, strength, refinement, quality, and energy, with a most docile tractable disposition.

The typical Percheron is also noted for his superior action. In this breed we find a bold, snappy, airy movement characteristic of no other draft horse. The Percheron has sometimes been

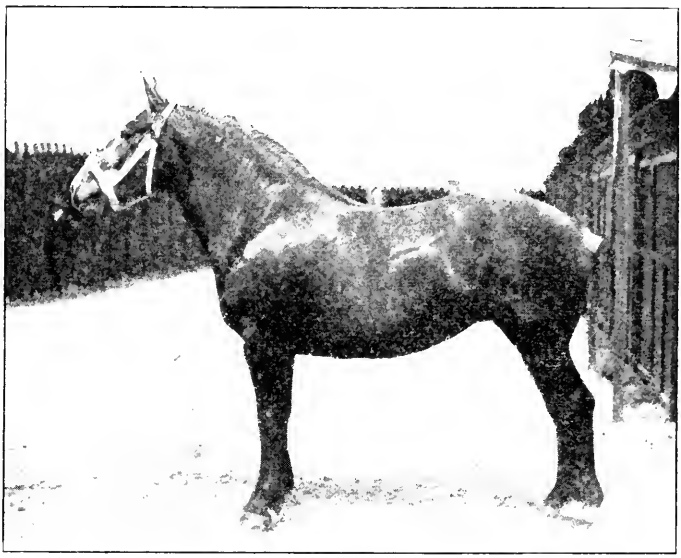


FIG. 27. PERCHERON MARE, LIVOURNE, FIRST PRIZE THREE-YEAR-OLD, PARIS SHOW, JUNE, 1914
(Photo by E. S. Akin, Syracuse, N. Y.)

charged with being too light in bone, and with having short pasterns and steep rump. This criticism would apply however more to the earlier type. That the American people have declared in favor of the Percheron is shown by the fact that up to May 1, 1915, there were recorded by the Percheron Society of America, 108,000 animals, the draft breed next highest in number having 18,900. All the other draft breeds combined had less than 50,000 animals recorded.

Latter-Day Conditions

For the past fifty years horse breeding in New York has been stimulated, and farm horses greatly improved, by the general use of Percheron stallions. Grade Percherons have added much to the farm efficiency and farm wealth of this state. While the breeding of pure-bred Percherons has not been general, and the number of breeders limited, several large Percheron breeding farms have recently been developed, a number of importations made, and many small breeders interested in the past few years.

Many of the most prominent men in American horse business have been engaged in importing Percherons, and the breed has been greatly aided and strengthened by the large number of stallions and mares of high quality imported each year. For a number of years American importers have secured, principally, all of the prize animals in France, many of them costing from $3,000 to $4,000 each. There was 1,935 Percherons imported in 1913 and 1,125 in 1914, the European war preventing all shipments after August 1, 1914.

On account of the heavy drain on this breed for the war purposes it is said that the French Minister of Agriculture will prohibit any shipment of Percherons for two years at least. The war has also made it impossible to hold any of the national or provincial live-stock or horse shows in France this year.

What America owes France for the Percheron breed can never be reckoned in dollars, and, while it is to be regretted that importations are shut off, this breed is in better shape for future development in the hands of the American breeder, without outside aid, than any of the other draft breeds.

THE BELGIAN

E. S. Akin, Syracuse, N. Y.

President, New York State Draft Horse Breeders' Club

Belgium offers an example of the earliest and most successful development of draft horse breeding, and, since remote times, this country has been noted for its good horses. It may be said that Belgium furnished the foundation blood for size and bulk in the improvement of all of our draft breeds during their formulative period. The Kingdom is about one-fourth the size of New York State, with a population of 7,500,000, and consists of nine provinces. In eight of these provinces the Belgian horse is bred extensively, the province of Brabant alone having about 50,000 horses, besides much other live stock.

Belgium is densely populated, having many cities, towns and villages close together. The country is mostly low, fertile and damp; the climate is mild, without the extreme variations common to this state. By intensive cultivation and the extensive use of manure and phosphoric acid, immense crops are produced, and, by the system of soiling, each acre supports a number of horses.

These conditions as well as the taste and requirements of the people are especially favorable for the producer of large horses. The Belgian peasants are generally enthusiastic draft horse breeders. However, breeding operations are limited, as their farms are small, averaging about three acres each. Nevertheless the quality and value of their colts are higher than in any other country. On high-priced land, in thickly settled sections, no animals are kept that are not both useful and profitable.

Unlike France, Belgium does not maintain any government stud, the development of the Belgium breed since 1865 having been left to private enterprise, aided by government subsidies and prizes to horses of approved excellence. The establishment of the National Society of Belgian Breeders in 1886, under the official name of *Le Cheval de trait Belge*, marked the beginning of greater improvement and activity in draft horse breeding. In the

Fig. 28. Belgian Stallions in the Four-Year-Old Class Called Back for Prizes at Last Brussels Show, June, 1914

(Photo by E. S. Akin, Syracuse, N. Y.)

show, pension and inspection system the Belgian government pays out $350,000 annually. This system is most complete and effective in stimulating and encouraging draft horse breeding, and has placed Belgium first in the quality and value of her draft horse industry.

Each of the nine provinces of Belgium are subdivided by the Belgian association into six districts for horse breeding purposes. Every October a show is held in each of the fifty-four

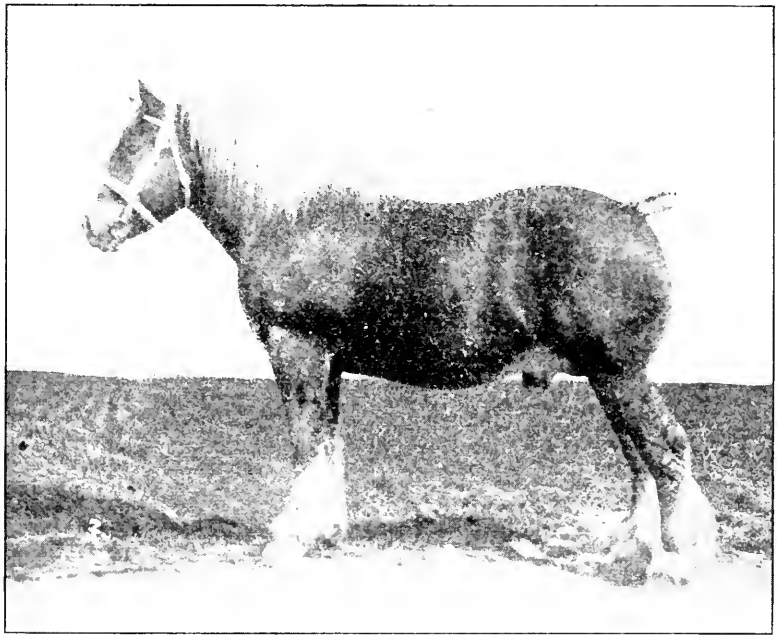


FIG. 29. "INDIGENE DU FOSTEAU," ONE OF THE GREATEST OF MODERN BELGIAN SIRES. CHAMPION AT BRUSSELS, 1906, 1907, 1908, 1909. SOLD IN 1914, AT TWELVE YEARS OF AGE, TO A BELGIAN COMPANY, FOR $10,000. SAID TO HAVE BEEN SHOT WITH HIS OWNER BY GERMAN SOLDIERS

districts, and all stallions over three years old must appear for examination before a committee of five. This committee, which includes one veterinarian, is appointed for each district for four years, their work lasting through the month of October. Stallions considered worthy and able to improve the breed are approved. Unworthy horses are rejected, the decision of the committee being final. After inspection, all stallions are shown for prizes, which

run from $15 to $90 in value. Any owner not bringing his stallion for examination and show, or having a rejected stallion, cannot stand his horse for public service or collect any fees. If this regulation is not obeyed he may be fined. This insures the use of sound sires.

In March a similar examination and show is conducted for both stallions and mares that were too young for the October show, and similar prizes are awarded. These two shows are to eliminate the undesirables from Belgian breeding stock.

There is also a pension system which is both national and provincial. Six national pensions of $1,200 each and fifty-four provincial pensions of $150 each, are offered by the government for mature stallions.

The big show of the year is held in Brussels the second Thursday in June, and lasts four days. This show is a national and social event and has the enthusiastic support of all Belgian breeders and farmers. It is the largest and most important draft horse show in the world, and also the largest show of one breed that is held in Europe. At the 1914 Brussels show there were 998 entries. Three types are shown separately—the Ardennais, the low-set Brabacon of sixteen hands, and the taller Flemish over sixteen hands. For each type there are eight classes,—one each for both stallions and mares in two-, three-, four-, and five-year-olds — and from ten to fourteen prizes are provided for each class. There is also a class for champion stallion, champion mare, and for the best four mares owned by one breeder; also a class for get of sire and for produce of one mare. Competition is keen, most of the classes having from thirty to eighty entries. One especially interesting feature of the last day of this show is a review of the prize winners by the king with his officers and ministers. Between three and four hundred prize winners and champions are led before the king who distributes the prizes and medals and congratulates the fortunate owners. The Brussels show is also of great interest, and is well attended by draft horsemen and buyers from North and South America as well as all other European countries.

Of the three recognized types of the Belgian breed, the Ardennais are the smallest. They average from 1,400 to 1,600 pounds,

FIG. 30. A BUNCH OF BELGIAN STALLION COLTS IN PASTURE NEAR BRUSSELS, CONFISCATED AND SHIPPED TO GERMANY AND SOLD AT AUCTION TO GERMAN FARMERS

(Photo by E. S. Akin, Syracuse, N. Y.)

are from 15 to 16 hands high, and are very active. They are similar to the French breed of the same name. They are bred in the hilly country of northern France and southern Belgium.

The low-set Brabacon weighs from 1,800 to 2,000 pounds and averages 16 hands in height.

The Flemish type, which is especially favored in Belgium, is the largest, weighing 2,000 pounds or more, and measuring 16½ to 17 hands in height.

The Belgian is a very low-set, deep, compact-bodied horse, short in back, well let down in flank, with wide muscular ends. The legs are short, very heavy bone, and free from hair; feet

Fig. 31. Belgian Stallions in the Five-Year-Old Class Called Back for Prizes at the Last Brussels Show, June, 1914

medium size, rather short pasterns; head good size, ears small, necks short, thick, and well crested. In color the Belgians are about fifty per cent bays and forty per cent chestnuts of the various shades. The remaining ten per cent are mostly roans. Blacks and grays are not popular in this breed.

In action the Belgian shows surprisingly at the trot, flexing the hocks and knees well and moving with much spirit and vigor. They ship better, acclimate more readily, and can put on more weight in a given time, than any other breed. They are very easy keepers, and are easily broken and handled. The earlier Belgians were inclined to coarse heads, lop ears, short necks, low backs, short round rumps, coarse crooked hocks, and a general lack of refinement and quality.

Belgians were first imported about 1866, and a few scattering importations were made up to 1888. I have in mind two importations made to our own farm in 1883–85 under the name of Boulonnais. These horses were not popular in New York State, being too blocky in type. In the past twenty-five years the improvement in the Belgian has been very rapid. There is no doubt but that the breed has been much modified and refined in accordance with the American demand. The Belgian breeders realized fully the importance of the foreign market and have

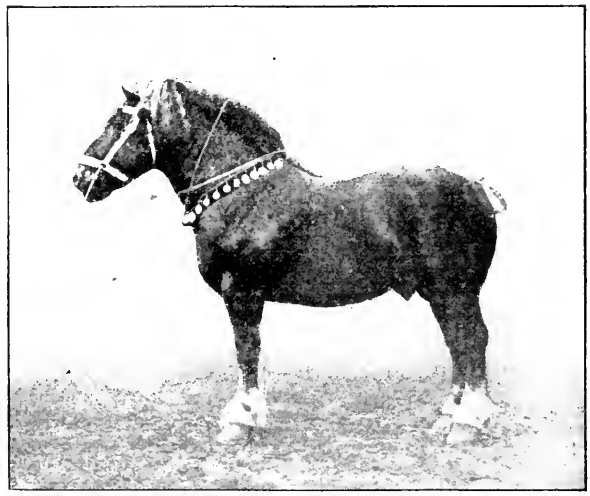


FIG. 32. "REVE D'OR." ONE OF THE MOST NOTED STALLIONS OF THE BELGIAN BREED. CHAMPION OVER ALL BREEDS AT PARIS SHOW, 1898; ALSO CHAMPION AT BRUSSELS SHOW, 1898

(Photo by E. S. Ikin, Syracuse, N. Y.)

worked to correct the existing faults of their breed and to improve their style, symmetry and action. While the importation of Belgians in anything like large numbers is of comparative recent date, they have shown in this country the greatest percentage of increase, and now rank next to the Percheron in popularity. The Belgian stallion is especially adapted for crossing on common mares lacking weight and character. This cross shows the greatest improvement in uniformity and draft type. The wonderful progress this breed has made in this country may be said to be

entirely due to their ability to make good in the hands of the ordinary breeder. The importations of Belgians would have been much greater but for the limited number of horses of this breed in existence, and the prevailing high prices.

There is a great demand in Belgium for breeding horses, not only from America but from all other horse breeding countries. Germany and Holland are prominent buyers, and I have seen many stallions of exceptional quality sold to these countries at from $5,000 to $12,000 each. Sweden, Denmark, Russia, Austria and Australia are also liberal buyers. The liberal prices and pensions have a strong tendency to hold the best stallions in Belgium,

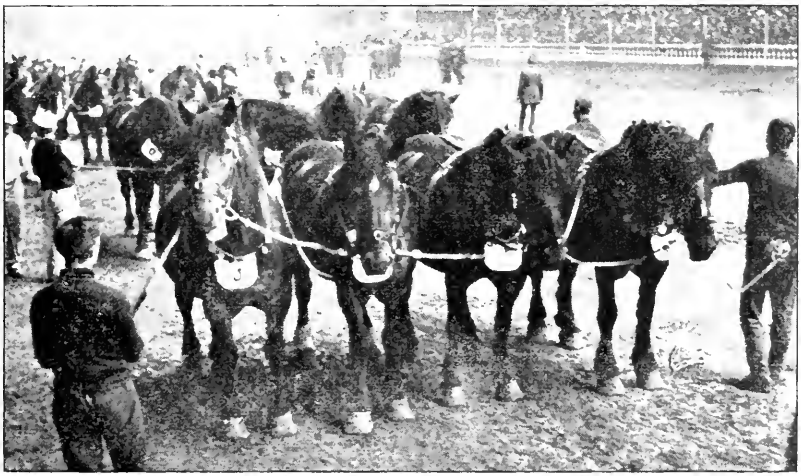


FIG. 33. SEVENTEEN ENTRIES OF FOUR MARES EACH SHOWN BEFORE THE KING OF BELGIUM AT THE LAST BRUSSELS SHOW, JUNE, 1914

(Photo by E. S. Akin, Syracuse, N. Y.)

and to the credit of the Belgian breeders it may be said that no champions, and very few prize animals, are sold to go out of the country at any price. Until recently Belgian mares have not been imported extensively owing to their scarcity and their high values, but the strong and persistent demand for mares has induced importers for the past few years to bring them over in increasing numbers. Several importations, principally of mares, have been made for various breeders in this state from 1912 to 1914. The exhibition and sale of this stock has greatly stimulated and increased Belgian breeding in the East, and it is hoped that

there will soon be more home-bred colts to supply the demand. Belgians have been the longest and most favorably known in Indiana, Iowa, Illinois and Ohio, but in recent years have been distributed in all of the horse breeding states.

Since no more Belgians can be imported, and, in numbers, this breed is comparatively small, it is of the greatest importance that the American breeder use the foundation stock at hand to the best possible advantage. Any future development of this breed in this country must be without outside aid. For centuries the world's battle ground, little Belgium is again sorely stricken by the disaster of war. In the destruction of her great breed of draft horses, the constructive work of generations is lost, the principal source of wealth of her peasant farmers cut off, and the increasing and lasting benefit of the Belgian draft breed lost to the whole world for years to come.

THE DRAFT BREEDS OF GREAT BRITAIN

E. S. Akin, Syracuse, N. Y.

President, New York State Draft Horse Breeders' Club

The British draft breeds have had a long period of development. Early history shows that horses were bred entirely for war purposes. From the seventh to the eighteenth century changing conditions of warfare made larger horses necessary, as a result of which the use of small stallions was prohibited, and larger stallions were imported from Flanders to cross with the British mares. Up to the eighteenth century oxen, and horses unfit for war purposes, were used for work. After the beginning of this century horses became more important for work and the real development of the draft horse began. In the latter part of the eighteen century we find two distinct types of cart horses — the large, black old English horse which was the result of the Flemish cross, and the Suffolk Punch, which seems to have been developed without outside help or crossing with other foreign or alien blood. In this respect Suffolks are probably the purest breed of draft horses. The characteristics of this breed have remained practically unchanged for the past hundred years, except for an increase in size. There can be no doubt but that the Scotch and English breeders have made their draft breeds what they wanted them to be and are well satisfied with the results.

Although about the same in color and markings, the two principal British draft breeds are quite distinct in other characteristics, as well as in size. Great credit must be given the breeders of both countries in the uniformity of type of their three draft breeds. The British Government, unlike that of France and Belgium, makes no inspection and pays no subsidies. Personal endeavor and enterprise, with hearty cooperation among breeders, have accomplished results possible in no other country.

THE SUFFOLK

The Suffolk is one of the oldest of the draft breeds, and is the most scarce. Their color is the most uniform of all breeds, and

FIG. 34. TYPICAL COUNTRY IN SUFFOLK, ENGLAND, NEAR HARWICH ON THE EAST COAST.
(*Photo by E. S. Akin, Syracuse, N. Y.*)

they are claimed to be bred and used more exclusively for agricultural purposes than any of the draft breeds. They originated in eastern England, principally in Suffolk county, from which the breed takes its name. They are also bred in smaller numbers in adjoining counties.

The Suffolk is one of the most distinctive types of drafters known. The color of this breed, which is referred to with much pride by the English breeder, is chestnut, which became fixed nearly two centuries ago. No animals of any other color are allowed to be recorded in the Suffolk Studbook. All shades from light sorrel to dark liver are classed as chestnut, but the shade nearest to red chestnut, with very little white, is most popular.

The facts in connection with the old-time history of the origin and development of this breed seems to be well established, and show that there has been no crossing or mixing with foreign blood — at least since the beginning of the eighteenth century—as was the case in all the other draft breeds. The Suffolk breeding districts in eastern England, especially Suffolk county, while small in area, are very fertile and extremely well cultivated. The rich low pastures mostly along the rivers and English channel are well adapted to the development of heavy horses. Some of these pastures are below sea level and are protected by embankments. They are very productive and furnish an abundance of feed most of the year.

For the future of the Suffolk breed it is fortunate that there were a few wealthy men in Suffolk who became largely interested in the improvement and preservation of this old breed of horses during the past twenty years. These public spirited men have purchased and kept large numbers of the best stallions and mares, working and breeding them on their large estates, and showing them annually at all of the principal fairs, from the local town and county shows up to the Royal, which is the principal fair of Great Britain. On these estates are kept the champion and prize Suffolk stallions, which are not for sale at any price. The tenant farmers are allowed and encouraged to breed their mares to these noted sires at a nominal fee. Nearly all colts bred on the small farms are sold at weaning time at private sale, or combined public sale. The best of them are purchased by

the few principal dealers, and are developed on their large estates for the foreign trade.

The export trade has been very large in comparison to the number available, and this breed has had an extremely wide distribution, having been exported to Germany, Austria, Sweden, and Russia in Europe, and to South Africa, Australia, New Zealand, Argentine Republic and Canada. Suffolks have been imported and bred in a small way for the past thirty-five years in the United States, but only a few importers have interested themselves in this breed.

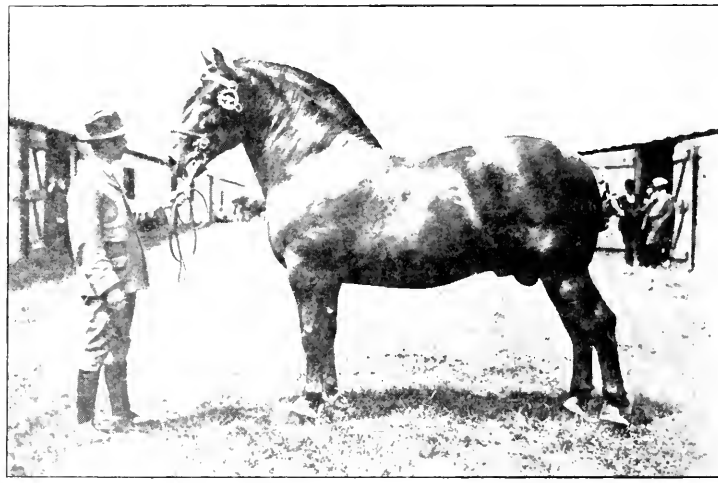


Fig. 35. Suffolk Stallion, Sudbourne Red Cup, Champion at Last Royal Show, Shrewsbury, England, June, 1914. Owned by Mr. Clark.

(Photo by E. S. Akin, Syracuse, N. Y.)

Characteristics

The Suffolks are especially noted for their uniform color, clean bone, early maturity, deep rounded bodies, and level smooth top line. They average in height from 15¾ to 16¾ hands, and in weight from 1,500 to 1,800 pounds, with a few heavier. As compared with the other draft breeds they are lighter in weight, but their endurance and easy-keeping qualities, as well as their docility and uniform good dispositions, make them an ideal horse for the small farmer who wishes to breed horses for his own use rather than for the city market.

The Suffolk has a very clean leg, showing no more hair or feather than the French breeds. In this respect they are so radically different from the very hairy-legged Shire horse in the adjoining counties that it is hard for many people to believe that they are both bred in the same small country. The Shire horse breeders hardly consider the Suffolks at all and refuse to class them as a draft breed. Among the breeders of Suffolks, the shaggy-legged Shire is even less popular. Both are prejudiced and have no ideas or aims in common.

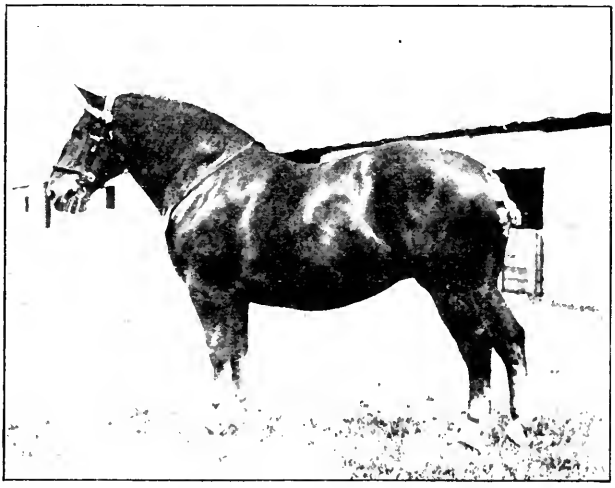


FIG. 36. SUFFOLK MARE, SUDBOURNE MARRILASS, CHAMPION AT LAST ROYAL SHOW, SHREWSBURY, ENGLAND, JUNE, 1914. OWNED BY MR. CLARK

(Photo by E. S. Akin, Syracuse, N. Y.)

The principal restrictions to their more rapid introduction in the United States were the small number of animals of any age available, as well as the keen competition among buyers of the various countries, and the high prices, which average somewhat higher than for other draft breeds. Many of the old-time Suffolks had long low backs, crooked weak hocks, flat brittle feet, and were light in bone compared with size and bulk of top. These very serious faults, somewhat common to the Suffolk up to about 1900, have been largely corrected and eliminated. The present-day Suffolk has probably more size, more quality, and better conformation than at any time in the past.

Suffolk horses have been imported and sold in New York State for a number of years, but only in the past three years have they been imported to this state in sufficient numbers and of quality to attract the serious attention of the farmers and breeders as a practical business proposition. I believe the Suffolk horse will become more popular in New York State each year, as they are especially adapted to our agricultural requirements.

THE CLYDESDALE

This breed is recognized today as principally the work of Scotch breeders. The early history of the Clydesdale would show their origin to have been the same as the English Shire, and that the blood of the English draft breeds was derived principally from the Flanders source. To the old Flemish horse of Belgium the modern Clydesdale, as well as most of the other draft breeds, owe their origin. As a starting point for the real improvement of the Clydesdale, credit is now given to a black Flemish stallion imported from England into Scotland about 1750 by John Patterson of Lochlyoch. Up to the time when the Clydesdale Horse Society and the Shire Society were formed in 1883, the two breeds had a closer resemblance than now, and there was also more or less crossing, many times with excellent results. Since that time there has been very little crossing and the breeds have in type and size drifted wider apart. The principal distinction between the two breeds, especially in size, have been brought about by the difference in the countries where bred. Bulk or heavy weight in draft horse breeds was developed on low ground. Scotland being largely a hilly, broken country, a lighter more active breed resulted. Also, the individual tastes of the breeders of England and Scotland differ widely, the latter preferring a horse of less weight and one having more quality and action.

Clydesdales were at first bred in the valley of the river Clyde in southern Scotland, principally in the county of Lanark. Perhaps the most successful Clydesdale breeding districts at the present time are the counties of Dunfries, Kirkcudbright and Wighton in lower Scotland, and Aberdeenshire in the north. It may be said, however, that now Clydesdales of high quality and

fashionable breeding are raised in practically every county of Scotland. Clydesdale improvement and distribution in Scotland has been made possible by a few men who have been breeders not only in a large way, but have either owned or bred and developed most of the champion stallions and mares of the breed. These men, who are also dealers, buy many of the best Clydesdale stallion colts as weanlings. Stallions of all ages are kept on these large estates in sufficient numbers to supply the export trade, but the best trade, which is peculiar to Scotland, is the business of leasing stallions. Companies or associations are formed by the

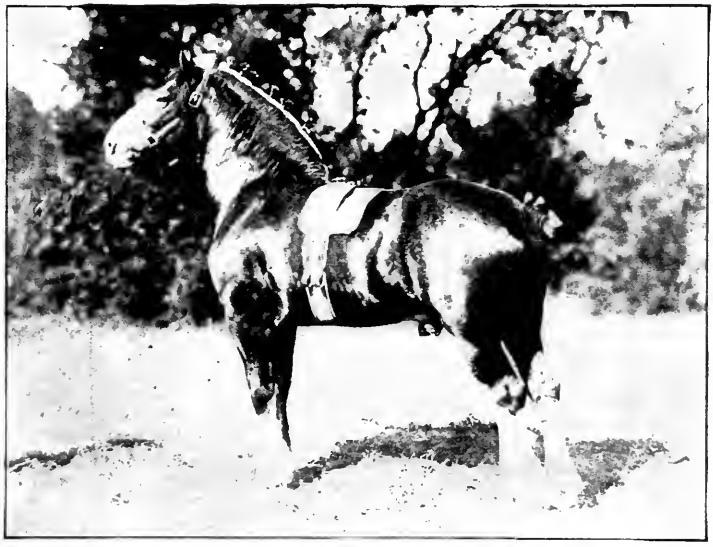


Fig. 37. Clydesdale Stallion, Ciaibstone, Champion at Indiana and Illinois State Fairs, 1914. Owned by Leitch & Sons

(Photo by Hildebrand, Chicago, Ill.)

farmers in most townships in Scotland, not to buy stallions but to rent them for the season. Usually one hundred mares are guaranteed at from $25 to $50 each, and competition is keen for some stallions of exceptional merit and breeding. In this way breeding stock is evenly distributed, Clydesdale breeding encouraged, and uniformity in type maintained.

For the past twenty years the efforts of the Scotch breeder have been mainly directed to improve the hocks, feet, length of pastern, quality of bone, feather and action. To obtain these

points they have sacrificed much in size of bone, weight and ruggedness of their horses.

Of the draft breeds the Clydesdale was among the earliest to be imported into the United States, and in the eighties the Scottish drafter was the most important and numerous of the heavy breeds in our show ring, but the fact that the American and Scotch trade require a different draft type, together with the fact that Clydesdale breeders in the United States and Canada have beaten the Scotchmen at his own game, has practically eliminated Clydesdale importation.

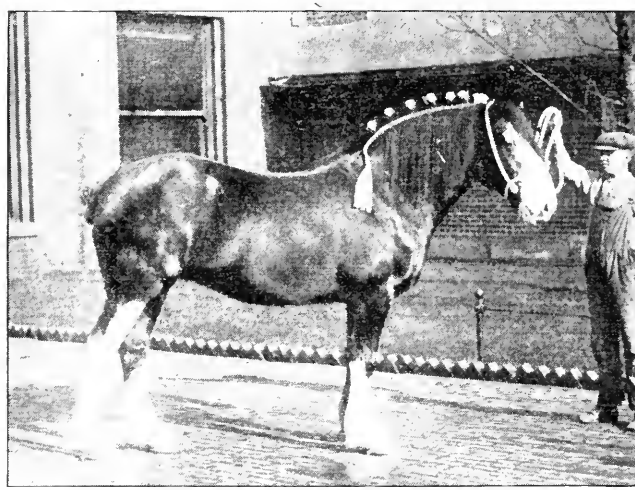


FIG. 38. CLYDESDALE MARE, HAVISTOUN BARONESS, CHAMPION, HIGHLAND SHOW, SCOTLAND, 1912; INTERNATIONAL, CHICAGO, 1912–13. OWNED BY FAIRHOLME FARMS
(Photo by Hildebrand, Chicago, Ill.)

Some of the most intelligent and progressive men ever connected with the draft horse business have been among the earlier supporters of the Clydesdale. Upholders of this breed are now less in number, but have among them some men of unlimited means who are enthusiastic Clydesdale advocates, and are doing much in the agricultural press and show ring to make their favorite breed more popular in the eastern states. Clydesdales have been the Canadian draft breed for the past fifty years. This is only natural in a country so closely in sympathy with British

ideas and methods. While the Scotch breed is still the pre-eminent drafter, it may be said that the Clydesdale has reached the height of its popularity. The many importations of Percherons, and their larger numbers in the show rings, in the past few years, would indicate the increasing demand for the French breed across the border.

Characteristics

The modern Clydesdale is somewhat lighter in weight than the other draft breeds, ranging from 1,400 to 1,800 pounds — a few are heavier. They average in height from 15–3 to 17 hands. In color, they are chiefly browns and bays, many having more or less white hairs mixed in their coats. There are also some blacks, roans and chestnuts. Gray is not a popular color. The abundant white markings on face and legs, which often reaches the body in irregular splashes, seem to be favored by the Scotch breeder, also the feather or hair on the legs, which has been somewhat reduced and improved in quality.

The good qualities of the Clydesdale from an American standpoint would be their level top, well-sprung ribs, quality of hocks and bone, well-set pasterns, with true straight action at a walk and trot that is remarkable, being surpassed by no other breed. The criticism of a Clydesdale today is their tendency to be light in the body, narrow in chest and loose in coupling. This rather rangy conformation is probably the cause of their slower maturity. They are also not as easy keepers as the closer-made breeds. The breed also lacks in bone and in feet, which are inclined to be flat.

From the Scottish breeders' obstinate refusal to cooperate or consider the wants or requirements of the American trade it would seem they must have greatly underestimated the limitless room for Clydesdale expansion on this side of the Atlantic. This expansion is only possible when Clydesdale breeders can satisfy the insistent and increasing American demand for a more rugged, draftier horse, having more bone, clean-legged, and the white eliminated from their coats. The future success of this breed in this country depends on the ability of the breeder to change from the Scotch to the American type of draft horse.

THE SHIRE

As has already been shown the British draft breeds were evolved from the English war horse of early days, crossed with the old black horse of Flanders. With practically the same origin, and, up to a comparatively recent date, a similarity in type and blood, there is now a wide difference in the characteristics of the modern Clydesdale and Shire. To a marked degree the Shire represents the English idea of a draft horse. In attaining the great bulk or size the English breeder has been especially favored.

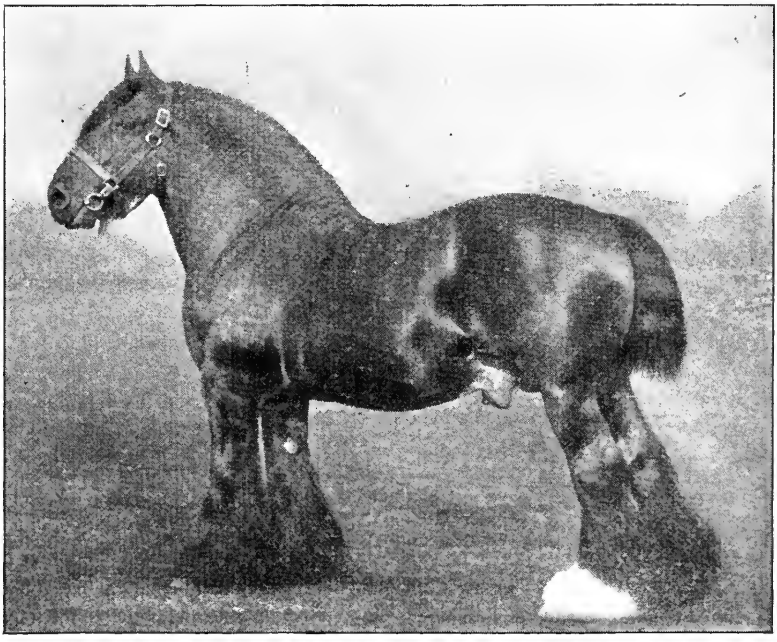


FIG. 39. SHIRE STALLION, CHULDWICK, CHAMPION AT THE LONDON SHIRE HORSE SHOW, 1914
(Courtesy of Sanders Publishing Co., Chicago, Ill.)

The low-lying, rich pasture country of Cambridge and Lincolnshire is much more favorable to massive growth than is Scotland. In these counties the Shire and the earlier black Lincolnshire cart horse have been chiefly bred.

The Shire Horse Society, as well as many very prominent Englishmen, including the late King Edward and the present King, have done much for the Shire horse interests and improvement. The Shire Horse Society has also been very active in

promoting the large shows, of which the London Shire Horse Show is one of the most important.

Next to the Belgian the Shire is the heaviest breed, but the latter is larger boned and coarser in build. Generally speaking, the Shire is more massive than the other breeds, but less compactly made, standing 16½ to 17 hands in height, and averaging from 1,700 to 2,200 pounds in weight. In build they are somewhat rounder in body than the Belgians, not so deep, and, like the Belgians, are of many colors, ranging from black through the different shades of bay, brown and chestnut to roan and gray, with the same liberal white markings as the Clydesdale. White, soft, silky feather is preferred, and the quantity of hair on the legs seems to be of great importance to the Shire breeder. An abundance of long bushy hair on the cannon bone is associated with great strength, in the mind of the English breeder, and he sometimes resorts to artificial means to increase its growth.

Distribution and Advantages

The distribution of the Shire in this country is more restricted than general. There are some sections in the Middle West where they are bred almost exclusively, while in many of the eastern states they are almost unknown. This was not always so. There is little doubt that the Shire under various other names was imported into the eastern states a very long time ago. It is said that a strain of horses called the John Bulls in Pennsylvania were probably descended from English stock. Later this breed found its way to Illinois and adjoining states.

Characteristics

It may be said that the Shire horse has been much improved in quality and action in the past fifty years, and is now more uniform in type. This breed, however, is of a more sluggish temperament, and is not so docile or even in disposition as the other draft breeds. From an American viewpoint it is hard to understand the English tenacity of purpose in carrying out some of their own peculiar fads or fancies in developing the Shire type. Aside from size and bone, in which this breed excels, this type has been established without any regard to the wants or requirements of the American trade. An enormous amount of hair

about the legs, with tendency of the bone to be round and meaty, straight pasterns, frequently too much white on face and legs, large size and contour of head, which is more prominent from the lightness of neck,—seem to be the characteristics of the breed. Some of these points are found in a marked degree in the champion and prize animals of the English show ring.

In diminishing numbers Shires are being imported to America, not of the type favored in England, but animals smoother in

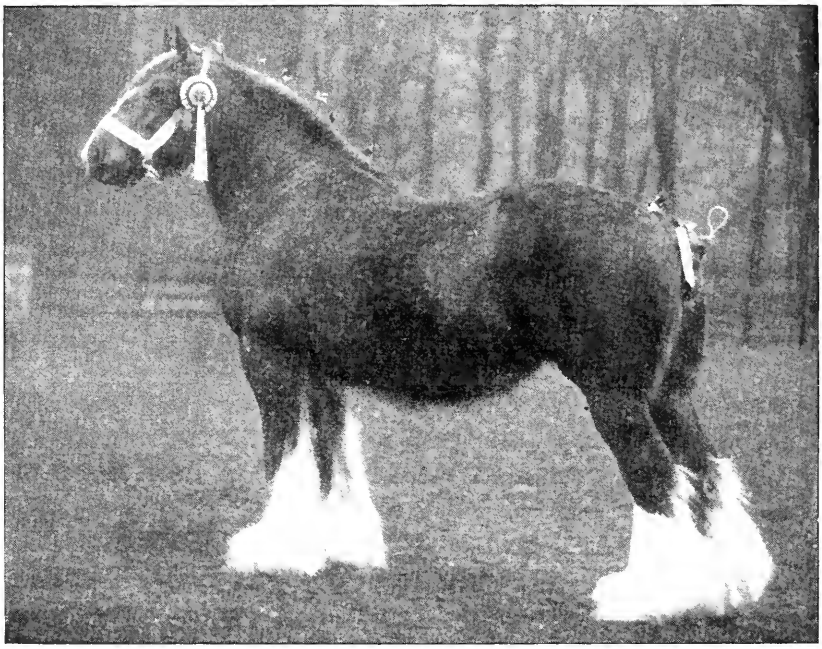


FIG. 40.—SHIRE MARE, DUNSMORE CHEMIE, CHAMPION, LONDON SHIRE HORSE SHOW, 1914

(Courtesy of Sanders Publishing Co., Chicago, Ill.)

build, with less feather and less white markings. To those who have watched the Shire at our principal shows it is apparent that prize winners as selected by American judges are closer in type to the clean-legged continental breeds. Although there seems to be a growing interest on both sides of the water in what is termed "Quality Shire" it will need a more radical change in the British policy and effort than we may expect before the Shire interests in this country can greatly expand.

In different parts of the east Shire stallions of early times were known under the various names of John Bull, Sampson, English Draft, etc. While this early draft blood was valuable, the benefit was not lasting, except as it was used in crossing with other draft breeds which followed. About 1850, a breed called the Sampson was known in the central part of New York State. In the early sixties I remember many grade Sampson colts on our own farm that were excellent workers. These horses were mostly blacks, medium in weight, of rather rough open build, with great energy and endurance. The general importation of Shires does not date back much before 1880. The number imported was never great, but more in former years than now. The Shire has made his best record in the middle western states where they have been most successful in producing big, high-priced geldings and farm native mares. The exceptional bulk, frame, strength and bone of the Shire are qualities that are especially valuable. With this breed, size and substance can be obtained with greater certainty and more quickly than with any other draft blood.

Grade Shire mares are especially valuable in crossing with stallions of other breeds. Many of the largest and best grade mares and geldings on the western farms at the present time are from this sort of mating. With the future uncertainty of draft horse importations, especially of the continental breeds, Shire importations will probably increase, since this breed will be available in greater numbers than any other after the war.

The following figures, as reported by the various registry associations, will show the comparative number of animals of the five draft breeds imported in 1913-14, those recorded and transferred in 1914, and the total number recorded up to May, 1915:

Breeds	Imported in 1913	Imported in 1914	Total No. recorded in 1914	Transfers in 1914	Recorded up to May 1, 1915
Suffolk	40	24	86	20	908
Shire	181	56	....	821	15,761
Clydesdale	98	51	680	553	18,900
Belgian	927	391	3,534	....	13,947
Percheron	1,935	1,125	9,364	9,198	108,000

HACKNEY BREEDING IN AMERICA*

REGINALD C. VANDERBILT

President, American Hackney Horse Society, Sandy Point Farm, Newport, R. I.

The improvement in the class of Hackneys bred in this country during the past few years has been so marked that many believe that we can show as good specimens of the breed as the best that are imported from England. With the existence of the European war and consequent stoppage of importations, comparison, for the present at least, is useless, and it is to the stock farms of America that the Hackney must look for its future.

What will the Hackney of the future be and from what blood will it be produced? To answer these questions we must look to our breeders, for upon what they are doing today will depend the results of tomorrow.

I wish to call attention to the blood lines which the different breeders are following and to their own opinions on matters of interest to the breeder.

I shall take, for example, the Pabst Stock Farm, belonging to Mr. Fred Pabst, and situated at Oconomowoc, Wis. Mr. Pabst's foundation was secured by an importation in 1906 of two stallions and twenty mares, and in the spring of 1907 he further increased his stock by purchasing from Mr. E. D. Jordan all the Hackneys at his Plymouth Hackney Stud at Plymouth, Mass. Among this lot, which consisted of over one hundred animals of all sizes and ages, were such well-known stallions as Gentleman John, a champion of the National Horse Show, and Dilham Prime Minister, probably the best pony sire in America at that time, having gotten such good ones as Lady Dilham and Bit o'Fashion. Later on Mr. Pabst added to his stud Meanwood Majesty, by the celebrated Forest King.

* Courtesy of *The Field:* The Advanced Agricultural Publishing Co., New York City, publishers.

Among the brood mares are: Caynton Phyllis, by Polonius, and Saintly, by Dissenter, out of Queen of the South, by Garton Duke of Connaught. This mare is the dam of Consternation, which was bred at this farm and is now owned by Miss Long of Kansas City, for whom she won reserve to the championship at the National two years ago.

There are also mares by Gentleman John, Lord Denby II, Prince Crompton, and descendants of old Viscountess, champion at New York in 1898, as well as Gossip, the dam of the well-known Norena and Chatterbox.

At the present time Mr. Pabst's pony sire is Masterpiece, by Lord St. Kitts, which is by Dilham Prime Minister and out of

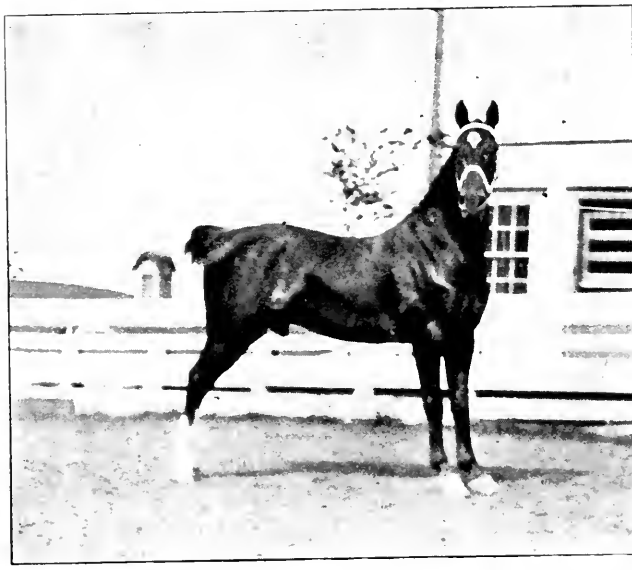


Fig. 41. Hackney Stallion, Irvington Marlboro. Owned by W. D. Henry, Irvington Farm, Senickley, Pa.

(Courtesy of "The Field.")

Lady Kitty, she by Sir Horace, England's greatest pony sire. The dam of Masterpiece is Elegance III, also dam of Lady Dilham.

In 1907 Sir Humphrey was added to the stud. This horse won the championship at Olympia, and since standing at the Pabst Farm has produced many promising youngsters. Further addition was made a few years later, when several brood mares

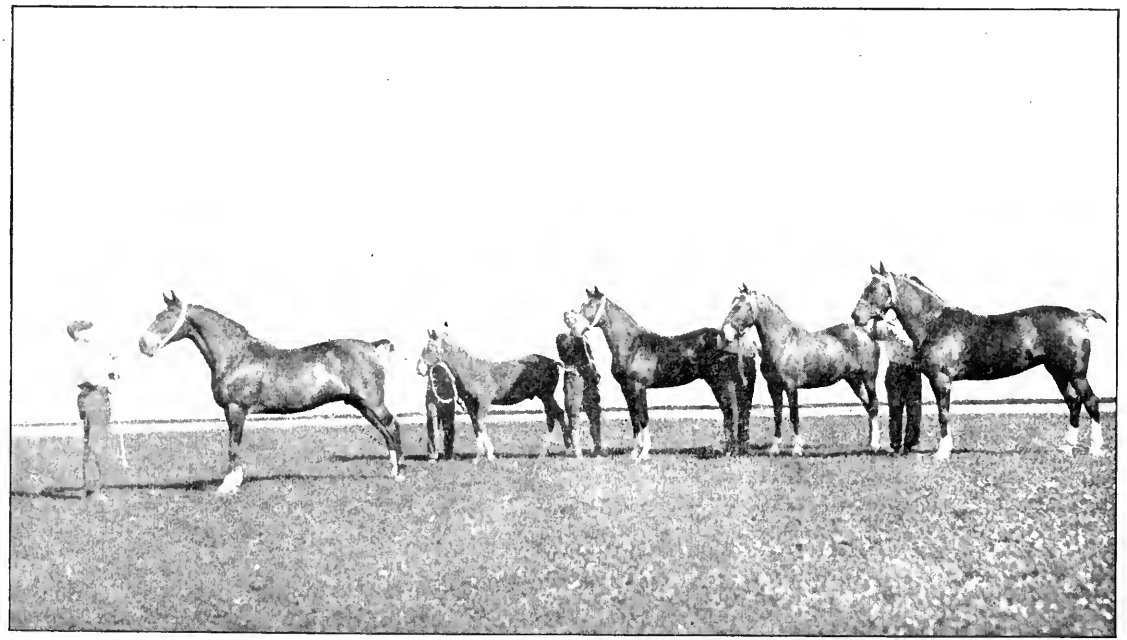


FIG. 42. SILFIELD VENUS, HACKNEY MARE, AND FOUR OF HER COLTS. OWNED BY REGINALD C. VANDERBILT, SANDY POINT FARM, NEWPORT, R. I.

(Courtesy of "The Field.")

were bought from Hon. Henry Fairfax, and were bred to Mr. Fairfax's Bagthorpe Sultan, by Forest King. Later Bagthorpe Sultan was himself bought, and he is now at the head of this stud. That he is a successful sire has been proven by the number of prize-winners he has gotten, the wheelers of the team Mr. Pabst exhibited last season being among them.

There are now over ninety horses at the farm, including brood mares, young stock and horses in training. Last year fourteen foals were raised, many of them by Bagthorpe Sultan and out of Sir Humphrey mares. Mr. Pabst makes a point of having his show string consist of horses of his own breeding.

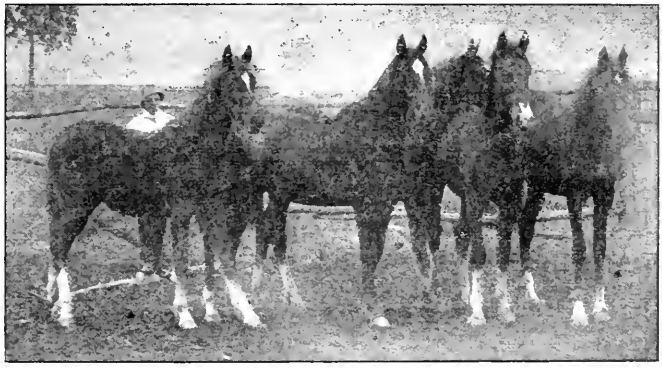


Fig. 43. Hackney Colts in Pasture at Daniel J. Driscoll's Hackney Horse Farm, Auburn, Pa.
(Courtesy of "The Field.")

Aside from raising pure-bred Hackneys, Mr. Pabst is interested in crossing Hackneys with horses of other breeds, and is a firm believer in the excellent results that can, for various objects, be thus obtained. Three years ago he bred a number of Hackney mares to a Thoroughbred horse called Dick Burgess, by Sir Dixon and out of a mare by Hindoo, and has a very classy lot of youngsters which he feels sure will be heard from in the hunter and saddle classes. Not only for these purposes does he consider the Hackney cross invaluable, but he even claims that a fine type of lighter draft horse can be obtained by another cross. Regarding this Mr. Pabst writes:

"I was impressed with the latter fact on one of my visits to Paris, where I had an opportunity to see a large exhibit of the

horse called the Briton. This is an enlarged type of the Hackney, and as explained to me was bred by crossing the Hackney horse to a drafty type of native mares. They were a very uniform lot, I should judge weighed 1,400 pounds and over, and were as fine in conformation as many of the smaller sized Hackneys. I felt that the fact that the Hackneys possessed the prepotency to convey their individuality to such a degree in cross-breeding was certainly a big point in their favor."

In regard to the rearing of the young stock, special attention is paid to raising them under conditions most favorable to the

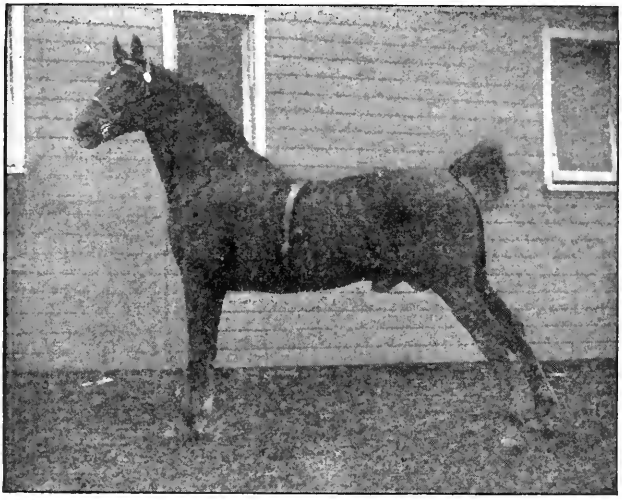


FIG. 44. ONE OF THE STALLIONS AT MR. DRISCOLL'S HACKNEY HORSE FARM, AUBURN, PA.
(Courtesy of "The Field.")

development of vigor and stamina. With this point in view, they are not stabled the entire year, but, except during the worst months, are turned out, being given access to sheds that protect them from rain and storms. This system also has the advantage of being most economical, as one man can look after from sixty to one hundred animals when managed in this manner. They are fed oats, mixed hay, alfalfa and corn. The brood mares are fed grain sparingly, but the best of hay. The weanlings are halter-broken, preferably before being taken from their mothers, and as yearlings and two-year-olds are worked from four to six weeks with bitting harness, to mouth them. As three-year-olds they are

worked in harness for a month or two, so that by the time they are four they are ready for the finishing touches.

After many years of close association with the Hackney, Mr. Pabst's opinion of it as a generally useful horse might be of interest. He writes:

"I have been using Hackneys for heavy harness use, riding, delivering farm products to the station four miles away in all kinds of weather, and also for lighter farm work, and I don't know of a horse better adapted for general purposes. I have bred trotters for many years and they have no stauncher admirer. There is no better horse for light harness, but I claim and know that the Hackney is second to none for heavy harness use. To dwell upon their show qualities is superfluous, as they have proven their ability to win over every other breed beyond a question of doubt."

COACH HORSES

De Voe Meade

Instructor, Department of Animal Husbandry, Cornell University, Ithaca

GENERAL DESCRIPTION

A typical coach horse stands 15-2 to 16 hands and weighs from 1,000 to 1,250 pounds. He should have high knee and hock action, which comes from breeding rather than from artificial means of development. He is not required to have great speed nor marked powers of endurance, but must move fairly fast with much ease and grace of carriage. The coacher must be very fine in quality, smooth and symmetrical in all of his outline, and must carry his head and tail high. The coacher is heavier, smoother and more stylish than the road horse, and must be stylish and aristocratic in his bearing in order that he may look well in fine harness and draw handsome carriages. The knees should be raised high and the feet in their flight should follow the circumference of a circle without pause, hesitation or thrusting forward as they approach the ground. The entire make-up of the coacher should be symmetrical, bold, refined, stylish, and the bearing aristocratic.

THE HACKNEY

History

This breed originated in Norfolk, England, and is the result of crossing the Thoroughbred stallions on native Norfolk trotting mares, the latter being noted for great speed and endurance, particularly under the saddle. The important changes in the development of the Thoroughbred probably began with the horse known as the Original Shales, foaled in 1755. This horse was undoubtedly sired by Blaze, a son of Flying Childers, and out of

a stout Norfolk mare. Shales was but four generations removed from the Darby Arabian.

Families that have been conspicuous in the history of the breed are the Fireaways, the Denmarks, and the Danegelds. During the past sixty years the blood of Denmark and Danegeld has been of the greatest importance. Leading sires of the present time are Polonius, Mathias, Royal Danegelt and His Majesty.

The Hackney in America dates back to 1822 when James Booth of Boston imported (Jary's) Bellfounder 55, commonly

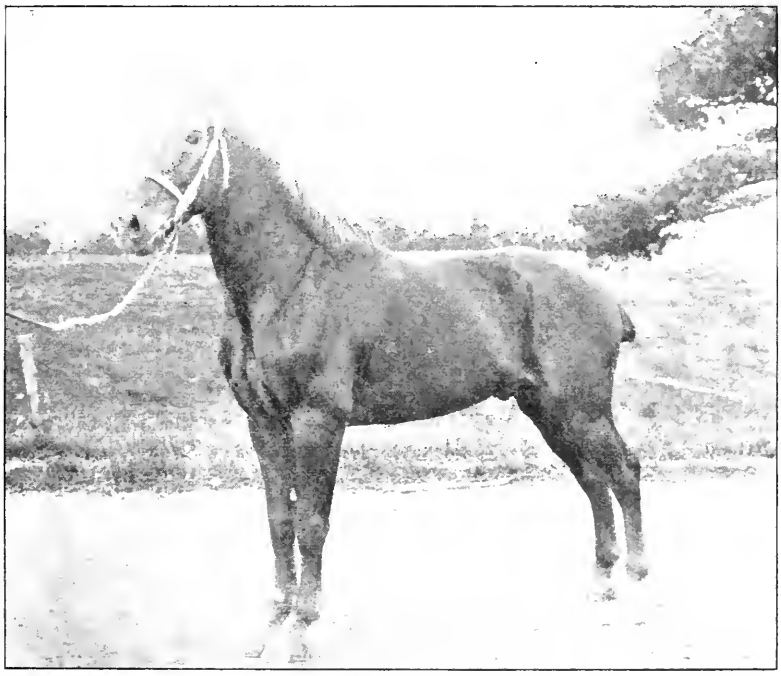


Fig. 45. Hackney Stallion, Volunteer

known as Imported Bellfounder. Bellfounder was the sire of the Kent mare, dam of Hambletonian 10. The great speed in the Hambletonian family of trotters is regarded as tracing back through Bellfounder. The first Hackney stud in the United States was established at Philadelphia in 1883 by A. J. Cassatt. Recent breeders and importers are F. C. Stevens of Attica, N. Y., Eben D. Jordan of Boston, Mass., and Robert Beith of Bowmanville, Ontario, Canada.

Characteristics

The typical Hackney is a comparatively short-legged, compact, smoothly-turned, strong-boned horse of aristocratic mien. The breed is characterized by a full, rounded chest, short back, long level and broad rump, with a most typical coachy carriage of the neck and head. The graceful carriage and perfect, symmetrical, lines of the Hackney make him preeminently adapted to carrying fine harness and to drawing handsome rigs in parks or on the boulevard.

The action is high, round, quick, elastic and regular, not only in front but also behind. The hocks are flexed and extended so as to correspond with the "trappy" action of the knees.

Recently chestnut with white markings has been the color most in demand. Bays, browns, roans and blacks are also acceptable. The most desirable height for the Hackney is 15–2 to 15 3 hands.

Utility

The Hackney as a breed possesses strong prepotency and is able to stamp breed and individual characteristics upon its offspring. He is, therefore, well adapted for mating with either Standardbred or Thoroughbred mares for the purpose of producing a high-class harness or saddle horse. The mares selected should approximate as nearly as possible the Hackney type and the offspring from the mating may be expected to possess natural, inherent coach action which may be further perfected by shoeing and training.

Registration

The Hackney is promoted in the United States by the American Hackney Horse Society. Gurney C. Gue of 308 West 97th St., New York City, is the secretary of this association.*

FRENCH COACH

History

As the name indicates, this breed originated in France, where it is known as the Demi-Sang, meaning half-blood. This breed is the product of a cross between the English Thoroughbred and

* See article on the Hackney by Reginald Vanderbilt, page 104.

native mares of France that have considerable Arabian and other oriental blood in them. The use of English sires on Normandy mares removed a certain degree of plainness and coarseness and at the same time increased speed and quality.

The French government in order to promote the breeding of a superior class of both coach and draft horses has made three different stallion classes: first, stallions owned by the government,

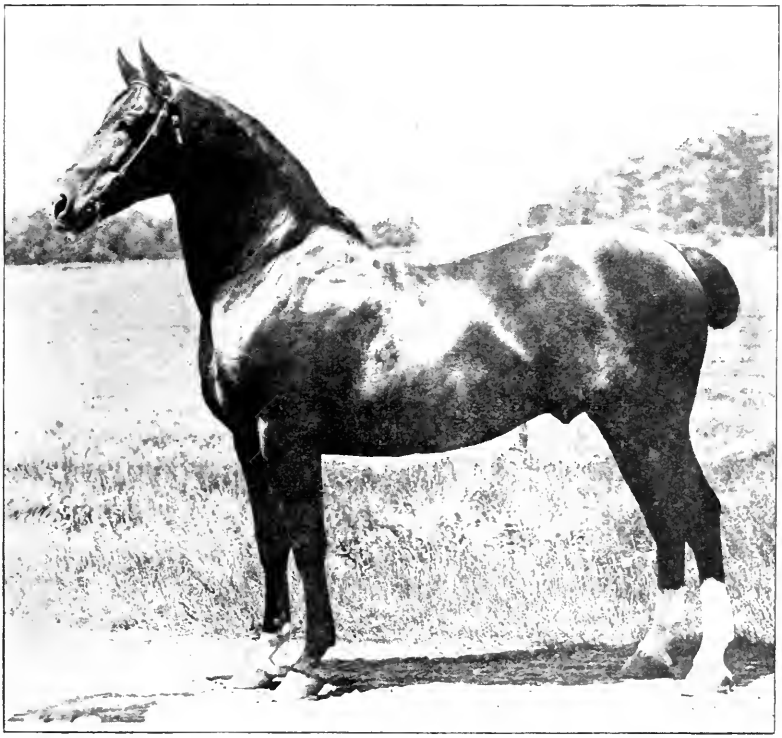


Fig. 46. French Coach Stallion. Paladea.

second, approved or subsidized stallions, and third, authorized stallions. The French law since 1885 has prohibited the public use of stallions not conforming to these standards. It is said that Thoroughbreds have not been used in the breeding of French Coach horses since 1840.

Characteristics

This breed is somewhat variable in type. The breed is more rangy in type than the Hackney, an upstanding graceful, free-moving horse. Horses of this breed range in height from 15–2

to 16 hands and weigh 1,200 to 1,400 pounds. This breed is characterized by a good length of black, a long, somewhat arching neck, and a long, wide, level croup. The trot of this breed is long and powerful instead of high and trappy like the Hackney. The color varies through different shades of bay, brown, and black.

Utility

The French Coach is suited for the production of large strong and handsome coach, carriage and wagon horses, when mated with mares that are possessed of suitable conformation and quality. Suitable mating with American trotting-bred stock produces a superior class of carriage horse.

Registration

The French Coach breed is promoted by the French Coach Horse Society of America. The secretary of this association is Duncan E. Willett, Oak Park, Ill.

GERMAN COACH

History

The German Coach originated in Germany, especially the northwestern part, in the states of Hanover, Oldenburg, Schleswig-Holstein and in the district of East Friesland. The coach horse breeds of Germany have been formed by mating native mares of Germany with horses imported from the Orient, England, Denmark, and other important horse countries of the world. The breed is therefore of composite origin. Government supervision of horse breeding in Germany has existed for centuries. Laws were passed prohibiting the use of stallions unless they had passed a satisfactory government inspection. At the present time both the government and agricultural societies promote the intelligent breeding of horses. Animals of special merit are awarded prizes and must be kept in the country for a stated period of time.

Characteristics

Owing to the conditions existing in Germany several types of German Coach horses have arisen. The best known types are the

Trakehnen, the Hanoverian, Holstein, Oldenburg, and East Friesland horses.

The Trakehnen horse has a good disposition, great endurance and a strong, closely-coupled back and loin. This is the lightest of the German Coach types.

The Hanoverian has strong legs, and a good back, which is sufficiently strong to carry quite heavy loads. Although used more for draft it is also suitable for saddle purposes.

The Oldenburg is the heaviest type. They stand 15–3 to 16–2 hands high and weigh 1,200 to 1,400 pounds. These horses are

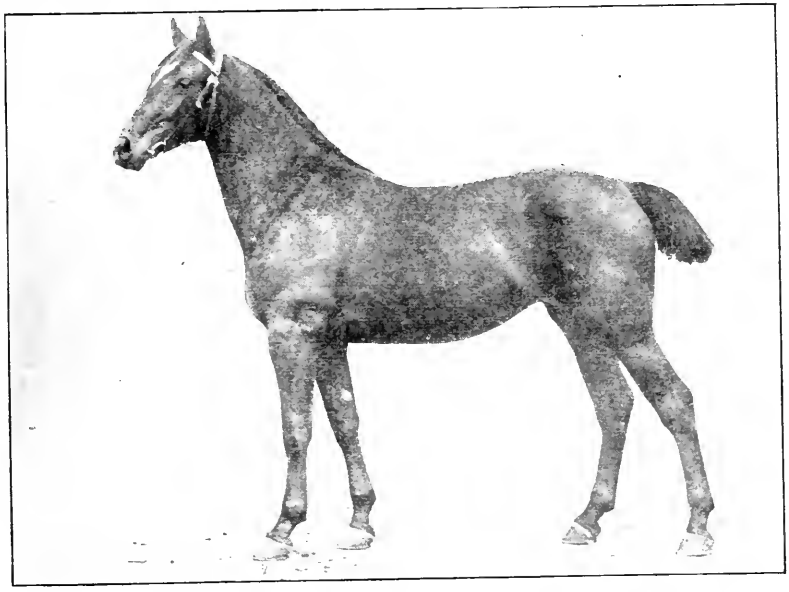


Fig. 47. German Coach Mare, Alemania

used for heavy coach and as farm and all-purpose horses, but are not used under the saddle.

The Holstein is similar in size and weight to the Hanoverian. They have good legs, are free movers and are suitable both for riding and driving.

The East Friesland horse is about the same size as the Oldenburg and is practically the same, since they are bred from Oldenburg sires.

In height the breed ranges from 15–3 to 16–2 hands and weighs from 1,350 to 1,500 pounds. The color does not vary

greatly, being either bay, brown or black. Coarseness is not uncommon to the breed. Superior folding of the knees and hocks, which is characteristic of the Hackney, is not a uniform characteristic of the German Coach.

Utility

Mated with large, strong, sound mares the best German Coach horses are likely to produce a large number of useful wagon horses, light expressers and general purpose horses, and a fair proportion of useful coach horses.

Registration

The interests of the German Coach are advanced in United States by the German Hanoverian and Oldenburg Coach Horse Association of America. Mr. J. Crouch of Lafayette, Ind., is the secretary of this organization.

CLEVELAND BAY

History

The native home of the Cleveland Bay is in northeastern England. The exact origin of this breed is very obscure and nothing is definitely known regarding it. The Cleveland Bay was early used for agricultural and general utility purposes. Owing to changes in economic conditions early in the nineteenth century, and again in the latter part of the same, the breed fell into disfavor and almost went out of existence. The Cleveland Bay in the United States is practically a total failure. There is no prominent breeder advocating the merits of the breed, and importations are rarely made.

Characteristics

The color is always bay, either light or dark, with black legs, mane and tail. White, except a small star in the forehead or a few white hairs on the heel, is not permissible as it is supposed to indicate foreign blood. The breed ranges in height from 16–1 to 16–3, and in weight from 1,200 to 1,550 pounds.

The Cleveland Bay ranks among the largest of the coachers, but it lacks the quality and action of the other coach breeds. The

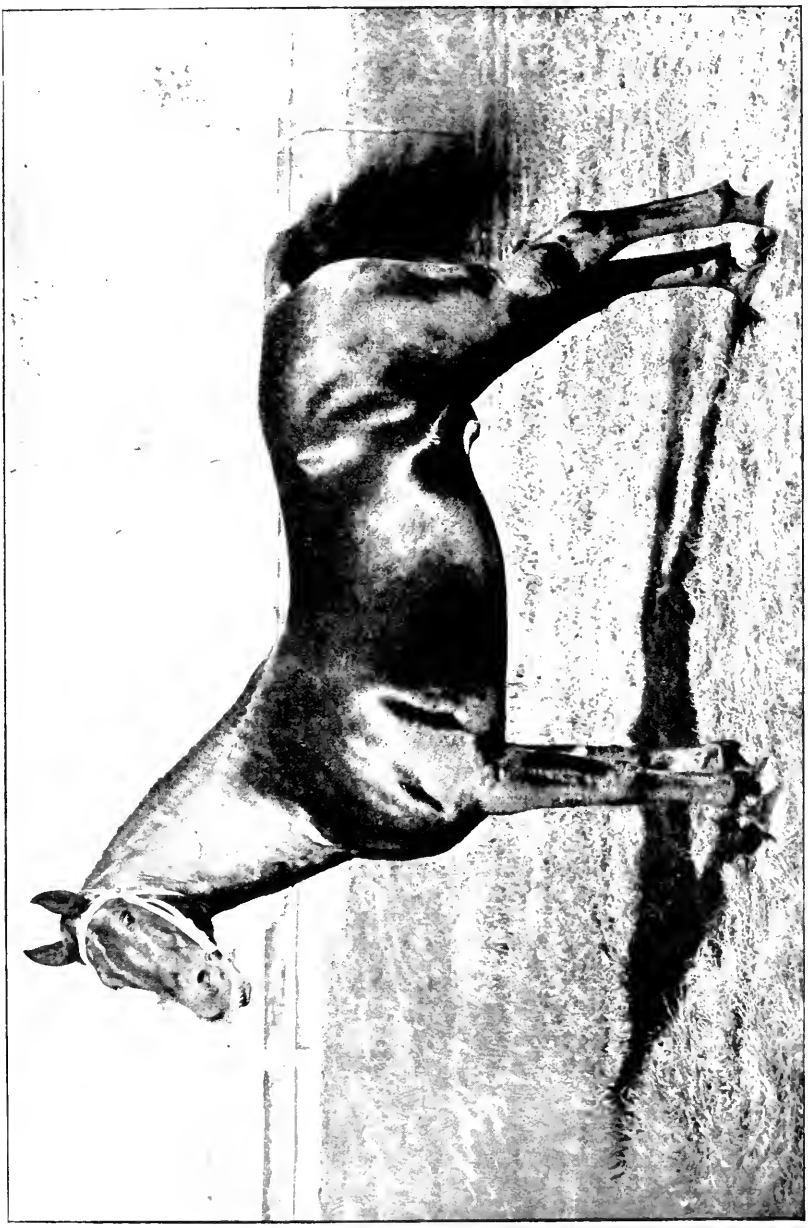


Fig. 48. Cleveland Bay Stallion, Bedlion Fred

action is strong and powerful but not stylish. Most of the representatives of the breed lack prepotency to produce quality, and largely for this reason they have failed to become popular in America.

Utility

The Cleveland Bay stallion of the best type and breeding is prepotent in transmitting his color markings and good disposition to his progeny, and when used upon common mares gets a fair proportion of light, active horses for general purpose work.

Registration

The interests of the Cleveland Bay are advanced by the Cleveland Bay Society of America. The secretary of this organization is Mr. R. P. Stericker, of Oconomowoc, Wis.

ASSES AND MULES

Dr. C. W. Brodhead, Montrose, Pa.

Farmers' Institute Lecturer

THE MULE AND HINNY DEFINED

Mule

The word "mule" signifies a hybrid; that is, the offspring of animals belonging to the same genus, and fertile one with the other, but of different species. Mules or hybrids are usually infertile one with another, and are always incapable of propagating the species indefinitely. As now generaly accepted, the word mule is used to designate the offspring of the jack with the mare. They have been known and bred since the time of remotest history, having been always prized for their longevity, sure-footedness, and ability to labor in extreme heat.

Hinny

The hinny is the produce of a she-ass bred to a horse. They were called hinnus by the Romans; hence our name hinny. They resemble the horse more than the ass, just as the mule, sprung from the mare and ass, resembles the male parent most. Hinnies are handsome, round-bodied like the horse, but exceedingly small, and are also said to be slow and more difficult to manage than the mule proper. They have, therefore, seldom been bred, and have generally passed into disuse.

THE ASS

The wild ass is said to have been indigenous to the Arabian desert and the countries which formed the Babylonian Empire. Those now found in the northern region of India, in the hill country, are said to be so fleet that no horse can overtake them. Four different races seem to be indicated in the Hebrew Scrip-

tures, where they are named Para, Chamor, Aton and Orud. Scott's version of the description by Job of the wild ass Para is as follows:

> Wild tenant of the waste, I send him there
> Among the shrubs, to breathe in freedoms' air.
> Swift as an arrow in his speed he flies;
> Sees from afar the smoky city rise;
> Scorns the throng'd street, where slavery drags her load,
> The loud-voiced driver and his urging goad:
> Where e'er the mountain waves its lofty wood
> A boundless range, he seeks his verdant food.

ANTIQUITY OF THE MULE

Mules were used and much prized from a remote antiquity, and are mentioned both in sacred and profane history. They were introduced into the chariot races in the seventieth Olympiad, or about 500 years before the Christian era; and, in the time of the Romans, Q. Axius, a Roman Senator, according to Pliny, paid 400,000 sesterces — or more than $13,000 — for a male ass for the stud. He also states that the best female asses were worth a like sum to breed sires. When we compute the difference in value between money then and now, the price was greater than that now paid for the most celebrated racing and trotting horses.

BREEDING-JACKS

The best jacks now are those of Spanish origin. They are large, strong-boned, long-bodied, and, of course, long-eared. Fig. 49 gives a good representation of the Poitou ass, an animal similar to the Spanish jack.

The jack, whatever the breed, is sensitive to cold and to the influence of storms, and, if not warmly housed in winter, soon becomes useless and disabled from rheumatic and other affections.

Of the jacks imported at an early date into America, as a present to General Washington, Mr. Custis has written as follows:

> The Royal Gift and Knight of Malta were sent to General Washington about the year 1787. The Gift with a jennet, a present from the king of Spain, and said to have been selected from the royal stud. The Knight, I believe, was from the Marquis de Lafayette, and was shipped from Marseilles.
>
> The Gift was a huge and ill-shapened jack, near sixteen hands high, with very large head, clumsy limbs and to all appearance little calculation for active service. He was of a gray color, probably not young when imported, and died at Mount Vernon, but little valued for his mules, which were unwieldy and dull.
>
> The Knight was of moderate size, clean-limbed, of great activity, with the fire and ferocity of a tiger; a dark brown nearly black colour, white belly and

muzzle. He could be managed only by one groom, and that always at considerable personal risk. He lived to a great age, and was so infirm towards the last as to require lifting. He died on my estate in New Kent, in the state of West Virginia, about 1802 or 1803. His mules were all active, spirited, and serviceable, and from stout mares attained considerable size.

General Washington bred a favorite jack called Compound, from the cross of Spanish and Maltese — the Knight upon the imported Spanish jennet. This jack was a very superior animal; very long bodied, well set, with all qualities of the Knight and the weight of the Spanish. He was the sire of some of the finest mules at Mount Vernon and died as a result of an accident. The General bred mules from the best of his coach mares, and found the value of the mule to bear a just proportion to the value of the dam. Four mules sold, at the sale of his effects, for upwards of $800, and two more pairs at upwards of $400 each pair. Of one pair of these mules each was nearly sixteen hands high.

From these jacks a compound breed was produced, that, when bred to large mares, was unexcelled for size and activity.

The breeding of jacks and jennets (as the female of the ass is called) is confined to but few hands. These breeding studs are mostly located in Kentucky and Tennessee, though some are

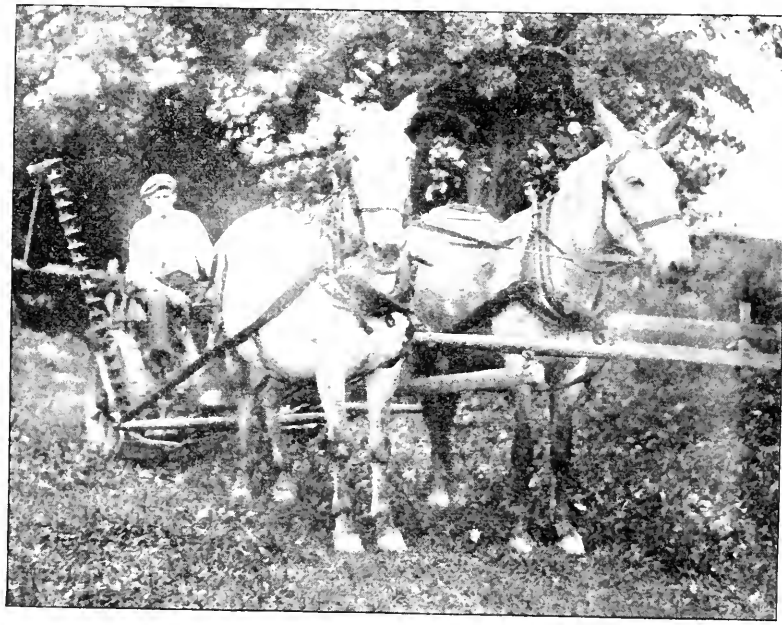


FIG. 50. A GOOD FARM TEAM, FIVE OR SIX YEARS OLD, COSTING THE OWNER $600 IN THE SPRING. THEY ARE IRON GRAY AND ARE BUILT VERY SOLID, ADAPTED TO ANY KIND OF FARM WORK

found in Ohio, Indiana, Illinois and Missouri. Up to the time of the Civil War the breeding of this stock was an important industry, the jacks produced being distributed for service all over

the southern and western states. Since the war, with the breaking up of the great breeding studs, the industry has languished, owing to the decreased demand for mules. A new impetus, however, has given rise to the breeding of jacks again in considerable numbers in the South, and this branch of husbandry will undoubtedly again assume more than its original importance, for the agricultural interests of that section are steadily growing, and a constant improvement is noted in the quality and numbers of the live stock.

What the jacks should be may be seen in the illustration (Fig. 49) of the Poitou ass, a modification of the best form of the Spanish jack. Fig. 50 shows the best form of mule. Note the manner of trimming (roaching) the mane and tail.

LONGEVITY OF THE MULE

The longevity of the mule is proverbial. It was a common saying during the Civil War that "mules never died." They might sometimes be knocked over by a shot, but if one ever died a natural death the army wags refused to credit or record the fact.

Pliny gives an account of one taken from Grecian history that was eighty years old, and, though past labor, followed others that were carrying materials to build the temple of Minerva at Athens, and seemed to wish to assist them. This so pleased the people that they permitted him to have free egress to the grain market. Dr. Rees mentions two that were seventy years old in England. Mr. P. S. Skinner says: "I saw, myself, in the West Indies, a mule whose owner assured me was forty years old, perform his task in a cane mill;" and adds, "I now own a mare mule twenty-five years old that I have had in constant work twenty-one years, and can discover no diminution of her powers. She has within a year past often taken upwards of a ton weight in a wagon to Boston, a distance of more than five miles."

A man in my neighborhood has owned a very large mule about fourteen years that cannot be less than twenty-eight years old. He informed me, a few days since, that he could not perceive the least failure in him, and would not exchange him for any farm horse in the country. And I have just been informed, from a source entitled to perfect confidence, that a highly respectable gentleman and eminent agriculturist, near Centerville, on

the eastern shore of Maryland, owns a mule that is thirty-five years old, as capable of labor as at any former period.

VALUE OF MULES FOR LABOR

It is beyond dispute that mules will continue to labor for at least double the period of the usefulness of the horse. They endure extreme heat better, but are pinched with cold. It is a mistake to suppose that the mule will subsist on far less food than the horse. In proportion to size, they require about the

FIG. 51. THE SAME PAIR AS SHOWN IN FIG. 50 READY FOR A DRIVE TO TOWN AT A GOOD GAIT

same quantity, but, weight for weight, they will draw a heavier load. Owing to the fact that they take little notice of what is going on about them, they do not fret and seldom scare. As pack animals, they are far superior to the horse; while, in sure-footedness and freedom from disease, no farm animal except the goat can compete with them. The impression that mules can get along with little or no care, and that they must be turned out in

the winter to shift for themselves, has led many people to be disappointed in their use. In summer, when a horse would seek the shade, we have seen mules lie prone in the sun and enjoy the heat. For ordinary farm labor and all teaming purposes, mules become more valuable as we go south of 40 degrees. As we proceed north they become less and less serviceable, and few are found in use north of 45 degrees.

MULES ARE NOT VICIOUS

It is generally supposed that the mule is naturally vicious. This is a mistake. He is resentful and never forgets an injury. If subjected to a long course of ill usage, he at length becomes vicious. On the other hand, no animal is more susceptible to kindness, or will exert himself more strenuously for a kind master. Nevertheless, the mule must have a master — one firm and yet kind. The mule, as some of our readers probably know, has a perfect means of offense and defense — his heels. These he knows how to use to far better purpose than does the horse. They are not used, however, except under the impulse of fear or revenge. If treated kindly the mule is at once amiable, tractable and willing to perform any due amount of labor. On the other hand, if ill used he becomes sullen, vicious and often balky in the extreme.

BREEDING OF MULES

In the breeding of mules, as of all other animals, attention must be paid to the use for which they are intended. If for packing in the mountains, small compact mules, such as are bred from small fine Spanish jacks, are required. These are at once agile and sure-footed. For work on southern plantations medium-sized mules must be sought. These are bred from mares of ordinary size, by good-sized jacks. In breeding mules for the road and for heavy teaming, large roomy mares are used. These are served with the largest jacks, and, at three years old, when well matched, command $300 to $600 a span.

The treatment of the mares and of the mule colts should be precisely like that of the horse colt and its dam. The colts should be handled when young and should be gently treated and made completely subordinate to the will of the master. At two years

old they may be broken. They should be carefully harnessed, without frightning them, and hitched to a strong wagon, when they will generally move off without much difficulty. Thereafter they may do light work until they are four years old, when they may be put to labor. Their dentition is similar to that of the horse, and the rule for telling their ages is identical with advice for that animal.

BREEDING

Mules being hybrids may be bred from mares not suitable for breeding horses, as mules are not so liable to take on the defects of both sire and dam, such as ring bone, spavins, and many other hereditary defects. Any young man starting in the farming business can soon have a good team by using a jack for the sire on such dams as are not fitted for breeding horses, on account of the latter's susceptibility to inherit certain defects. I want to emphasize this point: the better the dam, the better the mule. This holds as good in mule breeding as in that of cattle.

It is said that the mule does not need as much care as the horse. That may be true; but they do respond to good treatment as well as the horse, and will show it quicker and prove their appreciation by their looks and actions.

Mules will thrive on coarser fodder than the horse, such as browsing of weeds, berry briars, and many things found in pasture that even cattle or horses will not touch. A good roll every day is as necessary as feed or water, and, when the day's work is done, they want their freedom for a few minutes in a yard where they lie down and roll and shake themselves. Corn and whole oats make an ideal feed for the mule. Mule colts should be weaned from the mare the same as horse colts, at four or five months of age.

CASTRATION

Castrating of mules should be done at an early age; one year old is a good time, as they grow up more even fore and hind. It is all the better if done when the colt is running with the mare. If everything is visible there is no more risk with the mule colt than with the horse, but the same precautions should be taken.

FIG. 52. TYPE OF MULES USED BY THE OIL COMPANIES FOR HEAVY LOADS. THEY ARE SELDOM SICK OR LAME EXCEPT BY ACCIDENT

ROACHING AND TRIMMING

Roaching and trimming the mane and tail should be done regularly, as it gives them a better appearance, but always leave a nice switch on the tail for fly service.

SHOEING MULES

Mules may be worked on the farm without shoeing. If they are not shod at too early an age the shape of their feet is such that they will grip the earth and not slip, providing the ground is not filled with flat and sharp stones.

The sandy soils, and the river bottom where the stones are round, do not wear off the feet, but it is advisable to shoe if they show signs of crimpling when pulling on the road. The mule's feet, being upright when the colt is born, should not be changed by shoeing, but should be left as natural as possible. Do not cut the heel too much so to get the horse shape, as many shoers do. This results in too much pull on the heel tendons from the bottom of the foot, which will cause ankle cocking and stumbling. Kindness should be used in the beginning as they never forget anything, either good or bad treatment.

THE HORSE ON NEW YORK STATE FARMS

Dr. M. Hamilton, Delhi, N. Y.
Veterinarian and Farmers' Institute Lecturer

Since the clearing of the forests by our forefathers the horse has held a unique position on the farms of New York State. The pioneer settler, often living long distances from markets, was obliged to haul the products of the farm over long, tedious journeys to exchange them for the necessities of life. To him the horse held second place only to the family circle. The horse removed the stumps, tilled the first acres of virgin soil, carried his children to school, his family to church. Naturally the farm boy of today inherits a love and admiration for the horse. His ambition to rear, feed, and intelligently train one or more colts is a laudable one, developing self-reliance, self-control and an interest in farm life.

The requirements of the horse in the earlier days, when railroads were few and the motorcycle, trolley and auto were unheard of, were quite different from those of today. The horse in those days offered about the only means of conveyance for the New York State farmer. Consequently, a horse of medium size, not so large as to interfere seriously with his road work, yet large enough to perform the ordinary farm labor, was considered the ideal or general-purpose horse. The Morgan horse filled this place admirably.

STANDARDBRED AND ROAD HORSES

After the Civil War, farmers of this state became very enthusiastic over the Standardbred trotting horse. Practically, just one requirement was necessary to make a Standardbred stallion idolized by a whole community, and that was speed. No matter how inferior in size and conformation, no matter how sulky and

mean of disposition, it was his record as a trotter that determined largely whether he should be used as a breeder. Much that had been gained through the preceding years to establish an ideal farm horse was lost, for farmers bred their ideal farm mares indiscriminately to the stallions that had the most speed.

The Standardbred trotting horse of quality is to be recommended when bred to mares of his own type. It is poor policy, however, to breed a large farm mare to a little, runty stallion, with nothing to recommend him but speed. The results of this injudicious breeding are seen at the present time in the large number of horses that are inferior in size, color, temperament, soundness and conformation. Raising trotters is all right for pleasure, but the average farmer would better wait until the mortgage is paid and he has a good-sized bank account before commencing activity along that line.

With the increasing facilities for travel, the road horse is becoming less necessary; and the demand has increased for the large, strong, active horse of drafty conformation. Moreover, the growing importance of deeper and better tillage of the soil, together with the increasing amount of heavy farm machinery, such as the binder, sulky plow, corn harvester and many others, require horses of weight.

VARIABLE WEIGHT FOR THE FARM HORSE

Very wide differences of opinion exist among farmers as to what constitutes an ideal weight for a farm team under present farming conditions. Some individuals prefer the mettle, spirit and nervous temperament that is characteristic of small horses; while others choose the strength, docility and dependence of a drafter. Conditions on various farms also differ, those having rough, heavy land where much plowing must be done requiring heavier horses than farms composed of lighter soils. Moreover, horses vary greatly; and the reader has no doubt owned, or at least known, horses weighing only 1,000 to 1,100 pounds that endure more hard farm work and haul heavier loads than some horses weighing 1,400 pounds or even more. This is not an argument to prove that the small horse excels the big one on the farm; but it does prove that a small horse of good shape and

build is superior to many drafters, especially when the main object of the breeder was to produce a horse of great weight, regardless of quality. The greatest demand is for horses weighing from 1,100 to 1,600 pounds, the most popular weight being around 1,400 pounds when in good working condition. Very often a 1,600-pound horse when shipped from the West will normally weigh only about 1,400 pounds after having been worked for several months.

POINTS OF EXCELLENCE

As the majority of new horses required to replenish the farms of the state each year are imported from other states and then purchased from horse dealers, I should like to mention a few points which I consider every farmer should be able to judge before making the purchase. If you are unable to judge the age of a horse, by all means employ a man who can. Thousands of old horses are being shipped into this state each year and sold for high prices to the farmers for seven- eight- and nine-year-olds. The art of burning with a hot iron, or grinding with files little holes on the wearing surface of the front teeth to make them appear like natural cups, and thus deceive the unsuspecting customer, is being practiced extensively. Nature surrounds the cup with a very thin layer of white enamel. Nice, even cavities or cups not surrounded by enamel should arouse our suspicion of fraud.

The horse should have a strong, muscular appearance with a certain amount of refinement and quality, indicating that every pound of weight is necessary for his development and usefulness. Of what use is a hundred pounds of extra weight carried on the head and neck or another hundred pounds of unnecessary connective tissue, which predisposes to stocking of the limbs and lymphangitis? Plenty of weight in muscle, bone and tendons placed in proportionate amounts in the right places is essential. That is the reason why some of our well-bred smaller types of horses are so powerful.

A good sized barrel or abdomen shows that the horse has plenty of room for his dinner and indicates a good feeder. A well-sprung rib, which is one that extends well out from the backbone and well

down towards the ground, indicates that the horse has a large heart and lung capacity, as well as ample space for the digestive apparatus. Select those with level top lines and short backs, heavily muscled over the loins; that is, the muscles between the hips and kidneys should be broad and appear full and prominent. A depression in front of the hips indicates lack of endurance and weakness of the most serious nature. Many drafters have very steep rumps, but choose those that are more nearly level. Many of the best ones have a strong dock. The size of the head and neck should be proportionate to the rest of the body. A rather small, lean head, smoothly attached to a well-arched neck gives the drafter a certain amount of style and dignity that we all admire. Ample width between full prominent eyes and nicely placed ears of medium size signify intelligence and a good disposition. Long, sloping shoulders, on account of allowing greater freedom of motion and preventing an undue amount of concussion, are much preferred to straight, upright shoulders. This is a very important consideration, especially if we expect a considerable amount of work at the trot. The slope of the pastern (the space between the hoof and fetlock) has an essential bearing on the amount of road work a drafter can perform. Short, straight pasterns, while they may appear stronger, are often the cause of ringbones, sidebones, and various foot lamenesses; whereas a pastern of moderate length, sloping at an angle of about forty-five degrees, renders the jar or concussion on the parts below much less severe.

THE LIMBS AND FEET

The cannons (the bone and tendons between the fetlock and the joint above) should be short and wide in front and extend well back. They should be flat and appear free from all surplus tissue. Hence, the old idea that the round, stocky leg lacks quality is true. It is not the bone or tendons, but an excessive amount of connective tissue and a thick skin, that gives it its round appearance. As the front feet have to support at least two-thirds of the weight of the body, it is not surprising that the trouble is within or around the foot with 75 per cent of the horses that are lame forward.

The quality of the hoof can usually be judged by the quality

of the hair around the top of the hoof. Rough, coarse, kinky hair means poor, coarse and brittle hoofs; while if the hair has a fine, smooth, glossy texture it indicates that the hoofs are of the same quality and will stand the wear much better. The foot should be of good size with a dense heavy wall that is free from ridges and roughness. The soles should be thick and firmly attached to the wall. The frog should be large and wide and extend well down. The bars should be prominent and extend well back.

The weakest part of the hind limbs is the hock joint. Undoubtedly, with 75 per cent of the horses that are lame behind, the trouble is located in or around the hock joint. The entire joint should be large and wide in front, extending well back, and should present a flat appearance, with its irregular shape distinctly outlined and free from puffiness.

Slight, non-hereditary unsoundness not a bar to farm work

Often times unsound horses can be used to advantage on the farm. We often reject a horse for some trifling unsoundness, as a splint, wind puff or wire cut, and accept one that is apparently sound, but with such poor conformation that he is predisposed to unsoundness when put to hard labor. Sound, serviceable horses can frequently be purchased 25 per cent or more below their actual value. City horses that have corns, sidebones, etc., caused from continual concussion on city pavements, often make sound, serviceable horses for farm work. It is not usually economical to buy horses that have an incurable lameness, as the pain caused by the lameness makes them hard keepers.

Some farmers do not keep enough horses to do their work in season without overworking them. Many farmers, however, keep too many horses, and often are more careful of them than they are of the members of their own family. It is not infrequent to see the children walking to town to an occasional party or to church, while the father has several horses standing idle in the stable. Let the boys and girls take a pleasure trip with the horse occasionally, and you will do more to keep them on the old farm than by any other single thing.

THE BEST HORSE FOR THE FARMER TO BREED

J. H. S. Johnstone, Chicago, Ill.
Author of "The Horse Book"

It is beyond doubt that the exportation of so many horses for service in the artillery branches of the British, French and Italian armies will very materially influence the demand and supply in our equine trade for many years — perhaps for all time to come during which a horse market may exist on any large scale.

It is peculiar, but nevertheless true, that the majority of our most useful horses in town and country have for many years been bred haphazard. No one denies that, taken by and large all over this country — on city pavement and in the farmer's field — by far the most useful and generally used type of horse has for a long time been the chunk, weighing from 1,200 to 1,500 pounds. Most of them are and always have been the get of pure-bred draft stallions. Previous to the establishment of the stallion importing business, and the consequent pure-bred draft horse breeding business in this country, the chunk, as he is universally described today, was not known in North America. To be sure there were stockily built little horses of the same shape and much lighter weight, but they were more on the cob than on the chunk order.

When the importation of British and French draft stallions began, there were no large mares with which to mate them. As a result the progeny was of medium poundage, but considerably heavier than the maternal parent stock. As cross after cross of draft blood was added, it became possible to produce horses of real draft size — from 1,700 to 2,000 pounds — but to this day, the same preponderance of chunks exists. Only a very few of the colts begotten by any ton drafter ever exceed the chunk size. Hence it follows that the great bulk of the chunks bred in this country have not been what they had a right to be. Sired by stallions weighing from 1,800 to 2,000 pounds, and from

ordinary farm mares weighing from 1,200 to 1,400 pounds, the resulting foals, if properly fed in their youth, have every right to attain a poundage considerably greater than they have as a rule developed.

Importance of proper feeding early in life

The American farmer, however, has with few exceptions failed to recognize the necessity for feeding his young horses well during their first two seasons — especially during the first. Hence the generalized use of the pure-bred draft stallion has given us the chunk as the commonest of all the horses bred on the farms of this country.

Feed is the great determining factor so far as the horse of draft blood is concerned. I was the first to formulate the now well-understood postulate that a horse makes one-half or more than one-half of his ultimate growth during the first year of his life, and hence any breeder who wishes to rear horses of true draft size must not only use the right sort of parent stock, but must have his foals weighing from 1,000 to 1,200 pounds when 365 days old. In just so far as that mark is missed will the animal fall short of being a real drafter. Proverbially averse to feeding their foals grain while sucking their dams, and with any decent liberality during the ensuing six months of cold weather, most foals by draft stallions out of common farm mares weigh from 600 to 800 pounds at one year old, and not much more at two years than they should have weighed at one, if true draft size had been the object sought. That is why we have never raised more heavy horses — the farmers have not fed the foals and yearlings so as to develop a sufficient avoirdupois. They have not, in the main, desired very heavy horses either to work on their land or to sell.

Uniformity of type and size desirable

It follows then that if the great majority of our most useful horses have come to us in this manner, resulting from the use of big stallions on smaller mares and an insufficient scheme of feeding, there is room for an effort to supply this chunk of uniform shape, size and excellence. Personally I have watched the

inspectors for the British army work over a vast number of horses of the so-called gunner type. These so-called gunners — really just chunks — have been drawn from the farms of the Middle West — or at least the best of them — and they indicated for the most part the sort of breeding described. As already noted the inspectors' selections have weighed from 1,200 to 1,500 pounds, but the pattern has been very largely the same — a close-made, short-legged, strong horse, with good straight action and plenty of bone; in short, a chunk with two good ends, a deep middle and good legs and feet.

Style and extravagant action, speed, extra good looks and flesh have brought no premium. Providing the animal filled the bill as to height, weight and general type, he was accepted and paid for with the same amount of money that secured individuals that in former years would have brought from $50 to $75 more on the open market. This foreign army demand has been a great leveller of prices. It has paid the same for a gelding weighing 1,200 pounds as it has for a mare weighing 1,450 pounds and actually worth twice as much money; which brings us to the crux of the situation.

THE EUROPEAN DEMAND

Ever since last August this foreign army demand has been the mainstay of the horse trade. First in the field, the British have been the best and largest consumers. They have insisted on taking none but good horses — high-class chunks with weight and substance, strong bone, perfectly sound, from five to ten years old — sometimes as high as twelve years,— and they have taken them wherever that sort was offered. Naturally they got the most of them in the Middle West, and they have about licked the platter clean. Moreover, they have taken mares whenever they could get them, which is unfortunate. I know from personal observation and enumeration that more than half of the best animals they have taken have been mares. I have no hesitation in saying that of the entire purchases of gunners during the present year, by the British inspectors, not less than 65 per cent have been females, and of the best half of the entire number bought, not less than 85 per cent have been mares. I do not know whether

sex has anything to do with it or not, but whenever any extra good bunch of accepted gunners has been seen, only a few proved to be geldings.

The truth of the matter is that this foreign demand for so-called gunners has swept away a vast number of our best and most useful horses from the Middle West. Tempted by the price offered on an otherwise very dull horse market, the farmers have let go of their best mares, ranging in weight from 1,200 to 1,500 pounds and in age from five to ten years. The lame, the halt and the otherwise unsound we have left with us, also the slab-sided, three-cornered undesirable type of those weights. Far too many of the really desirable shapely chunks have been exported, and more are being sold every day.

If the war abroad continues through this year our stock of good chunks bids fair to be depleted. Already it is smaller than it should be. The farmers may be able to get along well enough with the left-overs to do their farm work, but the most of them have been selling from the top and letting go out of the country the class of market horse that is, and always has been, the most readily saleable and relatively the highest-priced of all our work horses, recognized as a distinct class on the market. With them, too, have gone the most of the heavier wagoners, and we might say the best light delivery wagon horses as well, because these lighter delivery horses have been accepted freely for the British and French cavalry services.

There is, when all this is understood, no difficulty in answering the question: Which is now the best horse for the farmer to breed? By all means let him turn his attention to supplying a really attractive, compactly-built, wide-ended, deep-middled, short-legged chunk, weighing 1,300 to 1,500 pounds. After the trade has dropped back into its regular channels at the close of the war now raging in Europe, there will be a greater price in offer for the heavier sorts than for those that weigh between 1,200 and 1,300 pounds.

For the draft horse weighing from 1,700 to 2,000 pounds, the field must always remain more or less limited. I believe that it will become more and more so as time passes and the use of heavy motor trucks increases. Besides, not one farmer in a

thousand should ever essay the breeding of these equine giants. It is a business by itself, to which only a chosen few are called. For the chunk, however, there will be use so long as horses endure among our useful domestic animals. On the farm they can, in sufficient numbers, pull the gang plow, cultivate the corn and do all the other work, while on the road they can haul to market all the load an ordinary farm wagon can carry.

In the city a pair of horses weighing 2,800 to 3,000 pounds can do practically whatever a pair is required to do, while three

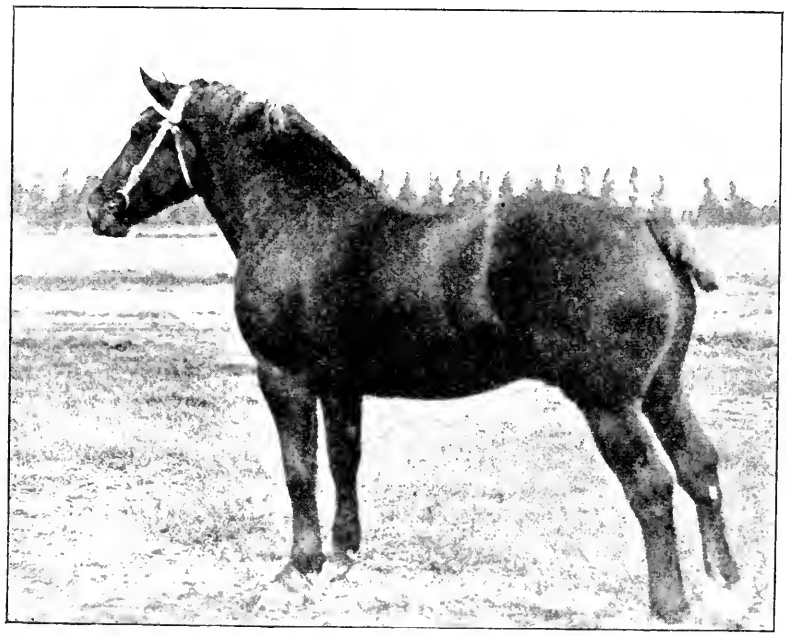


FIG. 53.—TYPICAL FARM CHUNK.

of them abreast can handle any load that can advantageously be navigated about the streets. In the commoner shapes they do the excavation and other similar rough work. In the higher grades they horse the wagons of the great merchants, and, in short, fill the general urban equine bill.

This true, it follows that the farmer who always has for sale a few shapely chunks of the type and weight specified, will always find a ready market. He will be producing, so to speak, standard goods, for which the demand is universal. The more care he

takes in mating the parent stock and developing the young things, the higher the price he will receive and the greater the profit he will make. Heretofore the great army chunk has been produced haphazard. Now is the time for the really wise farmer to set his house in order to be able to offer a better article, more shapely, bred for the purpose, and fed from birth so as to imbue it with that rotundity of conformation that spells a high price.

MEDIUM-SIZED STALLIONS DESIRABLE

Moreover, if the farmer will set himself to produce chunks weighing from 1,300 to 1,500 pounds in weight, and will conscientiously endeavor to raise that sort right, he need not use stallions heavier than 1,700 pounds, and we all know that it is far easier to find a really shapely horse of that weight than of 2,000 pounds or more. Only a few of the strains in the foreign draft breeds have been characterized by great scale for a long time. Most of these breeds have been made heavier in response to the American demand for the ton horse. This is especially true of the Percheron. Though there have always been very heavy Percherons, the breed as a whole was much lighter thirty or forty years ago than it is today. Some of the most deeply bred of these drafters are not the largest by any means.

A medium-sized stallion is usually a prepotent sire. I have never known a great behemoth, no matter how finished he might be himself, to breed well. In any case, what is the sense in using 2,000-pound or heavier stallions to beget chunks weighing from 1,300 to 1,450 pounds from mares of about the latter weight, or only a little lighter? My idea of the best thing a farmer can do now to insure for himself always a profitable market and a ready disposal of the horses, is to use a shapely stallion weighing not over 1,700 pounds to mares weighing from 1,250 to 1,400 pounds, and then feed his foals properly during at least their first 365 days.

This is a most important item in the success or failure of the horse breeder. It is the flesh made the first year that puts the rotundity into the equine frame. If it is not made then, that rolling roundness of conformation, so much desired, is never attained in its proper development. In this way I believe the sensible farmer can fortify himself so that no matter which way the

market goes he will always be able to sell his surplus horses at top prices. There is a scarcity of that sort now; it will become greater as time passes. If, as is confidently believed, Europe will be a heavier buyer than ever after peace is declared, the chunk will bring relatively the highest price, just as it is practically the only market sort in keen, active demand at present.

He can be produced as cheaply as even much commoner kinds. The mares will do the work on the farm, and the investment in a stallion quite big enough for the purpose, if the feeding of the colts is properly done, will not be a heavy one. When business picks up in this country, the first demand on domestic account will be for chunks and good-sized wagoners, both produced after the suggested formula. Foreign and domestic buyers will compete for these stocky, useful horses. They will last the longest against the competition of mechanical traction for several reasons, which need not be detailed here, but largely because they are the most useful of their kind. Finally, does it not stand to reason that if, as hitherto, they will return a good profit when produced haphazard and without close adherence to one type, they will, if bred, fed and developed with a fixed object in view, return a considerably larger profit? There is no question but that chunks bred to be chunks must be better than those that just happen to be chunks because the treatment to which they were subjected prevented them from becoming what they should have been at maturity. Drivers, speed horses, saddlers and drafters may safely be left to the specialists. The farmer will find the proverbially safe middle road in breeding high-class chunks weighing from 1,300 to 1,500 pounds, the get of shapely, pure-bred, medium-sized draft stallions and the mares he works on his land.

CARE OF THE STALLION

JAY GELDER
Kanona, Steuben Co., N. Y.

Stallions, like some people, are almost human; and like the favorite son of rich parents, many of them are ruined by so-called kindness. The man who invented the solitary confinement box stall method of caring for a stallion was a fool and a twin brother to the inventor of cribbing, lip lapping, stall kicking masturbating, weak foals, sterility, weak joints, brittle hoofs, ruined constitutions, disappointment, loss, etc. Possibly some of these troubles may be inherited, but positively all can be caused for want of proper exercise, care and feeding.

LIGHT WORK DESIRABLE

Teach the stallion to work, preferably as a two-year-old — light work, of course. It is all right to use a young stallion for light driving if we can accomplish something by it; hauling milk to the creamery every morning is ideal if the distance is not too great or the load too heavy. The regularity of exercise is desirable, and it is the cheapest way possible to advertise a stallion. Let him step off at top speed for a short distance on a smooth, soft piece of road — only a few rods at first, enough to expand his lungs and develop his muscles, but never to excess. Never let him jog or shuffle along, for no one loves a loafer; surplus energy will be used in the active walk, which is the real gait for the drafter.

It is difficult to say just how much work a young draft stallion should have, but certainly never enough to fatigue him. Two or three hours in the early morning and the same amount in the late afternoon is ideal, and can often be arranged more profitably than it would appear at first thought. Drawing a smoothing harrow, cultivator, weeder, grain fertilizer, etc., can usually be done profitably with two-year-old drafters. Three- and four-year-old

stallions can usually do a full day's work if service is not excessive; but, if required to make three or four services a week, a half day's work is all we should ask of them. The same would apply to matured stallions, only the number of services could be increased: however one service a day is enough for best results; if second service is allowed they should be about twelve hours apart.

STABLING AND FEED

Stallions should be stabled with other horses, preferably in a well-ventilated box stall with openings so they can see what is

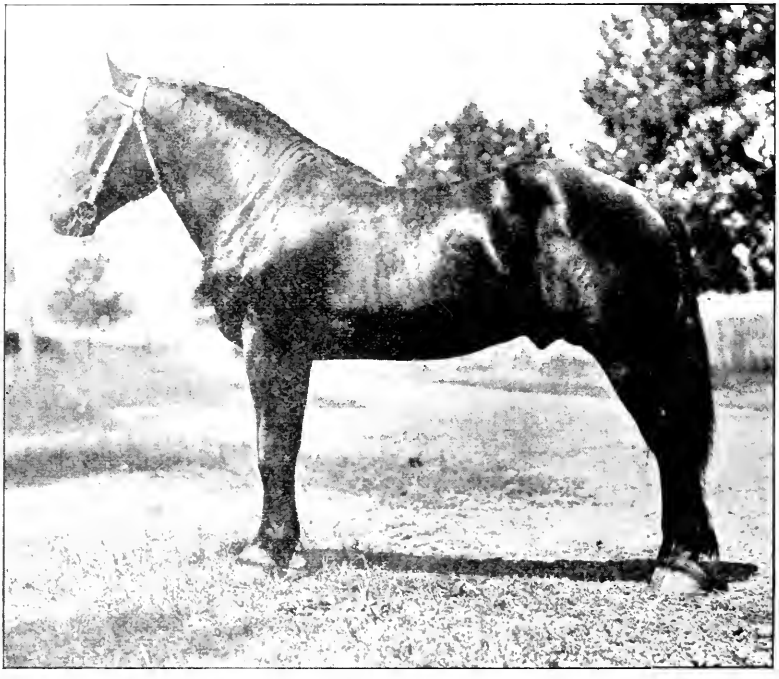


FIG. 54. DESIRABLE TYPE OF STALLION.

going on, but far better use a hitch stall than a filthy, unbedded, poorly ventilated box. It is poor economy and bad business to be too careful of bedding in a horse stable.

Oats, bran and good mixed hay — about three-fourths of a pound of grain and one pound of hay for each 100 pounds of horse, varied according to the condition, work and individuality of each horse — is splendid feed for a stallion. However, alfalfa

buyer should be substituted for the bran and at least one-half of the is not necessary. 4 to 5 for a breeding stallion is about right. Care should be taken not to overfeed; coarse timothy hay and corn are both hard to digest and carry little protein, and they should be fed sparingly, if at all, to breeding stock.

Fresh, pure water is very important and should be given before each feeding; if working in warm weather, a horse should be allowed a drink between meals. A good groom will always water and fix the bed the last thing at night after the horse has finished his evening meal. Salt may be added to grain feed or kept where the stallion can help himself. If necessary to regulate the bowels, feed a little oil meal or give pure linseed oil; if bowels are too active, reduce the feed and add charcoal to the ration. Avoid all stock foods or concoctions of that nature; far better employ a reliable veterinary.

AVOID AN EXCESS OF FAT

No one can successfully deny that a large percentage of the stallions sold in New York State have proved a poor investment as a commercial proposition, one reason being that few have been sold for their real worth. The demand has been for the corn-fed, stall-fed, poorly-exercised, excessively fat stallion that looks good and weighs heavy, but often proves a shy breeder the first season, and when reduced in flesh to breeding condition is often found disappointing in quality. Don't blame the dealer, however, for as long as buyers want fat and are willing to pay the price, they will get it. It costs a heap of money, time and work to put a stallion in show shape — perhaps a hundred dollars, perhaps one thousand dollars, depending on the age of the horse and how well the work is done, and the buyer pays a fancy price for damaged goods. However, a draft horse should carry some flesh, although they rarely have too much if worked or given plenty of exercise, with oats and bran for their grain ration.

A GOOD DRAFT STALLION A PROFITABLE INVESTMENT

A good draft stallion will pay as well or better than any other live stock in any good farming community, but he should earn his keep at the regular farm work. Beginners should buy a young one — a yearling, a two-year-old or even a weanling; he should be of good size, well grown for his age and in good condition. The

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FIG. 55. STALLION, MARAT, DOING THE WORK OF TWO SMALL HORSES AND NOW A SURE BREEDER. ADIRONDACK STOCK FARMS, GLENS FALLS, N. Y.

buyer should be sure that the colt has had plenty of exercise. It is not necessary to pay an excessive price for such a colt; he will grow into money very fast and should pay his keep at two years old, at maturity do the ordinary farm work, and earn a nice profit in the stud each year thereafter.

CHARACTERISTICS OF A GOOD DRAFTER

A stallion should have a good crest, bold masculine appearance, bright, full hazel eye, a broad, full forehead, and a strong, wide, well-muscled jaw — for the grist mill of the stallion is very important. The depth of body should equal or exceed one-half his height; the length of quarter from point of hip to point of buttock and the depth from upper end of shoulder blade to point of shoulder should be about equal, and each should exceed the length of back from shoulder blade to coupling. The sloping shoulder and long, level hip gives the short back and long underline — the conformation so much desired — and allows free action. If the ribs extend up and well out from the backbone and carry downward, the horse has lots of room inside for lungs, heart and other vital organs. Excessive fat gives this appearance to a flat-sided horse, and is damaging and deceiving. Equally important is the pastern — the mainspring of the horse; it should have an angle of forty-five degrees. Straight pasterns mean straight shoulders and the sidebone and ringbone conformation. Equally as important are the feet — especially the fore feet, as they carry about 60 per cent of the weight. I have known many buyers to foolishly object to a thick sole, the cushion of all the good or bad things above. Don't let the blacksmith mutilate the sole just because it cuts easy; the saying, "We must be good to our soul or our soul won't amount to much," applies to the sole of a horse's foot as well.

At least two-thirds of the power in pulling is expended through the hock, and no doubt 50 per cent of all unsoundness is at this point; therefore it stands to reason that the hock is one of the most important points in a draft horse sire. The term quality covers a heap of sins in draft stallions, especially in the East. We are led to associate the word with fine, silky hair; clean, cordy legs; well-proportioned body; large, bright eyes; beautiful head and neck, and a nervous energy sticking out a foot from every

point, yet properly controlled by a level, intelligent disposition. Now, add real size and massiveness to that, and we have the ideal draft horse sire — the kind that is in demand by the men that know, and don't have to be peddled by some expert. The flat bone of the leg is in reality round, the cords and tendons giving it the clean, flat, desirable appearance. As to size of sire it has been said that 80 per cent of the horse buyers want horses weighing 1,500 pounds or over, and 80 per cent of the horses offered at our large horse markets are under 1,500 pounds; in other words, 80 per cent of the buyers are after only 20 per cent of the offerings. Twenty years ago nine- or ten-hundred-pound horses were considered large enough for eastern farms; now, most of our farmers want three or four hundred pounds heavier. If a fifteen-hundred-pound sire is the size wanted, he will cost at least one-third less than one weighing 1,800 pounds of the same quality, and in the same condition. Other things being equal, the price will advance with size very rapidly in a draft stallion. However, mere weight counts but little; size of bone, if not too meaty, is a good indication of draft horse size. It should measure from nine to eleven inches around the smallest part of the cannon bone in front, and from ten and one-half to thirteen inches behind, according to size of stallion. He should be of rather rugged build; the rangy drafters have not as a rule proved the best sires. A height of sixteen to seventeen hands is about right, and a good full flank "bread basket" is essential.

INTELLIGENT HANDLING

Teaching a young stallion to mount from the left side of the mare is important. Stand the mare with her right side about two feet from a building or board fence to prevent the colt from working around on her right side, as often occurs. Be gentle, but firm. Sometimes if the colt is timid it is necessary to use a halter at first; a bridle with a chain under the jaw will control most stallions. A ⅜-inch rod 8 inches long, with a snap welded in one end and a small ring in the other, and used in place of chain will easily control a headstrong stallion. This, however, must be used by an even tempered man, as a yank might break the stallion's jaw.

This generation has inherited many superstitious, silly ideas,

such as bleeding, blindfolding, dark of the moon, cold water treatment, etc., at time of service, every one fully guaranteed to produce a foal. The writer tried them all several years ago with his first stallion, and got ten foals from ninety-six mares bred. This proves that 10 per cent of the mares will breed in spite of, rather than because of, intelligent handling. We now have the best of reasons for believing that mares are more apt to settle if bred during last of heat, and preferably in the late afternoon. Mares rarely conceive unless in normal health; even a slight cold or excitement is to be avoided, and when taken to stallion they should be driven or led moderately — never ridden.

Three and four years old are trying times for any horse as the teeth are shed at that age. The mouth should be carefully and regularly examined and the old teeth removed as soon as they become loosened. This is not only profitable, but it is humane; often indigestion, colic, much suffering and even death are caused by its neglect.

Artificial Breeding

The use of the capsule in breeding two or more mares from one service is practical, but requires good judgment and some experience. Reliable information on artificial breeding can be had from the manufacturers of breeding instruments.

CARE OF THE BROOD MARE AND HER COLT

LOWELL ROUDEBUSH, NEW RICHMOND, OHIO

The care of the brood mare should begin at birth; a mother should have been well nourished all her days. However, she should never be overfed — a common condition found even on the so-called stock farms, and one which ultimately results disastrously.

Colthood is the time to lay the foundation for motherhood, since the dam is 60 per cent in the breeding and rearing of the horse. The laying of this foundation is not a difficult problem, particularly if the dam is a good suckler.

AGE TO BREED

At what age should a mare be bred? Would that one could always tell a good brood mare at sight! As a rule, a mare should be bred at four years of age, if not sooner. It is best to have the filly fairly well broken, but not in spirit, before she is bred.

REQUIREMENTS OF A GOOD BROOD MARE

What are some of the external indications of a good brood mare? Intelligence, docility, non-irritability, a good suckler, one that does not worry about her offspring, and one having a large heart girth. The shape of the head and expression of the eyes are good indices of intelligence, docility and vitality.

Fig. 56 shows a group of draft mares in foal, with a foal and a yearling. Two years ago two of the three mares were bred to a splendid jack. The mule colts were sold at weaning time at $75 apiece, and a yearling horse colt was sold for $125. All three are good individuals, free from blemishes, intelligent, docile, do not fret and are good sucklers.

Care before and at time of parturition

The mare above all things should have pleasant and sanitary surroundings. She should also have plenty of exercise in the way of light but continuous work, or the run of a paddock or pasture. A large, roomy box stall will suffice where worked daily. She should not be trotted on hard roads or be used for horseback riding at any time or anywhere.

In her care three general methods obtain: (1) no work at all and pasture all the time possible; (2) light work until two or three weeks of the supposed foaling time, then the run of a good pasture for ten days; (3) light work until she foals, then ten days' rest as already indicated. We have tried and seen tried all three methods, and find but little difference. Working now and then is detrimental. For pasture there is nothing so good as Kentucky blue grass.

The types of brood mares shown in Fig. 56 do as much work as geldings of the same type, except for three weeks of the year.

What shall the mare be fed? The same as geldings for the first six months of pregnancy; then gradually increase the amount of bone- hair- and muscle-making food. She may be fed crushed oats and corn to which wheat bran has been added and clover or mixed hay — not too much alfalfa. A handful of oil meal once a day will keep her bowels in good condition. Constipation is dangerous in a brood mare, as are also strong purgatives — avoid both. Ice cold water late in pregnancy is not desirable.

Do not permit her in pasture where the grass is rank. We lost a splendid colt once by letting the dam graze in a patch of wheat that was convenient to the stable.

When may the foal be expected? The period of gestation is from 300 to 400 days; 350 days for a male foal and 340 for a female, is a general average. Good symptoms of near at hand foaling are: large full udder, teats well filled with waxy secretions at ends, and sunken areas at pelvic bones.

Many farmers neglect to have a suitable stall or place in which the dam can foal with safety to herself and offspring. It should be large and clean. All litter and material of every sort should be removed, and the entire interior thoroughly washed with a disinfectant such as cresol, or a carbolic solution. Many colts become infected in dirty stalls through the navel. In any event

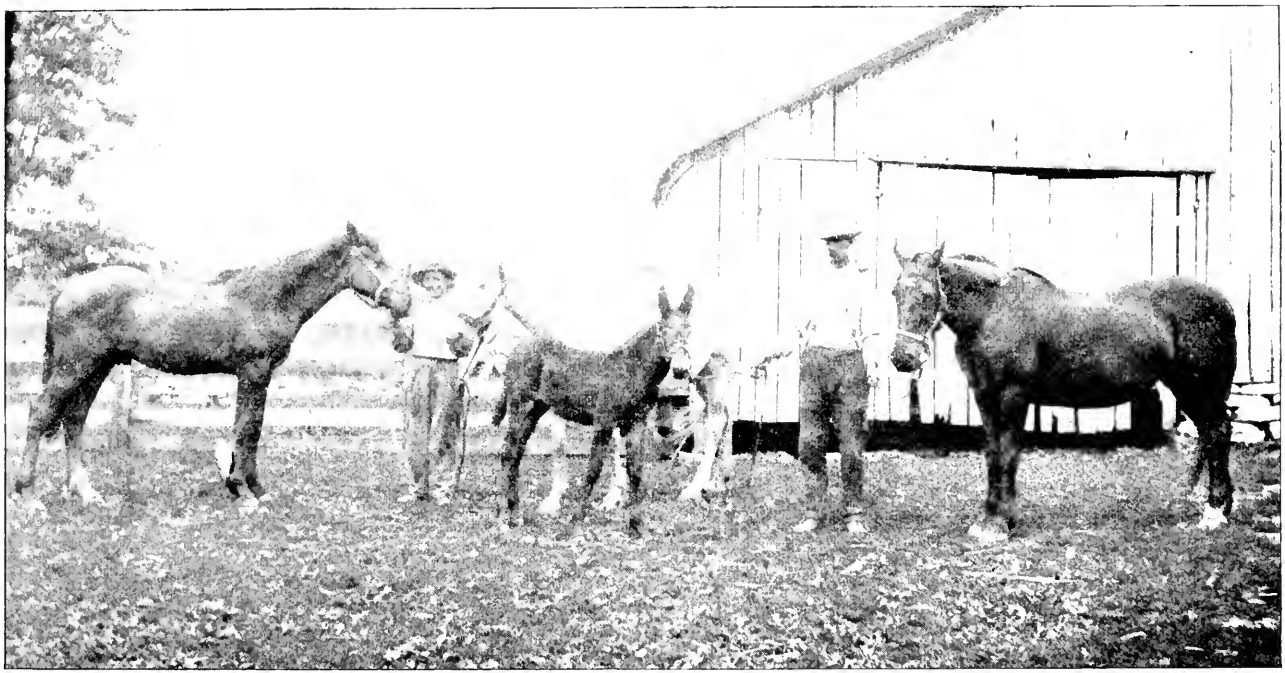

FIG. 56.— GRADE DRAFT MARES TWELVE YEARS OLD, WITH FOAL AND IN FOAL. MULE COLT IS THIRTY DAYS OLD, AND HORSE COLT IS A YEARLING. THESE MARES WEIGH ABOUT 1,400 POUNDS, AND ARE WORKED EVERY DAY. EACH HAS HAD SIX COLTS

it is wise to tie and disinfect the latter as soon as the colt is dropped.

There is no better place for a mare to foal than in a pasture, provided the weather permits, and no other stock is nearby. Watch her carefully, for many dams and foals have died from lack of attention at foaling time, even with normal presentations. Sometimes the foal's head is covered with air-tight membranes and it smothers or suffocates. We have known many such cases. If the presentation is abnormal, call a veterinarian at once. Keep the mare and colt quiet for a few hours, and see that the foal sucks. Do not let the udder become caked.

In case the colt dies there is nothing better to dry up the mother than camphorated lard rubbed on the udder twice a day. In addition milk her, but not dry, two or three times a day until she is dry.

If the mother should die in foaling or soon after, give the foal cow's milk modified by one-fourth water, with a teaspoonful of melted sugar added to a quart. Be sure to feed blood warm, and at first with a large nipple. After a week or ten days the foal will learn to drink. Great care should be exercised that the vessel is washed with scalding water after each feeding.

Care of the Young Colt

How often should the foal be permitted to nurse? Never when the mother is very warm or excited. Under normal conditions, at will until two weeks old; then three times a day until four weeks old; after that gradually reduce until none at weaning time.

Foals should not follow their mothers if worked in the field or on the road. If the mother is not worked and is on pasture, the foal should run with her.

One should begin to break the foal to the halter when the latter is two or three days old. Then, if necessary, it can be tied in its mother's stall in her absence, or while grooming and harnessing her. Foals must be controlled, and this is readily accomplished by the use of the halter.

The foal should always have a separate box or receptacle for solid food apart from the mother's, where it can eat at will without hindrance or annoyance from her. This feeding box should be as far removed from the mother's as possible, but should always be near her — in the manger if it is low enough.

WEANING

At what age should a colt be weaned? This depends upon many conditions. As a general statement, at from four to six months of age. Sometimes the mother gives but little milk and that little does not agree with the foal. When this is the case the foal should be weaned at the earliest possible moment; otherwise when most convenient.

How should the colt be weaned? By leaving it in its accustomed stall and putting the mother in the adjoining one. If this cannot be done, reverse. Never turn a weanling out in that lonesome back pasture where grass and water are scarce, flies abundant and the temperature high.

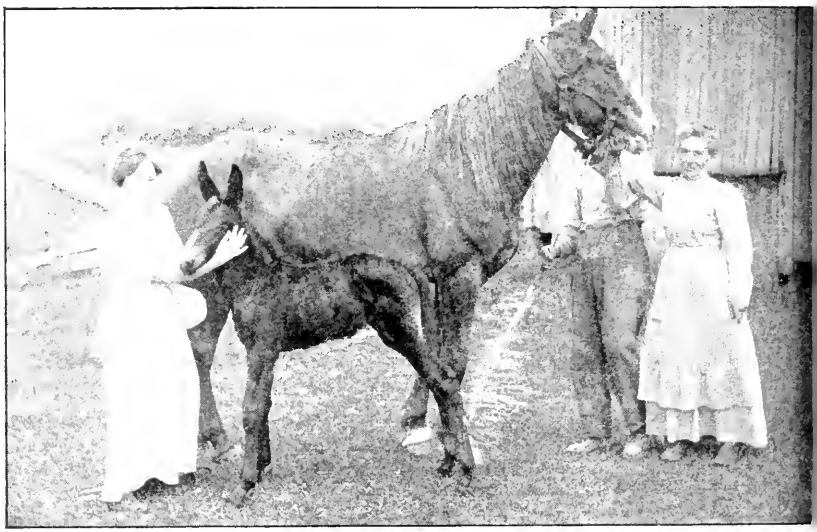

FIG. 57. GRADE DRAFT MARE NINE YEARS OLD, WEIGHT 1,400 POUNDS. THE MULE COLT IS NINE DAYS OLD. THIS IS THE MARE'S FOURTH COLT, ALL OF WHICH WERE SOLD FOR ABOUT $75 EACH

FEED AND CARE

Of what shall the colt's solid food or grain consist? Nothing is better than equal parts by weight of crushed oats and corn to which is added a like proportion of wheat bran. If the dam is a good suckler very little of this need be fed until the foal is ten weeks old. Draft-bred foals will require more than trotting-bred or thoroughbred — anywhere from one pint to one quart twice a

day. Each foal is a law unto itself. If the dam is a poor suckler, then the amount to be given should be much larger. A good guide is what the foal will clean up readily and yet not be entirely satisfied. The feeding of grain to the foal is for the purpose of nourishing it and preparing it for that other important time — weaning.

If the mother is not worked, and has the run of a good pasture, the necessity for grain is not so great, but should begin not later than twelve weeks.

What shall the yearling colt be fed? If the roughage has been cut, shredded or whole corn fodder or timothy hay, then equal parts by weight of crushed corn, oats and wheat bran twice per day, is an ideal ration. From one to two quarts may be given at a feeding, depending upon the breed, etc., of the colt. If fed on timothy hay and whole corn, feed a gill of oil meal once a day, and a little salt twice per week. The colt does not need condition powders if properly fed and cared for. If one has clover or alfalfa hay, whole corn can be fed exclusively as the grain ration. Oat straw and wheat bran make a good combination. Grass is the natural food of the horse, and, if abundant, is sufficient without grain.

The food the second and third winters should be the same as the first, except that a larger quantity should be fed.

What about silage in winter? There is nothing better if free from mold. With this precaution a small amount is excellent, particularly if no roots are available.

When the snow flies and the pasture is gone, the weanling should have exercise daily. This can be provided by letting it have the run of the feed lot, covered barnyard, or around the straw stack. But it must have exercise at all hazards. Exercise the first, second and third winters is vital to health and normal development.

CONCLUSIONS

Having a brood mare that is worthy of the name, mate her with a good stallion of the same breed or type. Feed and intelligently care for both dam and foal; it will be a profitable investment. One can safely figure profit at $50 on the weanling after paying for service and lost time.

Do not pay $300 for a horse that can be raised for $150. Do not send hard-earned dollars to the West where they fatten horses like hogs, and which, when purchased, do not prove satisfactory —the first year at least. "New York horses for New York" should be the slogan.

FIG. 59. USING THE BROOD MARE IN CUTTING ALFALFA

FALL VERSUS SPRING COLTS

EDWARD VAN ALSTYNE, KINDERHOOK, N. Y.
Director of Farmers' Institutes

IS IT PROFITABLE TO RAISE COLTS?

Before attempting to discuss the relative merits of either fall or spring colts, I would first take up the proposition of raising colts at all. If I can thereby interest and convince some of my fellow farmers that it is profitable to raise horses for their own use, as well as an occasional one to sell, the number of those who will then be ready to consider the merits of the two seasons will be materially increased.

I am writing for the farmer who must keep from two to a half dozen horses to do his work; not for the man who makes horse breeding a specialty. Dr. Warren of Cornell University, in his most practical book on "Farm Management," shows that the horse works only one-third of the time. This makes his service expensive. Even with a better system of farm management, having a growing season of not to exceed five or six months and at least four months when no work can be done on the land, it will always be a fact that in order to have sufficient horse power to do the work of the farm in proper season, there will of necessity be a period when the horse must be idle. The increased expense of horse labor can be materially reduced if a colt can be credited against it, raised at a time when the horse has least to do.

We shall always need horse power on the farm, and to purchase one or more horses at rather frequent intervals means a heavy draft on the returns from our money crops.

On account of the European war with its destruction of horses and horse-raising territory, and the consequent inability to draw from there for the world's supply of horses, the price must continue to be high.

So, if the horse can be produced at home at first cost, and perfectly acclimated both to the farm and state, a large part of this outlay can be stopped.

We hear much about bringing the producer and consumer together. Here is a most practical way to do this, and a way within the power of most to accomplish. Rather than take the net dollar from a crop that went to a long-distance customer, to buy a horse raised a thousand miles away on land selling from $150 to $200 an acre, let us raise our own horses.

Admitting for the sake of argument that the cost of raising a horse will be as great as his purchase price — which is not true — the colt is a kind of savings bank where small annual deposits can be made (some of which would not otherwise be made at all) for four years, at the end of which time instead of having to draw a couple of hundred dollars from our funds to buy a horse, we have the horse on hand. And occasionally we have one to sell. My experience since I have raised my own horses has been that there is no material reduction in crop receipts, and I no longer have to draw from them to buy horses.

On most farms pasture, fodders, and some farm grains find a market through the growing colt, where otherwise there is none; or a better one than if the produce has to be hauled to a more or less distant market. The manure made from products so fed on the farm is also a factor worth considering.

SPRING COLTS MOST POPULAR

With the above facts digested and assimilated, we should now be ready to raise a colt. Without doubt the majority of them will be born in the spring. It is more natural for a mare to conceive at that time. The rule seemed to be that colts born at a season when the weather was mild and food abundant, survived; while those born at a time when climatic conditions were unfavorable and food scanty, perished. Hence there has been established through long generations mares whose habit it is to breed in spring time. Certain it is that it is much more difficult to get a mare to breed at any other season.

It has been the established custom to raise only spring colts, and it is hard for many to break away from the customs of their

forefathers or neighbors, and venture into new paths. With old-time conditions of cold, open barns, and no succulent food in winter, this was a correct practice; but under present-day conditions this reason deserves little consideration.

Spring colts being the natural order there is no need of spending much time on setting forth the advantage of having them born at this season.

March colts desirable

For several reasons I am inclined to believe that to breed the mare, which is to be idle through the winter, so that the colt will be born in March, is ideal. I specify idle mares for at that season most of the work is hauling — always bad for a brood mare, particularly if the loads are heavy. Also, the roads are apt to be bad or icy, and a mare near foaling cannot safely be worked under these conditions. After the birth of the colt the mare has time to recuperate before her services are needed. A little later she can take her share of light work, such as drawing the spray wagon; and by the time the heavier work of the later spring comes on, she can take her share. The colt will then be eating solid food, and it is not important if the mare's milk supply is not so abundant.

The colt is large enough by midsummer that the flies do not affect it as they do a younger foal. It can be weaned in late July or August while pasture is yet good, and the mare will have time to gain flesh before winter. Care must be exercised not to let the foal nurse when the mare is warm after working. The older the colt the less the danger.

Advantages of the Fall Colt

My purpose in this article is primarily to induce farmers to at least raise their own horses. To further that purpose I would emphasize the advantages of the fall colt — there are several. First as to the use of the mare: one can usually time the arrival of the colt so that it will come after the pressing fall work is done. This will vary with different farms — any time between early September and November is desirable. In my own case it is after the silos are filled and the winter grain sown. The

brood mare will do much of the fall plowing, work on the drill, make a third horse on the corn harvester, or help to haul silage corn if the road is hard and level.

I think the best fall colt I ever raised came the last day of August. Fig. 59 shows this colt at a year and nine months. By selecting her work the mare put in full time through harvest. She helped with the plowing, which that year was done early, and she had a chance to lie idle for ten days after the colt was born, before sowing and silo filling. After that she was free until winter. Then the colt was four months old and eating like a horse.

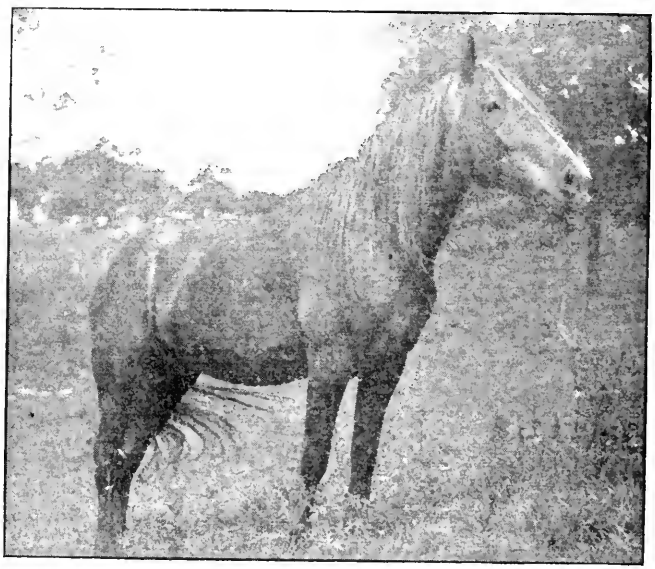

FIG. 59. SEVEN-EIGHTHS PERCHERON COLT, BORN AUGUST 30, 1913

The mare made one of a necessary team to be kept up and fed grain to draw out manure and do other winter work. Very little more feed kept her with plenty of milk for the colt. Separated from the colt the last of March she was in as good condition for the spring's work as her mate which had no colt.

Advantage to the colt

The second spring when my fall colts are eighteen months old they have been as large and well-developed as the spring colt at two years. This means that at three and a half years a fall

colt will do as much work as a four-year-old; thus subtracting six months from the maintenance of the colt before he can earn his keep. For this there are three reasons: the colt gets a good start on grass in the fall when the weather is warm and there are no flies; by winter it is eating freely, and with a little selected silage and roots in a comfortable stall it is easily kept growing, instead of being weaned when flies are at their worst, and the best of the summer feed is gone and it must subsist on dry food until spring; the fall colt soon gets grass after weaning and never stops growing a day.

Colts usually shed their incisor teeth about three months before the end of their second, third and fourth years. Fall colts therefore shed these teeth when grass is abundant — an important reason for their more rapid growth.

It is of great benefit to the colt to be handled when young. The farm is a very busy place after April first, and however good the intent, little time can be given to such training after spring work sets in. In winter there is time for this training without neglecting the putting in or harvesting of the crops.

Fig. 60. Three-Quarter Blood Percheron Mares Breaking Ground for Silo Foundation on the Farm of Edward van Alstyne, Kinderhook, N. Y. The Off Mare was a Fall Colt

A GOOD PLAN TO FOLLOW

When one has two brood mares and wishes to raise two colts a year and still have most use of his mares, I have found it a good plan to have one mare foal in the fall and one in early spring. On almost any farm where several horses are kept it is not difficult to have the brood mare put in full time, and at the same time select easy work for her. It is by no means so easy to do this with two mares. By having them foal as above this is made possible. Often, too, there is but one suitable box stall and paddock. By this plan one will suffice. As set forth above the pair will mate up when one is three and a half and the other four. The pair shown in Fig. 60 were so raised. The "off one" and the largest is the youngest and was born in the fall. When they were broken I could have sold them for $500.

Where the mare is working, and it seems too much of a strain to breed her every year, I have raised a colt from her one year in the fall and the next in the spring, or vice versa.

THE VALUE OF SKIM MILK FOR YOUNG COLTS

Next to the dam's milk I have never found anything on which colts grow faster than on skim milk, after they have become accustomed to it. It is sometimes difficult to get the colt to drink it when on grass and its system is full of moisture, but I have never had difficulty in getting the fall colt to take it. When the colt has skim milk it is not so essential that the mare should have an abundant milk flow.

TRAINING THE COLT

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INTRODUCTION

Training the colt for farm work is very important, since much of the value of the colt depends upon how well it is trained. We all know it is a great pleasure to drive or ride a well-trained horse, one that is safe either on the road or at work. The farm horse should be well trained in every way because he has a greater variety of work than any other class of horses. He guides the corn-planter, the grain drill, sprayer, and many other farm implements which must be drawn straight and steady. In addition to this, he must be safe for the ladies to ride and drive on the public highways. A well-trained horse that has confidence in the driver or rider may be controlled no matter what might frighten him.

A horse has a very keen memory, which is formed by habit. Therefore, a trainer should be very careful not to develop any undesirable habits, for they will be remembered quite as well as the good ones. Be sure that the colt understands what is wanted of him. The trainer should be firm and accomplish what he attempts, but care should be taken not to attempt too much.

METHODS OF TRAINING

Training may be divided into two classes — slow method and rapid method. The slow method depends upon repetition to fix the ideas and commands, while the rapid method uses intensity of impression to fix ideas. Most farmers who raise only a few colts each year are situated so that they can use the slow method and handle the colts from foaling time up to the age of

two or three years, when the rapid method can be used if necessary. The colt should be broken to both single and double harness, and should be exercised sufficiently to make him handy and safe. He should not be worked steadily until he is matured.

HANDLING THE FOAL

The little foal should become acquainted with his master while he is very young. He is, by instinct, inquisitive, and will work his way up to you; if not frightened or hurt he can very easily be caught and held. The proper way to catch him is by placing one hand under the neck and the other around the buttock. Handled in this manner he will not struggle and will soon learn to stand quietly and fearlessly.

TEACHING THE FOAL TO LEAD

A light, well-fitted halter should be placed on the foal just before weaning time to accustom him to it before he is taught to lead from it. Attach a small rope, about five feet long, to the halter, then take a rope about twelve feet long and make a large loop in one end that will fit over the buttocks at the base of the hams. With a rope in each hand, give the halter rope a gentle pull and command, "come." If he pulls back give the buttock rope a gentle pull; when the pressure is felt he will naturally step forward. After a few steps, place the hand on the nose band of the halter and command, "whoa." Every-day lessons will soon render him handy and he can be led without the buttock hitch. To teach him to back, place the hand on the nose-band of the halter and the other hand against the breast and command, "back." If he refuses, apply pressure on both nose and breast, and he will quickly learn to obey.

TRAINING TO STAND TIED

The training of the foal to stand tied should come next. Place a rope, with a ring in one end, around the loins, forming a slip-noose, with the ring on the under side of the body. Pass the rope between his fore legs and tie so that the pressure on the loins will be felt if he pulls on the halter. Care should be taken not to have too much pressure on the halter, as colts often injure their

heads or necks by pulling. Pet and reward him when he stands quietly, and leave him tied only a few minutes the first time. Within a very few days most colts will stand tied anywhere.

GENTLING THE COLT

When tied the colt should be handled from both sides; gentle by patting and rubbing the hands about the head, neck, back and legs. If he shows a tendency to kick, use a stick four or five feet long. He should be allowed to examine and smell this stick before his body and legs are rubbed. Continue with the stick until he will stand quietly while being rubbed. The second day, tie an old coat or rag on the end of the stick and repeat the first day's lesson. Accustom him to strange noises, unusual sights and fur coats and robes until he stands without fear.

At this time the feet should be handled, trimmed and kept level, since many blemishes, such as crooked and cocked ankles, bow-legs, side bones and interfering, are the result of ill-shapened feet. If the colt is well trained to stand, it is a simple matter to true and level the feet. On the other hand, if he is hard to handle he will not be properly cared for.

DRIVING THE FOAL WITH LINES

The foal should be driven with lines at an early age. This is not essential, but is a very good practice to add to his early education. To do this place a surcingle with line rings well down on the colt. Hitch the lines on either side of the halter and pass them through the line rings on the surcingle, keeping them well down on the quarters. Standing on the near side well up to the shoulder, with the right line drawn around the quarters and the left line shortened, command him, "get up." If he does not start, tighten the right line to bring pressure on his buttocks. This will have the same effect as the rope did when teaching to lead, and he will start readily. Circle right and left as well as straight away. Use the command, "whoa," and stop him with a hint from the lines and not a hard pull or jerk. Stop and start him often to give him confidence.

After he is handy to drive, teach him to back from the lines.

Drive him ahead a few steps, with the command "whoa," give a steady pull and command "back." Keep straight behind him and have him step backward a few steps, then drive ahead a short distance. Change direction often and he will soon back without the pull from the reins.

BITTING AND MAKING A MOUTH

The colt should be bitted at about two years of age. A good mouth is very important to any horse. It is by means of bit, reins and voice that we convey our wishes to the horse. He should "go up on the bit," but not beg or pull, and should carry his head straight when being driven, turned or backed. A bitting harness or dumb jockey is used at first to allow the colt to do much of this work himself while running in the paddock.

A bitting harness consists of a heavy surcingle, back straps and crupper, an open bridle equipped with a side draw check, a large, smooth mouth bit, and a pair of side reins, one on either side, running from the bit rings to the surcingle. The bit should be well up in the mouth, but not tight. The check and side reins should be very loose for the first few lessons. Then his head should gradually be drawn up and the side lines shortened until he has his head well up and straight.

As soon as he is well bitted and accustomed to the harness, remove the side lines and substitute the driving reins. Attach them to the bit and pass through rings well down on either side of the surcingle. This will keep the reins down on the quarters and prevent the colt from turning toward the trainer, avoiding mishaps. Some trainers leave the "near" or left rein out of the ring, making it easier to control the colt in case he attempts to run or lunge. He should be guided from left to right, should start at command "get up," stop at "whoa," and back straight without being pulled back by the reins. Drive him about, and up to strange objects and in strange places. Pass other horses with him and have him stand while others drive by.

A complete set of harness should be used several times before he is hitched. Attach a piece of rope to each trace, and, with the reins in one hand and the ropes in the other, have him pull you along by his collar. If he objects to the pull, start it gradually

while he is moving. Pole and gentle the colt well before hitching, as many kicking and runaway horses are made the first time they are hitched to the cart or wagon.

Hitching Single or Double

If the colt is to be used single it is advisable to make his first hitch single. The cart should be strong, easy running and long shafted. The long shafts are used for two reasons — safety of the trainer, and usually if the colt kicks and does not strike anything he will not attempt again. A single safety or trip rope and a kicking strap should be added to the harness. The trip rope should be about fifteen feet long, one end of which should be attached to a ring on a strap around the left front pastern. Pass the rope through the ring attached to the belly band of the harness. Drive him around and up to the cart and let him examine it well. Send him into the shafts and back the cart from him as he walks toward it.

The trainer should have a helper for the first two or three hitches. The assistant should hold the colt by the head until all hitched; then the driver should take his seat on the cart, the helper remaining at the colt's head. Give the command "get up" after he is started. The assistant should hold the trip rope, and if the colt makes an attempt to run or kick, he should pull up the foot and let the little fellow travel on three legs until he slacks his pace. Stop and start him often; it will give him confidence in himself and master.

If the colt is to be used in a team, drive him double first. Hitch him on the off side of a good-walking, gentle and well-broken horse. After he is well trained to that position shift him to the near side.

A fast walk is the most valuable gait in a farm horse, so he should be taught to walk fast before being allowed to trot, in order to establish the habit. Never whip the colt by objects of fear. Let him stand and look at them and slowly work his way up. He should face the objects, and should never be let hurry past an object or noise that frightens him.

When training a young horse for heavy draft do not hitch him to a dragging load, such as a plow or harrow, but to something that

will run easily after started. Increase the load, and pull with the break on the wagon until he has the idea well fixed in his mind. Train him to go into the collar easily, pull steadily and regularly. The driver should adopt the signal "steady," or any like command that will warn him to square himself for a heavy pull. Teach him to back as well as to pull loads steadily.

VICIOUS HORSES

Few horses inherit vicious dispositions. Most bad habits can be traced to the carelessness or brutality of their trainer. A trainer should study his animal carefully and find the cause of his viciousness or whim. If a horse kicks his punishment must follow immediately to be effective. Thus it will impress on his mind the idea that his trainer has complete control over him and he must obey.

There are many devices for controlling in training — different kinds of halters, bridles and twitches, as well as self-punishing harnesses. A device that will work on one animal will not always help the next one. A trainer must contrive a device to meet his needs.

A throwing harness consists of a heavy surcingle equipped with three rings well down on the side, and a pair of short straps to buckle around the front pasterns. Attach the rope to the ring on the off side of the surcingle, passing the long end through the ring on the off foot strap back to a ring on the surcingle, then to the near foot strap, and last through the ring on the near side. This method gives you control of both front feet. If the animal kicks, bolts, rears or attempts to lunge, he can be pursuaded that he is merely punishing himself, and few hard falls will usually teach him to obey.

THE HORSE'S FEET AND THEIR CARE

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BRIEF HISTORY OF THE HORSE

My paper at this time will be on a subject that all persons are interested in to some extent. For who does not like to look at, drive, or ride after a good horse? At the head of all animals which have been domesticated by man or rendered useful to man — whether we regard his noble form, his great sagacity, or the manner in which he is connected with our profit and our pleasure — stands the horse. One cannot travel to any part of the civilized world but what he will see and have his attention called to the horse in some way. And the one thing that either makes him more valuable or useless is almost entirely left out of the question — the proper care of his teeth and feet.

There are various classes and divisions of domesticated animals. The horse ranks under the division *Vertebrated;* the class, *Mammalia,* suckling their young; the tribe *Angulata,* or the hoofed; the order *Pachydermata,* or thick skinned; and the family *Solipeda,* or single hoofed. The *Solipeda* consists of several species, the horse, the mule and the quagga.

First stands the *Equus Caballus,* or common horse. His native country cannot with certainty be traced. He has been found varying materially in size, form and utility in all the temperate climes, and in most of the sultry, as well as in many of the northern regions of the world.

In the Sacred Volume, which contains the oldest authentic record of past events, we are told that as early as 1650 years before the birth of Christ the horse had been domesticated by the Egyptians; 1450 years before Christ the horse was so far naturalized in Greece that games were instituted, including chariot and horse races. We, therefore, have sufficient evidence that the horse was at a very early period subjected to the dominion of man, and, unfortunately, for the worst of purposes — the business of war.

It appears remarkable that at about the seventh century of our era horses were almost extinct, since when Mohammed attacked Koreish near Mecca he had but two horses. At the close of his murderous campaign he drove off 24,000 camels, 40,000 sheep and not one horse appears on the list.

The earliest record of the horse in Great Britain is contained in the history given by Julius Caesar of his invasion of that island. We find that the improvement of horses began about the eleventh century by William the Conqueror, or the Norman.

In the reign of Henry I, A. D. 1121, the first Arabian horse was introduced, and from that time till now there has been a continual improvement in the various breeds of horses. It is not my intention to here discuss them at length, since all localities have their admirers of the different kinds, from the Shetland Pony to noble Clyde or Percheon.

ANATOMICAL REVIEW OF THE FOOT

In a description of the foot of the horse it is customary to include only the hoof and its contents, yet, from a zoological standpoint, the foot includes all the leg from the knee and the hock down.

The foot of the horse is undoubtedly the most important part of the animal in so far as veterinary surgery is concerned, for the reason that this member is subject to so many injuries and diseases, which in part or in whole render the patient unfit for the labor demanded of him.

The old aphorism "no foot no horse" is as true today as when first expressed. In fact, domestication, coupled with the multiplied uses to which the animal is put, and the constant reproduction of hereditary defects and tendencies, has largely transformed the ancient "companion of the wind" into a very common piece of machinery which is often out of repair, and at best is but short lived in its usefulness.

Since the value of the horse depends largely or even entirely upon his ability to labor, it is essential that his organs of locomotion should be kept sound; and to accomplish this end it is necessary not only to know how to cure all diseases to which these organs are liable, but, better still, how to prevent them.

An important prerequisite to the detection and cure of disease is a knowledge of the construction and function of the parts which may be involved in the diseased process; hence, first of all the anatomical structure must be understood.

The bones of the fetlock and foot constitute the skeleton on which the other structures are built, and comprise the lower end of the cannon bone (the metacarpus in the fore leg and the metatarsus in the hind leg), the two sesamoids, the large pastern or suffragius, the small pastern or coronet, the coffin bone or ospedis, and the small sesamoid navicular bone.

The cannon bone extends from the knee or hock to the fetlock, is cylindrical in shape and stands nearly or quite perpendicular. The sesamoids occur in pairs, are small, shaped like a three-faced pyramid and are set behind the fetlock joint and the upper end of the suffragius, with the base of the pyramid down. The suffragius is a very compact bone, set in an oblique direction downward and forward, and extends from the cannon bone to the coronet. The coronet is a short cube-shaped bone, set between the suffragius and coffin bone in the same oblique direction. The coffin bone forms the end of the foot and is shaped like the horny box in which it is enclosed. The navicular bone is short, flattened above and below, and is attached to the coffin bone behind.

All of these bones are covered on the surface with a cartilage or incrustation which goes to make up the joints, while the portions between are covered with a fibrous membrane called the periosteum.

The points of the legs are of especial importance, since any interference with their function very largely impairs the value of the animal for most purposes. As the points of the foot and ankle are at the center of greatest concussion they are the ones most subject to injury and disease.

There are three of these joints — the fetlock, pastern, and coffin. They are made by the union of two or more bones held together by ligaments of fibrous tissues, and are lubricated by a thick viscid fluid, called synovia, which is secreted by a special membrane inclosing the joints.

The fetlock joint is made by the union of the lower end of the cannon bone and upper end of the large pastern bone, supplemented

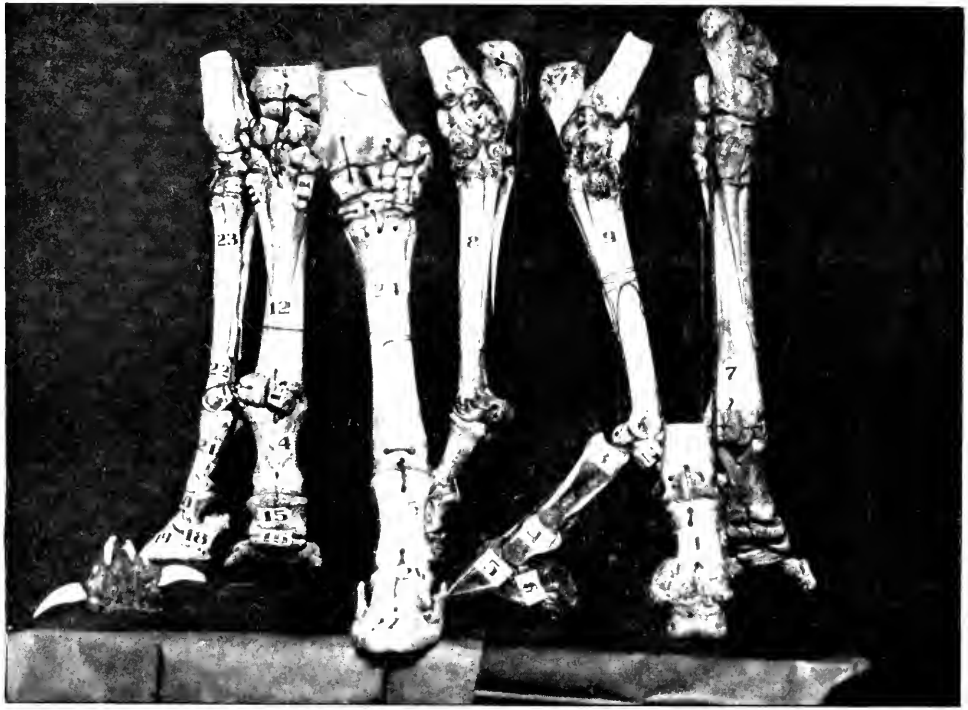

FIG. 61. BONES AND JOINTS OF THE HORSE'S HOOF AND LEG

1. Ringbone joint. 2. Sesamoid bone. 3. Upper pastern. 4. Lower pastern. 5. Coffin bone. 6. Navicular bone. 7. A perfect leg. 8–9. Bone spavin joints. 10–11. Splint bones. 12. Large cannon bone. 13. Sesamoids. 14. Upper pastern. 15. Lower pastern. 16. Navicular bone. Under this is the coffin bone, which cannot be seen. 18. Sidebones grown to the coffin bone. 19–20. Lower pastern. 21. Upper pastern. 22. Cannon bone. 23. Splint bones grown solid to the cannon bone. 24. Front view of cannon bone. 25. Upper pastern. 26. Lower pastern. 27. Coffin bone, showing sidebones

by the two sesamoids, so placed behind the upper end of the pastern that the joint is capable of a very extensive motion. These bones are held together by ligaments, only one of which — the suspensory — demands special mention.

The suspensory ligament of the fetlocks, starting from the knee extends down behind the cannon, lying between the two splint bones, until near the fetlock, where it divides and sends a branch downward and forward on either side of the joint, to become attached on the sides of the extensor at the lower end of the pastern bone. As it crosses the sesamoids on the posterior borders of the fetlock it throws out fibers which hold it fast to these bones.

The pastern joint is made by the union of the two pastern bones. The coffin joint is made by the union of the small pastern, coffin, and small sesamoid or navicular bones, the latter being set behind and beneath the joint surface of the coffin bone in such a way as to largely receive the weight of the small pastern.

Three tendons serve to move the bones of the foot, one on another. Two of these flex or bend the joints, while the third extends or straightens the column of bones.

The *flexor pedis perforans*, or deep flexor of the foot, passes down behind the cannon bone, lying against the suspensory ligament in front, crosses the fetlock joint in the groove made by the union of the sesamoids, and is attached to the bottom of the coffin bone, after covering the navicular by a wide expansion of its fibers. It is the function of the tendon to flex the coffin bone, and with it the horny box.

The *flexor pedis perforatus,* superficial flexor of the foot, follows the course of the preceding tendon and is attached to the middle of the ankle. The function of this tendon is to flex the foot at the fetlock.

The *extensor pedis* runs down in front of the leg, is attached on the most prominent point of the coffin bone, and has for its function the straightening of the bones of the ankle and foot.

The bones, ligaments and tendons are covered by a loose connective tissue, which gives symmetry to the parts by filling up and rounding off, and all are protected by the skin and hoof.

The skin of the fetlock and ankle is generally characterized by

its thickness and the length of its hairs, especially around the hind parts of the fetlock joints in certain breeds of horses. The most important part of this envelope is that known as the coronary band. The coronary band is that portion of the skin which secretes the horn of which the wall of the hoof is made. The horn much resembles the nails which grow on the fingers and toes of man. It is composed of hollow, cylindrical tubes, extending from the coronary band to the lower border of the hoof, which are held together by tenanious opaque matter.

The hoof is a box of horn, consisting of a wall, sole and frog, and contains, besides the coffin, navicular and part of the small pastern bones, the sensitive laminae, plantar cushion and the lateral cartilages.

The sole of the foot incloses the box on the ground surface, is shaped like the circumference of the foot, except that a V-shaped opening is left behind for the reception of the frog, and is concaved on the lower surface. The sole is produced by the velvety tissue — a thin membrane covering the plantar cushion — and other soft tissues beneath the coffin bone.

The horn of the sole differs from the horn of the wall in that its tubes are not straight and it scales off in pieces over the entire surface.

The frog is a triangular-shaped body, divided into two equal parts by a deep fissure, extending from its apex in front to the base. It fills a triangular space in the sole to which it is ultimately attached by its borders.

The horn of the frog is produced in the same manner as the sole, but it differs from both the wall and sole in that the horn is soft and moist, and elastic to a remarkable degree. It is the function of the frog to destroy shock and to prevent slipping.

The sensitive laminae are thin plates of soft tissue covering the entire anterior surface of the coffin bone. They are present in great numbers; and, by filing into corresponding grooves on the inner surface of the horn of the wall, the union of the soft and horny tissues is made complete.

The plantar cushion is a thick pad of fibrous tissue placed behind and under the navicular and coffin bones, and resting on the sole and frog. Its purpose is to receive the downward presure of the column of bones and to destroy shock.

The lateral cartilages are attached, one on either side of the wings of the coffin bone, by their inferior borders. They are thin plates of fibro cartilage, and their function is to assist the frog and adjacent structures in regaining their proper position after having been displaced by the weight of the body while the foot rested on the ground.

FAULTS OF CONFORMATION

A large percentage of the horses have feet which are not perfect in conformation. As a consequence of these imperfections they are especially predisposed to certain injuries and diseases.

Flat feet is that condition in which the sole has little or no convexity. It is a peculiarity common to some breeds, especially heavy, lymphatic animals raised on low marshy soils. It is confined to the fore feet, which are generally broad, with low heels and a wall less upright than is seen in the perfect foot.

In the flat foot there can be little or no elasticity in the sole for the reason that it has no arch, and the weight of the animal is received on the entire plantar surface, instead of on the wall, as the foot rests upon the ground. For these reasons such feet are particularly liable to bruises of the sole, to corns, pumiced sole, and excessive suppuration when the process is once established.

So far as possible, horses with flat feet should be shod with a shoe having a wide web, but a great many of such horses cannot stand the pressure on the coffin bone. In such cases I shoe around the outer edge with a narrow-web bar shoe, just paring the frog and heels enough to give a level bearing, and to keep the frog from turning to one side or the other. The heels of the shoe are then a little higher than the toe, and the foot is kept as narrow and as short as possible. In this way I have been able to greatly improve some very bad cases of flat feet.

The walls of flat feet are generally weak, and to improve the foot the nails should be as small as the work of the horse will permit. They should not be driven too high, but so as to get a low deep hold in the hoof. Never let the shoe get loose and crumble the shell off the hoof.

Club foot is the term applied to such feet as have the walls set nearly perpendicular. When this condition is present the heels

are high, the fetlock joint is thrown forward or knuckles, and the weight of the animal is received on the toes. Many mules are club footed, especially behind, where it seems to cause little or no inconvenience. As a rule special shoeing is the only measure of relief that can be adopted. The toe should not be pared, but the heels should be lowered as much as possible. The shoe is put on with a long protecting toe-piece slightly turned up, while the heels of the shoe are made thin.

Crooked feet is that condition in which one side of the wall is higher than the other. If the inside wall is the higher, the ankle is thrown outward so that the fetlock joints are abnormally wide apart and the toes close together. Animals with this deformity are pigeon toed and are prone to interfere, the inside toe striking the opposite fetlock. If but one foot is affected, the other being perfect, the liability to interfere is still greater for the reason that the fetlock of the perfect leg is more near the center plane.

When the outside heel is the higher the ankle is thrown in and the toe turns out. Horses with such feet interfere with the heel. If but one foot is so affected the liability to interfere is less than where both feet are affected, for the reason that the ankle of the perfect leg is not so near the center line. Such animals are especially liable to stumbling and to lameness from injury to the ligaments of the fetlock joints. The deformity is to be overcome by such shoeing as will equalize the disparity in length of walls, and by proper boots to protect the fetlock from interfering.

INTRODUCTION OF SHOEING

The period when the shoe began to be nailed to the foot of the horse is uncertain, but it is supposed that Hannibal used artificial coverings for the horses' feet in crossing the Alps with 12,000 horses and 90,000 men on foot 200 years before the birth of Christ. It is also believed that William the Norman was first to introduce it in England, and it is stated that he used iron for that purpose. In some countries other material was used, mostly rawhide.

It is sometimes argued that if you do not begin to shoe horses when they are colts you will not need to shoe them at all. That would obtain in some sections of our country, but I assure you it

is not a success in any part of our state, the land being too stony and hilly. I have seen a number of good colts ruined by running in stony and hilly pastures. They would wear off the heel to such an extent that it caused them to become ankle cocked, and it also effected the coffin joint on the hind foot. I have in my time shod a number of two-year-olds that became lame from their feet wearing off in the pasture.

IMPROVING SHOEING

Since it is an absolute necessity to shoe horses in this part of the country, let us see if we cannot make some improvement on the manner in which it is being done by most of my fellow craftsmen, especially by those that are shoeing our farmers' horses.

In my observation during the last twenty-five years while traveling in this and other states, I have given particular attention to the appearance of horses' feet on the streets of our cities as well as on our country roads. I can safely say without successful contradiction that 75 per cent of the horses are improperly shod, and that 50 per cent of the horses in our state have their days shortened 25 per cent by improper cutting and haggling of their feet by incompetent persons, who nail iron to their feet — I cannot call it shoeing in any sense.

At this point I should like to call attention to the fact that I do not claim to be an expert in shoeing trotting horses. My time is entirely taken up with the study and shoeing of road and draft horses and general purpose horses that are used in our agricultural districts.

Duty and justice require that as the horse increases in powers of usefulness for all purposes of life, he deserves wiser and better protection than is given him by those who doom him to a life of painful labor or constant lameness.

Since a large proportion of the defects in horses' feet originate and are developed by bad methods of farriery, it surely must be of sufficient importance to every man who values his horse to demand better service in the shoeing. At the same time he should be willing to pay a fair price for good work if it is in his power to get it done. Though he may be put to some inconvenience, it will amply pay in the long run.

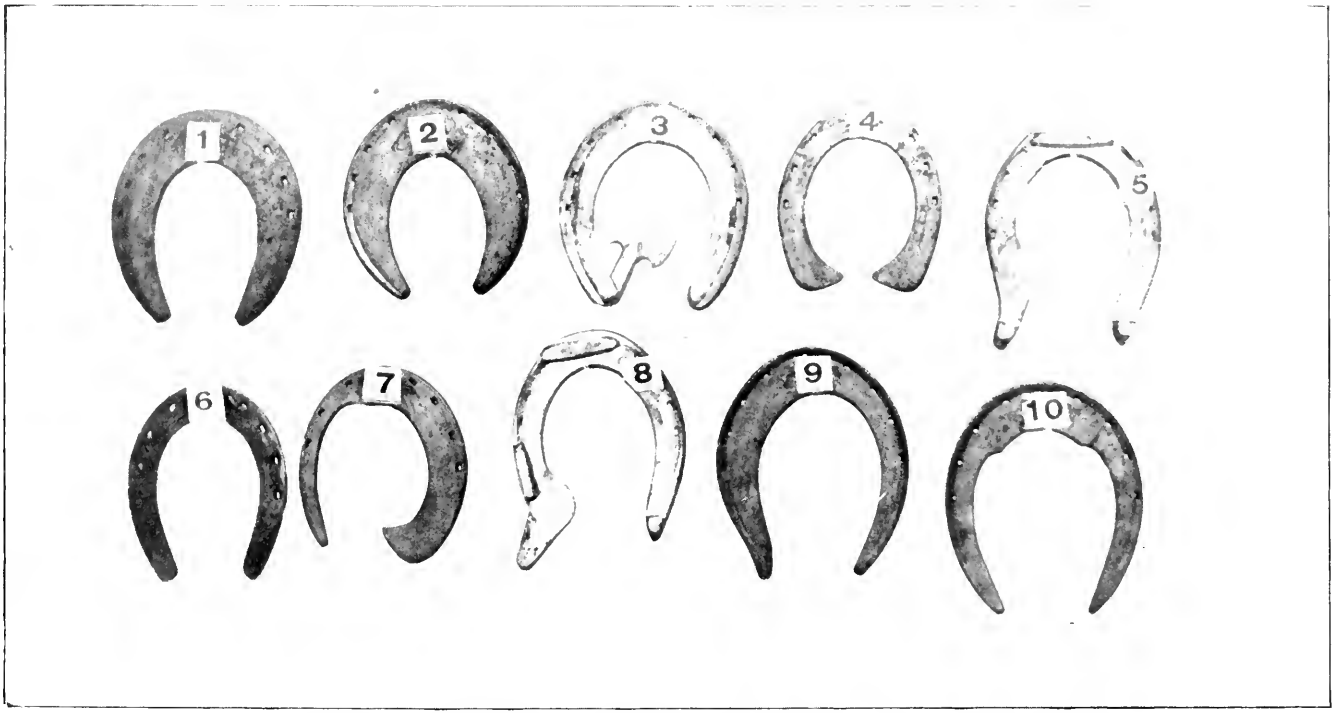

FIG. 62. SHOES HAND MADE FOR PATHOLOGICAL AND PRACTICAL PURPOSES

1. Center-bearing or rolling motion shoes for flat feet and founder. 2. Old-style English seated shoe for flat-footed horses on cobble cave or stony roads. 3. Plate shoe point of frog protector. 4. Plate shoe with widened heel bearing to spread contracted feet. 5. Shoe with toe calks set back from toe to prevent stumbling. Also fitted to widen a turned-in heel. 6. Road plate, no calks. 7. Side-weight front shoe to straighten rolled-in heel. 8. Front shoe fitted to straighten a crooked foot. 9. Side-weight front shoe to balance action. 10. Toe-weight road shoe

What farmer would think of going into a ten-acre lot with the old-fashioned scythe when we have the improved mowing machines, or into a field of the same size with such plows as were used fifty years ago?

All the arts and sciences are fifty years ahead of that of horse shoeing in the farming districts. Do not the same conditions exist today in the majority of the rural shops as did fifty years ago? The old scythe blade for trimming the feet, the buttress to cut away the heel, the shoe set on an inch or so back of the toe, and the old scythe blade and hammer to cut off the over projecting toe! Number eight nails are used in many cases when number six are too large. But the shoers are not to blame; it is the fault of the horse owners in not demanding a better class of workmen to shoe their horses, and their unwillingness to pay a fair price for the work.

IMPORTANCE OF BREEDING FROM SOUND ANIMALS

The main point I wish to bring to your attention is the treatment of the feet of the horse. It has long been an observed fact in breeding that "like begets like"; that is, that the peculiarities of parents are likely to appear in their offspring. It follows then that when parents are chosen, whose form, appearance, etc., are those desired by the breeder, there is considerable probability that their offspring will be similarly characterized. Therefore, the breeder who possesses a high ideal and wishes to realize it, will select as sires of his future stock animals that conform to his ideal. In other words, he will breed only from the best. He may be able to overlook the fact that a sire or dam has not the mane or tail he may desire, but in no case should he overlook a sire or dam with poor feet or teeth. It has been my experience that "like begets like" more in this respect that in any other characteristic, since these parts are brought in action at the beginning of the colt's existence. So the care of these parts should begin before birth.

SHOEING COLTS

No colt should be put to pasture without having his feet pared and leveled. This should be done regularly every six months from the time the colt is one year old.

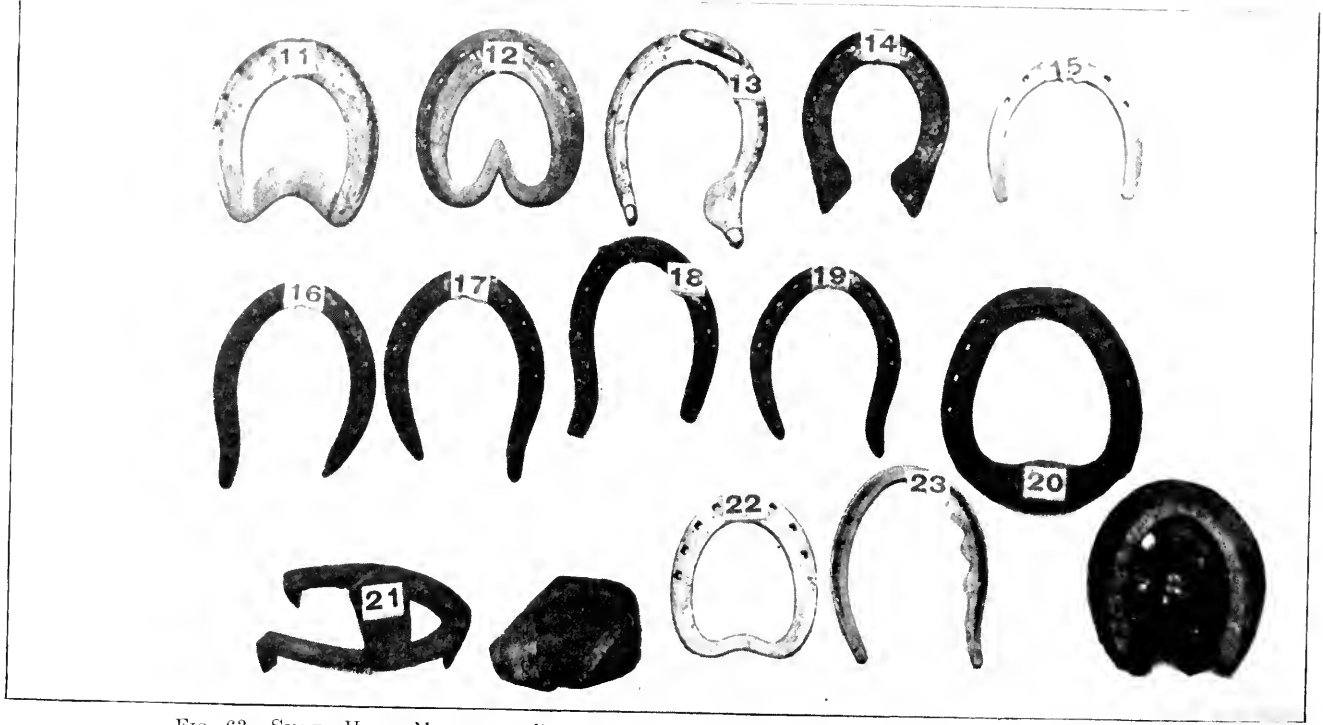

FIG. 63. SHOES HAND MADE FOR PATHOLOGICAL AND PRACTICAL PURPOSES. (CONTINUED)

11. Road plate shoe with bar to prevent springing. 12. Rolling motion or center-bearing shoe with bar. 13. Shoe fitted to strengthen a very crooked hind foot. 14. Plate shoe fitted to widen a bad case of contraction, wings at heel pitching outward to cause heel to spread in its growth. 15. Toe plate for horses in pasture, to give frog pressure. 16–17. Hind shoes worn on very crooked feet. By shoeing thus horse was made perfect in tread. 18. Same shoe with calks. 19. Unworn shoe, about same style. 20. A No. 5 bind machine shoe, heels turned together, welded and calked on side and toe — for horse that could not stand a wide-webbed shoe. 21. Side piece welded to shoe to prevent horse from cutting hoof when standing in winter. 22. Light plate shoe with bar for horse with weak heels. 23. Hind side-weight shoe to widen action. Illustration following No. 21 shows how crooked a hoof became by breaking of inside, horse running in pasture in that condition; that following No. 23 shows hoof shod with a rolling motion or center-bearing shoe good for tender feet

The balance and action of many colts are impaired before they arrive at an age of usefulness. After a colt once has been shod it should generally be followed up. But let me urge that you have it done by a good shoer — one who has good judgment to do it well and at the same time educate the colt as to what is expected of him.

Do not shoe too heavily or with too thick calks. Plate shoes are the best if the work to be done will permit. Do not let the nails be too large or driven too high in the hoof. The best method is not to turn the clinches down at all, but rasp them smooth to the hoof. Under no circumstances let a rasp be rubbed above the nails, or let the hoof be sandpapered, since this breaks the enamel of the hoof, causing it to become brittle, hard and shelly, which condition will in time bring on quarter and toe cracks.

QUARTER AND TOE CRACKS

In case of quarter and toe cracks have the bottom of the foot well pared out and all the hard substance of the frog cut away, so as to give elasticity to the bottom of the foot. Then with a hot lance separate the hoof at the coronet, and soften with veterinary Petrolina or some other good hoof ointment.

TREATING CORNS

There are various causes for corns appearing in the foot of the horse, such as leaving the shoes on too long, uneven paring of the foot, uneven shoes resting too heavily on the heels, having the heels pared too low, high toe calks and low heel calks, driving at a high speed down hill, causing the sensitive parts of the heel to be bruised by coming in contact with stones and other hard substances, and standing on hard, dry board floors. Remedy: shoe with low toes and slightly elevated heels; cut out the seat of the corn, and fill the cavity well with hoof ointment and okum. Reset the shoes as often as once in three or four weeks, relieving the pressure on the heel as much as possible at each setting. I sometimes fire and blister just over the heel, and that starts a new and quick growth of the hoof.

Often the heel is cut too low and causes lameness just where the cord runs over the nut bone. If such should be the case it

will show itself in this way — the horse will be lame when he first starts off, but will get better as he warms up. Remedy: raise the heel of the shoe and lower the toe. Pack the foot with ointment and okum.

ANKLE-COCKED HORSES

Ankle-cocked horses may be benefited by paring off the toe well, and putting on a shoe having slightly elevated heels calks with the shoe running well back behind. Knee-sprung horses may also be benefited by paring off the toe, raising the heel slightly and feeding from the floor at a level with his feet.

CONTRACTION

Contraction may be relieved by paring the foot well down and putting on a shoe with the heel bearing slightly convex so as to have a natural tendency to press the heel open. The shoes should be nailed only at the toe, and not farther back than the side quarter. Only six nails should be used. A good ointment should be applied to hasten the growth and soften all parts of the foot.

FORGING

One of the worst troubles caused by bad shoeing — and that most found in horses in the country — is forging or overreaching. This condition may be remedied by putting fair lengthed shoes on both fore and hind feet. The heel calks should be slightly elevated, and the toe on the hind foot set back so that the hoof is left to project over the shoe about a quarter of an inch.

TREADING ON NAILS

In case a horse steps on a nail, or anything penetrates the foot, do not delay in having it cut open so as to let the blood start freely. Cut away the hard hoof and make a good opening and fill with soft okum and ointment. Open it every three or four days until all inflammation ceases; then there will be slight danger of lockjaw.

INTERFERING

Interfering in horses may be remedied by properly balancing the foot. Build it up with a thick, long-sided shoe, bringing the

toe of the foot straight in line with the body. The inside of the foot should be kept smooth, and the nails should not be permitted to come out of the shoes to twist across the foot, as I have seen done in many a case. This is apt to cause sores that may run into scratches, grease heel, big ankles and lame horses.

DO NOT BURN THE HOOF

The practice of clipping and burning the hoof is very destructive. Using the language of Prof. Russell: "Burning the sole will in time partially destroy the sensitive laminae and impair the membraneous lining underneath the coffin bone, as well as closing the pores on the horn, causing the hoof to become dry, hard and brittle. It also impedes to a certain extent, as a necessary consequence, the healthy growth of the foot and hoof."

The advocates of hot-fitting present many specious reasons for the furtherance of the practice. It is alleged that shoes cannot be fitted so rapidly nor so closely by means other than hot fitting, and this is generally true; for by this means the hoof is burned to correspond with inequalities which occur on the surface of the shoes, until the latter is thoroughly imbeded in the horn. On the other hand, this fusing of the horn is in opposition to its right growth and operation, and it is the prolific source of many evils and abuses. The horn, being a non-conductor of heat, is slowly affected by it. It is said that three minutes burning of the lower face of the sole is necessary to produce any indication of increase of temperature on its upper surface. This is a fallacy, as I have proven many times by operating upon green specimens with soles of varied thickness. The soles of ordinary depth were penetrated by heat when heated shoes were applied for the time specified, and the sensitive sole was found to be scorched. The laminae in their connections with the sole were burned and charred. In the living subject these effects would have brought serious results. My experiments have convinced me that the foot of the horse may in no sense be compared to an inanimate block of wood which may be charred and carved as caprice may dictate. It is filled with life and feeling, and therefore its treatment requires thought, care and skill.

The economy of labor attained in the process of hot-fitting will,

I am sure, never counterbalance its evil effects. While it is true that more shoes can be fitted in a given time by the hot process than by the cold, this is no argument against the expediency of the latter. I, myself, never put a hot shoe to the foot so as to leave a mark; neither do I allow my help to do this. A man who cannot fit a shoe to a foot level with the hoof parers — round knife and rasp — is not a fit person to be trusted to handle as delicate a a piece of machinery as the horse's foot. So my advice is, do not let any one put a hot shoe to your horses' feet, as it will surely bring bad results.

CLIPS SHOULD NOT BE USED

Clipping shoes is another bad habit of our best as well as the poorest horseshoers. It does no good, and in many cases results in harm. In my opinion it does not add to the looks of the foot in any way. A shoe that is perfectly level on a level foot, set on with eight good nails driven in the foot properly, will not come off in a reasonable time. So do not have your shoes clipped unless absolutely necessary.

PARING THE FROG

I am very often asked the question, Do you pare the frog? My answer is this: I do if the frog needs it; I use just as much judgment as when paring the hoof. So long as the frog is in good shape I do not deem it necessary, but when it either bears to one side or the other, or becomes hard and does not scale off as nature intended, paring is required.

CARE OF HORSES' TEETH

Dr. C. W. Brodhead, Montrose, Pa.,
Farmers' Institute Lecturer

The science of horse dentistry has been sadly neglected in the rural districts, and by that lack of knowledge on the part of horse owners much of the usefulness of the horse is lost.

Xenophon said more than 2,000 years ago, "No foot, no horse," and at this time I will add, "No tooth, no horse." After forty years of shoeing horses and thirty-six years of caring for the teeth, having in that time been a close observer and investigator, I can safely say that 25 per cent of the economy of the horse is lost in this country by neglecting these two members of the body; and it is my design to try to give some points that may lead to the better care of the teeth on the part of horse owners.

I often hear this remark: "Why, my father always kept horses and he never gave any thought to the care of their teeth." That may be true, but many a horse's days have been shortened by not having such attention. In fact, until the last few years no one was qualified to do anything to horses' teeth; dentistry was one of the last branches of veterinary science taken up by American colleges.

Originally, the horse's teeth were perfectly fitted for grazing and grinding, but man has changed the food from soft, tender, juicy grasses to hard, dry, woody, fibrous food, which taxes the teeth more than soft food.

There have been many fakes handed down from time to time by "hoss men" which many people think are true and do not stop to consider how inconsistent they may be — such as telling the exact age of a horse by his teeth, wolf teeth causing blindness, and many other things I might mention.

The mare has only thirty-six teeth, as she is minus the canine tushes or bridle teeth, as they are generally called. The male or

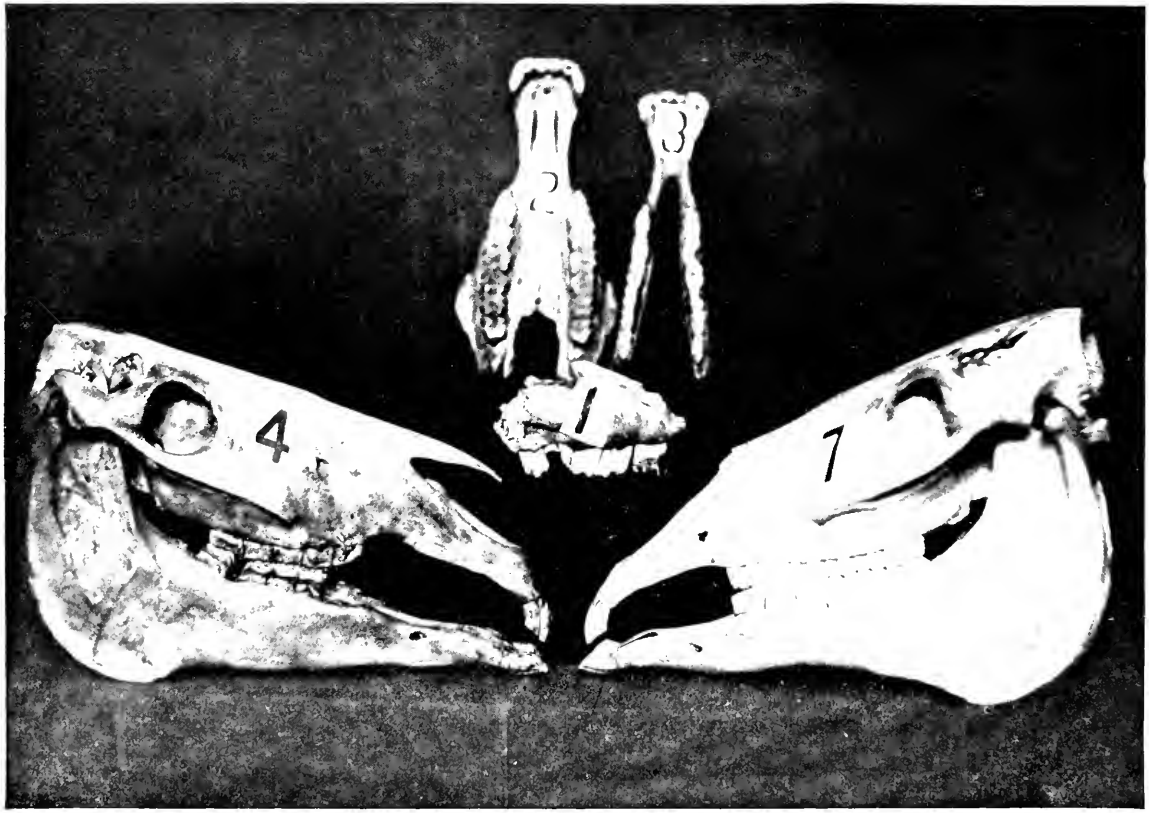

FIG. 64.—(1) PART OF UPPER JAW OF HORSE THAT STARVED TO DEATH BY THE UNDER JAW WEARING INTO THE DECAYED CAVITY OF THE UPPER JAW, WASTING AWAY THE JAW BONE; (2) AND (3) JAW OF AN EIGHT-YEAR-OLD MARE; (4) HEAD OF A MARE THIRTY-SEVEN YEARS OLD WHEN KILLED. NOTE THE LOSS OF TEETH; (7) HEAD OF A FOURTEEN-YEAR-OLD MARE. THE MOST PERFECT MOUTH EVER SEEN AT THIS AGE BY

stallion has forty teeth. The bridle teeth in most cases show themselves any time from two and one-half to eight years of age—sometimes in early castrations they may not appear in the gelding; I have found such cases.

The colt begins to shed the milk teeth at the age of two and one-half years, and should have a full mouth at five years, but that is not always the case. I have many times taken out both the corner incisors and the molars at six years old, and I have known that the horse had been badly kept; hence both body and limb had not fully developed, and the teeth were retarded likewise.

The jaws of the horse are peculiar in their makeup, the under jaw being from one and one-half to two and one half inches narrower than the upper jaw and forming what may be called a convex-and-concave surface, as the long points on the upper jaw are outside, pushing against the cheek, and the long points on the lower jaw are inside, pushing against the tongue. Since the sharp points do not break or wear off, they cut the cheeks and tongue and cause sores. This can be remedied by properly floating the long points off, thus giving the teeth a chance to get a full grinding surface. Often when the colt begins to shed his teeth, the shells or milk teeth will be crowded out by the permanent teeth. Owing to the convex-and-concave surface they are frequently crowded against the cheek or tongue, causing the same trouble as the sharp points in older horses. They should be taken out to give the new teeth a chance to come in proper line.

From many causes, horses will have split or broken teeth, others becoming decayed and hollow. It is necessary to extract such teeth, and then every year or two the tooth opposite will need to be filed or cut off; since, if there is nothing to wear against it, it will grow down or up, as the case may be, and wear into the cavity and cause trouble. The teeth on the upper jaw are always growing down and out, while the under teeth are always growing up and out. In the case of a six-year-old the teeth may set in the jaws one and one-half inches, when at twenty they may just hang to the jaw, and at twenty-five many of them may be entirely gone.

There are many things to be taken into consideration at this point, since some breeds or horses have better teeth than others; also, horses grazing or being fed on hay that is cut from low sandy

bottoms — especially that land overflowed by rivers or creeks — will show wear on the teeth much faster than those grazing or fed on hay cut from hillsides where there is not much grit or sand in the grass or hay. This holds good as to both the incisors and the molars. A horse that is generally stabled will not show so much wear on the incisors as a horse that is in pasture a good share of his life, for the reason that in the constant nipping close to the earth he comes in contact with more or less stones and grit that are not carried to the molars. In judging a horse for usefulness I look to the worth of his molars and how badly they are impaired, giving very little attention to the incisors.

The wolf or rudimentary tooth is supposed by many to be the cause of blindness. That is not generally true, as it is very rarely that there is enough inflammation to cause impairment of the eyesight. Many cases that I have examined and treated were caused by the molars crowding the cheek and causing sores and ulcers. This trouble may be relieved by filing off the sharp points, thus removing the cause.

The following are a few of the symptoms of conditions that may be remedied by having the teeth attended to: staring coat, hidebound, scouring, slobbering when being driven, dropping partially chewed food in the manger, gnawing the manger, running at the eyes, side-lining, tossing the head, periodical balking, spasmodic colic, and many troubles I cannot here mention.

Painful mastication and resultant indigestion, the primary cause of most stomach troubles of the horse, are due to defective teeth. Take care of the old horse's teeth and be sure to look well to the colts' teeth during the shedding period, as the horse is subject to the same laws as man, and needs the care of the dentist.

FEED AND CARE OF THE HORSE

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The feeding of work horses involves not so much a scientific knowledge of nutrition as it does the art of applying common sense methods and observations. Given two men with two teams of working horses and all the feed and roughage necessary for maintenance and development: the one who is the mere teamster will generally utilize twice as much feed, and bring his charges through at the end of the season in a less desirable condition than the practical horseman who loves his charges and watches and feeds them in accordance with practical common sense methods. If the old saying that "a bushel of care is worth two bushels of feed" applies to any line of live stock management, it is applicable to the feeding of farm work horses. Success in the feeding of horses is not the automatic process of putting in so many pounds of feed and supplementing this with so many pounds of roughage, permitting the horse to be his own judge; but rather involves the choosing of those feeds that are useful and economical, and at the same time feeding and selecting such products with proper regard to the individual animal, the kind and extent of the work required, the condition, temperament and adaptability of the man who works and the horses that are worked. A scientifically balanced ration is not essential, for chemists are very apt in certain rations to find food nutrients that the horse cannot find. The spirit or "feel" of the horse, the expression of his countenance, the condition of his coat and legs, together with the consistency, color and odor of the feces, are perhaps of more importance to the feeder in determining kinds and amounts of feeds than the lead pencil in the hands of the scientist who feeds his horse from his office desk.

FEEDING TOO MUCH ROUGHAGE A MISTAKE

The most common error, particularly in the feeding of farm work horses, is the feeding of too much timothy hay. In the first place, a horse does not exercise very much judgment if he is required to determine for himself the amount of roughage that he is to consume. If, by any chance, he is turned loose in a feed room where there is a bale of hay and a barrel of oats he would feel obliged to eat all of both if it were possible. The same rule applies in case the thoughtless farmer feels generous enough to keep timothy and mixed hay before his horses at all times, carrying the impression that, since grain is more expensive than hay, if a horse will eat large amounts of such roughage he will require a smaller amount of concentrates. The reverse is often true. Overloading the digestive system of a horse with a relatively indigestible product results in malnutrition, and invites troubles to the respiratory system which finally wind up with labored breathing and heaves.

It must be remembered that a horse's stomach is relatively small, holding only from twelve to fifteen quarts; and, if a horse is doing hard work, he needs concentrated feeds — the nutrients must be digestible and easily assimilated. He should not be required to subsist largely on roughage products that require so much time and energy in the simple process of mastication and digestion. First, limit all the roughage to one pound per day of average mixed hay to each one hundred pounds live weight of the animal, and feed the bulk of this roughage at night rather than in the morning or during the middle of the day. The grain should constitute the bulk of the morning and noon meal.

In the selection of roughage two factors must be considered. First, if alfalfa or clover hay is available, it must be remembered that it is not necessary to feed as much grain. Eight pounds of alfalfa hay will supply quite as many energy units as fourteen pounds of timothy hay. Second, idle horses should be given relatively the same proportion of grain and roughage as working horses, and the amount rather than the proportion should be reduced on account of the idleness or irregularity of work. It is not difficult to suggest a grain ration suitable for feeding horses that work every day.

The Grain Ration

Five products, for the most part, should provide the basis of the grain ration — oats, corn, wheat bran, oil meal and molasses. Under most conditions, especially those that prevail on the average farm, a mixture of these products is more desirable than any one fed by itself. It is generally believed that so far as the concentrates are concerned, oats are best adapted to the feeding of horses — not only on account of their chemical analysis, but because of their physical composition as well. The relative proportions of carbohydrate and protein constitute a well-balanced ration, and it seems that horses fed largely on oats, with an appropriate roughage, possess more mettle than individuals fed corn in liberal amounts. The one objection to oats is their cost, and very often unscrupulous feed dealers mix barley with the oats when the price of barley will enable them to make this substitution with profit. Such a mixture is less palatable and less nutritious than oats fed alone.

Corn is king in the corn belt, not only for pigs but for horses as well, and if alfalfa hay is used as a supplement very few objections can be made to this combination. However, the common practice of feeding corn and timothy hay in relatively large amounts is objectionable for the simple reason that there is a lack of protein — blood- and muscle-making tissue — in such a combination, and it predisposes the animal's digestive system to improper functionating, and eventually the horse's wearing or working qualities are permanently impaired.

Wheat bran or alfalfa hay should always parallel a ration of corn; or, if neither of these products are available, oil meal might appropriately be substituted. Wheat bran is always indispensable in a ration for growing animals. Its laxativeness coupled with its ash content suggests itself on every occasion when irregularities prevail; and, if it is useful for sick animals, it is certainly a safe feed for well ones.

Oil meal is perhaps the best conditioner available for feeding horses. The mere fact that perhaps 90 per cent of the condiment stock feeds that are on the market are oil meal is evidence enough of the value of this by-product as a conditioner or tonic.

Molasses has come into use within the last few years, chiefly

because it is less expensive than corn, and supplies quite as much energy. Pound for pound, its feeding value compares favorably with corn, but this does not mean that it can be substituted pound for pound in the ration. It is clear, however, that in case molasses is selected as a feed for horses it should be purchased in bulk, and not through the agency of mixed feeds. Certainly, molasses has been used to market a great many products as horse feeds that would not be utilized if the buyer of the feed had a definite knowledge of the particular feed that he was buying. Again, molasses should not be used extensively for idle horses, and in any event not more than three pounds should be fed per day. It is an excellent conditioner, and has the effect of smoothing the coat, when proper grooming accompanies its use as a feed.

As suggested above, a combination of the foodstuffs named undoubtedly makes the best feed. Variety should be practiced by changing the kinds and amounts of the ingredients; likewise it is permissible to omit certain feeds at a season of the year when they are expensive or are not available. A very useful combination for work horses doing daily work would be as follows: 200 pounds oats, 100 pounds wheat bran, 100 pounds cracked corn, 50 pounds molasses, 35 pounds oil meal.

It would not be practical to mix the molasses with these feeds during the warm weather, nor would it be wise to use this mixture during the coldest winter weather. Molasses might be omitted from the ration during this time, or it could be mixed with water — five parts of water to one part of molasses — and either poured over the grain after it is in the feed box or sprinkled over the cut hay in a suitable manger.

SALT AND WATER

Salt should be kept before the animals at all times. Horses should be watered previous to feeding. There is a difference in opinion so far as this practice is concerned, but it stands to reason that since water does not require digestion, it would be much better to let them have their drinking water previous to feeding, and thus enable the digestive system to work more leisurely in preparing the grain and roughage for assimilation.

Care of the teeth and parasites *

At the outset two observations should be made. First, the caretaker should make sure that the horse's teeth are in good condition and free from annoying projections that would lacerate the mouth, and be responsible for incomplete mastication. A float may be used if the trouble is simple; but, if more complicated, a veterinarian should be called. He should make sure that the first step of digestion is properly taken. In the second place, internal parasites or worms sap the vitality of the animal's system, and destroy in many instances the usefulness of the animal's digestive system. Continued annoyances and discomfort in an animal's digestive system are responsible for ill-temper and nervousness, and it is absolutely essential that the animal be relieved from unnecessary disturbances. An ounce of turpentine to a quart of raw linseed oil for a 1000-pound horse, given on an empty stomach, will oftentimes act as a vermifuge; or, placing in the feed twice daily for five days, a tablespoonful of a mixture made up of equal parts of powdered gentian and powdered ferrous sulphate will act in the same capacity. In either case, a purge should follow the use of such ingredients in order to make sure that the parasites are eliminated from the system after they have been loosened from the walls of the stomach or intestines.

The question of grooming is of vital importance in the management of work horses. Not only should the stalls be roomy and kept in a sanitary condition, but every effort should be exerted to provide comfort for the animals. Regularity of the feeding period as well as of the rest period is essential, and it must be remembered that idle horses require less food units than those working regularly. The most difficult horse in the world to feed and keep in condition is the animal that is overworked one day and underworked the next. Reduce the feed in half on idle days, and increase the grain ration when the animal is doing severe labor. In this way the caretaker will avoid instances of indigestion or the loading up of the system with surplus nitrogenous material, which is responsible for Monday-morning disease or azoturia. "The eye of the master fatteneth his animal" is an

* See article on care of the teeth, page 183.

oft-repeated proverb, and is quoted here only to suggest that even though a ration might be scientifically balanced and practically compounded, it is fundamental that the feeder of horses watch every sign that suggests comfort or distress if he wishes to have his charges always in bloom and eager for work.

HORSES AT THE NEW YORK STATE FAIR

Dr. H. S. Wende, Tonawanda, N. Y.
Superintendent, Horse Exhibit, New York State Fair, 1913–14

HORSE SHOW SHOULD ENCOURAGE BREEDING OF STATE HORSES SUITABLE FOR THE FARM

It has always been my belief that the horse show of the State Fair should be conducted with the object of encouraging the production of more and better stock within the borders of the state. After being appointed superintendent of the horse department of the fair in 1913, I consulted Commissioner Huson with reference to the policy to be used in regard to New York exhibitors. He held the same opinion — that everything possible should be done to make the horse show attractive for resident exhibitors.

I do not believe that the horse breeding interests of this state are best served by catering to the professional exhibitors of horses, most of whom are importers rather than breeders and whose stables are shipped from one big fair to another, equipped and conditioned in a way to make any competition on the part of the farmer breeder fruitless. This refers mainly to the heavy draft classes. I think the correctness of this last statement was demonstrated by the exhibits in the heavy draft classes at Syracuse in both 1913 and 1914.

NEW YORK HORSE MARKET SUPERIOR TO THAT OF ANY OTHER STATE

No other state in the Union imports so many horses from its neighbors yearly as does New York. For the last few years about 80,000 horses bred in other states have yearly found purchasers in New York State; the total value of this importation amounts

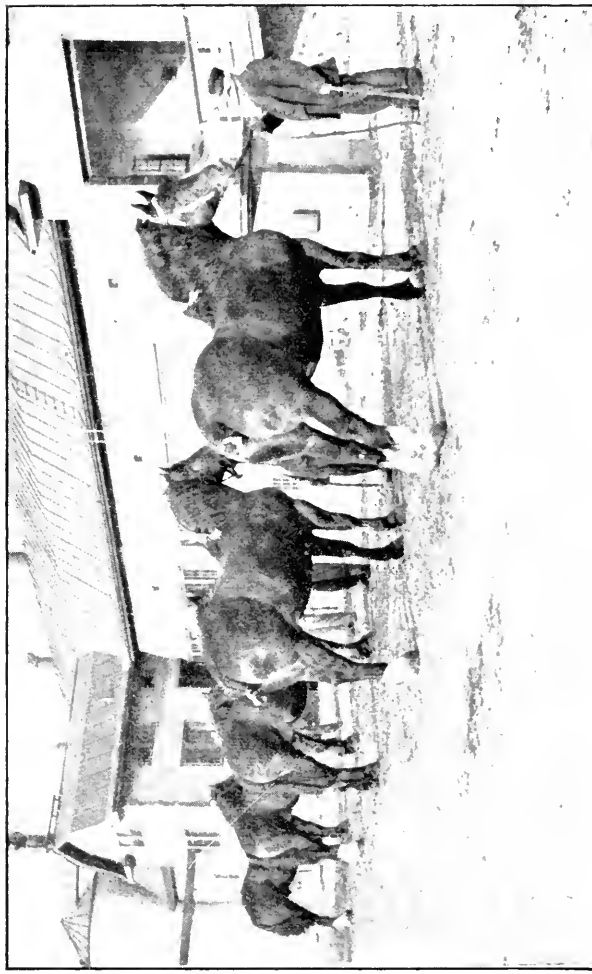


FIG 65. GROUP OF YEARLING AND TWO-YEAR-OLD BELGIAN STALLIONS RAISED ON HEART'S DELIGHT FARM, AND THEIR SIRE RICHELIEU; SHOWN AT NEW YORK STATE FAIR

to between sixteen and eighteen million dollars annually. The books of the two big concerns of East Buffalo — the Crandall Horse Co. and the Bailey Horse Co.— show that during the last five years their sales of horses have amounted to $25,000,000, an average of $5,000,000 a year. There is no valid reason why at least 75 per cent of this number of horses, which breeders outside the state furnish, should not be produced on the farms of New York. No better grazing lands or those adapted to the raising of forage and grain are to be found than those in New

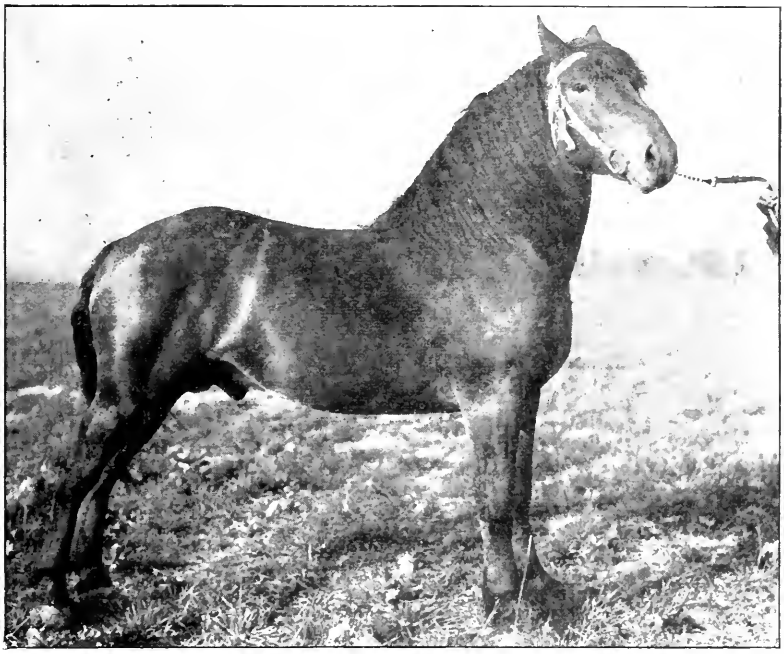


Fig. 66. Prize-Winning Percheron Stallion, Shown at New York State Fair, 1914.

York State, and in no other state do the farmers have a market for more than 75,000 horses annually right at their doors. Despite these facts, however, horse breeding in this state has been at a low ebb for several years. The farmers make no effort to supply the commercial interests of this state, and it is not far out of the way to say that 75 per cent of them do not raise the horses which they need on their own farm. At the time I was

appointed superintendent of the horse department of the State Fair, it was my opinion that the horse exhibits should be of such a character as to awaken the interest of New York State farmers to the importance of horses as a profitable adjunct to their farming, and after two years experience as head of the horse department I am more than ever convinced that my conclusions were correct.

SPECIAL CLASS FOR NEW YORK STATE HORSES

In both 1913 and 1914 special classes were made for horses owned by residents of the state of New York; the horses entered in these classes were also eligible for entry in the open classes.

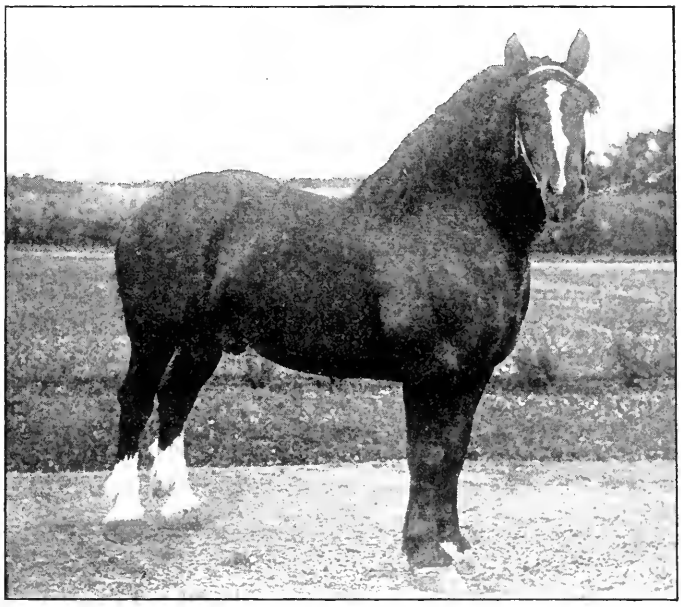


Fig. 67. Grade Champion Belgian Stallion, Richelieu. Shown at State Fair

How appreciative the breeders of this state were of the encouragement extended them may be gleaned from the statement that never in the history of the State Fair had there been so many entries in the Percheron and Belgian classes as in 1914, and that every animal shown in these classes was owned by a resident of New York. Forty-five horses representing nine New York State

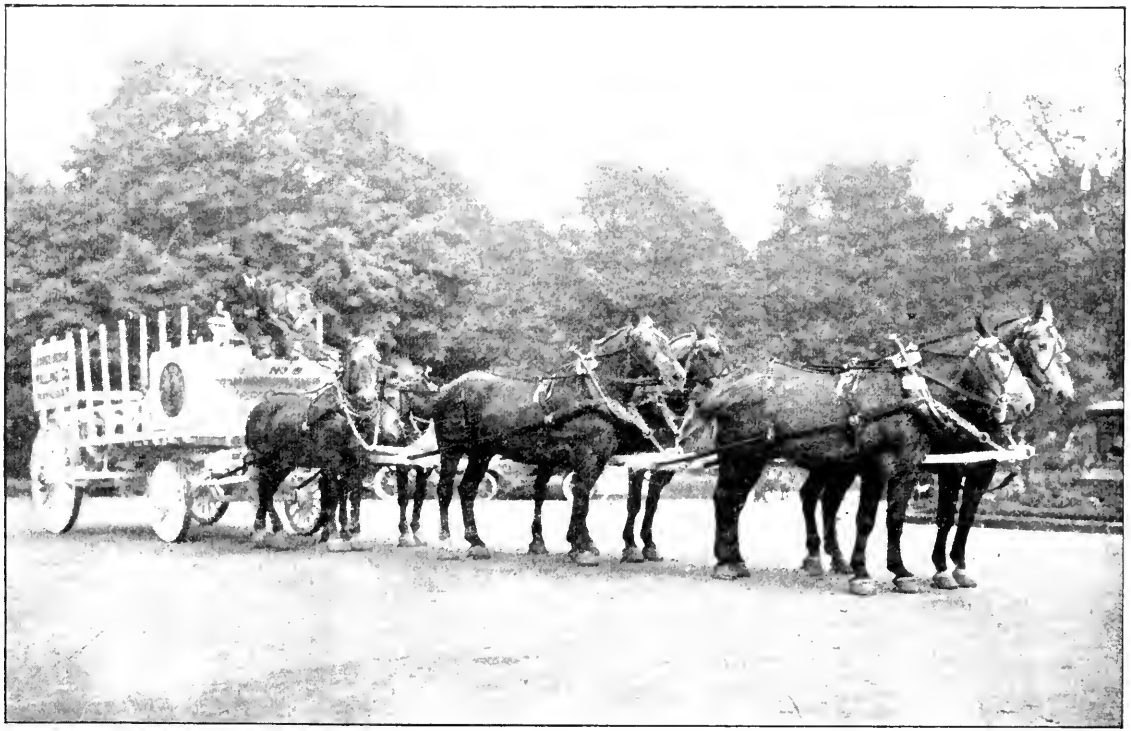
owners were shown in the Percheron classes at last year's fair; it may well be doubted if an exhibit of higher character was made at any state fair held last fall, even where the big professional stables which toured the country were shown. The Belgians, too, were a most notable exhibit, thirty representatives of this breed from the stables of six New York State owners being shown.

The exhibits of these two breeds by the Adirondack Farms and Heart's Delight Farm were of exceptionally high character, and they furnished an object lesson to the hundreds of farmers who watched the judges place the awards — a lesson that will make itself felt in a substantial way in the near future. This proof that New York can produce horses of equal quality to those produced in any other state resulted in the purchase of stallions of those breeds by a large number of farmers, during or directly after the fair. These stallions, going to different parts of the state, will stimulate draft horse breeding in a degree not heretofore noticeable.

I cannot forego, in this connection, mention of the instructive exhibits showing the utility qualities of heavy draft horses in business, made by the George Urban Milling Co. of Buffalo. This firm showed, in the single, double, triple, four-in-hand and six-in-hand hitches, heavy draft horses such as the market in the cities of this state are calling for. In answer to queries made by farmers as to the prices paid for these horses, it was stated that they cost from $275 to $375 each in the open market, solely for business purposes. The lessons demonstrated by this company's exhibit in the breeding classes were driven home in no uncertain manner.

LIGHT HARNESS HORSES

The breeding classes for light harness horses at the State Fair did not attract so many entries as the heavy draft classes, for the reason that the advent of the automobile has, to a very great degree, destroyed the market for road horses. While the Standardbred trotter will ever be bred for turf purposes, it will be principally by breeders who possess a thorough knowledge of the principles of breeding and their relation to the production of speed. More and more this branch of horse breeding will be



(Courtesy of "The Horse World Co.," Buffalo, N. Y.)

FIG. 68. SIX-HORSE TEAM EXHIBITED AT THE STATE FAIR BY THE GEORGE URBAN MILLING CO., BUFFALO, N. Y.

confined to men who will make a specialty of speed horses — men who are able to equip their breeding farms with everything necessary for the production and development of that racing qualification.

While few in numbers, the trotting-bred horses shown were bred in most advanced lines. A. R. Gillis of Syracuse, S. C. Pendergast of Phoenix, Lyndon Farm of Syracuse, John C. Aldrich of Bath and John McMahon of Syracuse were the principal exhibitors, and the exhibits represented the best trotting families of this period of advanced breeding.

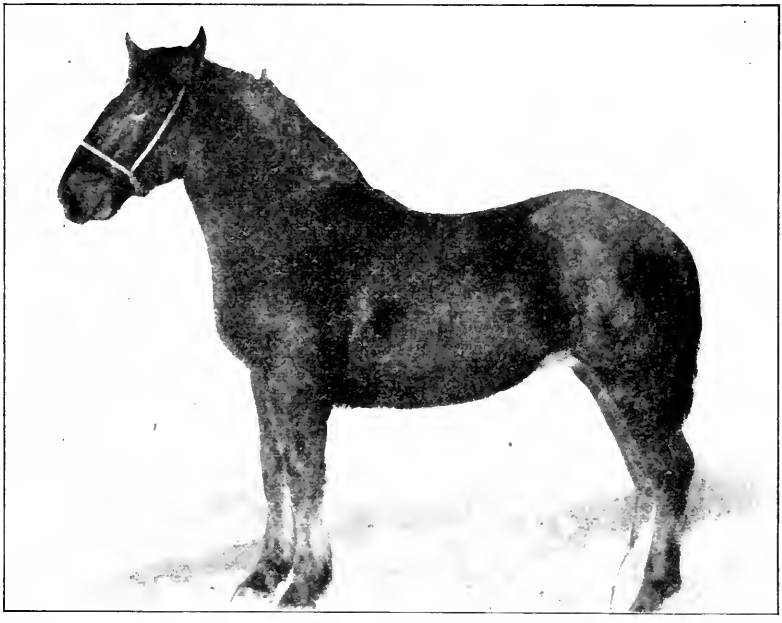


Fig. 69. Perfection — Winner of Silver Cup at New York State Fair, 1914. Best Foal in all Breeds — Belgian Filly Foal Raised at Heart's Delight Farm, and Sired by Richelieu

saddle horses

There is another branch of horse breeding, however, to which recognition has not been extended in the breeding classes of the State Fair — one that promises to become a profitable branch of horse breeding. That is the production of saddle horses. Never during the last quarter of a century have so many business men taken to riding as during the last three or four years.

FIG. 70. TWO-YEAR-OLD PERCHERON STALLION, ARNAND, NEW YORK STATE FAIR, 1914

Since the automobile came into general use, walking is rapidly becoming a lost art in the cities. The saddle horse has been found to be the ideal instrument to give the torpid liver a shaking up, and to force the lungs to inhale the necessary amount of fresh air to supply the system with its needs.

Saddle horses are in active demand and at good prices, and it seems as though it would be a wise act on the part of the State Fair management to give the saddle horse a place when arranging the classes for the next fair.

PERCHERON

In the Percheron classes the outstanding individuals were found in: Merau, a two-year-old stallion of surpassing excellence shown by Adirondack farms, winner in his age class and also in the Champion class; Mouche, a two-year-old mare from the same farm that won first in her age class and championship; Incidenter, winner of the first in the class for three-year-old stallions from Heart's Delight Farm, and Coquette of Heart's Delight, who won first in the class for three-year-old mares for the same farm.

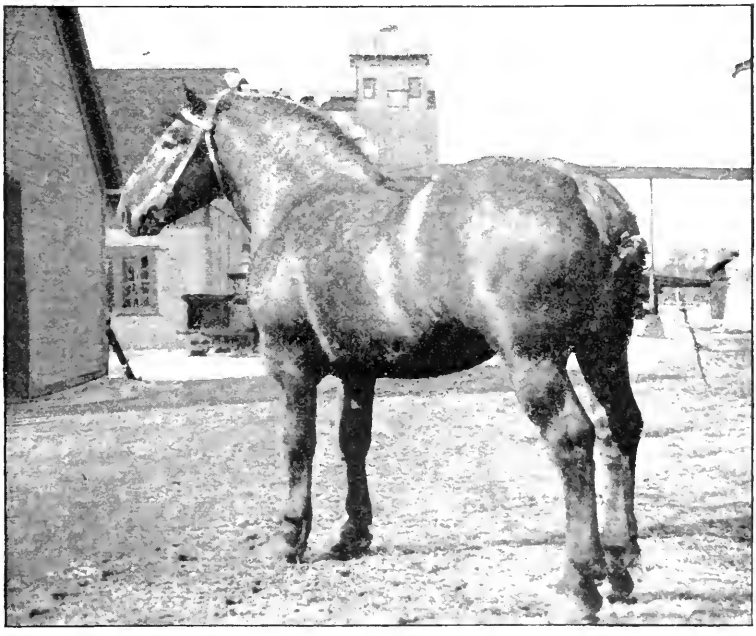


FIG. 71. TWO-YEAR-OLD PERCHERON STALLION, INVOCATION, EXHIBITED AT NEW YORK STATE FAIR

The stallion Heristal, owned by William Luckham of Churchville, was another especially good representative of the breed, winning first in the class for stallion four years old or over and for stallion and three of his get.

Other commendable exhibits in the Percheron classes were made by C. M. Crouse of Syracuse, S. C. Pendergast of Phoenix, James McNamara of Baldwinsville, Carl Amos of Syracuse and J. A. Jackson of Holley.

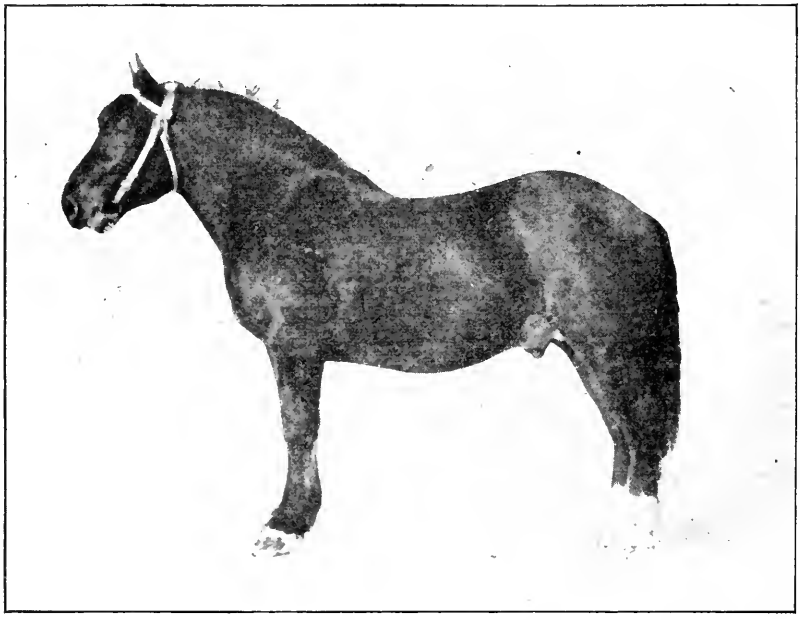


FIG. 72. YEARLING BELGIAN STALLION SIRED BY RICHELIEU

BELGIAN

In the Belgian classes the championship honors went to Adirondack Farms Major d'Appel, a four-year-old stallion of exceptional type, and to Bienvenue, a mare of rare make-up. Argentine, a mare shown by Heart's Delight Farm, was almost the equal of Bienvenue.

The last mentioned farm also showed a grand colt in Dignitaire, winner in the class for stallions one year and under two, and in Urane, a mare of the same age. This farm also showed the winner in the class for stallions three and under four in the

splendidly built young horse, Troubadour of Heart's Delight. In the class for stallions two and under three, Adirondack Farms won the honors with Orange de Bruchoin, a very high-class colt.

Other exhibitors who showed Belgians of high type and merit were John Clary of Seneca Falls, whose stallion Bicaldo, was second to Major d'Appel; E. S. Akin of Syracuse, Elbert Roos of Walden, and A. C. Hirzel of Syracuse. The Clydesdale and Suffolk breeds also made a commendable exhibit, all being owned by residents of New York State.

CLYDESDALE

In the Clydesdales the contests were mainly between the exhibits from Adirondack Farms and those of Hugh J. Chisholm of Port Chester. In the class for stallions three and under four, Kelvindale from Adirondack Farms was judged superior to Mr. Chisholm's Apollo by a narrow margin; this horse also won the championship. In the class for mares of the same age Mr. Chisholm's won first and second with a typical pair, Lily and Rosie Bloom. Wattie Yet, owned by L. F. Empy of Williamstown, won first in stallion four years and over, having no opposition.

In the Suffolk classes Adirondack Farms had no opponents, but it would have required high-class representatives of the breed to have robbed some of those shown of the honors they carried off.

DRAFT COLTS

Perhaps one of the most interesting competitions in the draft class during the fair of 1914 was a special class for registered draft colts of either sex and breed, foaled in 1914, for a silver cup offered by Mr. E. S. Akin of Syracuse. Nearly a score of weanlings lined up for the judges to pass on. There was not a colt in the lot that would have been out of place in any show ring in the country, and there was not a single one but that was an illustration to the attending farmers of the possibilities before them in the way of breeding high-class draft horses to supply the ready and profitable market, which their home state affords for this class of horses.

GOOD HORSES TEND TO KEEP THE BOY ON THE FARM

Right here it may be stated that horse breeding has an intimate connection with another subject much discussed at present in the agricultural press — that of keeping the boys contented on the farm. No other way of accomplishing this has been so productive of the desired results as by getting the boys interested in breeding good stock; and the fact that nine out of ten boys on the farm take pride in driving a good horse makes horse breeding the ideal branch of live stock production to attract their attention and to add to their contentment, at a time in their lives when, unless life on the farm is relieved of some of its monotony, discontent creeps in and they drift away from the farm in the mistaken belief that other lines of work offer better opportunities.

NECESSARY IMPROVEMENTS

The greatest immediate need to insure the continued success of the horse department of the State Fair is the erection of modern barns to stable the horses exhibited. Those which have been used during the past several years are unsanitary, and so poorly arranged that it is with the utmost difficulty that the patrons of the fair can see the horses when they are in the stable, with any degree of satisfaction. Modern, sanitary and well-lighted barns would not only add much to the pleasure of the persons who attend the fair to see the horses with the idea of learning something, but it would also add immensely to the value of the exhibits, and thus attract a constantly growing list of exhibitors. Such barns, too, would of themselves be a valuable educational feature to farmers in a direction which is demanding the attention of everyone who is giving any study to farming uplift.

Another most desirable addition to the exhibition equipment would be a covered show ring, if it were no more than a pavilion. Under present conditions the exhibitors and judges have to work in the direct rays of the hot sun when the weather is good; and, if stormy, the exhibition must be abandoned altogether.

The vast opportunities which present themselves to the farmers of this state in the horse breeding field are too important to permit this branch of breeding to be neglected by our State Fair,

the principal object of which is to encourage agricultural pursuits and animal husbandry in every direction. In the western states every effort is being made to encourage horse breeding. Draft horse futurities are features of several of the western state fairs and the entrants in those events are largely owned by farmers who make horse breeding only an adjunct to their farming operations.

EUROPEAN WAR WILL CREATE A SCARCITY

In view of the fact that the war in Europe has entirely killed horse breeding in Belgium, has reduced that industry to small

H. S. ALLEN, BUFFALO, N. Y.

A. W. LAWRENCE, LE ROY, N. Y.

FIG. 73. JUDGES AT NEW YORK STATE FAIR, 1914

proportions in France, and greatly restricted the breeding studs of England and Scotland, I believe that the introduction of futurity events for draft colts, bred by residents of this state would, in a marked degree, increase the interest in horse breeding throughout the state, which is, after all, the principal object of this department of the State Fair. It is claimed by even the casual observer of public affairs that not only will the countries of Europe, which have heretofore supplied this country with stallions

and mares of the draft breeds for breeding purposes, be unable to do that after the war comes to an end, but that they will have to come to this country to get breeding stocks to reestablish the breeding industry in those countries. It is even probable that after the close of the war there will also be a great demand made upon this country for horses for commercial purposes, so depleted will the horse stock of the warring countries have become.

It is plain, therefore, that the horse breeding industry in this country will enjoy an extended period of unprecedented prosperity, and it is in the power of the New York State Fair to do much to awaken the farmers of this state to the opportunities draft horse breeding holds for them, by adding to the prize list for horses features which will add to the size and attractiveness of the exhibits in that department by residents of the state.

IMPORTANCE OF GOOD JUDGES

I should be lacking in appreciation, in speaking of the horse exhibits during the two State Fairs while superintendent of the horse department, if I fail to mention the good work of the judges who made the awards. Believing that there was no necessity to go outside the state to secure competent judges, I engaged the services of A. W. Lawrence of LeRoy and Henry L. Allen, Editor of The Horse World, Buffalo; and how conscientiously these gentlemen did the work assigned to them during the fairs of 1913 and 1914 may be inferred from the fact that there was not a single protest at either fair, and so far as the officials could learn, there was not a single expression of dissatisfaction heard from any exhibitor. This strengthens my belief that a fair may secure a large number of high-class exhibits and still have the exhibit ruined by the work of incompetent men as judges.

THE NEED OF A STALLION LAW

Dr. W. G. Hollingworth, Utica, N. Y.

The inquiries of owners of brood mares as to the whereabouts of a pure-blood stallion are constantly increasing. They find that the prices paid for suitable horses make colt raising of the right kind a profitable business. The only way to stimulate such breeding is to have an efficient stallion law, through which the scrub stallions will gradually be eliminated and be replaced by pure-bloods. Such a law would be educational; and, if passed by the legislature, the breeding from pure-blood sires would be the topic of discussion in every farming community. This, if nothing else, would be considered a most valuable effect of the new legislation; it would be educational to all those interested in breeding, selling, buying and using the horse.

So long as we are satisfied to run along in the same old rut that we have for years, little can be accomplished; but when we come to realize the importance and need of study, the employment of modern means and the eradication of our faulty conditions, changes for the better will be forthcoming. The farmers' methods and ideas in regard to horse breeding must be improved, and a stallion law would aid materially in this direction.

HOW AN EFFICIENT STALLION LAW CAN BE BROUGHT ABOUT

All who are interested directly or indirectly should urge the breeding of suitable mares to pure-blood stallions. The stallion laws of the different states in which such a law has been passed should be studied and their weak points strengthened. If such a law is passed it should be a good and workable one.

An efficient law and a campaign of education would show the farmer in dollars and cents the profit there is in raising colts

from such sires as will transmit type to their offspring. Our agricultural societies can be a great help by devoting more thought to the horse exhibits at their fairs. A sufficient amount should be given in premiums to encourage a friendly rivalry among the farmers in colt raising. They should refuse an application of entrance to any but pure-blood stallions with certificates of registration.

With the development of agriculture, the demand for the farm type of horse is increasing, and this need is met by a scarcity. Why is there a scarcity? This is a big question to answer. First of all is the lack of a proper law to eliminate the scrub or grade stallion, the offspring of which are of poor type and unmarketable. It costs no more to raise a colt from a pure-blood sire than from a scrub or grade. We must add the service fee, of course, but the colt from the pure-blood is much more valuable and will bring a higher price. This should be taken into consideration.

The horse breeding industry is and has been carried on very unintelligently, and the results have been very unsatisfactory. We have depended too much upon the other fellow. Now this individual has failed to meet the expectation, and the result is an extremely high price for the popular work horse, and no market, so far as revenue is concerned, for the colt from the stallion with no breeding. To this very individual is due the undesirable state of affairs in the breeding operations of this state; and this condition has been augmented by the presence of hereditary unsoundness, lack of discrimination and judgment in mating, and inattention to adequate feeding and suitable sanitary stabling.

GREAT OPPORTUNITY FOR NEW YORK STATE HORSES

We should realize the advantage of growing our own horses. It is estimated that New York State requires 10,000 horses annually to meet its demands; and, if we put the average price at $200, which is low, think what that amounts to — $20,000,000! And most of that goes out of the state. With our rich pastures and excellent facilities, we should be an exporting instead of an importing state — not only of horses but other agricultural products. Of our 214,650 farms, 93.6 per cent, or 200,989, reported domestic animals; 86.7 per cent, or 186,164, reported horses, and

during the last decade there has been a decrease of 38,288 horses. But the value of our horses has increased. The value of our horses in 1910, as compared with that of 1900, was $30,912,000 more — an increase of 66.5 per cent. This should be encouraging to breeders, since it shows a steady advance in the face of the automobile as an efficient competitor.

The census also shows how few colts are being raised in this state. In 1910 only 3,613 spring colts were reported, which would indicate that only 1.5 per cent of New York State farmers were interested in colt raising. One reason for this is that many of our good breeding types of mares have been sold to go back into the West.

PATTERN AFTER EUROPEAN HORSE BREEDERS

The stallion situation abroad before the present conflict was a monument to the different countries. Each country took pride in specializing in certain breeds in certain localities, and the breeders were stimulated by government and county grants of money. If a certain sire developed certain merit, he had to remain in the country for a specified time. All horses were inspected by government veterinarians and were classed accordingly. This has practically eliminated the undesirable ones, and the farmer finds by this process that it pays to breed from suitable sires and dams.

With conditions as they are at present, and as they will be for some time to come, this country ought to put itself in the position to Europe that Europe has been to the United States. We will have to be the exporter, and there is no reason why we cannot do it. One thing that will help a great deal is satisfactory stallion laws in this and other states.

The following is a copy of the Laws of New Jersey relative to public service of stallions:

LAWS OF NEW JERSEY

CHAPTER 212

AN ACT to regulate the public service of stallions in New Jersey.

BE IT ENACTED *by the Senate and General Assembly of the State of New Jersey:*

1. Every person, firm or company standing, traveling or offering for use any stallion or jack in this state shall cause the name, description and pedigree of such stallion or jack to be enrolled by the Stallion Registration Board hereinafter provided for, and shall secure a license from said board as

provided in section three of this act. The enrollment and verification of pedigree and the issuing of license certificates shall be done by the Animal Husbandman of the State Experiment Station.

2. In order to carry out the provisions of this act, the active members of the Live Stock Commission, namely, the Animal Husbandman of the State Experiment Station, who shall be secretary and executive officer, a graduate veterinarian and a prominent breeder of live stock, shall constitute a Stallion Examining and Registration Board, whose compensation shall be while engaged in personally examining stallions and jacks five dollars per diem and traveling expenses in addition to the regular compensation, as provided for by the law establishing the Live Stock Commission; to pass upon certificate of veterinary examination; to provide, when necessary, for veterinary inspection; to issue stallion license certificates; to make all necessary rules and regulations, and to perform such other duties as may be deemed necessary to carry out and enforce the provisions of this act.

3. In order to secure the license certificates herein provided for, the owner of each stallion or jack shall present his candidate for an examination, together with all necessary papers relative to his breeding and ownership, at the county seat of each county, or such other place and at such times as may be fixed by said board. Three insertions in one or more newspapers in each county constituting a legal notice to the owners of sires. It shall be the duty of this board to personally examine each stallion or jack and determine to the best of their knowledge and belief whether said stallion or jack is free from infectious, contagious or transmissible diseases or unsoundness, and their findings shall be final. Upon verification of pedigree and certificate of breeding (in case of pure-bred stallions or jacks), and providing said stallion or jack has satisfactorily passed said veterinary examination, a certificate shall be issued to the owner. The presence of any one or more of the following named diseases shall disqualify a stallion or jack for public service, and are hereby defined, as infections, contagious or transmissible diseases or unsoundness for the purpose of this act:

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; sidebone; navicular disease.
Bog spavin; curb; with curby formation of hock.
Glanders; farcy; maladie du coit; utheral gleet; mange; melanosis.
Osteoperosis; canker of the foot; laminitis.

The Stallion Examining and Registration Board is hereby authorized to refuse a certificate of enrollment to any stallion or jack affected with any one of the diseases specified and to revoke a previously issued license at any time if upon examination a stallion or jack is found to be so affected.

4. The Stallion Examining and Registration Board is authorized in case of emergency to name a committee in each county, consisting of a graduate veterinarian and a practical horseman whose compensation shall be ten dollars per diem and expenses while making such examinations, who shall examine the various stallions or jacks in said county, and issue to the owner of said animals, under oath, a certificate stating that said animals are free from infectious, contagious and transmissible diseases or unsoundness, as herein defined. The owner shall forward the same, together with all necessary papers, relative to the breeding or ownership of said animals, to the secretary of the examining and registration board, who in turn shall issue the proper certificate.

5. The owner of any stallion or jack used for public service in this state shall post and keep affixed, during the entire breeding season copies of the license certificate of such stallion or jack issued under the provision of section six in a conspicuous place, both within and upon the outside of every stable or building where said stallion or jack is used for public service, at his home or elsewhere. Such copies shall be printed in bold-faced and conspicuous type, not smaller than "long primer," and the words "pure bred" or "grade" must precede the name of the stallion or jack, as the case may be.

6. The license certificate issued after proper examination of the stallion or jack, whose sire and dam are of pure breeding, and the pedigree of which is registered in a stud-book recognized by the United States Department of Agriculture, shall be in the following form:

Stallion Examining and Registration Board.

License Certificate of Pure-Bred Stallion.

The pedigree of the stallion or jack (name) ..... owned by ..... bred by ..... described as follows ..... color ..... breed .... foaled in the year ..... has been examined at the State Experiment Station by the Animal Husbandman, and it is hereby certified that the said stallion is of pure breeding and is registered in a stud-book recognized by the United States Department of Agriculture. The above-named stallion has been examined by ..... and is reported as free from infectious, contagious, transmissible disease or unsoundness, and is licensed to stand for public service in the state of New Jersey.

Signed .....
Animal Husbandman and Secretary of the
Stallion Examining and
Registration Board.

7. The license certificate issued after a proper examination for a grade stallion or jack (the term "grade" being herein defined as a stallion or a jack having for its sire or dam a pure-bred individual registered in a stud-book recognized by the United States Department of Agriculture) shall be as follows:

The license certificate issued after proper examination for a stallion whose sire or dam is not of pure breeding shall be in the following form:

Stallion Examining and Registration Board.

License Certificate of Grade Stallion.

The pedigree of the stallion or jack (name) ..... owned by ..... bred by ..... described as follows ..... color ..... breed .... foaled in the year ..... has been examined at the State Experiment Station Division of Animal Husbandry, and it is hereby certified that the said stallion or jack is not of pure breeding, and is, therefore, not eligible for registration in any stud-book recognized by the United States Department of Agriculture.

The above-named stallion or jack has been examined by ...., and is reported as free from infectious, contagious or transmissible disease or unsoundness, and is licensed to stand for public service in the state of New Jersey.

Signed .....
Animal Husbandman and Secretary of the
Stallion Examining and
Registration Board.

8. Every bill, poster or advertisement issued by the owner of any stallion or jack, licensed under this act and used for advertising such stallion or jack shall contain a copy of his license certificate and shall not contain illustration, pedigree or other matter that is untruthful or misleading.

9. A fee of five dollars shall be paid to the secretary of the Stallion Examining and Registration Board for the examination and enrollment of each accepted pedigree, after which he shall issue a license certificate in accordance with the breeding of the animal as above recorded. A fee of two dollars shall be paid annually for the renewal of pedigree certificate and service license. Stallions shall be examined every year until ten years of

age, and after the first examination shall be exempt if ten years of age or over.

10. Upon the transfer of the ownership of any stallion or jack, licensed under the provision of this act, the license certificate may be transferred by the secretary of the board to the transferee upon presentation and surrender of the license certificate and upon the payment of one dollar.

11. Any person who shall violate any of the provisions of this act shall be liable to a penalty of fifty dollars for the first offense, and to a penalty of one hundred dollars for the second and each subsequent offense. Such penalty shall be recovered in an action of debt at the suit of the Live Stock Commission of the State of New Jersey. All penalties and fees collected under any of the provisions of this act shall be paid by such Live Stock Commission to the Treasurer of the State of New Jersey.

12. This act shall take effect September first, one thousand nine hundred and eight.

Approved April 13, 1908.

EFFECTS OF THE WISCONSIN STALLION LAW

DR. A. S. ALEXANDER, M. D. C., MADISON, WIS.*
Senior Professor of Veterinary Science, University of Wisconsin.

The effects of the stallion law of Wisconsin have been so good that I am sure that a similar law would be equally effective in the state of New York.

BENEFITS OF THE LAW

A stallion law is not an imposition upon any stallion owner. It does not prohibit the standing of a stallion for public service if he is sound; it requires that each stallion offered for service shall be sound — free from certain serious hereditary and communicable or contagious diseases — and shall be correctly labeled as to breeding. This is for the protection of the owner of mares, who will be able, by reading the license certificate of the enrolled stallion, to learn whether the horse is "pure-bred," "cross-bred," "grade" or "scrub." Many stallions now accounted pure bred in New York will be found to have registry certificates from stud books not recognized as standard, or to have fictitious or even fraudulent pedigrees or registry papers. If a stallion law was passed, such stallions, if permitted to stand for service, would be correctly labeled as grade or scrub as the case might be.

A stallion law quickly prevents all fraud in stallion pedigree and registry matters, drives out the notably unsound sires, and in time tends to eliminate grade and scrub stallions. Such has been the effect of the law in Wisconsin, where it is approved by educators, legislators, horse breeders and farmers.

THE WISCONSIN LAW

The Wisconsin stallion law was drawn up by the writer of this article, was enacted by the legislature of 1905 and went into

* Dr. Alexander drafted and had enacted the first stallion enrollment law in America. It was enacted in 1905 and went into effect January 1, 1906, in Wisconsin.

effect January 1, 1906. That year many stallions were enrolled, and the following year practically every stallion in Wisconsin was on the official list. So we have made comparisons with the condition in 1907 instead of in 1906 in compiling annual statistics showing the results of the law. The law is enforced by the Department of Agriculture of the College of Agriculture of the University of Wisconsin, in charge of the writer.

The forthcoming annual report of the Department of Horse Breeding will show that, despite a somewhat depressed condition of the horse breeding business during the past year, substantial progress has been made in the elimination of undesirable sires.

WEEDS OUT SCRUBS

In 1907 the percentage of grade and scrub stallions was 65, now it is 41.8, compared with 45 in 1914. Pure-bred stallions now number 1,771, grade stallions 913 and scrubs 345. Grades numbered 1,019 and scrubs 404 in 1914. Since 1907 pure-bred stallions have increased in 60 out of the 71 counties of the state, decreased in 9 and remained the same in 2 counties. During the same time grade and scrub stallions have decreased in 56, increased in 11 and remained the same in 4 counties. In 1907, 11 counties had fifty per cent or over of pure-bred stallions. In 1915 over fifty counties show that proportion. Notable increases of pure stallions since 1907 have been 28 head in Barron county, 26 in Brown, 24 each in Walworth and Monroe, 22 in Chippewa and 21 in St. Croix. The most notable decreases in grade and scrub stallions have been 69 head in Grant county, 56 in Dane, 45 in Monroe, 30 each in Brown and Manitowoc, 28 in Fond du Lac and 25 each in La Fayette and Trempealeau.

INCREASE OF PURE BREEDS

Of the draft breeds, pure-bred Percherons number 1,052; Belgians, 166; Clydesdales, 74; French drafts, 64; Shires, 46, and Suffolks, 1. Of the light breeds there are 276 Standard-bred trotters and pacers, 17 French coach, 19 German coach, 6 Hackney and 22 Morgans. Registered jacks number 16, and there are also 8 non-standard bred and 5 cross-bred stallions in service.

STALLION ENROLLMENT LAW

E. S. Akin, Syracuse, N. Y.

Since 1912 there has been a strong movement in this state favoring a law to regulate the public service of stallions. Such a law has been freely discussed, and resolutions passed by the New York State Breeders' Association, New York State Agricultural Society and New York State Draft Horse Breeders' Club in favor of a rational stallion enrollment law. Government control by inspection and licensing of stallions is not an untried experiment. For many years the governments of Belgium and France have required the inspection of all stallions offered for public service, and have refused license to stallions lacking in soundness, breeding and physical conformation. While the laws of these countries are more stringent than would be possible in this state, they have been the means of creating and maintaining two superior breeds of horses, the Belgian and Percheron.

Wisconsin was the first state to pass a stallion enrollment law. Since then some twenty other states, besides Canada, have stallion laws on somewhat similar lines. The following is a brief summary of a stallion enrollment law suggested for New York:

1. The addition of a bureau of horse breeding to the Department of Agriculture, with a chief in charge appointed for his practical rather than his technical knowledge.

2. The enrollment of all stallions required.

3. Inspection of all stallions, and issuing certificates of enrollment for stallions not disqualified by incurable, infectious or contagious diseases.

4. All stallions enrolled to be advertised under their true division as pure-bred, grade, standardbred, non-standard and scrub; and the condition of soundness indicated.

The benefit of such a law would be a knowledge of the number of pure-bred and scrub, sound and unsound stallions in the state. Only by publicity and education can the number of scrub and unsound stallions be reduced, and the number of sound pure-bred sires increased. The small fee paid by the owner of each stallion would cover all expenses of a bureau of horse breeding, which would have charge of the inspection and enrollment, and would tax no other industry for the benefit of horse breeding.

COMMUNITY EFFORT IN DRAFT HORSE BREEDING

J. L. Edmonds, Urbana, Ill.
Assistant Professor in Horse Husbandry, University of Illinois

IMPORTANCE OF COMMUNITY BREEDING

Community effort is of fundamental importance to successful draft horse breeding; in fact, no other class of live stock breeding is quite so much benefited by united effort in breeding operations as is the draft horse. All of our wide and favorably known European and British breeds of drafters attest the truthfulness of this statement. When one considers the relatively small area in those countries which have produced many of the sires used here for breeding purposes, the significance of this statement is still further emphasized. Acquaintance with producing sections in this country indicates that it is true here as well as in foreign lands.

Local fairs generally furnish excellent criterions of horse breeding conditions in the vicinity from which they draw exhibits. These smaller fairs serve well not only to show the important benefits to be derived from community efforts, but also, on the other hand, show as well the kind of horse which is produced where there is altogether a lack of such effort. The production of "top-notchers" demands the use of high-class sires, dams of merit, considerable numbers available for selection, and liberal feeding which is wisely done. These factors are, by all odds, most likely to exist where the right sort of community spirit prevails.

OWNERSHIP OF GOOD SIRES IS MADE POSSIBLE

Ownership of really good draft sires is not profitable without opportunity to use them on a considerable number of mares at least approximating them in merit. It generally seems to be the case that only such mare owners will pay a high enough service fee to make the owning of a high-class draft sire at all remunerative to his owner. Some of the best sires have been entirely, or

almost entirely lost to their breeds because of having been sold to individuals or companies who stood them in out-of-the-way neighborhoods which did not possess any good draft mares. This, however, is not so likely to happen now as formerly. Even the good stallion cannot do it all; the dams must be right as well. The practice of selling off all the mares that the horse buyer will take at a good price and preserving the culls for breeding purposes, makes for inferiority in the succeeding generations. In the corn belt, the best heavy geldings are produced in those sections where it has been difficult to buy the best of the mares on account of their value being properly appreciated. One section in Illinois, with which the writer is familiar, is justly famous for producing good, big horses, because they have not only used the best sires that could be gotten, but because a concerted effort has been made by the local horsemen to prevent the good producing mares from being shipped out of that locality. Other sections containing as good or better land, and fully as good sires, have not been so successful because of failing to keep the mares that were capable of producing round draft horses of the correct type.

Number highly important

The number of draft horses in one community which are similar in type and breeding is an important factor. The selection of the tops from a few good ones is not nearly so efficient in the work of improvement as is the selection of tops from a large number of good individuals. In a progressive breeding community, affording as it does a chance to use choice pure-bred sires, the best of drafters can be produced by the small farmer who does his work with a few brood mares. Furthermore, such a system means cheaper production than can be the case where breeding is conducted on such a scale as necessitates the keeping of a large numbers of mares idle. Again, the idle draft mare is not likely to be so regular a breeder as is her sister that is regularly worked — with proper judgment, of course — on the land. When the number of sires is such as to enable the mare owner to have the choice of several good breeding horses with which to mate his different mares, he will then have opportunity for the greatest success, provided the mating is skillfully done. It is well known that even

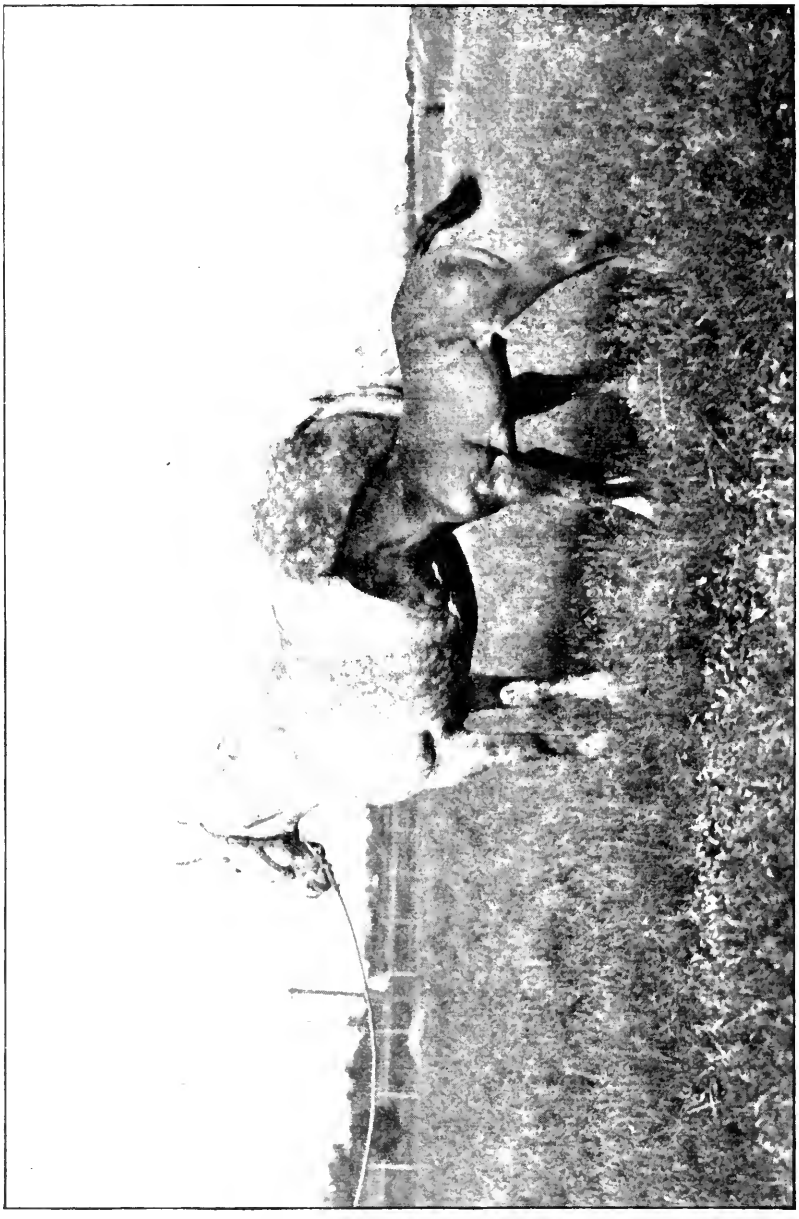


FIG. 74. PERCHERON MARE AND FOAL. A GOOD TYPE FOR A COMMUNITY TO BREED

many of the best sires can be crossed much more successfully with some mares than with others. Then again, the production of good things in considerable quantity in one locality brings the right sort of buyers, thus making for better prices and a better appreciation of values generally.

Knowledge of correct type and right blood lines is made accessible

When pure-breds and grades of one draft breed are handled in a community to the practical exclusion of the others, the matter of the right type or correct pattern is a matter of much more general knowledge; and, after a few generations of striving, will be "bred in the bone," so to speak. Furthermore, a knowledge of blood lines is also a matter of easier grasp. Such communities can, with success, gradually take up the production of registered stock and grow breeding stock to sell to other communities. The best route by which to reach the production of pure-breds is by the one having been a successful producer of grades.

Liberal feeding necessary

Feeding naturally is of vital importance and has to be considered all along the line. Keeping young stock thrifty and in salable shape at all times makes more for profit than is often realized. Quite frequently the well-fed pure-bred yearling will bring more than a two-year-old which is similar except with respect to feeding. Good breeding will not succeed unless backed up by liberal feeding.

Organizations

Organizations other than fair associations help much, although they are not absolutely necessary. Good feeling and true public spirit are, however, of basal importance to community work. There are not a few neighborhoods which owe their present high standing, with respect to draft horse production, to the advice and timely effort of a few far-seeing pioneer breeders of good stock. With an increasing number of county organizations and of county agents, the opportunity for useful societies for furthering the efforts of the local breeders is measurably increased. It is marvelous how much publicity of the proper sort may be had through

such channels. As a model might be cited the work of the Tazewell County Illinois Percheron Breeders' Association.

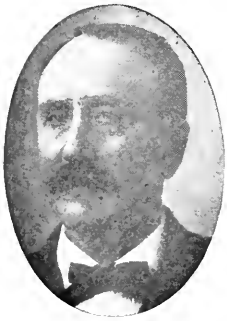
What changes will help in local fairs? First, probably, would come a systematic overhauling of classification lists. Those classifications are best which give most prominence to the kinds of horses for which there is the most profitable demand on the market. Such classes are found to be more educational, and, furthermore, give money to the sorts the production of which should be encouraged. It should be needless to argue that at corn belt fairs the owner of a valuable pure-bred draft stallion ought to have a chance to win more money than the owner of a light-leg stallion that could not be sold for two "bills" on the market. Then again, a greater number of prizes ought to be provided in classes filled by youngsters. A first and second premium are not nearly enough for a class of fifteen or twenty foals. Superfluous it is to say that the separation of the different breeds and their grades into classes by themselves in so far as is possible, makes for tranquillity. Quite often this could be accomplished by discarding useless classes. The classification list all through ought to cater to the community specialty if it is worthy of such attention. It would help some, too, if a brief but clear description of what the class called for might be printed in the premium list.

In some instances, and at very little cost, better locations could be secured for showing the drafters. Many people are interested, and it should be so arranged that they will have opportunity for observation without being in danger of getting stepped on. A rectangle of level ground sixty by two hundred and twenty-five feet, or thereabouts, will answer well for quite a show of drafters on hand. Now is a good time to start plans for next fall's fair and colt shows.

HORSE BREEDING IN THE WEST AND EAST

FOREST HENRY, DOVER, MINNESOTA
Farmers' Institute Lecturer

SUPPLY OF GOOD HORSES SMALL



In the West, as a whole, there is but a limited supply of really good horses. There is a goodly number of work horses for home use, but many of these would not be a desirable kind to put on the market.

There are many reasons for this inadequate supply of good horses. First, beef and pork have ruled high for several years, and grain has been selling for a good price. Farmers have been able to secure quicker returns by selling their grain on the market or feeding it out to hogs and steers, and make quite as good money at a less risk than growing horses for the market, especially when many thought that horses must be lower in price on account of the displacement of many horses in city and country by motor trucks and gas tractors. So far this has not proven true, notwithstanding the fact that many motor trucks and tractors are in use. A really good horse sells just about as well today as at any time in the past; the commoner sort are changing hands at a less price.

THE AUTOMOBILE CRAZE

Another thing that has not added to the horse breeding industry in the West is the automobile craze. It can hardly be called anything else. While the automobile is all right in its place, a man cannot be thoroughly interested in horse raising — and he must be if he is to make a success of it — when his head is full of automobiles and automobile appliances.

Again, when a man is spending his last dollar for an automobile he is not able to stock up with better mares or sires. In fact, he is often tempted to sell something that he should really

keep to improve his stock of horses to buy that new model auto that is just one year newer than the one his neighbor owns. There surely has been less interest taken in horse breeding since the advent of the automobile. A few men are level headed enough to have looked ahead and anticipated the demand there will be for horses in the near future and will be ready to meet that demand, but these are in the minority. There never was a time when the future looked brighter for the really good horse.

THE EUROPEAN WAR IS CONSUMING MANY UNDESIRABLE HORSES

Hundreds of thousands of the lighter sorts that could not be styled as draft horses have been bought up on foreign orders for use in the armies of Europe. This has been a great blessing for the western horse raiser, for they have taken just the type of horse that is not making the breeder any profit.

The supply of horses in Europe was short before the war broke out. Since the struggle began hundreds of thousands have been destroyed — the life of an army horse is at best only a few brief weeks. If the struggle continues, hundreds of thousands of horses must come from America to fill the places of those destroyed; there is no other source to draw from.

The entire horse supply of the German Empire before the war was less than 4,000,000; that of France was only about 2,500,000, and of the British Isles, 3,000,000. Russia had the largest supply of all the warring nations.

When the war is over and the soldiers return to the farm, they will find themselves with less than a half supply of work horses. The fields will have to be tilled, and they must have horses to till them. They will naturally turn to America for their supply— and Europe always buys the best.

THE FUTURE BRIGHT FOR HORSE BREEDING

Is it not time for the American farmer to grasp the situation and put himself in a position to supply this demand? Horses that are really good will bring a splendid price — a price that will pay the breeder a splendid margin of profit if he has bred the right kind and grown them economically.

good care necessary

A really good horse must be bred right, fed right and handled right. He cannot be neglected while young, and must improve every moment growing if he is to fill the market demand later. One cannot starve money into a draft colt. He must be fed.

One thing our best horsemen are learning to do, which lessens the risk in horse raising, is giving the colts plenty of range with a goodly supply of feed winter and summer. A colt should not be closely housed if he is to be keep sound and thrifty. He will stand a great deal of cold after the first winter, if he can get out of the wind, and out of the rain in stormy weather. Our very best horsemen throughout the West let their colts run on pasture the entire year. In winter they are fed plenty of grain to keep them in good growing condition, and are given clover hay when they cannot pick their roughage. They are never confined in the barn or small yard. Under these conditions they get their regular exercise, keep healthy and are very much less liable to injure themselves. I can show hundreds of our best pure-bred animals in the West that have never seen the inside of a barn since they were weanlings. With this system it costs a little more for grain feed, possibly, but there is far less risk, which means nearly as much as the feed bill; and one gets a better development, which is what he is after. Keep the colt growing, and fatten him only once — just before he is put on the market.

new york should raise its own horses

I have always wondered as I have traveled through New York why the farmers did not raise more of their work horses. I have come to this conclusion: that while land was so very cheap in the West and grain also was very cheap, making the cost of production so very low, farmers got in the habit of buying from the West simply because they could buy cheaper than they could grow their own, which was true in the past. The same law does not hold true today. Land is much higher in the West than in the East, consequently it costs very much more to grow a horse there now than it did years ago. There are, in New York State, thousands of acres of reasonably cheap land that is capable of growing splendid pasture grasses. These should be utilized in part by raising horses.

There is one thing the eastern farmer should take into consideration when he is figuring the cost of his horse. When an animal is bought from the West, there is always an element of risk that has to be figured in the deal, that the eastern farmer has to pay for when he purchases.

There is also some risk after the animal is taken to the farm — he has to be acclimated. In other words, he is usually not at his best the first season, and frequently the buyer is not fully satisfied with his purchase. This could be eliminated by the farmers growing their own horses.

Another point that is of still greater moment: for a man to get the greatest possible service from a horse at the least amount of risk, he must be thoroughly acquainted with the animal. He must know his peculiarities, just as one must be thoroughly acquainted with a man to fully appreciate him.

ONE BECOMES ATTACHED TO A HORSE RAISED ON THE FARM

Again, one becomes attached to a horse raised on the farm, and will give him better care. The horse, in turn, will be in shape to render more and better service. When one goes out and buys a horse on the market he is very apt to think of him and use him as a machine rather than an animal.

There is no other farm animal that has such an influence over the farmer and his children growing up as the really good horse raised on the farm. Good horses have kept more than one man on the farm when he has been tempted to move to town. Hundreds of boys that have now grown to manhood, were they to give their life history, would say that no one factor had so much to do with holding them on the farm as the horses. The writer is one of these. The good horse is what kept him on the farm when he was tempted to leave — not the horse bought and brought on the farm, but the horse grown on the farm — the horse his own hands had fed and cared for. If we are desirous of having the boys stay on the old farm, get them a good matched pair of mares of quality. It will do more than any amount of persuasion on our part, and at the same time will stop a big leakage in the operating expense of the farm — buying horses from the West.

GLANDERS OR FARCY

DR. CHARLES LINCH, ALBANY, N. Y.

First Assistant Veterinarian, State Department of Agriculture

Glanders, or farcy, is one of the most important diseases of horses. It has long been recognized as a specific infectious disease, due to the growth and development within the body of the animal of one specific kind of germ or bacteria. It affects horses and mules principally. Dogs and cats are said to be somewhat susceptible, and may become affected by eating the flesh of glandered horses. Cattle, sheep, swine and goats are almost immune. Men sometimes contract the disease, usually with fatal results.

Glanders has been known to exist for hundreds of years. It has been found to spread more rapidly after wars, due to selling the horses at the close, thus scattering infected animals over the country.

CAUSE

Glanders is an infectious disease caused by the *bacillus mallei*. While due to a certain distinct organism, there are nevertheless certain conditions which may be said to predispose the animal to the disease, such as insanitary conditions, dark, damp stables and faulty ventilation — all favoring bacterial life. These conditions, together with overwork and lack of nourishing food, render the animal more liable to contract the disease, if exposed, by lowering its vitality and resistant powers.

FIG. 75. BACILLUS MALLEI, MAGNIFIED 1,050 TIMES.

SYMPTOMS

Glanders, like tuberculosis, is often present in an animal without showing any noticeable symptoms; horses may be badly affected and yet appear to be in perfect health. For our purpose

consider the disease to be divided into three classes — glanders of the lungs, nose and skin. It must be borne in mind, however, that these forms merge into each other, and that one or all of them may be present in the same animal at one time. Glanders of the lungs may present no noticeable symptoms for months that would lead to suspicion. The first thing noticed may be a sudden bleeding from the nose or a discharge of bloody mucous; sometimes a loss of flesh and an unthrifty, run-down condition with a short, dry, hacking cough, accompanied by a slight rise in temperature to 101 to 103 degrees F. The animal may remain in this unthrifty condition without any apparent cause for months, and die without showing any definite symptoms.

Fig. 76. Glanders Ulcers or Farcy Buds

Glanders of the nose usually begins with a watery discharge from one or both nostrils, which later becomes thicker and more abundant, and may be streaked with blood. This discharge is odorless, sticky in character and adheres to the sides of the nostrils. It has a tendency to glue together the long hairs and margins, forming hard, dry crusts. If the mucous membrane has a large number of ulcers, the respiration may become wheezing, a sound recognized at once by the experienced veterinarian, which is caused by the swelling of the nasal cavities. Often there is only a dark, reddish color to the mucous membrane. The glands between the jaws (submaxillary) are usually enlarged on the affected side, the swelling being nodular in character and painless, adhering to the skin and jaw bone.

Glanders nodules, ranging in size from that of a pea to a hickory nut, may appear on the skin of the different parts of the body. These nodules tend to break down and form ulcers, commonly called farcy buds, and discharge more or less bloody liquid, leaving a ragged-edged, unhealthy sore, which may heal and leave a bare spot or scar. These ulcers occur mostly on the inside of the hind legs and abdomen, or on the sides of the thorax. There may be swelling of one or both hind legs, with or without ulcers. The inner sides of the fetlock and hock joints are favorite places for them, but they may occur at any point. In acute cases there is usually a high temperature of 103 or 104 degrees F., accom-

FIG. 77. GLANDERS ULCERS OF THE NASAL SEPTUM

panied by great prostration, stiffness, erection of the hair, loss of appetite, etc. Animals showing suspicious indications of glanders should be examined by the subcutaneous or opthalmic mallein test, or by some of the blood tests.

POST MORTEM

The most frequent and characteristic lesions in physical cases are nodules, or ulcers, of the nasal passages and skin. These ulcers may be superficial or deep, their edges giving the mucous membrane the appearance of having been gnawed, being ragged and irregular. They are also slightly raised. These most often appear on the septum of the nose, and may be situated so high that

FIG. 78. CROSS-SECTION OF LUNG SHOWING GLANDERS NODULES

they cannot be seen except on post-mortem examination. Lesions of the nose are most commonly accompanied by enlargement of the submaxillary glands of the affected side. On post-mortem examination the lungs are found affected, almost without exception. Small nodules are seen, which are gray to grayish-white and firm, and vary in size from that of a mustard seed to that of a pea. No matter how the glanders germ enters the body, it is likely to find its way to the lungs and form nodules, which are by far the most important lesion of this disease. These nodules may run together and form large diseased areas, which can best be located by passing the fingers over the lungs with gentle pressure. They feel much like small shot under the fingers, are grayish-white in color, have a yellowish center, and are of a cheesy consistency. These enlargements may reach the size of a walnut and project from the lung, giving it a nodular appearance.

Lesions of the skin consist of nodules, commonly called farcy buds, which are described above. White or grayish nodules of cheesy consistency and varying in size may occur in the liver and spleen. The lymph glands are often affected, showing small grayish or yellowish spots on the cut surface.

DIAGNOSIS OR TESTS

There are a number of tests for the detection of glanders, but the ophthalmic or eye test is probably the most desirable, having the advantage over other tests of ease of application. This test can be made by any competent veterinarian. The results are obtained in a comparatively short time, and are usually well marked and definite. Temperatures need not be taken, and the examiner need not remain in constant attendance. Anyone familiar with the subcutaneous mallein test will readily appreciate the simplicity of the ophthalmic test method. The procedure consists in dropping two or three drops of ophthalmic mallein inside the lower lid of one of the eyes. It may be put in with an eye-dropper, or it can be readily applied with a camel's-hair brush. The reaction begins in from five to six hours after application, and may last two or three days. The best time to make the examination of the eye is from the fourteenth to the

eighteenth hour after administration of the mallein. The reaction depends upon the amount of inflammation, discharge and swelling present in the eye. Healthy horses are in no way affected. The suspicious horses can be retested in a few days, using the other eye. It is recommended by the Bureau of Animal Industry that the results be reported as follows:

N. Negative — Eye unchanged.

S. Suspicious — Seromucous discharge.

Px. Positive — Seromucous discharge with purulent flakes.

Pxx. Positive — Distinct purulent discharge.

Pxxx. Positive — Purulent discharge with swelling of eyelids.

Pxxxx. Positive — Strong purulent discharge with swelling or gluing together of both lids.

The subcutaneous mallein test is similar to the tuberculin test in cattle. Two or three preliminary temperatures are taken; from two or three c. c. mallein is injected in the side of the neck; temperatures are resumed at the eighth hour after injection, and continued from eighteen to twenty-four hours. In glandered horses there is usually a fever reaction as in tuberculous cattle — a rise from two to four degrees or higher, and sometimes a painful swelling from three to twelve inches in diameter appears at the point of injection. There is often a marked constitutional disturbance or physical depression, shown by loss of appetite, dullness and stiffness. Should these all be present it would be considered a characteristic reaction.

Cases showing a profuse discharge from the nose, with ulcers and enlarged painless swelling of the glands just inside the lower jaw, or a swollen leg with a chain of farcy buds or ulcers are easily diagnosed. There are other cases, however, in which the symptoms are not well marked, and, since the symptoms of many diseases closely resembles those of glanders, it is doubly difficult to make a diagnosis and the veterinarian is forced to make use of some test.

How the disease is spread

It was formerly believed that this disease was spread directly from the infected to the healthy animal, but it has been found that it is frequently spread by contact with contaminated objects.

It may be contracted in a stable where glandered horses have been kept. Public watering troughs and public feeding and hitching stables are thus important in the spread of the disease in districts where it is prevalent. It is probable that when the germs of the disease gain entrance into a susceptible animal, they pass to the intestines and thence to the blood, and may lodge in the capillaries of the lungs, liver or other organs. When the germs gain entrance into the body of the slightly susceptible or immune animal,

FIG. 79. SHOWING REACTION TO OPTHALMIC TEST AND SWELLING ON NECK FROM SUBCUTANEOUS INJECTION

they may be destroyed; but when introduced into a highly susceptible animal, or one with low vitality, the disease is likely to be produced.

It is believed that the entrance of the germs into the alimentary tract is the most common means of infection. This may occur from the feed and water becoming contaminated by the discharge from the nose or farcy ulcers. Once the germs have

gained entrance into the body and lodge at a certain point, they begin to multiply, and the struggle begins between the organisms on one hand and the tissues on the other. If the invading organisms prove the stronger, infection takes place, and the result is the formation of a glanders nodule.

Method of handling by the Department of Agriculture

In a reported outbreak of glanders, if verified, the clearly clinical cases are slaughtered, and the mallein test applied to all exposed or contact horses. All positive reactors are slaughtered or isolated. Stables are thoroughly cleaned and disinfected. If it is not possible to make a mallein test at once, the common watering trough should be closed and an individual pail furnished for each horse. The suspicious and contact animals showing negative results at first test are placed under provisional quarantine, furnished with individual pails, the same to be used in stable and on road, and animals held for further retest before being released. If no animals react at the second test, all are released. If reactors are found they are slaughtered and the stables again disinfected. There is a belief that only those animals showing marked clinical symptoms of glanders, as profuse nasal discharge or farcy buds, are capable of transmitting the disease. Such cases no doubt are more dangerous, yet many animals showing no external symptoms may be affected high up in the nasal tract or in the lungs, and still be capable of distributing the disease to healthy animals. These cases are more dangerous than the open cases which can be seen and avoided.

Distribution

Glanders is more prevalent in large cities for a number of reasons. Public drinking troughs and hitching and feeding stables, collecting large numbers of horses together, give great opportunity for its spread. The stables in which city horses are kept are often insanitary, with insufficient light and air, which favors the development of bacterial life, and tends to lower the vitality of the animals. This makes them more susceptible to the disease.

control

The control of this disease requires the combined action of the owner, the local veterinarian in reporting outbreaks, and prompt action on the part of state officials. Just so long as glanders is as prevalent as at present, it is very difficult for the most careful owner of horses and mules to fully protect himself against the disease. Glanders may be introduced by purchasing animals suffering from the malady in the latent or hidden stage, or, the horses may become infected from the public drinking troughs. Mangers used in another stable where badly diseased horses have been fed or watered, may be the source of infection. When purchasing additional animals to replace others, they should be promptly mallein-tested. Ordinarily there is but little danger in purchasing young horses from country districts, but it is not wise to purchase old horses from cities, commonly known as "seconds," unless they are first mallein-tested by a competent veterinarian. In this way one is able to protect the rest of the horses to a large measure.

disinfection

Before disinfecting, give the stable a thorough cleaning. The ceiling and walls should be swept free of cobwebs and dust, and any accumulation of rubbish removed. Decayed wood or mangers and floors should also be removed. All filth and dirt should be scrubbed from the woodwork, etc., with a hot soda solution. All manure and refuse should be removed and buried or saturated with some good disinfectant. Any of the better disinfectants can be used for this work, but probably either cresol U. S. P. in a three-per-cent solution, or carbolic acid five-per-cent solution will answer as well as any other. The former can be prepared by mixing four ounces of cresol to each gallon of water, the latter by adding six and one-half ounces of carbolic acid to each gallon of water. They can best be applied with a spray pump.

DISEASES OF THE LIMBS AND BONY STRUCTURE

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The horse, more than any other of our domesticated animals, shares with his master the liability to accident and injuri s incident to civilized life. Today we find him under fire on the battle field; tomorrow he is exposed to numberless mishaps in the congested streets; even in the rural districts he is not free from dangers in giving service on hard roads or tilling the soil to feed mankind.

The purpose of this article is to classify and suggest the care and treatment of some of the most common accidents, injuries and unsoundnesses (either hereditary or accidental) that are met with under ordinary conditions, with the hope of lessening the suffering of man's faithful servant, and mitigating the torturing quackery that still obtains in some communities.

LAMENESS MAY COME FROM INJURY OR HEREDITARY WEAKNESS

The legs and feet of the horse are important organs, both in his work of hauling heavy loads and in rapidly conveying his master from one place to another. As a consequence of this, it is generally known that lameness is one of the most common ailments of the horse. In some cases lameness or blemishes are not intimately associated with overwork or abuse, the animal being born with what is termed a hereditary predisposition. With this predisposition blemishes and unsoundnesses develop from very slight exciting causes. This is true with sidebones, commonly seen in the heavy horse, and it is equally true in some cases with ringbones, spavins, curbs, navicular disease, etc.

KNOWLEDGE, NOT WISDOM, NEEDED

It is not the thought of the writer to make a diagnostician of anyone by this article, but the article will not have been written in vain if we are successful in disabusing some of the ridiculous teachings and theories that have been forced upon the public for years by the self-styled "horse doctor," and the doubly-wise layman of the past. Like with "hollow horn" and "wolf in the tail," we have much to undo and then start anew.

The writer has often thought that humane societies in many instances were watching the mouse and letting the lion run rampant, when we have been repeatedly called to see the poor lame horse that had been lame perhaps for weeks, getting no better, and find him suffering with a suppurating corn of the foot, and being tortured by a rowel in his shoulder that the wise "quack" had placed there, knowing of course at once without making any examination, that the "hoss was lame in the shoulder." Similarly we have removed nails from the hind foot after the owner's patience had been exhausted, and the poor animal's whirlbone or stifle blistered and scarred by one who should have been styled "the nuisance of the neighborhood."

Lameness is one of the very important branches of veterinary science. Obscure lameness is one of the most difficult things to locate that the veterinarian has to contend with, and it is ridiculously absurd for one not skilled in the knowledge of anatomy and locomotion to think of making an accurate diagnosis.

We appreciate that in order to make this article of value to its readers, a methodical review of the extremities must be made. But it would be well to preface such a review with all possible force — that the same principles apply in lameness as in sickness. When you are not reasonably certain of what the trouble is, do nothing; give Nature, the goddess of all medicine, a chance. If you must do something, then apply simple remedies, such as hot or cold water, poulticing and the like. Never apply blisters, burning liniments, or similar aggravating things, without knowing positively that they are necessary.

Keep in mind that a horse is less liable to be lame in the shoulder than below the knee; and, notwithstanding the traditions

that have been handed down, horses are rarely lame in the whirlbone and very rarely in the stifle. When one is lame in the stifle or hip, it requires a skilled man to know. Any one may guess, but there is a difference between guessing and knowing.

The extremities are made up of bones, muscles, tendons, ligaments and cartilages. Where bending and friction occur, Nature has wisely arranged for an oiling system, and hence we have *articular synovia* (joint oil) and *tendonous synovia* (tendon oil). These are yellowish, oily or glary secretions which facilitate the play of the joints, and the tendons over the joints and certain points of the bones.

There are, of course, other minutiæ concerning the arteries and veins which nourish the parts, and the nerve system which supplies sensation and motion, that would be interesting as an abstract study, but are not of sufficient practical value to deserve space here. In fact the nerve system of the extremities would not be of interest to the layman excepting under unusual conditions, where the removal of a section of a nerve would relieve sensation and attendant pain or inconvenience, all of which would require the advice and skill of a trained veterinarian.

TREATMENT OF HEMORRHAGES

The blood vessels would be of interest principally when large enough to cause a dangerous hemorrhage occasioned by accident. The rule in all such cases is to apply something clean in the way of cotton or cloth to the wounded parts and then apply a strong bandage over this, making it quite tight above and below the injury if possible; so that in case of a venous hemmorrhage, the bandage or part of the bandage on the side farthest from the heart would be controlled, and likewise the pressure on the side of the wound nearest the heart would control arterial hemorrhage. Never use cobwebs or dirty material.

If it is impossible to bandage the parts, as is sometimes the case when the injury is under the shoulder or between the hind legs, place a twitch on the horse's nose so as to make him stand quiet, and control the hemorrhage until help is obtained by holding cloths or cotton tightly against the wound. After the animal becomes quiet the twitch should be removed.

Lameness of the Joints and Muscles

The preferable way to review the accidents and ailments occurring in the various structures of the extremities would be to take up each set of organs separately and recite the various pathological conditions met with, but to do this with any detail would preclude the possibility of publishing any other information concerning the horse, in a medium-sized bulletin. A physiological, histological and pathological discourse of the bony structure alone would require many pages of dry reading. We will, therefore, content ourselves by mentioning the symptoms and results most commonly associated with *periositis* (inflammation of the skin of the bone), *ostitis* (inflammation of the bone), *exostosis* (bony growth), and sprains of muscles, tendons and ligaments.

Perhaps the simplest way to cover the structures involved would be by regional discussions. Let us begin at the shoulder joint, keeping in mind that we have all the structures mentioned above involved at this joint. Consequently we may have sprained muscles or ligaments and open joint (scientifically known as *suppurative synovitis*) cuts, bruises, etc. Horses ordinarily are not lame above this joint in the true sense of lameness. It is true that an animal may suffer a fracture of the shoulder blade or have a deep-seated abscess, such as the formation of a fistulous wither or other injuries between the shoulder blades, but there is no joint at the top of the shoulder as we have heard some describe, neither does the shoulder blade play any important part in locomotion, simply being attached to the anterior sides of the body as a means of support.

In treating lameness or injuries of the shoulder, when it is plainly evident that the shoulder is involved, the following rule, which applies to sprains and strains generally, should be followed: Bathe the parts with either very hot or very cold water; heat when properly applied is more soothing than cold. A very efficient way of applying heat to the shoulders or legs is by what the horsemen term "steaming." The parts are bathed with very hot water, as warm as the hand can endure; a woolen cloth or blanket is wrung out of water equally as warm and this is covered by either a rubber, canvas or dry blanket. In this way the heat is forced into deeper structures, and is very soothing. In such cases a mild liniment applied after bathing is often beneficial.

The foregoing treatment will apply to the elbow joint, but occasionally we have, in addition, the formation of cysts at the point of the elbow, which is known as "capped elbow" or "shoe boil." This condition is caused either by the animal lying on its heel calk or by bumping the hard floor with its elbow when about to rise. The first thing to do is to remove the cause. If we cannot remove the calk or the hard floor, then the shoe boil should be covered with a thick covering. If it does not subside rapidly with hot applications in three or four days it should be opened and properly treated by a competent veterinarian to avoid the formation of a fibrous tumor. When allowed to go on to a fibrous formation the growth may be enucleated by surgical interference.

TROUBLES WITH THE LEGS AND FEET

The forearm is not so commonly predisposed to injuries as are the parts below the knee; but in the thoroughbred, the trotter and the hunter we frequently have speedy-cuts affecting the lower extremities of the forearm and involving the knee. These injuries are more generally found in a horse used for speed on circular tracks. Soothing applications are of great value in these cases. An effective way is to use the hot water applications in the day and to cover the parts with a medicated poultice, such as antiphlogistine, during the night.

Beginning with the knee and hock, the horse is more likely to bony, tendonous and ligamentous trouble in the lower leg. We will consider the bony ailments first. They are ordinarily classified as splints, spavins, ringbones and sidebones. They are all practically the same in structure — differing only in location — being the result of an inflammatory process, and a deposit of lime salts very similar in their pathology to what occurs in the healing of a broken bone, with a primary callous and a permanent thickening of the parts.

Ringbones are by far the most serious, owing to the fact that they are apt to involve articulations, and, where they do, ankylosis or stiffening of the joint occurs, resulting in a more or less permanent mechanical interference with locomotion.

The same treatment is applicable to all these conditions in the early stages, but we find that the splints yield more readily to

treatment than the others, and often an ice pack applied for a few days, followed by a mild blister, will relieve the lameness and absorb the splint before the latter becomes truly ossified.

Ringbones and sidebones are not so amenable to treatment: they are rarely absorbed when they once become evident. We should keep in mind first, last, and always, that when a bony growth has once become established, such as a chronic spavin or splint, it is just as much true bone as the limb of a tree is part of

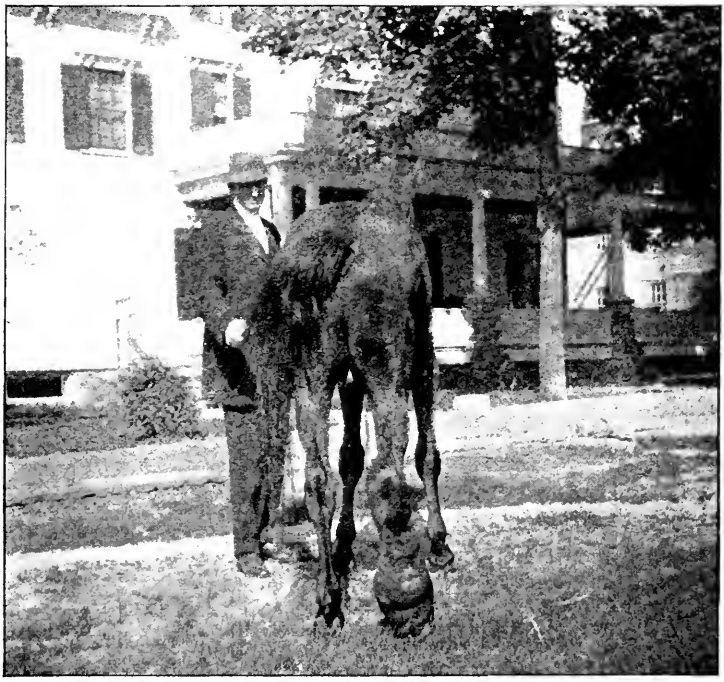

Fig. 80. A Neglected Case of Lymphangitis

the tree, and we should never countenance the argument of the fakir who tells us he has a substance or mixture that will remove it. When cold applications, followed by blistering, fail to give relief in the case of spavins, splints, ringbones and sidebones, a veterinarian should be consulted as to the advisability of having the parts fired with a pin-point cautery.

Injuries and accidents to the feet proper are extremely common, and early attention of the right character is positively essential.

Hot applications in the way of hot water and poultices, with mild but efficient antiseptics, are two agents to be kept constantly in mind. To be effective, the antiseptics must, of course, reach the injured parts. In case of puncture wounds by nails or other sharp bodies, the hoof should be softened by hot applications and pared away so as to expose the affected parts for treatment. Peroxide of hydrogen, carbolic acid, iodine, creolin, etc., are reliable agents, the necessary strength of the solution being determined by the case in hand.

Corns are bruises of the heels, usually due to neglect of shoeing or bad shoeing. The treatment is to poultice the foot and pare away the heel so that it is lower than the frog. Shoe with a bar shoe or rubber pad and repeat this treatment every three or four weeks until the corns have disappeared.

Laminitis, or founder, is an inflammation of the sensitive structure (*lamina*) of the foot. The animal's front feet should be bound up in poultices and placed in a tub of hot water, and the services of a veterinarian secured at once.

LYMPHANGITIS

Lymphangitis or Monday morning leg, is an affection appearing suddenly in the form of a swelling, usually affecting the hind leg. Like laminitis it requires early attention. Place the affected leg in a tub or half-barrel, and bathe it constantly with water as hot as the hands can stand, and send for a veterinarian. *Never* use turpentine, liniments, etc.

In lymphangitis, as in laminitis, a veterinarian can accomplish more in relieving the suffering of the poor animal and restoring it to usefulness the first three days than he can in three months after the animal has been maltreated or neglected.

DISTEMPER AND DISEASES OF THE RESPIRATORY ORGANS

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Before entering upon a discussion of the diseases of the respiratory apparatus, let us briefly consider which organs or parts are involved in the function of breathing.

In the horse, mouth-breathing is very rarely seen. The air passes through the nostrils into the nasal chambers and sinuses in the head, where it is slightly warmed, thence past the pharynx, through the larynx, which is situated at the top of the trachea or windpipe. The windpipe, in turn, divides into the bronchi, of which there are two, one leading to each lung. These bronchi are divided into what are known as the bronchial tubes, which penetrate every portion of the lungs.

The entire tract is lined with delicate mucous membrane, which may suffer injury from many causes, giving rise to the various disorders which form the theme of this paper. Some of these causes are: cold draughts on an overheated body; irritant gases from decomposing manure; hot, badly ventilated stables; overwork or overexertion when the animal is in poor condition; sudden change of climate and surroundings, such as a change from the farm to the city; and infection from cars or dealers' stables.

DISTEMPER

This is an infectious disease, usually of young animals, but may affect horses of any age. One attack usually renders an animal immune to future attacks.

Symptoms: Fever, diminished appetite, weakness, rapid pulse and respiration, redness of visible mucous membrane, cough, discharge from the nose — at first thin and watery, later becoming thicker, yellowish in color and greatly increased in quantity, with swelling of the submaxillary glands, due to abscess formation. Sometimes we find abscess formations in other superficial glands,

and occasionally, in the more malignant form, in deep-seated lymphatics and in internal organs.

Distemper usually runs a reasonably regular course with a tendency to recovery with comparatively simple treatment. Mild cases require nothing further than a mild laxative with soft feed, such as mashes with sliced carrots, apples or potatoes; protection against sudden changes in temperature by blanketing and a liberal allowance of drinking water. In more severe cases febrifuges will have to be given. One-half ounce doses of nitrate of potash and epsom salts in soft feed, or in the drinking water, will be found of marked benefit.

When abscess formation is taking place, warm fomentations or poultices may be used. As soon as fluctuation is felt, the suppurating glands should be opened at the most dependent part, curetted and washed out with a mild antiseptic solution, followed by the injection of one-half ounce of tincture of iodine or Lugol's Solution.

A rest of from one to two weeks, with a gradual return to work will prevent relapse or complications. The complications which may occur are laryngitis, pharyngitis, severe bronchitis and sometimes pneumonia.

Abscesses may form in the brain, media-stinum or abdominal cavity. Roaring, as a result of severe inflammation of the throat, is occasionally an annoying sequel. Chronic bronchial cough is a frequent complication and calls for special treatment. Most of these conditions may be prevented by rational treatment during the acute attack, and the protection of the animal against draughts or a sudden chilling of the body.

CORYZA (COLD IN THE HEAD)

Coryza is inflammation of the mucous membrane of the nose and sinuses of the head and eyes. It is very common in young, green horses, and develops shortly after their arrival after having undergone the ordeal of a long shipment in cars, with the attendant exposure en route.

Symptoms: Sneezing, fiery red condition of the mucous membranes (congestion), discharge from nose and eyes, slight elevation of temperature, with partial loss of appetite and general appearance of dullness. While coryza in itself is not a serious

disease, it must be constantly borne in mind that if improper treatment is given or the condition neglected, there may be an extension of the inflammatory process to the sinuses of the head, or to the delicate lining membranes of the throat, bronchi or lungs. Many people believe that it is best to keep an animal affected with a respiratory disease at work; but it is a safe rule to follow that whenever there is fever, indicated by elevation of temperature, the animal should be kept at rest. Fresh air and sunlight are of great importance in the treatment of all respiratory affections, but draughts must be guarded against.

Treatment: Laxative diet. Inhalations of steam, slightly medicated by the addition of a coal-tar antiseptic to boiling water, soothe the irritated membrane, and are always of benefit. These inhalations may be repeated three or four times daily. A run at pasture during summer months will aid recovery. During the winter the animal should be warmly blanketed and given a well-ventilated box stall.

Medical treatment should be of the simplest kind. The powders advised for the treatment of distemper may be given in the drinking water to stimulate the action of the kidneys and bowels. If this treatment is followed, the discharge from the nose should gradually disappear, and the animal entirely recover. Sometimes, however, the nasal discharge instead of drying up becomes thicker and obstinately continues. We then speak of the condition as chronic catarrh or nasal gleet.

Chronic Catarrh or Nasal Gleet

This is very apt to occur as a result of exposure or overwork while the horse has been suffering from common cold. There are many other conditions which may have as a symptom a chronic discharge from the nose, some of which are: decayed teeth, pus in the sinuses, disease of the turbinated bones and glanders. A chronic nasal discharge is always a cause for suspicion, and a veterinarian should be called in to make the diagnosis and advise treatment.

The treatment will depend upon the cause. If due to a diseased molar, the offending tooth should be extracted. Pus in the sinuses must be treated by trephining and irrigation. In fact, the cause must first be discovered and removed before much progress will be made in treatment. Tonics are always indicated,

either vegetable or mineral. Fowler's Solution in one-ounce dosage twice daily is a convenient mode of administering arsenic, which is a drug of great value in this condition. It will, however, as a rule be wise to consult a competent veterinarian rather than attempt to treat chronic catarrh empirically.

OBSTRUCTIONS IN THE NOSE

These may be due to polypus or tumors of the lining membrane, thickening of the lining membrane itself, or disease of the turbinated bones, due to injury from either external or internal causes. All these conditions call for surgical treatment, so are simply enumerated as factors in the diseases of the respiratory apparatus.

INFLAMMATION OF THE LARYNX AND PHARYNX — LARYNGITIS AND PHARYNGITIS

These conditions are described together because the parts are closely adjacent, and inflammation of the one is usually accompanied or complicated by involvement of the other.

Symptoms: Difficulty in swallowing, fever, increased respiration, soreness on pressure, cough, redness of visible mucous membrane and discharge from nose. If the pharynx is involved, it will be noticed that, when the animal is drinking a portion of the water is returned through the nose. The appetite is usually fairly good; but the pains caused by attempts to swallow frequently deter the animal from eating very much.

Treatment: Feed light, easily digested food, such as bran mashes, scalded oats, oatmeal gruel or grass in season. Cover with a warm blanket, bandage the legs to equalize circulation, apply liniment to the throat once or twice daily, steam out nostrils and head as advised for sore throat, and give every two to four hours, in one-ounce doses, a fever mixture composed of equal parts of tincture belladonna, tincture cinchona, sweet spirits of nitre and acetate of ammonia. The application of a hot kaolin poultice to the throat, well covered by cotton and bandage to retain heat, frequently gives prompt relief.

If breathing becomes very difficult due to swelling in throat, tracheotomy will have to be resorted to; but this again is an operation which should not be attempted by a layman.

The chronic cough which sometimes persistently remains after the acute symptoms have subsided may be treated by cough mixtures, or, if these fail, by iodide of potassium in one drachm doses, three times daily in the drinking water, one hour before feeding. A blistering ointment composed of biniodide of mercury, one drachm, and vaseline one ounce, may also be rubbed into the swollen glands and throat. This must be used with caution, however, as it will blister quite severely.

roaring

Roaring is caused by some obstruction to the free passage of air. It occurs usually as a complication of one of the respiratory disorders. If due to sore throat, the noisy breathing will disappear promptly after the cause has been removed. The noise usually accompanies the inspiration, when the air is drawn into the lungs, and only in advanced cases is it heard when the air is expelled.

The only treatment which appears to hold out any hope of cure in a chronic roarer is an operation for the removal of the lining membrane of two little sacs called the ventricles, situated above and behind the vocal cords. This is an operation of great delicacy, and should be attempted only by an expert.

bronchitis — inflammation of the bronchi

This occurs in two forms — acute and chronic. The latter may follow the acute form, or chronic bronchitis may develop into the acute form.

The symptoms are: fever; short, dry, smothered and painful cough in the early stages, which later has a tendency to become moist, due to exudation; wheezing or whistling sounds, detectable when the ear is placed over the trachea and sides of the chest. When exudation has taken place, there are heard what are known as moist rales (gurgling sounds which can be heard very distinctly over the trachea). There is always dullness, increased respiration and pulse, with partial or complete loss of appetite. It is sometimes difficult to differentiate between bronchitis and pneumonia, as a severe attack of the former is frequently complicated by involvement of the lung tissue.

The treatment of bronchitis is not radically different from that of other diseases of the respiratory apparatus — that is to say, rest; fresh air; hygienic surroundings; blanketing to protect the animal from draught and sudden change in temperature; light, easily digested food, and a liberal supply of clean drinking water, which may be kept constantly before the animal in a pail set in the manger.

As medicinal treatment, the fever mixture prescribed for laryngitis, continued as long as the temperature remains above normal, should be given with half-ounce doses of nitrate of potash three times daily in the drinking water. As an alterative and tonic, Fowler's Solution in ounce doses two or three times daily will be found of marked benefit. This may be given in the drinking water if prepared without the addition of lavender. Counter irritation in the form of mustard paste applied to the chest and covered with newspapers to protect soiling of the blanket, may be given in many cases; but severe blistering should be avoided, as the pain and inconvenience suffered as a result of drastic measures more than counteract the beneficial effects derived therefrom. Thorough daily grooming of the body, and friction applied to the legs, with bandages to equalize the circulation, frequently have a marked effect upon the temperature and general condition of the animal.

When the appetite is capricious, an effort should be made to stimulate the desire for food by giving the animal two or three apples, carrots, two or three ears of corn, steamed or scalded oats, or oatmeal gruel.

The return to work should be gradual, since the animal has been suffering from a debilitating disease and overexertion or exposure may lead to serious lung involvement.

CONGESTION OF THE LUNGS

By congestion is meant an increased flow of blood to the parts. This is usually induced in the horse either by exhaustion in an animal which has not been accustomed to hard work, or by a sudden chilling of the surface of the body when the animal is heated. Hard or fast work means increased functional activity, and a

great portion of the strain induced by overexertion devolves upon the lungs, which are the essential organs of respiration.

It can be readily understood that, when an animal is perspiring and the pores of the skin are open, the capillary blood vessels are engorged. If such an animal is rapidly cooled off, the pores close, the capillaries and blood vessels contract, and the blood is forced in increased volume to some internal organ. This may produce congestion of any internal organ; but, in an animal which has done hard and fast work, it is most apt to cause congestion of either the lungs or lamina of the feet (founder).

The symptoms are usually first observed after the animal has been returned to the stable, and are ushered in by a fit of trembling (chill). If this passes by unnoticed, the attention of the owner will probably first be attracted by difficult and rapid breathing. If the temperature of the horse is taken at this time the thermometer will register between 104 and 106 degrees. In the early stages the body is covered with perspiration, which may, however, soon evaporate, leaving the body, legs and ears cold. The pulse is full and hard, and may vary from 80 to 110 per minute. If the hand is placed on the left side of the chest, the heart will be found to be beating violently. Upon placing the ear to the side of the chest, a fine crackling sound will be heard, with marked increase of the respiratory murmur.

Treatment: In the early stages, the first effort should be directed toward a renewal of functional activity of the skin. If the animal is perspiring he should be rubbed dry with wisps of hay or straw and immediately blanketed. If the weather is warm, the very best place for him is out in the open, where plenty of pure air can be obtained. The legs should be well rubbed with the hand, or mild liniment applied, and then bandaged. Stimulants in the form of alcohol, whisky, brandy or aromatic spirits of ammonia well diluted should be given at frequent intervals until relief is obtained. A one-ounce capsule of acetanilid may be given by mouth, and repeated in twelve hours if the temperature remains very high. Treatment, to be of avail, must be promptly, energetically and intelligently carried out, as it must be borne in mind that the condition described is the first stage of inflammation, and, if neglected, will terminate in pneumonia.

PNEUMONIA

Pneumonia is an inflammation of the lungs. Two forms are ordinarily recognized as occurring in horses, namely, catarrhal or bronchial pneumonia, and fibrinous or croupous pneumonia. The distinction between these two forms of inflammation depends upon the character of the exudate. In the first form, the exudate is of a catarrhal nature, and in the second form the fibrin of the blood exudes through the injured blood vessels, coagulates and plugs the air cells and bronchioles, causing solidification of the lungs. It is for this reason that lungs removed from an animal suffering from croupous pneumonia will not float, the affected portion being of the consistency and general appearance of liver.

The early symptoms of pneumonia are those described under congestion of the lungs, this stage being known as engorgement. Several distinct stages of the disease are recognized and described as: red hepatization, at which time the lungs have the appearance of liver; gray hepatization, which is the later stage when resolution or breaking down of the exudate takes place and recovery is about to ensue, and the last stage known as the period of resolution when the expectoration and reabsorption of the broken down exudate is well established.

Symptoms: During the period of congestion and engorgement, the symptoms differ in no respect from those described under congestion of the lungs, as this is really the first stage of pneumonia. During the stages known as red and gray hepatization, there are symptoms of suffocation, difficult breathing, cough, elevation of temperature, partial or complete loss of appetite and evidence of great weakness and prostration. The animal usually remains standing throughout the entire time. If he lies down at all, it is always on the affected side, the purpose of this very evidently being to afford more breathing space on the healthy side. When both lungs are involved the condition is much more serious and results are frequently fatal. The lung usually fills up from the bottom, the anterior or posterior lobes being first affected. If the chest is tapped with the fingers a dull sound is heard, with increased resonance over the healthy portion of the lung. The respiratory murmur is very much diminished, or altogether absent in the consolidated portion.

When the inflammatory exudate breaks down, mucous rales are heard. As a rule, the pleura or covering membrane of the lung, and lining membrane of the chest, are also involved, the condition then being known as pleuropneumonia. With pleurisy as a complication, there is usually a straw-colored fluid thrown out into the pleural sac, known as pleuritic fluid, and this fluid is found on both sides of the chest at the same level, whether only one or both sides of the lungs are involved.

The treatment will depend upon the stage at which the disease is first seen and the severity of the attack. In the stage of engorgement, efforts should be directed toward aborting the disease if possible; but frequently, in spite of every effort, the disease cannot be stopped at this stage. It imperceptibly goes on to the stage of inflammation which is the cause of the exudate; this in turn causes the consolidation of the lung tissue. This exudate must be broken up and either discharged from the nose or coughed up, what remains being reabsorbed. This reabsorption, however, never takes place completely, and usually leaves traces of the disease in the form of consolidated areas, new tissue formations and adhesions.

Pneumonia is a disease which requires very careful nursing. The animal should be placed in the cleanest and airiest quarters procurable, as it will be found that horses suffering from pneumonia, particularly in the early stages, usually stand with their heads toward the air. The food should be light and easily digestible; the water supply clean, fresh and frequently renewed. The body should be covered with a blanket of texture suitable to the season, in order to protect the surface of the body against sudden draughts or chills. The legs will be found to be cold below the knees and hocks, and should therefore be rubbed with liniment about once a day and covered with woolen bandages evenly applied, in order to equalize the circulation. The body should be carefully groomed daily in order to keep up elimination from the skin.

Salines in the drinking water, in half- to one-ounce doses, markedly stimulate the kidneys and favor elimination. While it is not advisable to give an animal suffering from pneumonia drastic cathartics, a half dose of cathartic medicine is frequently indicated, and helps to remove toxic materials from the bowels.

Following the giving of a cathartic, much benefit is derived from the use of intestinal antiseptics, among which the compound sulphocarbolates have served me best.

The fever mixture, for which the formula is mentioned under laryngitis, can be given throughout the attack, the period being graduated according to the temperature. In the early stages, while the fever runs very high, it may be given as often as every hour or two, day and night.

Liniments applied to the chest are of value, but the use of strong vesicants should be avoided. Mustard pastes are frequently applied and are of undoubted value in many cases. Within recent years, bacterins, which are prepared from killed bacteria of the kind usually found present in pneumonia, suspended in saline solution, are given hypodermically in the treatment of this condition, but their use at present is confined to veterinarians.

Recovery in uncomplicated cases usually takes place in about two weeks, after which the animal may be given walking exercise if the temperature is nearly normal; but work should be very gradually resumed and be of a character suited to the weakened condition of the animal, as relapses are frequent and may prove fatal if care is not taken in this regard. In fatal cases, abscess formation and gangrene sometimes occur. In gangrene of the lungs, the inflammation has been severe enough to cause the death of a portion of lung tissue which sloughs away, imparting a highly offensive odor to the breath and a characteristic greenish discharge from the nose. This condition invariably terminates fatally.

In closing this article on respiratory diseases, the writer is well aware that he has only superficially touched upon the various affections usually classed with the disorders of this apparatus. It is not intended to furnish complete information to enable the layman to treat the more serious affections described; but is submitted with the hope that something therein contained may be of service, and contribute in a small way toward a better understanding of these common affections of the horse.

COLIC AND AZATUREA

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COLIC

Colic is a general term often applied to all affections of the digestive apparatus. It is always accompanied by pain, which may be just noticeable, moderate, or very intense. It is a very convenient term for the veterinarian, for he considers his diagnosis correct, be the trouble in the stomach, cæcum, or small or large intestines. Veterinary writers, however, describe a number of kinds of colic, but a discussion of each in an article of this kind would be far too complicated for the average layman.

The horse seems to be predisposed to this disease. In his natural state he ate often and in small quantities, so that his organs were never overloaded; and, through the ages of evolution, his digestive apparatus gradually adapted itself to that condition. Not many centuries ago man discovered that the horse could be made a useful beast of burden, consequently his environment was changed. Instead of roaming the fields and partaking of his food at pleasure he has been forced to feed less often and in larger amounts.

Causes of Colic

Anything that arrests or suspends digestion may cause colic. The causes may be divided under two general headings:

1. A diseased or disturbed condition of the animal's digestive apparatus so that he cannot properly digest the food that is given him, be it ever so wholesome.

2. Anything that renders the food difficult of digestion; as, for example, musty or moldy feed.

Several factors may be included under the first heading:

(a) Poor teeth, long teeth or teeth with long corners that cut or lacerate the cheek and tongue, induce the horse to swallow his food with as little chewing as possible. This leaves the food in such hard masses that it is rendered less capable of being thoroughly acted upon by the digestive juices.

(b) Ice-cold water and apples, potatoes, roots or ensilage that are frozen, may suddenly chill the stomach and intestines, and cause a suppression of the juices.

(c) Extreme fatigue or exhaustion, especially after a very hard day's work, reduces the power of the digestive organs. Therefore a very tired horse should never be fed his grain at night until he is partially rested. Let him eat hay for a couple of hours, and, instead of making him a present of an extra quart or two of oats for his hard day's work, give a little less than the usual amount.

(d) Fast driving and very heavy hauling immediately following a meal often impedes digestion.

(e) Ravenous eaters that bolt their food render the food in about the same condition as a horse with imperfect teeth.

(f) Irregular feeding hours. A horse can tell almost to the minute when feeding time arrives. If feeding is deferred for an hour or two hours he becomes uneasy and often paws and neighs for his food, thereby causing a general disturbance of the entire body.

(g) Sudden changes in food. We always have more cases of colic at haying and threshing time, when farmers are changing from the old to the new hay and from the old to the new oats. We should always make changes in the ration gradually by mixing a small amount of the new oats and hay with the old. If obliged to make a sudden change in the ration better give a smaller amount and add a pinch of salt. The salt greatly aids in checking fermentation and, at the same time, slightly increases the secretions.

Under the second heading we may include foods that are hard to digest, or that do not seem to be especially adapted for the horse when fed in large quantities, such as rye, barley, buckwheat and beans. Over-ripe, coarse fodders and musty, moldy or partially spoiled fodders of any description are especially dangerous for horses. Musty or moldy ensilage is very dangerous.

Green foods, as clover and alfalfa, and foods recently harvested, such as new oats, corn and hay, are covered with bacterial growth that causes a rapid fermentation. If taken in large quantities when a horse is not accustomed to them they prove a very frequent cause of colic. Wet ground feed that has been left from a preceding meal, if allowed to remain in the feed box, soon

sours and proves a source of great danger. Overfeeding may cause colic, as when a horse is accidentally fed twice or gets loose and finds the grain bin.

A large drink of water immediately after eating may cause colic. The stomach of the horse is so small (holding only six or seven gallons), that a large amount of water is apt to flush out some of the food into the intestines before it has been acted upon by the gastric juice. The system of the horse can ordinarily adapt itself to almost any condition, and many farmers let their horses have practically all their drinking water after eating, and yet they seldom have a case of colic. I believe, however, that many cases of colic are due to drinking too much water soon after eating. Do not scrimp your horses on water; give it often and in small amounts.

I believe if we could divide colics under the following three general classifications as to kind, we could diagnose our cases with a fair degree of accuracy, and in that way intelligently treat and prevent a much larger proportion of them:

1. Excess of gas in the digestive tract.

a. Acute indigestion is the name applied if the fermenting mass is confined principally within the stomach.

b. Flatulent colic is the name applied when the fermenting mass has passed along into the intestines.

2. Excess of partly digested food and fecal matter in the digestive tract. This condition is often called impaction or obstruction colic, or constipation or stoppage of the bowels.

3. Conditions which interfere with the nervous mechanism of the digestive tract. This condition is designated as spasmodic or cramp colic.

In order to treat a case of colic intelligently we should be able to distinguish with a fair degree of accuracy which one of these conditions we are dealing with. It frequently happens that two, or possibly all three conditions are operating at the same time.

Excess of Gas in the Digestive Tract

This is by far the most common and fatal of all colics with which the horse is affected. I believe that in the country more horses die directly or indirectly from this form of colic than from all others combined.

Symptoms. The pain is continuous, though more at one time than at another. Bloating is the characteristic symptom. If the intestines are the principal part infected (flatulent colic), the bloating is very pronounced, especially on the right side. When the stomach (acute indigestion) is the essential seat of the trouble, it is greatly over-distended with gas and the fermenting mass of food. Yet on account of its distance from the abdominal wall, and being incased on each side of the ribs, it hardly ever shows from the outside.

Unless a person is somewhat familiar with acute indigestion it is sometimes rather hard to diagnose. Usually acute indigestion occurs soon after partaking of a full meal. It is sudden in its onset and gradually grows worse. As the over-distended stomach is in close contact with the lungs, breathing is greatly interfered with, so the horse often sits on its haunches like a dog. The nostrils are greatly dilated to facilitate breathing. Occasionally he will make desperate efforts to vomit. Since the stomach of the horse must be stretched to a dangerous condition before he can vomit, we always regard vomiting in a horse as a sign of ruptured stomach. If vomiting of the stomach occurs without rupture it affords great relief. As the disease progresses the abdomen enlarges, due to the stomach forcing the other organs backward and also due to the disturbance in the intestines.

Treatment. Acute indigestion and flatulent colic, if not too severe, and taken in time, will often respond to some of our simple home remedies. Turpentine, three to six tablespoonfuls, according to size of the horse and severity of the case, given in a pint of raw linseed oil is a good home remedy. One-half to a teacupful of baking soda, given alone, or, better still, combined with one or two tablespoonfuls of ginger, is often very effective. Two or three tablespoonfuls of creolin in a quart of water is very good. Salicylic acid in one-half ounce doses is considered a specific for acute indigestion. If a horse is badly bloated never let him throw himself violently on the ground, as he is apt to rupture the stomach or intestine. If he will lie down and remain so, that is ideal, but do not let him be continually lying down and getting up. If necessary take a whip to keep him on his feet, and make him walk around. Very often medicines are of little or no use and the only thing that will save the horse is the prompt use of

the stomach pump or the trocar. These two operations should be employed only by veterinarians, but the results are wonderful if administered in time.

Excess of Partly Digested Food and Fecal Matter in the Digestive Tract

In addition to some of the general causes for colic mentioned above we find that certain specific conditions predispose a horse to this form of colic. Old, worn-out horses, or young horses that are out of condition, are more subject to impaction on account of scanty secretions, loss of elasticity, and lack of nervous tone to the bowels. Horses that are ravenous feeders and big hay eaters — that eat their bedding in addition to their hay — are more subject to this trouble, especially if they are light drinkers. It occurs very frequently during the winter months when, on account of less work for the horse, we feed less grain but increase the amount of coarse, dry, bulky fodders. Horses that are fed large quantities of straw are subject to this form of colic, hence it has been called straw colic. Failure to drink enough water in cold weather, or at any time of the year, is often the essential cause, since a liberal amount of water in the digestive tract is absolutely necessary for good digestion and to soften and moisten the excess of dry food. In this way it assists in removing the waste matter from the body. Lack of daily exercise conduces to sluggish bowel action.

Symptoms. These may be very slight or entirely absent at first. As the excess of fecal matter may have been accumulating for several weeks the horse is rarely stricken with intense pain at first. The first day or two, and sometimes for a week or more he may show colicky pains, manifested by pawing at intervals, lying down and getting up, lying down more than ordinarily, or frequently lying out flat with head and limbs extended. There is seldom much bloating, although the abdomen often presents a general fullness throughout; yet the reverse is often the case, especially if the horse has eaten but little, when the abdomen appears puckered up. Sometimes the horse will seemingly pass the ordinary amount of manure, though usually very little or no manure starts, and this is often hard and sometimes coated with a white, slimy mucus. In cases that set in rather abruptly

diarrhea often precedes the attack. This condition frequently causes a mistaken diagnosis. As conditions grow worse the pain continues, though decidedly worse at certain times. He may sit on his haunches like a dog to relieve the pressure on the heart and lungs. The rumble (*peristalsis*) in the bowels practically ceases, pulse becomes rapid and weak. Stretching out on all four limbs and making small amounts of urine is a very characteristic symptom. This condition is caused by the over-distended bowel pressing directly on the bladder, causing an irritation and oftentimes a slight inflammation of the bladder. Farmers are very apt to call this condition kidney or bladder trouble. Kidney and bladder trouble is very rare in horses.

Treatment. In mild cases, a change to a laxative diet such as bran mashes, roots, one pound of linseed meal per day or one pint per day of stock molasses, will often prevent or overcome the less severe attacks. In the more severe cases our line of treatment must aim to overcome the following conditions: (a) Softening of the dry, hard contents of the digestive tract; (b) overcoming the paralysis that has been produced by the prolonged over-distension; (c) expulsion of the contents.

The softening of the contents is the first and most important consideration. Induce the horse to drink large amounts of water. This will macerate and soften the contents in the anterior portion of the digestive tract. The only way to make the horse drink is to give him plenty of salt. Give a small pinch on the tongue every little while until he has had a half-pound, or dissolve one-fourth of a pound in a quart of water, and give two or three doses a few hours apart. Rectal injections of warm water are very important as the impaction is very often near that portion of the bowel. When the hand is introduced with the hose or syringe, the over-distended bowel can often be felt, thus confirming our diagnosis.

Various drugs are used to overcome the paralyzed condition of the bowels. Fluid extract of nux vomica given three or four times a day in doses ranging from one-half a teaspoonful to one teaspoonful is the safest thing a farmer can give. When very large doses of this drug are given, twitching or jerking of the muscles is sometimes seen. That means that the dose should be reduced. It should also be borne in mind that large doses of nux vomica often cause abortion in pregnant animals.

A good dose of physic to expel the contents should be given early. Veterinarians often give one ounce of aloes if there is no tendency of inflammation of the bowels. One quart of raw linseed oil is about the safest physic a farmer can give a horse. Large doses of physic often cause abortion in brood mares, so always tell the veterinarian if the mare is pregnant.

Some horses are very subject to impaction, and in such cases the diet of coarse fodder should be restricted and a more laxative one provided, such as an occasional bran mash, a daily feed of roots, a pound of linseed meal added to the other grain ration, or a pint or more of stock molasses added to the grain once a day. It is very important that we prevent the brood mare from being constipated by giving a laxative diet, since the dose of physic given for impaction colic is liable to result in either abortion or death.

Spasmodic or Cramp Colic

This is not so common nor so dangerous as the other two forms. The nervous, high-bred road and saddle horses are more subject to this condition than the quiet, docile drafter.

Though we have enumerated most of the causes of colic under our general heading, yet with this form we must lay special emphasis on the action of cold substances in the horse's stomach. This is especially true if the horse is very warm or very tired. Therefore never give a horse a large amount of very cold water when he is heated or very tired. Water that has stood in the sun and thus has been rendered a few degrees warmer is much safer, since spasmodic colic is frequently seen immediately after drinking.

Symptoms. Spasmodic colic is very sudden in its onset. The horse stops eating, begins to crouch, kick at his belly, and turn his head toward the side. The pain is usually more or less intermittent. It may be intense for a few minutes and then suddenly cease and the horse appear normal. Soon another spasm occurs, however, and the horse is in greater agony than before. The ear applied to the side of the bowels usually detects an increased rumble, while in the other forms of colic, the rumble is usually decreased. The pulse is strong and breathing is natural.

Treatment. Anything to relieve the spasm is indicated. A hypodermic injection of two or three grains of morpine sulphate

in the neck will usually bring relief. Two or three tablespoonfuls of laudanum, given by the mouth, while not so rapid, generally effect a cure in a few minutes.

General conclusions on the treatment and prevention of colic

Very little has been said in the foregoing article about prevention of colic, although it is the essential thing in caring for horses. Since a somewhat lengthy discussion of the causes of colic has been given, it would be but a repetition of what has already been stated to include them again under the subject of prevention. A few suggestions that apply to all forms of colic are offered.

When horses are recovering from colic, farmers often tempt them to eat hay or grain. This is wrong. When a horse cannot digest his food, and colic results, he should not have more food, since that aggravates matters and often causes a relapse. Wait at least a couple of hours after all pain has subsided and then feed only a little hay, wheat bran, or possibly a very few oats. Horses that have had long sieges should be fed sparingly for several days. If they do not respond to treatment in a reasonable time a dose of physic should ordinarily be given. Usually about one quart of raw linseed oil is the safest thing for the layman to give. It usually takes from twenty-four to thirty-six hours, and often longer, to physic a horse, so do not make the mistake of repeating the second dose too soon, as it might kill the horse.

Rectal injections are very beneficial. Three or four gallons of water heated to body temperature, or even a little warmer if it does not inconvenience the patient, can be injected every hour or two. A cupful of raw linseed oil or glycerine, or even a little hard soap, is often added to the water. A very simple device on the farm is to use a rubber hose and a funnel. Care should be exercised to see that the hose is well oiled and is inserted into the rectum carefully. If much force is used the rectum may be ruptured.

In many cases the farmer does not know which kind of colic the horse has. He perhaps does not see the horse when first taken, and finds him suffering from pain, and, being somewhat nervous and excited, does fairly well if he will call it under the general name

colic. In such conditions a combination of drugs is indicated. A pint or even a little more of raw linseed oil is practically always good. To this add four tablespoonfuls of turpentine (the turpentine is for any gas that may be present or forming), and three tablespoonfuls of laudanum (the laudanum is to overcome the pain or any spasm of the bowels). Chloral hydrate has the combined action of the laudanum and turpentine, and, if used, both of the latter should be omitted. The dose is one ounce, or a level tablespoonful. This should be given in a quart of water, since it is very burning to the mouth. It makes the horse unsteady in his limbs and sleepy. The chloral may be repeated in about forty minutes if there is no improvement, but if repeated, give only one-half the amount. I think chloral hydrate is about the best all-around drug the farmer can keep for colic. There are a score or more of drugs used for colic, and if you have any particular drug or prescription that always cures and never fails by all means make no change.

Veterinarians today treat most of their cases with hypodermics that cause a rapid evacuation of the bowel and removal of gas. They should not be recommended for use by the average layman, because in some cases they would do serious injury.

AZATUREA — BLACK WATER — MONDAY MORNING DISEASE

This is a disease that primarily affects the well-fed and well-cared-for draft horse. Among farmers it is often considered a kidney trouble, owing to the thick, dark, coffee-colored urine, while in some localities it has been called paralysis or spinal meningitis, owing to the partial or complete paralysis of one or both posterior limbs.

Cause of the Disease

The causes of this trouble are not thoroughly understood, but self-poisoning from the blood is generally considered to be the principal one. The disease attacks the thriving, well-conditioned horse who has remained idle for one or more days without the customary amount of food being decreased. Usually the horse is fat, though this is not always the case.

One theory, and perhaps the most plausible one, is that during the days of idleness, the blood becomes charged with albumenoids,

due to high protein feeding without exercise. A large proportion of this over-rich blood remains in the liver, spleen, etc. Then, when the horse is taken out, the active exercise increases the heart and lung action and carries this torpid blood through the system too fast. As a result the system cannot accommodate itself to this sudden oversupply and take care of the excess of albumenoids, and so self-poisoning takes place. This is manifested by paralysis and a disturbed nervous condition. Exercise is always necessary for the development of this affection, so that a horse is never stricken in the stable, but on the road when he is being ridden or driven. A horse that is out of condition, with a rough, hide-bound skin, is practically never affected, neither is one that remains idle for long periods.

Symptoms

Usually when the horse first leaves the stable he feels unusually active and spirited, owing to his previous rest, but before he travels very far — sometimes not more than thirty or forty rods, though usually one or two miles — marked symptoms are observed. Horses have been known to travel several miles and be put into a stable and then come down with the disease. About the first noticeable symptom is that the horse suddenly begins to lag, does not drive up, and fails to respond to the whip. In the majority of cases he begins to sweat, sometimes very profusely. The characteristic symptom is the paralysis or loss of control of one or both hind limbs, though occasionally it is the fore limbs that are affected instead of the posterior ones. He begins to get stiff and drag one or both limbs. In the more severe cases, the affected parts are unable to sustain their share of the weight of the body. If both hind limbs are severely affected the horse goes down behind and may sit on his haunches like a dog. The muscles on the affected side along the loins, croup and buttock are dense, rigid, and hard, and can hardly be dented on pressure with the fingers. The rectum and bladder are usually paralyzed.

Treatment

Stop the animal at once on the appearance of the first symptoms, letting him stand thirty to forty minutes, which is usually long enough to afford time for the system to neutralize

and carry off the auto-intoxication. Keeping him perfectly quiet with as little movement of the affected muscles as possible will do more towards recovery than all the medical treatments we can render the animals. If the patient is down and unable to rise, he should be drawn to a near-by barn on a stone boat and made as comfortable as possible by being placed in a box stall, or on the open barn floor. In cases where the horse is down, or stands with difficulty, the services of a skilled veterinarian are needed as soon as possible, as the bladder usually needs to be emptied. The urine has a thick, coffee-like color from whence the disease gets its name, black water.

Until the arrival of the veterinarian the patient's suffering can be greatly relieved by applying some form of heat over the rigid muscles of the loins, croup, and thighs. Put a bushel of salt in pans and heat it in the oven; put it in sacks, and apply to the affected muscles. If hot water is used, care should be taken to see that the parts are well dried by rubbing with straw or clothes and then covered with blankets. A pail of hot water to which a cupful of salt is added is very effective.

It is very essential that we keep the patient quiet. If he gets uneasy and commences to toss his head up and down and tries to keep changing his position, he will soon end in a speedy death. A tablespoonful of potassium bromide given in a pint of water, and about half that amount repeated every hour or two until the patient is quiet and assumes a sleepy attitude, is very effective treatment. Fluid extract of cannabis indica can be given in the same way and in the same sized doses as the potassium bromide. Drinking water given every hour in reasonable amounts is recommended. Laudanum, though it would quiet the animal, is too constipating to be used. Bleeding, if it can be done at the onset, is one of the quickest ways to relieve the system of the over-rich blood. The rectum should be emptied by hot water injections. A good dose of physic and some medicine to stimulate the kidneys is usually recommended, but their use should be left to the judgment of the veterinarian.

Prevention

Since one attack of this trouble predisposes to others, it is essential that we avoid those things that favor its onset. Regular work every day is the surest way to prevent it. Though the system may

be rendered in such a condition by high feeding during a period of idleness as to predispose an attack, yet exercise is absolutely necessary to its development. Therefore on Sundays, holidays, and in stormy weather, when the horse does not receive exercise, it is important that we decrease the amount of grain, giving, perhaps, only half the usual allowance. A laxative diet, as a bran mash, on every Saturday night, or a small dose of physic during a period of rest is beneficial.

Since horses appear to be more subject to azaturea in the spring of the year, when farmers begin to increase their grain rations and get them into condition for the spring's work, a half to a tablespoonful of saltpetre in a bran mash every Saturday night for several weeks assists greatly in warding off an attack.

The driver can prevent the great majority of cases by making the horse walk the first half mile, and even if the work is severe, let him rest frequently during the first twenty minutes; or, better still, lead him a few minutes by the halter before putting him to severe exercise. Starting the horse in easy when he commences his day's work and letting him warm up slowly is advisable at all times, but it is very important if he has been standing for several days.

HORSE COMPANIONSHIP*

FRANK SHERMAN PEER, ITHACA, N. Y.

Author of "Soiling, Ensilage, and Stable Construction."

"When you are hot and thirsty
And you stop to get a drink,
Or seek a friendly shade tree,
Do you ever stop to think
That horses which have labored
In the dust and heat for you,
May feel the same as you feel,
And would like some water too?

It takes but little effort
For a man to till the soil,
If we compare his labor
With the way a horse must moil.
The horse serves well his master,
Although oft in need of rest:
The man who treats him kindly
Is the man he serves the best."

I have had a great deal to say about confidence and companionship between rider and mount, which I have declared to be better understood in England than in America. The average American seems to look upon a horse as simply a convenience, like the bicycle or the trolley cars — a means by which he may reach his destination sooner and with less fatigue than by walking. He presses a button and the horse is brought to the door, and when he is through with him a groom takes him away again. The horse does not attain to the confidence of his master as he does in England, where he becomes part of the family. There is nothing degrading in the idea of companionship with a horse. When one comes to think of it, many men and some women not infrequently have about them less edifying associates of their own kind. No man, woman or child was ever the worse for an intimate association with a well-bred horse or dog.

It cannot be too much insisted on that this companionship between horse and rider is the very essence of cross-country riding. Whoever has failed to secure the confidence of his mount and his mount's in himself has failed of enjoying the best half of the game. The right sort of man, even if he may hardly be feeling

* Extracts (by permission of the author) from *Cross Country with Horse and Hound*, by F. S. Peer.

well enough for a day's hunting, will go out rather than deprive his horse of the pleasure — a bit of self-sacrifice which sometimes happens in England, unusual as it may be on the other side of the Atlantic. The love of animals, especially of horses, is born and bred in the English people. Unlike some Americans, they one and all care enough for a horse that has given them a most glorious day's sport to stay at the stable and see him done up properly and fed before they dine themselves. In England the children are brought up from infancy to consider the feelings of all domestic animals. An old favorite mare soon to have a foal is talked over again and again, and the expectant mother has the best of care. Love and respect increase as the eventful time approaches. She is turned out on the lawn in front of the house where the grasses are tenderest and sweetest, and the best of everything is none too good for her. The children divide with her their candy; the baby is held up and taught to caress and love her. The dear old mare's matronly appearance is never a cause of shame, but a pride; and when at last she has produced her foal, the entire family, down to nurse and the baby, must all go down to the stable to see it. With such instincts, is it any wonder that Englishmen and Englishwomen love a horse? Is it any wonder that there exists between an English rider and his mount a potent feeling of companionship? Is it any cause for question why in England and Scotland there are a hundred and thirty-eight packs of hounds? Need one long inquire why this sport has such a powerful hold that it is followed unceasingly through youth, manhood and old age?

There seems to exist between man and beast a certain force by which the former is able to exert over the latter some subtle influence to which various names such as "bond of sympathy" or "an indefinable something" are occasionally given. So far as I am aware, no writer on hunting has attempted to advance any hypothesis which may reasonably account for the source of this power or define its scope and limitations.

We hear it said that dogs and horses love certain people because these people love them, and that this love itself explains their control over horses or dogs. "All dogs take to me," one person says; "I don't know why it is, but I can make them do almost anything." And, indeed, some persons easily teach a dog

or a cat or a bird a trick which another would require weeks to instruct them in, if he did not fail altogether. Yet, while it is true that a person who loves animals is more likely to train them easily, the power cannot be attributed to love, for often an entire stranger can make an animal do things which the owner, who loves the creature dearly and is in turn dearly loved, fails to accomplish. One man will take a horse that he has never seen or ridden before through a cross-country run to hounds, and bring him in at the death without exhausting him as much as his owner would, although the latter may be as good a horseman and lighter in weight. Every hunting field affords examples of this, which cannot be accounted for by difference of horsemanship. Writers on hunting all agree that some men can make a horse do most incredible things, and attribute this wonderful power of control to "better hands," "better seat," or what not. It must be admitted that a person with very bad hands or a bad seat, or both, may irritate a horse and take more out of him in a run than a man with perfect hands and seat; but an explanation on this basis does not account for the fact that a better rider and a lighter can come through a run with the better-conditioned horse pumped to a turn, while another man who has ridden the same line brings his horse in comparatively fresh; or that two such men may change horses in the next run and find the results change too. The fact has been demonstrated so often in every hunting-field that I need not enlarge upon it, except to say we must look further than any theory as to hands and seat, or the power of love, in explanation of such phenomena.

Most of my readers have doubtless seen, at exhibitions throughout the country, examples of the wonderful control some men have over animals, the wild becoming tame, the nervous quiet, and the vicious tractable under their magic influence. Such things are sometimes explained by the skeptics as the result of "doping." From personal knowledge, however, as a pupil of Rarus, and from personal acquaintance with the late Professor Norris, and since with his son Mr. Stuart Norris, who is following in the footsteps of his illustrious father in the training and exhibition of trick horses, I am positive in saying that there is absolutely no foundation in attributing to this "doping" theory the wonderful power of control which these men display.

Let us see if an attempt to puzzle out or analyze this power will not result in establishing its source. We may start with the assumption that the numerous terms in common use to define this power — charm, gift, personal magnetism, will power, natural instinct — go to show that its existence is recognized beyond doubt or question. An analogous power of control existing between man and man is familiar under the names of hypnotism, magnetism, mesmerism, or kindred mind-power manifestations. All mind-power manifestation, under whatever name, is, I believe, subject to one universal condition, namely, consent. The resemblance between the terms generally adopted in attempting to describe the power that some men have over their mounts, and the terms by which we try to describe hypnotism and other mind-power manifestations between men and men, is significant. One set of words applies just as fairly to the power some men are capable of exerting over some other men as they do to the powers which great animal tamers or our peculiarly gifted horsemen have over the animals they bend to their wills. That some men possess this power over animals and are unconscious of exerting it is no proof that the power does not exist. Hypnotism, though old in essence, is in practice very lately out of its infancy, yet making vast progress. Several physicians of my acquaintance are making use of it with most satisfactory results, even employing it in place of antiseptics when performing dental and surgical operations. So rapidly has this subject developed of late in the medical world that one of the most successful physicians of today says: "Within ten years from now no student of medicine will be considered master of the profession unless he is able to command this power." If this mind power between man and man is the same as that between man and beast, we have probably what may be termed a working hypothesis covering the whole field and reasonably accounting for many otherwise unaccountable things in the way of horsemanship.

We noticed, under the subject of mind-power manifestations as between man and man, that the one common factor prevailing in all is consent, which has its parallel in the relation between man and beast, called by whatever name. In all hunting countries there is a saying that in order to be successful in horsemanship one must first get on good terms with one's mount. Getting

on good terms with a horse is merely obtaining his consent to be governed. If these things be true, it brings us to the conclusion that this power emanates from the same source, whether exercised between man and man or between man and beast, and the working hypothesis we have set out to establish may be summed up as follows: (1) There exists a mind-power control between man and man; (2) there exists a mind-power control between man and beast; and (3) the power of control is the same in both cases.

This brings us to another point purposely omitted until now; namely, that while a person or a horse may be willing to be acted upon, the person seeking to control him must be desirous of doing so. In all hypnotic demonstrations there must be harmony, accord, or what the French term *rapport*. Further, this power, or desire, (1) exists in every person to a greater or less degree; (2) it is, like other faculties of the mind or body, subject to cultivation or development, and, like them, increases with use; (3) its manifestation is in a degree proportionate to the will of the one or the faith or confidence of the other.

THE NEW YORK STATE DRAFT HORSE BREEDERS CLUB

Realizing that an improvement in horse breeding conditions in this state could only be secured by cooperation, concentrated effort, education and publicity, a few draft horse breeders who met at the State Breeders' meeting at Utica, N. Y., in 1912, gave their support to this movement. Three annual meetings of this club have been held and the membership now comprises forty-two representative draft horse breeders. This organization has advocated and recommended that horse breeding be among the subjects discussed at the State Breeders' and Farmers Institute meetings; that a rational stallion enrollment and inspection law be passed; that a liberal classification and premium list be made for draft horses at our State Fair, and have advocated a combination in advertising, buying and selling of breeding stock so far as might be practical. The membership of this club is not restricted in any way. The name and influence of every draft horse breeder in the state is desired. This club advocates no one breed of horses and desires to benefit no one set of men or breeders, but is working for state-wide improvement and conditions, in the broadest and most practical way. The officers of The New York State Draft Horse Breeders' Club are: President, E. S. Akin, Glens Falls, N. Y.; Secretary, E. E. Horton, Lestershire, N. Y.; Executive Committee, Darwin Rumsey, Newfield, N. Y., Dr. J. S. Wilder, Akron, N. Y. and S. A. Ritter, Geneva, N. Y.

CLUB MEMBERS SEPTEMBER 1, 1915

Adirondack Farms, Glens Falls
Akin, E. S., Syracuse
Amos, C. L. Syracuse
Andrews, B. B., Weedsport
Baker, C. H., Mohegan Lake
Bennett, C. O., Hilton
Chapin, R. E., Batavia
Cooley, A. H., Little Britain
Craig, J. L., Ogdensburg
Crouse, C. M., Syracuse
Denison, L. O., Buffalo
Doremus, G. S., Merrifield
Dold, J. C., Buffalo
Foran, John, Merrifield
Gray, G. F., Lima
Harder, E. L., Philmont
Hillman, W. M., East Bethany
Horton, E. E., Lestershire
Jackson, J. A., Holley
Johnson, A. B., Caledonia
La Grange, C. C., Slingerlands
Marshall, W., Aurora
Miller, C. L., New York
Miller, C. P., Byron
Miller, G. W., Byron
Miner, W. H., Chazy
Newman, A. W., Phelps
Newman, R. C., Phelps
Phetteplace, G. E., Norwich
Quimby, J. G., New York
Ritter, S. A., Geneva
Rumsey, Darwin, Newfield
Sisson, G. W., Jr., Potsdam
Stone, G. F., Norwich
Swain, W. E., Swains
Taylor, C. C., Lawtons
Virkler, C. F., Lowville
Virkler, W. F., Castorland
Ward, F. D., Batavia
Weaver, G. H., Watertown
Wendt, W. F., Buffalo
Wilder, J. S., Akron

STATISTICS RELATIVE TO HORSES ON FARMS IN NEW YORK STATE

(TAKEN FROM U. S. CENSUS, 1910)

County	Total number	Number Mature Horses	Number Yearling Colts	Number Spring Colts	Value
Albany	8,780	8,470	255	55	$1,273,692
Allegany	13,542	12,627	810	105	1,839,085
Broome	8,672	8,238	387	47	1,087,782
Cattaraugus	13,888	13,040	756	92	1,792,192
Cayuga	15,540	14,767	689	84	2,071,776
Chautauqua	17,363	16,440	831	92	2,288,348
Chemung	5,431	5,104	277	40	648,199
Chenango	10,493	10,055	397	41	1,338,033
Clinton	10,415	9,676	690	49	1,310,434
Columbia	9,050	8,827	194	29	1,244,941
Cortland	7,033	6,685	321	27	890,897
Delaware	12,022	11,582	404	36	1,584,680
Dutchess	10,945	10,546	341	58	1,505,709
Erie	20,839	19,980	728	131	2,891,072
Essex	5,907	5,534	349	24	779,847
Franklin	9,262	8,580	641	41	1,137,482
Fulton	4,064	3,851	198	15	543,860
Genesee	12,988	12,271	597	120	1,766,628
Greene	6,174	5,982	165	27	857,034
Hamilton	816	783	32	1	126,107
Herkimer	8,213	7,868	307	38	1,144,576
Jefferson	17,746	16,708	892	146	2,192,669
Kings	221	221	...	...	44,247
Lewis	8,037	7,711	288	38	1,059,416
Livingston	13,598	12,700	780	118	1,919,251
Madison	11,282	10,724	509	49	1,468,716
Monroe	20,639	19,675	784	180	3,233,135
Montgomery	7,639	7,221	327	91	1,065,093
Nassau	3,860	3,817	36	7	759,364
New York	383	380	3	...	48,975
Niagara	15,510	14,583	738	189	2,300,416
Oneida	16,252	15,738	470	44	2,363,190
Onondaga	17,128	16,373	676	79	2,351,464
Ontario	15,620	14,732	746	142	2,132,928
Orange	10,723	10,366	293	64	1,619,266
Orleans	10,924	10,285	521	118	1,681,456
Oswego	13,529	12,846	629	54	1,682,652
Otsego	13,258	12,673	519	66	1,658,469
Putnam	2,195	2,138	42	15	344,234
Queens	1,914	1,912	1	1	378,784
Rensselaer	9,666	9,373	273	20	1,337,347
Richmond	378	377	....	1	73,020
Rockland	2,040	2,008	29	3	318,605
St. Lawrence	22,665	21,235	1,281	149	2,694,836

County	Total number	Number Mature Horses	Number Yearling Colts	Number Spring Colts	Value
Saratoga	8,115	7,870	217	28	$1,066,762
Schenectady	3,162	3,045	93	24	428,430
Schoharie	8,237	7,919	270	48	990,987
Schuyler	5,392	5,090	270	32	667,213
Seneca	7,879	7,365	414	100	1,039,821
Steuben	20,506	19,226	1,130	150	2,613,884
Suffolk	6,347	6,273	66	8	904,696
Sullivan	7,215	6,823	321	71	945,919
Tioga	6,619	6,191	382	46	798,691
Tompkins	8,120	7,718	351	51	991,995
Ulster	9,724	9,576	127	21	1,354,656
Warren	3,221	3,066	147	8	428,997
Washington	10,070	9,614	423	33	1,337,332
Wayne	15,373	14,590	679	104	2,099,853
Westchester	5,392	5,274	90	28	1,052,720
Wyoming	11,732	11,117	551	64	1,586,543
Yates	7,270	6,851	346	73	984,895
The State	591,008	562,310	25,083	3,615	$80,043,302

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