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From Steppe to Stable: Horses and Horsemanship in the Ancient World

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From the Steppe to the Stable: Horses and Horsemanship in the Ancient World

by

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INTRODUCTION: HORSES AND HUMANS

The horse evokes powerful symbolism. He represents wealth, power and conquest. His image graces the emblems of high-octane sports cars like Ferrari, Porsche and Mustang. Royal families own stables full of priceless, purebred horses often found competing on the polo field, racetrack and the Olympic disciplines of dressage, eventing and show jumping. Horses can be found with starring roles in celebrations and memorials. Indeed, it is almost impossible to imagine a world without the horse. Stephan Budiansky, however, in his book *The Nature of Horses* has a chapter entitled 'The Improbability of the Horse' in which he argues that the horse would have gone extinct had it not been domesticated.[1] To most people this might seem a rather far-fetched idea. After all, there are hundreds of millions of horses all over the world today. In fact, there are more horses on the planet now than there ever have been before. Budiansky, however, is not off the mark with his assessment. One need only look to the non-domesticated relatives of the horse to see the truth in his statement. The quagga, tarpan and Syrian wild ass are extinct; Grevy's zebra is a threatened species; the Mountain zebra, Persian onager and Asiatic wild asses are endangered. The Przewalski horse went extinct in the wild in the 1960s and survived only in zoos through intensive conservation practices. Although the Przewalski horse has been re-released onto reserves in Mongolia, it is still on the endangered species list. History makes it clear, then, that domestic equids have thrived while their wild counterparts have suffered.

The domestication of the horse sometime in the 4th millennium BCE altered the future not only of equines, but of humans as well. The horse turned out to be a pretty

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[1] S. Budiansky, *The Nature of Horses* (New York, 1997) 9-38.

useful animal. Cultural, technological and military evolution would have been much slower without them as humans plodded along on donkey-back or in their ox-carts. It is safe to say, I think, that the horse very quickly entrenched himself as an essential part of the human world. To understand how firmly equines have rooted themselves in the human psyche we need only look at the history of the horse after the industrial revolution. With the increasing mechanization of transportation, warfare and labour, it was commonly thought that the horse would disappear as he no longer served any practical function and was, at the end of the day, expensive to maintain. The horse remained resilient and re-invented himself. No longer a 'practical' tool, he became an athlete, companion and pet.[2] Horses competing at the top echelons of their sports can be worth millions of dollars and live lives of pampered luxury attended by a retinue of grooms, veterinarians, massage therapists, physiotherapists and chiropractors. Then there is the chubby, backyard pony – part lawnmower, babysitter, therapist and teacher. One might be tempted to assume that the horse-human relationship - this affectionate, personal bond between equine and human – is a relatively modern development. If we turn to the historical record, however, it becomes clear that this emotional attachment is nothing new.

Human fixation or fascination with the horse appears in full force with the Paleolithic cave art from Southern France, Northern Spain and Northern Portugal carved and painted between 30,000 and 8,000 BCE. These dramatic, often larger than life murals are found deep inside labyrinthine passages at places like Altimerra, Lascaux and Chauvet. They depict a variety of animals including bison, deer, rhinoceroses, mammoths, lions and, of

[2] Notwithstanding the fact that in many parts of the world equids still provide a more practical source of transportation than vehicles.

course, horses. This veritable zoo is made up of *wild* animals. The only representations of human-animal interactions are found in hunting contexts. Yet, even in this period the horse is the most prevalent species on display, appearing with a much greater frequency than any other animal. If we keep in mind that these are wild horses with no apparent connection to humans aside from serving as a food source, how do we account for their frequent and often lifelike appearance in art? Why were prehistoric humans so fascinated with the horse?

This question becomes more convoluted when we introduce domestication. Given the human fascination with the horse from as early as 30,000 BCE, we might expect it to have been one of the earliest domesticated mammals. This is not the case. The horse was domesticated long after dogs, cats, cattle, goats, sheep and pigs. Recent evidence from the Botai culture of Kazakhstan suggests that domestication occurred around 3500BCE. Even after domestication the horse continued to serve as a food source; indeed this was the reason for his domestication in the first place. No one can say when exactly someone first realized he could climb onto the back of a horse and harness its power for his own advantage, but once it happened the horse-human relationship changed irrevocably. The horse enabled humans to move beyond the boundaries of their valleys and villages and into the wider world. He allowed cultures to interact with each other and for trade to flourish. 'High speed' communication systems developed and warfare began to take place on a much vaster scale. Humans quickly came to rely upon the horse for numerous tasks; so much so that it no longer seemed possible for a society to function without them. Once a culture was introduced to the horse, he very quickly took up an essential role in the fabric of their daily lives. This dependence necessitated a shift in the

horse-human relationship. No longer was the horse simply a source of nourishment. This new relationship cannot be called one of master and servant. In fact, the ancient evidence does not often convey the idea of submission or servitude in the horse; instead it seems to have been one of equals or even of affection and friendship.[3]

The horse-human relationship permeates the entirety of the ancient world. It is found throughout art and literature. One might not expect the horse to be an artistic focus in a place like Greece – a region with very few suitable horse-breeding areas – but he is everywhere in Greek art. Once you begin to collect all of the evidence for interactions between horses and humans, the human connection with the horse begins to border on obsession. The Greeks even had a world that summed up this relationship perfectly *'hippomania.'*[4]

The history of the horse, then, is closely intertwined with that of humans. Equids have played an indispensable role in the evolution of human culture for thousands of years. By far the most significant role fulfilled by the horse has been on the battlefield. The martial debt owed to the horse has been immortalized by monuments and epitaphs like that dedicated by Damis to his 'steadfast war-horse/Pierced through the breast by

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[3] The beaten/submissive/worn out horse appears in Roman literature as a *topos* for the human condition. For example, Juvenal writes:
Tell me, o scion of Trojans, what's the first characteristic of a thoroughbred? Speed and strength. The horse we most admire is the one who romps home a winner, cheered on by the frenzied roars of the crowd. Good breeding doesn't depend on fancy pasturage; the thoroughbred earns his title by getting ahead of the field, by making them eat his dust. But if he's seldom victorious, the auction-ring will claim him, though his pedigree may be starred with every legendary name from the stud-book…Sold off at knock-down prices, constantly changing hands, these slow and plodding descendents of noble bloodstock will end up turning a mill wheel, neck-galled from the collar, fit for no other work.
Juvenal *Satires* 8.56-68
[4] *Hippomania* 'Mad love for horses' as translated in Liddell and Scott.

gory Ares'[5]. The courageous glory of the warhorse has been praised in every genre of literature. The *Book of Job* recounts how the horse 'mocks fear and is not dismayed; he does not turn away from the sword nor the rattling quiver, the flashing spear and the javelin'.[6] The sacrifices made by military horses are still honoured by charities such as the Brooke Foundation and on screen and stage in blockbusters such as 'Warhorse.'

In the field of military history the study of cavalry is a popular subject. Articles, monographs and edited volumes on the mounted units of the ancient world abound. The majority of this work, however, focuses on cavalry tactics and logistics. Research on ancient cavalry has long followed the same trends as other work on warfare in antiquity. Painstaking attention is given to the minute details of a battle or campaign: supply lines, climate, topography, arms and armour, strategies and tactics. We dissect with great detail the effectiveness or ineffectiveness of a particular unit or style of fighting. Nonetheless, military historians have habitually overlooked one very important component of warfare in antiquity: the horse.

Cavalry units are arbitrarily defined as 'heavy' or 'light,' but there is not a standard definition for what these terms designate. Their meanings change between cultures and centuries. Furthermore, very little attention is devoted to the horse himself. All military equines are lumped together in one mould. Rarely do analyses of cavalry tactics mention, let alone discuss, how equine behaviour and conformation influenced weaponry, armour and fighting style. Only by establishing how horse type (form) influenced military use (function) can we truly begin to examine and understand the tactics and details of cavalry battles.

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[5] *Greek Anthology volume II* (Cambridge) 208.
[6] *Book of Job* 39.20-22

In this dissertation I use equine iconography, literary descriptions, material remains, native breeds and experimental archaeology to establish the regional typology of horses found in the ancient world. These types are categorized as Mediterranean, Central Asian, and Near Eastern. Having introduced these types, I will explain how the physical form (conformation) of each type influenced its use on the battlefield. Further, this dissertation will explore the notion that culture-specific tactics and armament developed as a result of particular equine idiosyncrasies found within each type. Finally, the potential strengths and weaknesses of the types will be discussed in relation to their training, maintenance and military use.

PURPOSE OF THIS DISSERTATION

This dissertation is a re-evaluation of the horse in the ancient world. By re-evaluation I mean a new approach for studying the horses of antiquity and the way they were used by humans. This approach is based not on humans and human controls – looking at how humans manipulated the horse to serve their own purposes – rather, it seeks to examine the equines of antiquity from the viewpoint of the horses themselves. Scholars have commonly viewed the horse as a tool of civilization. In this sense equines have been 'studied' as simple objects with the basic philosophy of 'a horse is a horse.' This however, leaves a substantial gap in our understanding not only of equine history but also of ancient history as a whole. Horses hold an essential place in the history and development of cultures. The importance of the horse in history is not something that is mere hindsight. The significance of the horse was apparent even in antiquity, a fact made clear by the prominence of the horse in the art, literature and religions of the ancient world. By ignoring the horse, or treating it in a very general sense, we are allowing large

gaps to grow in our scholarship. Thus, we must begin to approach the study of ancient history, and particular warfare, from a new perspective. This dissertation does just that. It is a comprehensive examination of equines in antiquity, or rather, an examination of ancient history from the viewpoint of the horse and his impact on the human world.

This is accomplished by looking at the conformation – physical form – of the horse and how this determined function. In other words, the main premise of this dissertation is to show that humans imposed very few controls on the horse; they did not attempt to manipulate him to create something new. Rather, they used their native horses - the animal best adapted to their local environment. In order to understand this, we must first establish a typology for the horses of the ancient world. This typology is created via a number of sources. These will be discussed in the methodology section of this dissertation. The typology is based entirely on conformation and how this conformation is the direct result of environmental elements with very few human factors influencing it. Having established this, we move on to explore how conformation dictated function. This dissertation focuses mainly on the use of the horse in war. This is because warfare and its associated tasks served as the primary equine job in antiquity. Other functions such as use in daily life and sport are explored when they relate to the training of the military horse or have an influence on how horses were used on and around the battlefield.

Chapter one provides a background and introduction to the subject by looking at previous work on the topic of horses in the ancient world. This work can be divided into publications on the military horse, the history of horse breeds, the general history of the horse and the horse in art. Each genre is discussed in some detail with a brief overview

of significant publications as well as the benefits and disadvantages each topic has for the current study. Having introduced this work, we go on to explain how this dissertation will provide a new and different approach to the topic by reiterating the significance of studying ancient history, and equine history in particular from the point of the horse. The second part of this chapter describes the methodology used to deal with the subject matter. Four source-types are used and the purpose of each is explained in detail. These sources are: artistic representations, literary evidence, other material evidence and experimental archaeology. The methodological approach used in this dissertation is one of the significant new contributions to the field. The horse is a unique conduit to ancient history because the animal himself has changed very little since the time of his domestication. The basic requirements and behaviour of the modern North American horse are very similar to those of the ancient equine. The various sources are approached from the understanding that the horse held a significant role in ancient societies - if he did not, he would not be so prominent in the historical record. This means that we can use sources previously scorned or glossed over as legitimate indicators of equine appearance and behaviour. In particular this refers to the artistic and literary record. In both of these sources references to horses are numerous. The constancy of the horse also allows for the use of comparative studies with living 'native' types from the relevant parts of the ancient world - an opportunity to use living examples to understand a particular aspect of antiquity, as well as experimental archaeology.

Chapter two details the early history of the horse, beginning with a brief outline of the evolution of the horse. This is not meant to be a detailed scientific study of equid evolution, but rather a way of introducing the concept of environmental impact on

physical development. The ancestors of *Equus* evolved and adapted over 55 million years to survive in a changing world, from the solitary, forest-dwelling, leaf-eating 4-toed *Hyracotherium/Eohippus* to the plains-dwelling, herd-based, single-toed *Equus*. Humans had very little physical interaction with the ancestors of *Equus* and so had no part in determining physical development. The animal we call *Equus* first appeared approximately five million years ago, and his habitat covered most of the world. By around 10,000 years ago, however, *Equus* had disappeared entirely from North and South America, surviving only in parts of Europe and Asia. Like his ancestors, *Equus* was physically adapted to live in particular ecosystems, and these were not uniform across Europe and Asia. Thus, different physical types developed depending on their geographical location. These prehistoric types are commonly referred to as the ancestral horses. They are all the same species, *Equus*, but physically distinct types. These ancestral horses are the representatives of *Equus* who lived wild across Asia and Europe prior to the domestication of the horse. Again, the discussion of these ancestral types serves to demonstrate how much of an impact environmental conditions had on the development and appearance of the horse before any direct human influence. Five case studies follow, the purpose of which is to show several living representatives of the ancestral types: the Exmoor Pony, Przewalski Horse, Akhal Teke, Iberian horse (Asturian and Sorraia) and Caspian Horse. These case studies are not meant to prove the purity or antiquity of any of these horses. Instead they show how a particular physical type can persist over thousands of years because of its ideal adaptation to environment. All five case studies also serve as excellent examples to show how too much human interference on the manipulation of conformation can be a disaster.

Chapter three tackles the question(s) of conformation. Understanding equine conformation is an essential part of this dissertation as the whole premise hinges on the question of form. The first question addressed is the classification of the horses of the ancient world as 'types' instead of 'breeds' and why this is both important and significant for determining the use of equines in antiquity. Today we refer to horses as breeds, and many translators of the ancient agricultural and hunting texts frequently use the word breed, even if it is not the most accurate translation of a term. This is largely due to our modern concept of breed classification, which, as Chapter three explains, is anachronistic. The term 'type' is more applicable, especially in reference to the equines of antiquity. Type indicates a specific physical form intended to perform particular tasks, not an artificial classification based on human notions or stereotypes. This is followed by a brief analysis of the ideal horse as described in ancient literature. These descriptions are solely from the Greek and Roman world, but the ideals set out in them are, for the most part, universally applicable to the horse. The differences in environmental adaptation can be slight, and the basic conformational necessities for a strong, sound horse are constant. Having established this, we go on to explain in detail the conformational ideals and faults of the parts of the horse with regards to function.

Chapter four is the first of three chapters focusing on specific equine types. It is a detailed examination of the Central Asian horse. We begin with an overview of the climate and topography of the Central Asian steppe, looking at perceptions of its landscape in antiquity and today. This serves to set the stage for our discussion of the Steppe horse and how it is the direct result of the harsh Central Asian environment. The appearance of the Steppe horse is established based on the numerous sources described in

the methodology section of this dissertation. We then explain how this conformation is ideal for survival on the Steppe. Next is a discussion on how the Steppe horse influenced daily life among the nomadic inhabitants of the Eurasian steppe. Further, we look at how husbandry practices were directly related to environmental conditions, and not based on human desires. Finally, we combine the three previous discussions on environment, appearance and husbandry/daily life to examine the use of the Steppe horse in warfare.

Chapter five focuses on the Near Eastern horse. The Near East is interesting because it produced more than one type of horse. After an examination of the climate of topography of the Near East, this should not be a surprise: the Near East is the most geographically rich region studied in this dissertation. Likewise, it is equally diverse with regards to lifestyle and animal husbandry practices with everything from steppe-type nomads to major urban centers. This led to the development of multiple fighting styles/methods of deploying the horse in war ranging from the steppe-type horse archer, to the heavily armored cataphract of the Parthian empire. Despite these variations, we see that the use of the horse is still dictated entirely by its conformation, with distinct types being used for each style of fighting.

Chapter six focuses on the Mediterranean horse. The basic layout of this chapter is the same as Chapters four and five, using environment, conformation and husbandry practices to determine how the Mediterranean type was used in war and why it was used this way. Of all the types studied in this dissertation, the Mediterranean type experiences the most human influence, and this is due primarily to environmental factors and the urbanization of the Mediterranean world. Nonetheless, the Mediterranean horse is ultimately still controlled by the basic factors of conformation and environment. A

detailed discussion of the numerous uses for this type on campaign concludes this chapter and it is interesting to see how much social constructs play a role in cavalry deployment, especially when compared with the Steppe and Near Eastern types.

CHAPTER ONE: RESEARCH METHODS

PREVIOUS WORK

Previous research on the horse in the ancient world can be organized into four categories: The military horse/cavalry; the history of horse breeds; the general history of the horse and the horse in art. Within these categories, further division can be made between those authors with horse experience and those with little or none.

THE MILITARY HORSE

Work on the military horses of antiquity is by far the most popular subject of the three categories. Articles, monographs and edited volumes on the cavalries of Greece and Rome in particular abound.[7] The vast majority of this work, however, focuses on cavalry tactics and armament. Very little attention is given to the horses themselves, or their maintenance and training. The general consensus seems to be 'a horse is a horse' – it has four legs, can be unpredictable and is expensive to purchase and keep. In discussions of cavalry tactics and deployment, there is no discussion of how equine behaviour and physical type related to weaponry, armour and use on and off the battlefield. This is most unfortunate. It is only by furthering our understanding about how horse type influenced use that we can begin to dissect the strategies and tactics of generals and the events of ancient battles in greater detail.

One of the most thorough studies of the mechanics of cavalry organization and maintenance is I. Spence's *The Cavalry of Classical Greece,* which deals primarily with

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[7] See for example: R. Drews, *Early Riders: The Beginnings of Mounted Warfare in Asia and Europe.* (London, 2004), R. Gaebel, *Cavalry Operations in the Ancient Greek World.* (Norman, 2002), P.A.L. Greenhalgh, *Early Greek Warfare: Horsemen and Chariots in the Homeric and Archaic Ages*. (London, 1973), M. Speidel, *Riding for Caesar: The Roman Emperors' Horse Guards*. (Cambridge 1994), L. Worley, *Hippeis: The Cavalry of Ancient Greece.* (Boulder,1994).

the socio-political role of the *hippeis* in Athens. Of particular interest is his discussion of costs associated with purchasing and maintaining a horse.[8] Spence does not, however, go into the specifics of horse ownership, or the types of horses that were being used by the Athenian cavalry. Likewise, G. Bugh's, *The Horsemen of Athens* examines the social and political place of the Athenian cavalry, including the *dokimasia* and state support of the *hippeis*.[9] One issue connected with many discussions of cavalry practicalities is that most work describes only the situation in Athens.[10] This is, in part, because the majority of the surviving material about cavalries comes from Athens, but it nonetheless does limit our depth of knowledge. It is a well-established fact that each *polis* had its own form of political and military organization, thus the situation in Athens regarding the cavalry cannot necessarily serve as a template for the other Greek *poleis* and certainly not for regions outside of the Greek peninsula. Likewise, numerous articles exist detailing the organization of the Macedonian cavalry, primarily during the reign of Alexander the Great.[11] This does not, however, discount the usefulness of the work produced by authors such as Bugh and Spence. As will be seen throughout this dissertation, the basic

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[8] I. Spence *The Cavalry of Classical Greece: A Social and Political History.* (Oxford, 1995) 272-286.
[9] G. Bugh, *The Horsemen of Athens.* (Princeton, 1988), pp. 15-20 and 52-74.
[10] See for example: G. Bugh, 'Cavalry Inscriptions from the Athenian Agora', *Hesperia* 67.1(1998) 81-90, J.A.S Evans, 'Cavalry about the Time of the Persian Wars: A Speculative Essay', *Classical Journal* 82.2(1987) 97-106, JH Kroll, 'An Archive of the Athenian Cavalry', *Hesperia* 46.2(1977) 83-140, E. Posner, 'The Athenian Cavalry Archives of the Fourth and Third Centuries BC', *The American Archivist* 37(1974) 579-582.
[11] See for example: P.A. Brunt,'Alexander's Macedonian Cavalry', *Journal of Hellenic Studies* 83(1963) 27-46, GT Griffith 'A Note on the Hipparchies of Alexander', *Journal of Hellenic Studies* 83(1963) 68-74, J. Hamilton, 'The Cavalry Battle at the Hydaspes', *Journal of Hellenic Studies* 76(1956) 26-31, P.A. Manti, 'The Cavalry Sarissa' *Ancient World* 8(1983) 73-80, M.M. Markle, 'Use of the Sarissa by Philip and Alexander of Macedon', *American Journal of Archaeology* 82.4(1978) 483-497.

requirements and behaviour of all horses are the same; thus the general logistics used by the Athenian cavalry can be taken as a starting point for looking at other regions of the ancient world.

Modern research on the logistics of ancient cavalries is, for the most part, purely speculative.[12] One cannot expect to come to any firm conclusions about cavalry logistics if horse types are not taken into consideration. The nutritional needs of a horse vary significantly between types. Some types – such as the native Mongolian horse- can survive in the harshest of conditions with little food, water and shelter. This hardiness does make them comparatively small with regard to other native breeds. Other types – such as the Nesaean of ancient Media – are much more robust, but they require much high-protein fodder to maintain their body condition. Thus, it is essential to identify both type and environmental conditions if we want to establish reliable logistical tables. There is no standard ratio we can use for equine nutritional requirements. So, just as with cavalry tactics, details of supplies and logistics can only be determined with any certainly if we establish equine types for the ancient world.

Many military authors are dismissive of the abilities of ancient cavalries particularly with regard to:

1. The absence of stirrups. The reasoning is that the lack of stirrups translates into lack of balance or security

2. The size of the horses. A small horse lacks strength and power.

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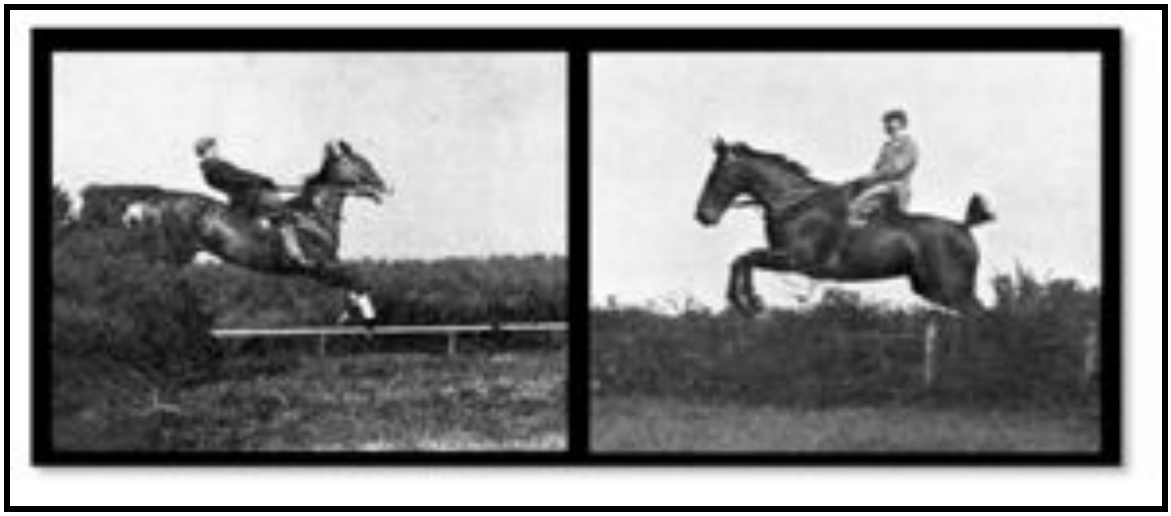
[12]See, for example: D.W. Engels, *Alexander the Great and the Logistics of the Macedonian Army,* (Berkeley 1978); J.P. Roth, *The Logistics of the Roman Army at War (264 B.C.-A.D. 235)*. (Leiden, 1999).

Certain authors, such as R. Drews, are particularly critical in their assessment of early horsemanship because the riding style of ancient horsemen differed from ours, often favouring the chair or donkey seat.[13] Just because they had a different style of riding does not make them weak or ineffective. Riding style is very much a cultural phenomenon based on horse type, terrain and the use of the horse in that society. The 'forward' seat now used in jumping is a modern development, created by the Italian horseman Captain Frederico Caprilli (1868-1907) who realized the horse could jump with more power and balance if his rider shortened his stirrups, and leaned forward with the horse's center of gravity over the obstacle.[14] Before Caprilli's discovery, horsemen would sit down and lean back as the horse jumped. Today's jumpers would be aghast at such a style of riding, even though it was done for hundreds of years.



The pre-Caprilli style of jumping. www.equestriancoach.com

[13] R. Drews, *Early Riders: The Beginnings of Mounted Warfare in Asia and Europe*. (London, 2004).
[14] Edwards (1994) 344.

Frederico Caprilli demonstrates the forward seat
equestriancoach.com

Some publications on the cavalries of antiquity are just too wide ranging.[15] This often leads to the creation of broad generalizations. More specific works focus on either the Greek, Roman or Near Eastern cavalry, or combination of the three.[16] These works, however, are often so focused on a particular region/culture, that they do not allow for or discuss the potential for crossover between cultures or the transmission of equestrian traditions.

In general, previous works on the military horses of antiquity are very useful for their descriptions and summaries of battles and battlefield tactics, as well as for some

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[15] R. Gaebel, *Cavalry Operations in the Ancient Greek World*. (Norman, 2002); A. Hyland, *The Horse in the Ancient World*. (Westport, 2003); P. Sidnell *Warhorse: Cavalry in Ancient Warfare*. (New York, 2006).

[16] J.M. Camp, *Horses and Horsemanship in the Athenian Agora*. (Athens, 1998); K. Dixon and P. Southern, *The Roman Cavalry: From the First to the Third Century AD*. (London, 1997); M. Gabrielli, *Le Cheval dans l'Empire Achéménide*. (Istanbul, 2006); R. Gaebel, *Cavalry Operations in the Ancient Greek World* (Norman, 2002); P.A.L Greenhalgh, *Early Greek Warfare: Horsemen and Chariots in the Homeric and Archaic Ages*. (London, 1973); A. Hyland, '*Equus': The Horse in the Roman World.* (London, 1990); A. Hyland, *Training the Roman Cavalry: From Arrian's 'Ars Tactica'*. (London, 1993); M. Speidel, *Riding for Caesar: The Roman Emperors' Horse Guard.* (Cambridge, 1994); C. Tuplin, 'All The King's Horses: Achaemenid Cavalry'. (Leiden, 2010); L. Worley, '*Hippeis'; The Cavalry of Classical Greece.* (Boulder, 1994).

information about arms and armour, but they ignore the horses themselves and neglect to take into account the importance of horse types for the development of both tactics and equipment.

HISTORY OF HORSE BREEDS

A second category of work relating to the horse in the ancient world is the history of particular horse breeds.[17] Without a doubt, there are some 'breeds' that have been around for several centuries, and even millennia. Writing the history of the horse based on the antiquity of a particular breed is rife with problems.[18] Firstly, there is no way to prove a specific *breed* can be traced back with pure, unadulterated lines to antiquity. Formalized studbooks and registries are a fairly recent development. Moreover 'breed' itself is a relatively modern, artificial term, as I will discuss in Chapter three. When looking for living representatives of the horses of antiquity, we have to look at types, particularly the

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[17] D.M. Goodall attempts to tackle this topic in her book *A History of Horse Breeding* (London, 1977).

[18] The breeds commonly used are the Arabian, Iberian (Andalusian, Carthusian, Lusitano) or the Akhal-Teke/Turanian horse. For work on specific breeds see: S. Baker, *Exmoor Ponies, Survival of the Fittest: A Natural History*. (Somerset, 1993); G.H. Conn (ed), *The Arabian Horse in Fact, Fantasy and Fiction*. (New York, 1959); R. D'Andrade, *O Cavalo Andaluz de Perfil Convexo.* (Lisbon, 1941); E. Daumas, *The Horses of the Sahara.* (Austin, 1968); A.A. Dent and D.M. Goodall, *The Foals of Epona: A History of British Ponies from the Bronze Age to Yesterday*. (London, 1962); Exmoor Pony Society, *The Exmoor Pony*. (Tiverton, 2000); L. Firouz, *The Caspian Miniature Horse of Iran*. (Private, 1972); A. Golshan, *Introduction to the Turkmen Horse in Iran*. (Tehran, 2005); P.G. Gonzaga, *A History of the Horse: The Iberian Horse from Ice Age to Antiquity*. (London, 2004); B. Hendricks, *International Encyclopedia of Horse Breeds*. (Norman, 1995); S. Loch, *The Royal Horse of Europe: The Story of the Andalusian and Lusitano*. (London, 1986); F. Lynghaug, *The Official Horse Breeds Standards Guide*. (Minneapolis, 2009); P. Maddison-Greenwell and J. Lake, *Living and Working with the Horses of Spain*. (London, 2006); S. Olsen and C. Culbertson, *A Gift from the Desert: The Art, History and Culture of the Arabian Horse* (Lexington, 2010); W. Ridgeway, *The Origin and Influence of the Thoroughbred Horse*. (Cambridge, 1905); C. Shirliyev, *The Divine Alhalteke Horse*. (Ashgabat, 2003); H. Silvester, *Horses of the Camargue*. (New York, 2002); J. and M. Speed, *The Exmoor Pony: Its Origins and Characteristics*. (Colonsay, 1977).

appropriateness of a type to a specific environment. Moreover, one cannot attempt to prove the antiquity of a particular breed without manipulating the sources to some extent. The authors who do so are typically breeders/owners/aficionados of said breed and thus can be somewhat biased with regard to the merits of that particular equine. If we are to further our knowledge of the horses of antiquity, we must take a disinterested approach to modern breeds, and further, not compare them with the horses we are accustomed to in the western world today. The horse of Western Europe and North America has, for the most part, become specialized to a high degree. The old-fashioned, all-around 'good-doer' has become rare in a world of purebred sport horses.[19] Even breeds renowned for their versatility and hardiness, such as the American Quarter horse, have become specialized to an almost detrimental degree. Likewise 'old' breeds such as the Arabian are being bred for a specific appearance and task. Rarely living as their Bedouin ancestors did, they have become pampered, spoiled and in some cases over-bred. Thus the importance of viewing the horses of antiquity as separate entities, but at the same time as the foundation stock, of our modern day horses in the west. In recent years scientists have also become interested in the lineage of modern horse breeds. Numerous articles have been published which are analyses of the DNA of ancient horse remains and its connection to modern or native horse breeds.[20]

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[19] The term 'good-doer' refers to a horse that can survive on basic rations of hay or grass while still being capable of working all day. These horses can survive out in the weather without blankets, and usually do not need to wear shoes as their feet are quite durable.
[20] K.S. Aberle et al, 'Genetic Diversity in German Draught Horse Breeds Compared with a group of Primitive, Riding and Wild Horses by means of Microsattelite DNA' *Animal Genetics* 35.4 (2004) 270; A.P. Apostolidis et al, 'Comparison of Greek Breeds of Horses using RAPD Markers' *Journal of Animal Breeding and Genetics* 118.1 (2001) 47-56; M. Avdi and G. Banos, 'Genetic Diversity and Inbreeding in the Greek Skyros Horse' *Livestock Science* 114.2 (2008) 362-365; E. Bömcke et al, 'Genetic Variability in the

GENERAL HISTORY OF THE HORSE

Publications on the history of the horse can be subdivided into two categories: academic and popular. This topic is a difficult one to cover with any degree of thoroughness. The history of *Equus* encompasses a period of over 5 million years. The horse has been actively involved in human culture since at least 3000 BCE as a domesticated mammal, but artistic and material remains indicate that humans had a fascination with the horse long before its domestication. It is clearly impossible to chronicle the history of equines in a single volume with any detail.[21] Most of the academic work on the history of the horse ends up focusing on a particular function: A. Hyland's *The Horse in the Ancient World* turns out to be more a summary of mounted warfare than a comprehensive history

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Skyros Pony and its Relationship with Other Greek and Foreign Horse Breeds' *Genetics and Molecular Biology* 34.1 (2011) 68-76; D. Cai et al, 'Ancient DNA Provides New Insights into the Origin of the Chinese Domestic Horse' *Journal of Archaeological Science* 36.3 (2009) 835-842; I. Glazewska, 'Speculations on the Origin of the Arabian Horse Breed' *Livestock Science* 129.1 (2010) 49-55; H. Goto et al, 'A Massively Parallel Sequencing Approach Uncovers Ancient Origins and High Genetic Variability in Endangered Przewalski's Horses' *Genome Biology and Evolution* 3 (2011) 1096; T. Jansen et al, 'Mitochondrial DNA and the origins of the Domestic Horse' *Proceedings of the National Academy of Sciences of the United States of America* 99.16 (2002) 10905-10910; T. Kavar and P. Dovc, 'Domestication of the Horse: Genetic Relationships Between Domestic and Wild Horses' *Livestock Science* 116.1 (2008) 1-14; S. Lippold et al, 'Whole Mitochondrial Genome Sequencing of Domestic Horses Reveals Incorporation of Extensive Wild Horse Diversity During Domestication' *BMC Evolutionary Biology* 11.1 (2011) 328; J. Lira et al, 'Ancient DNA reveals traces of Iberian Neolithic and Bronze Age lineages in Modern Iberian Horses' *Molecular Ecology* 19.1 (2010) 64-78; C. Luís et al, 'Iberian Origins of New World Horse Breeds' *The Journal of Heredity* 97.2 (2006) 107-113; A.M. McGahern et al, 'Mitochondrial DNA Sequence Diversity in Extant Irish Horse Populations and in Ancient Horses' *Animal Genetics* 137.5 (2006) 498; K. Priskin et al, 'Mitochondrial Sequence Variability in Ancient Horses from the Carpathian Basin and Possible Modern Relatives' *Genetica* 138.2 (2010) 211-218; L.J. Royo et al, 'The Origins of Iberian Horses Assessed via Mitochondrial DNA' *The Journal of Heredity* 96.6 (2005) 663-669; C. Vilà et a; 'Widespread Origins of Domestic Horse Lineages' *Science* 291.5503 (2001) 474-477

[21] For example, A. Wieczorek and M. Tellenbach (eds) *Pferdstärken: Das Pferd bewegt die Menschheit* (Mainz am Rhein, 2007) covers a range of topics spanning from the evolution of the horse to modern horse sports. Given the 188-page length of this volume, the chapters provide an introduction to each topic rather than a detailed analysis.

of the horse. Some focus on a specific period or culture: P. Kelenka, in *The Horse in Human History* devotes a significant portion of her monograph to the horse from the 13th century CE onwards. Similarly, authors tend to be experts on a particular period or facet of equine history, and they spend the majority of their text focusing on what they are familiar with, giving only cursory treatment to other areas.

Popular publications often prove to be useful as – if not more useful than - some academic ones. The primary reason for this is the fact that their authors are 'horse people', familiar with the nuances and idiosyncrasies of equines. This means that there is generally a good deal of discussion about the practicalities of horse husbandry and general riding and training.[22]

THE HORSE IN ART

A fourth category of work can be identified, though it does not deal exclusively with the ancient world: the horse in art. S. Markman's *The Horse in Greek Art* gives an overview of trends and developments in the iconography of horses in Greek art, but presents only a few examples for each time period. On the other hand, M.A. Eaverly's work looks specifically at the motif of the equestrian sculpture in Archaic Greece.[23] Along the same lines as Eaverly's work, J.L. Zimmermann presents a detailed, catalogued study of the bronze horse figurines that were so popular in the Geometric period.[24] S. Hemingway focuses on a particular piece of sculpture – the Artemision Horse and Jockey- in his monograph.[25] Likewise, A. Birchall explores a particular genre, the Horse-head

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[22] Two particularly good examples are: A.A. Dent *The Horse through Fifty Centuries of Civilization*. (New York, 1974); M and H Dossenbach *The Noble Horse*. (Boston, 1983).
[23] M.A. Eaverly *Archaic Greek Equestrian Sculpture*. (Ann Arbor, 1995)
[24] J.L. Zimmermann *Les Chevaux de Bronze dans l'Art Géométrique Grec*. (Geneva, 1989).
[25] S. Hemingway *The Horse and Jockey from Artemision*. (Berkeley, 2004).

amphora, while S. Langdon considers the theme of the horse-leader on pottery.[26] Work studying prehistoric art - particularly the cave art of Southern France, Northern Spain and Northern Portugal has made some effort to establish typologies for the numerous prehistoric equine representations found there.[27] At least two types are commonly recognized: a Przewalski Horse/Steppe type and a Tarpan/Forest type. Authors focusing on Iberian breed development also label an Iberian/Sorraia type in the images. Other work seeks to use these representations to explore the horse-human relationship in the prehistoric world and further, to understand the purpose of the paintings and carvings.[28]

The majority of publications on the horse in art cover a period from the Paleolithic to the modern period.[29] Some attention is given to Greece and Rome, but it is usually cursory. This does not discount the usefulness of such collections. These surveys of equine art allow us to observe the development of equine types over thousands of years; particularly through the Medieval and Renaissance periods. Of particular interest is the influence of Oriental horses – the Turkoman and Arab – on the horses in Northern Europe and the creation of the English Thoroughbred and its impact of the creation of the

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[26] A. Birchall, 'Attic Horse-Head Amphorae', *Journal of Hellenic Studies* 92(1972) 46-63 and S. Langdon, 'The Return of the Horse-Leader', *American Journal of Archaeology* 93.2(1989) 185-201.
[27] See P.G. Gonzaga 2004:72-87. Also, N. Aujoulat, *Lascaux: Movement, Space and Time*. (New York, 2005); A. Leroi-Gourhan *Préhistoire de l'art occidental*. (Paris, 1965) and R. White *Prehistoric Art: the Symbolic Journey of Humankind.* (New York, 2003).
[28] S. Markman *The Horse in Greek Art*. (New York, 1969).
[29] See for example: P. Connor (ed.), *All the Queen's Horses: The Role of the Horse in British History* (Lexington, 2003); B. Cooke *Imperial China: The Art of the Horse in Chinese History* (Lexington, 2000); J. Curtis and N. Tallis, *Horse and History From Arabia to Ascot* (Burlington, 2012);J. Fairley *The Art of the Horse*. (New York, 1995); C. Johns *Horses: History, Myth, Art*. (Cambridge, 2006); W. Liedtike *The Royal Horse and Rider: Painting, Sculpture and Horsemanship 1500-1800*. (New York, 1989); T. Pickerel *The Horse: 30,000 years of the Horse in Art*. (London, 2006).

European warmbloods.[30] Looking at a broad survey is important because it allows us to see where and when human influence and the practice of specialized breeding appear. We can then examine how this affected the overall appearance/conformation of horses in particular regions. Further, we can see what the impact of such human 'interference' had on horses and horse husbandry[31] and why it occurred only in specific parts of the world.

METHODOLOGY

As stated above, one of the underlying aims of this dissertation is to establish a typology for the horses of the ancient world. This typology will be used to examine how the form of a horse, its conformation, dictated its function, how the horse was used. To accomplish this I have used a multi-source approach to my topic. No single source-type on its own is the basis for my research; instead a variety of materials have been connected together to produce the final product. The sources used in my research are: artistic representations, literary evidence, other material remains, native breeds and experimental archaeology. All of these sources have inherent advantages and disadvantages when used on their own, but when combined they provide a more complete picture of the horses of the ancient world. I shall now lay out how I use each of these sources in my research and how they are of use to this topic. As the framework for my methodology, I am using two excellent articles by M. MacKinnon on pigs and cattle in Roman Italy. MacKinnon

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[30] A topic treated by D. Landry in her book *Noble Brutes: How Eastern Horses Transformed English Culture*. (Boston, 2009).

[31] An excellent example of this was the practice of 'improving' native British pony stock by crossing native mares with Arabian stallions.

combines artistic representations, textual evidence and zoological data to study Italian pig and cattle types.[32]

One of the main problems related to the study of ancient horses is terminology, especially in relation to horses and ponies, or breeds and types. A distinction between 'horse' and 'pony' did not exist in antiquity. Categorization by height is arbitrary. Standard practice today dictates that any equine 14.2 hands high (hh) and under is a pony, while anything over that height is a horse.[33] This standardization does not always work: a 14hh Arabian or Quarter Horse is still a horse, not a pony. Likewise, the Caspian Horse of Iran rarely exceeds 13hh, but is physically a horse. The pony is a distinct zoological type that traces its descent from the primitive pony of the Ice Age. Genuine ponies have an ample girth and very efficient digestive organs, which enable them to deal with a food supply that is both meager and difficult to digest. Their legs are strong but comparatively short, intended not for high speeds but rather for maintaining a consistent pace in difficult country. Ponies are sure footed, have plenty of stamina and are of robust health. Overall, ponies are considered to be tougher than horses and are often 'good doers'. Based on its size to strength ratio, the diminutive Shetland pony is actually the strongest living equine. Many of the horses of antiquity, particularly from the Mediterranean, are miniature horses rather than ponies. These animals have longer, thinner legs, a lean build and generally a 'dry' appearance. Few of them, however, would have exceeded the 14.2hh

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[32] M. Mackinnon, 'Cattle 'Breed' Variation and Improvement in Roman Italy: Connecting the Zoological and Ancient Textual Evidence', *World Archaeology* 42.1(2010) 53-71 and 'High on the Hog: Linking Zooarchaeological, Literary and Artistic Data for Pig Breeds in Roman Italy' *American Journal of Archaeology* 105(2001) 649-673.

[33] A 'hand' is the standard unit of measurement for equines. 1 hand = 4 inches. The animal is measured from the ground to their withers.

height criterion we now use to distinguish a horse from a pony. The large horses we are accustomed to today were the result of direct human intervention and they generally require much more care than the smaller horses of antiquity.[34] In cases where these larger animals become feral, such as the 'wild' descendants of the Spanish horses in the New World, they revert in size and general appearance to resemble their ancient ancestors.[35]

The ancestral horses, those horses that existed before domestication, are called types. They are typically assigned to one of four categories: Pony Type 1 from Northern Europe, Pony Type 2 from the Northern Eurasian Steppe, Horse Type 3 from the Southern Steppe, Horse Type 4 from the Near East. Unfortunately, as soon as we begin to discuss domesticated horses we immediately try to assign every horse to a particular breed. But this method cannot work. When we employ the world 'type' we refer to 'a horse that fulfills a particular purpose - like a cob, a hunter and a hack - but does not necessarily belong to a specific breed. 'Breed', by contrast, denotes 'an equine group bred selectively for consistent characteristics over a long period, whose pedigree is entered into a studbook.'[36] To use the term 'breed' to classify the horses of antiquity is both anachronistic and artificial. Today there are well over 200 recognized breeds of

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[34] As an example of how our perceptions of equine size have changed in the last few generations we can use the Dutch Warmblood stallion, Hickstead who passed away in 2011. Hickstead is considered one of the most successful show jumpers in the history of the sport, with a record that includes Olympic gold and silver medals from Beijing. Read any article about Hickstead and one of the first things you will read is reference to his diminutive height: he stood approximately 16hh. Among the European warmbloods that dominate the Olympic disciplines, 16hh is indeed small. Conversely, among the horses of the pre-modern world, a 16hh horse would have been a rare specimen and considered exceptionally large and tall.

[35] Examples include the Mustang and Assateague horses in the United States and the Sable Island horses in Canada.

[36] Edwards (1994) 86 and 389.

horses and ponies, most with their own studbooks and registries. There are some very distinctive and unique breeds, usually throwbacks to ancient ancestors, such as the Norwegian Fjord or the Icelandic horse, but these are the minority. I have found that the majority of breeds can be placed into groups based on their physiognomy. One example of this is the European sport horse. This group includes the Hanoverian, Oldenburg, Dutch Warmblood, Danish Warmblood, Selle Francais, and Trakehner. Their origins lie in the warhorses of the Medieval world. In more recent times, infusions of Arabian and Thoroughbred blood has lightened their build, changing their conformation to a form suited to the show ring rather than the battlefield. Each of these breeds has its own studbook with very strict entry requirements based on size, colour, markings and - for stallions in particular - evaluation judging movement and paces in hand and while being ridden. In reality these sport horse breeds are all very similar to one another: they come from a particular geographical region and are bred to excel in the Olympic disciplines. Thus it is not surprising that they would be conformationally alike. Similar trends can be seen with the draft type, mountain and moorland type, steppe type etc. This classification as 'type' instead of 'breed' should also be applied to the horses of the ancient world. Indeed, I believe it is even more appropriate at that time since horse breeding and physical appearance was determined more by environmental than human influences. In other words, there was very little specialized horse breeding in the ancient world.

ARTISTIC REPRESENTATIONS

The horse is ubiquitous in the art of the ancient world, appearing on temple pediments and friezes, victory monuments, tombs, in sculptural groups, equestrian statues, on vases and other ceramics, in frescoes and mosaics. In fact, one would be hard pressed to find a

medium of ancient art on which the horse is absent. The horse turns up with such frequency that it is actually easy to ignore him. He becomes part of the background, or a stock figure in a scene. When we do notice them, horses in art are regularly dismissed as being either too ideal or too abstract to be of any use in determining the physical appearance of ancient horse types. In the case of the Parthenon frieze, the standard comment is that the horses have been portrayed smaller than they actually were to exaggerate the human form. Such commonly held misconceptions cause scholars to disregard the value of equine imagery. In fact, these painted and sculpted horses can provide a wealth of information. They are remarkably consistent in their depiction of certain conformational features. To explain this, one may consider the following examples of Greek horses from the 10th-5th c BCE.

Example 1: Cinerary urn with the earliest depiction of a horse in Attic vase painting. 10thc[37] Kerameikos Museum.

This would certainly be classified as an abstract image of a horse. At first glance it appears to be nothing more than a simple line drawing. There is no lifelike shape or

[37] Unless otherwise stated, all photos are author's own. These have been taken during numerous fieldwork projects and museum visits.

structure to the body. In actuality there are several physical features of note on this horse that remain constant in the artistic record:

1. The thick, upright neck with arches towards the poll of the horse.

2. The thin face with a flat profile

3. Long and slender limbs

4. A lean body

5. Emphasis on the hindquarters.

Example 2: Bronze votive 750-700. National Archaeological Museum of Athens.

Here we have another abstract example. Although this horse is slightly more filled out than Example 1, one would not call this a lifelike representation. As with the previous image, however, there is a consistency in certain physical features.

1. Very upright head carriage that arches at the poll

2. A slender face with a straight profile

3. A lean body

4. Muscular hindquarters

5. Long legs

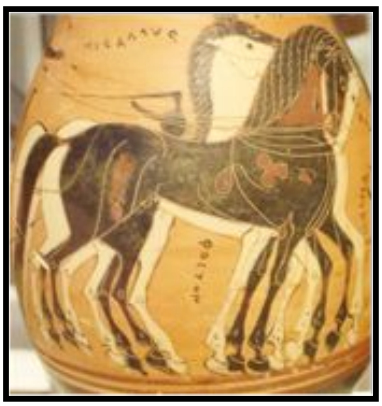
Example 3: Trefoil Oinochoe c. 750. National Archaeological Museum of Athens.

The same 5 features are becoming more emphasized in this example. Particular emphasis on the neck and hindquarters, juxtaposed with the slenderness of the body and legs

Example 4: Pithos amphora 650-600. National Archaeological Museum of Athens.

The animals represented are beginning to become more distinctly equine. Even as their form becomes more detailed and filled out, the same features appear as in the earlier examples.

Example 5: Olpe 575-550. National Archaeological Museum of Athens.

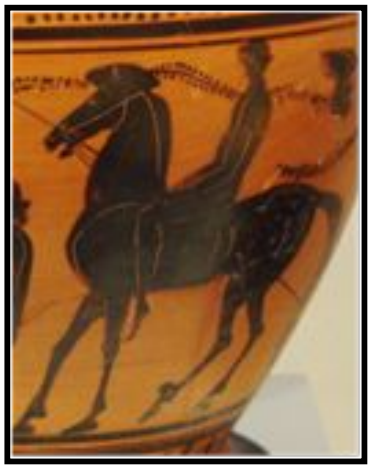


Here we see considerable detail given to the physical form of the horse, particularly with the delineation of musculature. These horses still carry the same conformational features as the earlier horses, especially in the upright, arched neck, slender legs and powerful hindquarters.

Example 6: Kouros base 510-500. National Archaeological Museum of Athens.

This example carved in low relief shows less muscular detail than the previous image, but otherwise the physical appearance of the horses is almost identical.

Example 7: Black Figure Skyphos c.500. National Archaeological Museum of Athens.



Again we see detail to musculature, especially in the haunches. As is to be expected this horse bears what can be called the hallmark features of the Greek horse with its upright, muscular neck; narrow, straight face; lean body; muscular haunches; long, slender legs.

Example 8: Stele c.430. National Archaeological Museum of Athens.

In this final example we are presented with a stock equestrian image – the rearing warhorse. This horse is more lifelike, more like the 'ideal' horses we see on the Parthenon frieze. His conformational features, however, still follow the pattern set by Example 1.

The above set of examples shows that even an 'abstract' representation of a horse displays aspects of reality. The Greek images all display the same conformational features. The importance of these features and the overall appearance of the Greek-type horse are discussed in Chapter two.

Having shown with a variety of representations how realism can be found in abstract equines, we must now move on to the question of idealism. At the opposite end of the scale from our abstract, linear horses are those labeled as too ideal to be real. The prancing, galloping horses of the Parthenon frieze are a prime example of this style of

iconography. These poor horses seem to receive constant scholarly abuse: either they have been down-sized/shrunken to exaggerate the human form or they are too perfect to be representations of real animals. The first argument (that of the dwarfed horses) will be addressed in Chapters two and three; the second statement (the perfect horse) can be dealt with here. The claim that the Parthenon horses are 'perfect' or 'ideal' is indeed correct. The equines sculpted on this frieze are the ideal equine. This does not, however, discount their usefulness to this study. What we see on the Parthenon frieze is the ideal specimen of the Greek horse. Pheidias and his colleagues portrayed the horses they were familiar with – native Greek stock – but as perfect specimens. Of course, the perfect horse does not exist today, nor did he in antiquity, but the concept of perfection did. This ideal equine is described by Greek and Latin authors- Xenophon, Virgil, Varro, Columella, Vegetius, Oppian – and he appears regularly in art. He is the ancient equivalent of our modern breed registries and studbooks. These registries contain descriptions of the ideal specimen for that particular breed or type. Any horse intended to be included in the registry is evaluated against this standard of perfection on conformation, movement and temperament. The idealized representations from antiquity are like these studbooks. They depict the native horses the artists saw on a regular basis as conformational ideals. The physical features found on these representations are the same as those on the living horses; the only exception being that the living examples would not have possessed every conformational ideal.

We also must answer this question: whose horses are being portrayed in the art? This is especially relevant if we look outside Greece proper at the Greek colonies of Asia Minor and the Black Sea, as well as Rome, particularly in the late Republic and early

Imperial periods. In areas of rich cultural interaction, such as Greek colonies where Greek artists might be producing commissioned pieces for 'natives', it does seem fair to ask 'which horses are these?' Likewise in Rome, where artistic styles from all over the Mediterranean and its history were imported and re-invented to suit Roman tastes and ideas, we might question the veracity of the equids produced. Are these Roman horses or not? Once again I am confident in stating that the animals portrayed are the native equines, local horses familiar to both artist and commissioner were familiar. It is hard to imagine a Scythian chieftain would commission a piece and allow a horse other than his own type to be portrayed.

Kul Oba Torque. Kul Oba Kurgan, Ukraine. 4th Century BCE. The State Hermitage Museum: hermitagemuseum.org

Similarly Roman art, for all that it borrows and adjusts styles of other cultures and earlier periods, nonetheless portrays an Italian horse. The Alexander Mosaic from the House of the Faun in Pompeii is an excellent example of this. Herodotus tells us that Nesaean horses always pulled the chariot of the Persian King

> After them came the ten sacred horses called Nesaean, splendidly arrayed. (They are called Nesaean after the

> great plain in Media that produces these big horses.)
> Behind these ten horses came the sacred chariot of Zeus,
> drawn by eight white horses, and in behind the horses their
> charioteer followed on foot, holding the reins; for no
> human being may mount into the seat. Behind this came
> Xerxes himself in a chariot drawn by Nesaean horses.[38]

The Nesaean horse has a very distinct appearance, with his convex rams head, thick powerful neck and stocky body. The four black horses yoked to Darius' chariot in the mosaic, however, are distinctly not Nesaean. Much like the Macedonian horses, they fit the standard Italian/Greek type.

Horses of the Royal chariot. Alexander Mosaic. House of the Faun, Pompeii. 1st century BCE. National Archaeological Museum of Naples.

[38] Herodotus, *Histories,* 7.40.

Nesaean Horse. Oxus Treasure. Iran. 5th century BCE. The British Museum.

LITERARY EVIDENCE

The literary record is full of references to horses. No matter what the genre, the horse always makes an appearance. Inscriptions, particularly the circus inscriptions from the Roman Empire, are one important source of written information. Successful charioteers were fond of putting up monuments listing the names, colours and 'breeds' of their best horses. Likewise, lead tablets from the Athenian Agora record the colours and brands of cavalry mounts brought in for the *dokimasia*.

As far as extant Greek and Latin texts are concerned, Xenophon's *Art of Horsemanship* is by far the most detailed horse-training manual surviving from antiquity. This text deals with selecting a conformationally sound animal, training, care, exercise and equipment. Most of the advice offered by Xenophon is sound and continues to influence horsemanship and training today. The *Art of Horsemanship* was the impetus for the revival of 'Classical Riding' in 15th century Europe. Through the Renaissance texts the ideas of Xenophon have been passed down to the modern discipline of 'Classical Riding' through the traditions of the Spanish Riding School in Vienna, the

Cadre Noir at Saumar in France and the Royal Andalusian School of Equestrian Art in Jerez, Spain. Xenophon produced a second text devoted to horsemanship. His *On the Cavalry Commander* discusses the duties and obligations of the cavalry commander, as well as training exercises for war and spectacle.

The other major horse-related texts deal primarily with horse husbandry. The practice of *hippotrophia* is treated by Varro and Columella (*On Agriculture*), and Vegetius (*On Veterinary Medicine*) who present detailed accounts of horse breeding, raising and care. Virgil (*Georgics*) likewise devotes some time to the ideal horse and how to train him. Aristotle (*On the Generation of Animals*) examines the reproductive cycles of the horse. Oppian (*On Hunting*) gives the most substantial list of horse 'breeds'; but references are found in other authors, most notably Strabo (*Geography*) and Pliny the Elder (*Natural History*).

The military horse appears in both historical prose and 'historical' poetry. There is also a tradition of equine anecdotes, most notably in Aelian's *Historical Miscellany* and *On Animals*. Whatever context the horse is mentioned in, even if it is only an allegorical horse, it is clear the author was familiar with horses. For example, Arrian writes thus of horses and elephants:

> It was clear to him (Alexander) that he could not effect the crossing at the point where Porus held the opposite bank, for his troops would certainly be attacked, as they tried to gain the shore, by a powerful and efficient army, well-equipped and supported by a large number of elephants; moreover, he thought it likely that his horses, in face of an immediate attack by elephants, would be too much scared by the appearance of these beasts and their unfamiliar trumpetings to be induced to land – indeed, they would probably refuse to stay on the floats, and at the mere sight of the elephants in the distance would go mad with terror

> and plunge into the water long before they reached the further side.[39]

Likewise, see Euripides' description of Hippolytus' runaway chariot

> …And sudden panic
> fell on the horses in the car. But the master-
> he was used to horses' ways – all his life long
> he had been with horses – took a firm grip of the reins
> and thrashed the ends behind his back and pulled
> like a sailor at the oar. The horses bolted:
> their teeth were clenched upon the fire-forged bit.
> They heeded neither the driver's hand nor harness
> Nor the jointed car. As often as he would turn them
> With guiding hand to the soft sand of the shore,
> The bull appeared in front to head them off,
> Maddening the team with terror.[40]

The literary record is both an important and reliable source of material as there is little risk of anachronism. The basic physical form, instincts and general needs/requirements have not changed from the time of domestication. The horse was also an intrinsic part of daily life in the ancient world. Further, if we accept that the majority of ancient authors were from the upper classes, we may assume that they themselves would have been familiar with the quirks and nuances of horses because they probably owned equines of their own. Thus, the horse was not foreign to them. With few exceptions, they had no reason to manipulate or exaggerate their descriptions of horses. Even in cases where bias or stereotyping does appear, the descriptions are not so far off the mark. Such an example can be found with Livy's description of the Numidian cavalry and their horses.

> Horses and men were puny and scrawny; the riders had no body-armour or weapons apart from the javelins, which

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[39] Arrian, *Campaigns of Alexander,* 5.11.
[40] Euripides, *Hippolytus,* 1216-1229. trans. D. Greene.

> they carried; the horses had no bridles, and their very gallop was unsightly, racing along as they did with neck stiff and head outstretched. [41]

The native horses of North Africa were small and spare in build. These horses had evolved to live in the arid extremes of the northern Sahara. Any excess fleshiness is undesirable in desert-type horses. Below is an image of a modern-day Berber horse from North Africa, living on Crete.[42]

A collection of some 300 lead tablets from the Athenian Agora[43] gives us an insight into the mechanics of the Athenian cavalry in the 4th century BCE. These tablets seem to be records of the cavalry *dokimasia*– an evaluation of cavalry mounts.[44] The state, at least in the 4th century BCE, provided a stipend to help cover the costs of equine maintenance - horse ownership has never been inexpensive- and this stipend had to be put

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[41] Livy, *Histories, 35*.11. trans A. de Sélincourt.
[42] Mangas is a Berber gelding. He was, however, gelded after he reached maturity and thus displays many of the physical features found in a stallion. This photo was taken in January 2007 and Mangas has a heavy winter coat.
[43] J. Kroll 'An Archive of the Athenian Cavalry' *Hesperia* 46.2 (1977) 83-140.
[44] Aristotle, *The Athenian Constitution,* 49.1-2.

towards horse care.[45] During the *dokimasia* officials inspected each cavalry mount to see if it was fit for service and to ensure the stipend was going towards the upkeep of the horse. Any horse declared unfit for service was branded as such and required to be replaced. The *dokimasia* tablets recovered from the Agora record the colour and brand of each horse; sometimes also the name of the owner and his tribe. These tablets, along with the circus inscriptions from the Roman empire, are a key source of information about horse-breeding regions. The tablets, for example, can tell us which areas of Greece were producing cavalry mounts. Once these areas have been established we can look at why these regions produced quality cavalry mounts. Likewise, we can use the circus inscriptions from the Roman Empire to determine where the successful racehorses were being bred and again turn to the geography and climate of that area to examine why they produced such excellent athletes.[46]

OTHER MATERIAL EVIDENCE

The physical remains of the equines of antiquity can be a valuable source of information about the size and basic conformation of horses. C.J. Johnstone carried out an extensive study on the equid remains of the Roman world, particularly Britain, in her doctoral dissertation.[47] A. Azzaroli provides numerous examples of equine skeletons and their measurements from throughout the ancient world.[48] S. Bökönyi published a report on the

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[45] Bugh (1988) 56-61. The *katastasis* was a loan from the state to help with the purchase of a horse; it had to be repaid before the cavalryman could retire. The *sitos* was a monthly grain allowance provided by the state to help with the cost of feeding a cavalry mount.

[46] For example CIL VI 10047 and 10053 record the names of victorious horses as well as their place of origin. The majority of successful horses are listed as African, but they are also listed as coming from Spain, Mauritania, Laconia, Cyrene, Gaul, Thessaly and Aetolia.

[47] C.J. Johnstone, *A Biometric Study of Equids in the Roman World*. (York, 2004).

[48] A. Azzaroli, *An Early History of Horsemanship*. (Leiden, 1985).

Iron Age horses of Central and Eastern Europe in which he examines the equine skeletal remains in the Mecklenburg collection. He focuses particularly on the bone measurements and ratios to try and determine whether 'it is not possible that in Central and Southeastern Europe there lived only a single but highly variable group of horses, and whether the Celtic and Scythian horses formerly considered so very different are not the extreme forms of this one type….'[49] The Steppe cultures of Central Asia provide us with the greatest number of equine skeletons thanks to their custom of interring horses with the dead. General descriptions of these kurgan/barrow burials can be found in two seminal works on the topic of the Steppe cultures by M. Rostovtzeff and E.H. Minns.[50] The most extraordinary examples of horse burials are found in the Pazyryk kurgans in the Altai Mountains. These burials are of great importance because their contents were entirely preserved by permafrost, leaving us with equine remains that still have their skin and coats.[51]

Equestrian equipment is a valuable source of information about the social and cultural status of the horse in different societies. Bridle bits are a particularly good example of this. The bits of the ancient world can be classified into two categories: snaffle or curb with a smooth or rough mouth. The majority of bits have a jointed mouthpiece. Examples of single-bar mouthpieces are quite commonly from Luristania, and were most likely used for driving as opposed to riding. The snaffle bit is generally

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[49] S. Bökönyi, *Data on Iron Age Horses of Central and Eastern Europe*. (Cambridge, 1968) 3.
[50] M. Rostovtzeff, *Iranians and Greeks in South Russia*. (New York, 1969); E.H. Minns, *Scythians and Greeks*. (New York, 1971) See also J. Davis-Kimball et al (eds.) *Nomads of the Eurasian Steppes in the Early Iron Age*. (Berkeley,1995).
[51] See S.I. Rudenko, *Frozen Tombs of Siberia: The Pazyryk Burials of Iron Age Horsemen.* (Berkeley, 1970).

considered to be 'milder' than a curb and it is the older of the two designs. The snaffle is made up of the mouthpiece and cheekpieces, to which the reins are attached. This type of bit works by exerting direct pressure on the corners of the mouth and indirect pressure on the poll. A curb bit, on the other hand, works on the principle of leverage. A curb bit consists of the mouthpiece which often has a port – an arched section in the center of the mouthpiece; the higher the port, the stronger the bit – a curb strap or curb chain that does up under the chin, and shanks of varying length to which the reins attach. The longer the shank, the greater is the degree of leverage on the head. When a rider puts pressure on the reins, the bit shifts in the mouth, raising the port and exerting pressure on the poll, encouraging the horse to flex and soften through the jaw. While it must be acknowledged that any form of bit can be made mild or severe depending on the hands that guide it; generally one must accept that certain types of bits are inherently more severe than others. When it comes to the bits of antiquity, there are two very distinct styles that appear – the simple single-jointed snaffle with round cheekpieces that is found all over Central Asia and the harsh barbed snaffles and extreme curbs commonly found in the Greek and Roman worlds. I believe that the style of bit used is closely related to the social function of the horse in a particular culture. Amongst the Steppe cultures of Central Asia the horse was an intrinsic part of everyday life. The inhabitants of the Steppe quite literally spent most of their lives on horseback and their choice of bit reflects this. They were not concerned with absolute submission and obedience nor the concepts of balance and collection. Their survival and livelihood were dependent on their horses; they were tools, not showpieces. To the Greeks and the Romans, on the other hand, the horse was very much a visible status symbol. Their value and importance lay in their

cost, not their usefulness in daily life. These horses were used for war and entertainment. Their beauty lay in barely controlled energy and a submissiveness attained through equipment rather than training. This is not to say that all riders were like this. In his *Art of Horsemanship* Xenophon clearly describes a type of rider who must have existed, although how common such a skilled horseman was is uncertain. From another perspective, the length of a mouthpiece can be used to help determine jaw-size as a bit that is too short or too long will not function effectively.

EXPERIMENTAL ARCHAEOLOGY

Texts, art and archaeological evidence together give us a good idea of what the horses of antiquity looked like. This image can also be compared with native types to better understand how the types were a result of environmental conditions. We can also look at horse husbandry practices in these same regions to get a better idea of how they are related to both form and environment. This still, however, leaves a rather sizeable gap in our overall understanding of the horse in the ancient world. It does not entirely explain how form influenced function. To better understand why certain varieties of arms and armour, and specific kinds of tactics and cavalries, developed in conjunction with particular horse types, we need to turn to experimental archaeology.

Some scholars might question the validity of using experimental archaeology as a legitimate tool for academic research. One must remember that experimental archaeology is not reenactment or role-playing. It is an attempt to try to understand how or why things were used in a particular way through practical experience as well as trial and error. For my research I accomplish this by using different types of horses and by using reproductions of ancient equestrian and military equipment. I do not think I am a Macedonian Companion or a Parthian cataphract; rather I am trying to determine how

horses were trained for different styles of riding and warfare, what type of horse was suited to a particular cavalry, why riders rode in a particular way and so forth. In sum, I am establishing the limitations and capabilities of the horses and riders of antiquity.

The primary reason this type of work is relevant to my research is the horse himself. The general behaviour and physiology of the horse has not changed since his domestication. Yes, the domestic horse has become more amenable to training over the past several millennia as a result of selective breeding for temperament. The horse, however, is still a herd and prey animal designed to live on the open steppe. This means the horse evolved a strong flight response. This intrinsic flight behaviour has always been something to be considered when training a horse. Likewise, the equine herd mentality plays a significant role in determining how a horse responds to its education. Some horses are herd-bound to such a degree that it is dangerous to try to ride them out alone. This is not a modern issue since Xenophon writes:

> After the horse appears to have had enough exercise, it is well to give him a rest and then to urge him suddenly to the top of his speed, either away from other horses or towards them, then to quiet him down out of his speed by pulling him up very short, and again, after a halt, to turn him and push him on. It is very certain that there will come times when each of these maneuvers will be necessary.[52]

In this passage Xenophon indicates the importance of training a horse to leave and return to horses under the control and at the command of his rider. To teach a horse to do this requires an understanding of basic horse herd behaviour.

Herd behaviour further influences the personality and temperament of individual horses. Horse herds are very hierarchical and this produces horses that are dominant,

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[52] Xenophon, *Art of Horsemanship,* 7.18.

submissive or neutral. Obviously the more dominant a horse, the higher up in the pecking order he is. A submissive horse must be trained, ridden and disciplined very differently from a dominant one. Likewise, sex plays a role in how to approach horse training. One well-known saying states that a trainer must 'talk to a stallion, tell a gelding and discuss with a mare.' Temperament and sex both influence the suitability of a horse for a particular job, including styles of mounted combat.

Much like behaviour, equine physiology has not changed dramatically since the evolution of *Equus caballus*. Aside from slight variations in the number of ribs or vertebrae, the equine skeletal, musculature and vascular systems have remained the same. The horse is built to run long distances over grasslands. His body is both fragile and tough at the same time. He was designed to have high levels of endurance and the ability to survive in harsh conditions. Even with the increasingly common practice of specialized breeding, the basic needs/requirements of the horse have remained the same. This means I can use both the behaviour and physiology of the modern horse to gain knowledge about how the horses of antiquity were trained and maintained. To facilitate this I regularly ride and train a number of horses ranging in size from small Arab-types to large draft-types and of all different temperaments and personalities, and have traveled to Greece, Turkey and Mongolia to study and ride their native horses. The purpose of these trips was to examine first-hand how these horses are adapted to their native environment both through conformation and physical/athletic capabilities.

Native horses play an important role in view of experimental archaeology when it comes to the study of ancient horses. This is particularly applicable to the native horses of the Mediterranean region and Central Asia. These areas have not experienced the

same influx of foreign horse blood and the all too common practice of 'improvement' to produce taller, faster, more athletic etc. animals. This is for two reasons.

1. These regions are not suitable for the production of larger, northern European style draft and sport horses. When these types of horses are imported to the Mediterranean and Central Asian regions they require an extensive amounts of care and pampering because they are not physically adapted to live in such environments.

2. Horses still are, or until recently were, an integral part of daily life in these regions. The native horses are, understandably, best suited as work and transportation animals. Since these horses have remained relatively unchanged through foreign influence, they can give us a unique perspective on the horses of antiquity, their adaptation to the environment and their physical abilities. Studying these animals first hand and riding them in their native climate over all sorts of terrain gave me a new appreciation and understanding for their toughness and endurance. I further gained hands-on experience that I can use to explore how the horse was used in antiquity, particularly with regards to cavalry tactics and horse husbandry practices recorded in the texts.

I recognize there are limitations to this kind of research. I cannot re-create an actual battle scenario. I will never know what it was like to ride a warhorse in combat. What I can do is study and test how horses were trained for battle through the literary and practical evidence, and by taking into consideration equine behaviour and physiology, determine how horses might have reacted to different situations.

CHAPTER TWO: THE EARLY HISTORY OF THE HORSE

THE EVOLUTION OF THE HORSE

Equus caballus, the domestic horse, is the end result of a long evolutionary chain that began 55 million years ago in the Eocene period. The horse belongs to the order Ungulate (hoofed mammals), in the division of Perissodactyla (odd-toed ungulates), family of Equidae. The earliest member of the Equidae was tiny *Hyracotherium* 'Hyrax-like', commonly known as Eohippus 'Dawn Horse.' Hyracotherium stood less than one meter tall and was a browsing (leaf eating) herbivore. His habitat extended through the forests of North America and Eurasia. Little *Hyracotherium* looked nothing at all like our domestic horse. When the first skeleton was found it was thought to belong to a hare-like creature, hence the name. *Hyracotherium* had teeth designed for grinding leaves and bark; his feet were not hooves, but padded toes more like a dog or a cat than a horse. The speed provided by long legs and a single elongated toe (the hoof) was of no use to this small forest-dwelling mammal that relied of camouflage and stealth to hide from predators.

Approximately 37 million years ago, in the late Eocene, two new *Equidae* appeared in North America: *Mesohippus* and *Miohippus*. The skulls of both were decidedly more 'horse-like' than that of *Hyracotherium*, although they were still under 1 meter tall and had 3-toed feet. They carried their weight on pads behind their toes, much like a dog. *Miohippus* began two lines of descent: the *Anchitheres* and the *Equinae*. The *Anchitheres* resembled *Miohippus* in appearance but they were larger. The last of the *Anchitheres* went extinct in North America and Eurasia about 9 million years ago. Their extinction is

thought to have been caused by a changing climate – the vast forests that formed their habitat were gradually replaced by expanding grasslands. At this time the ancestors of the horse were still forest dwelling with a foliage-based diet.

Unlike the *Anchitheres*, the *Equinae* adapted to environmental changes. During the Miocene period the *Equinae* evolved by losing the fleshy pads on their feet and taking more weight onto the third toe of their foot. This was a response to the need to run faster and more efficiently on the open plains. These changes first appeared in *Parahippus*. It also follows that *Parahippus* began to include grass in his diet. This trend continued with *Merychippus*. That grass began to make up a significant part of the *Parahippus'* and *Merychippus'* diets indicates that the equids were leaving the forests and moving out onto the grasslands.

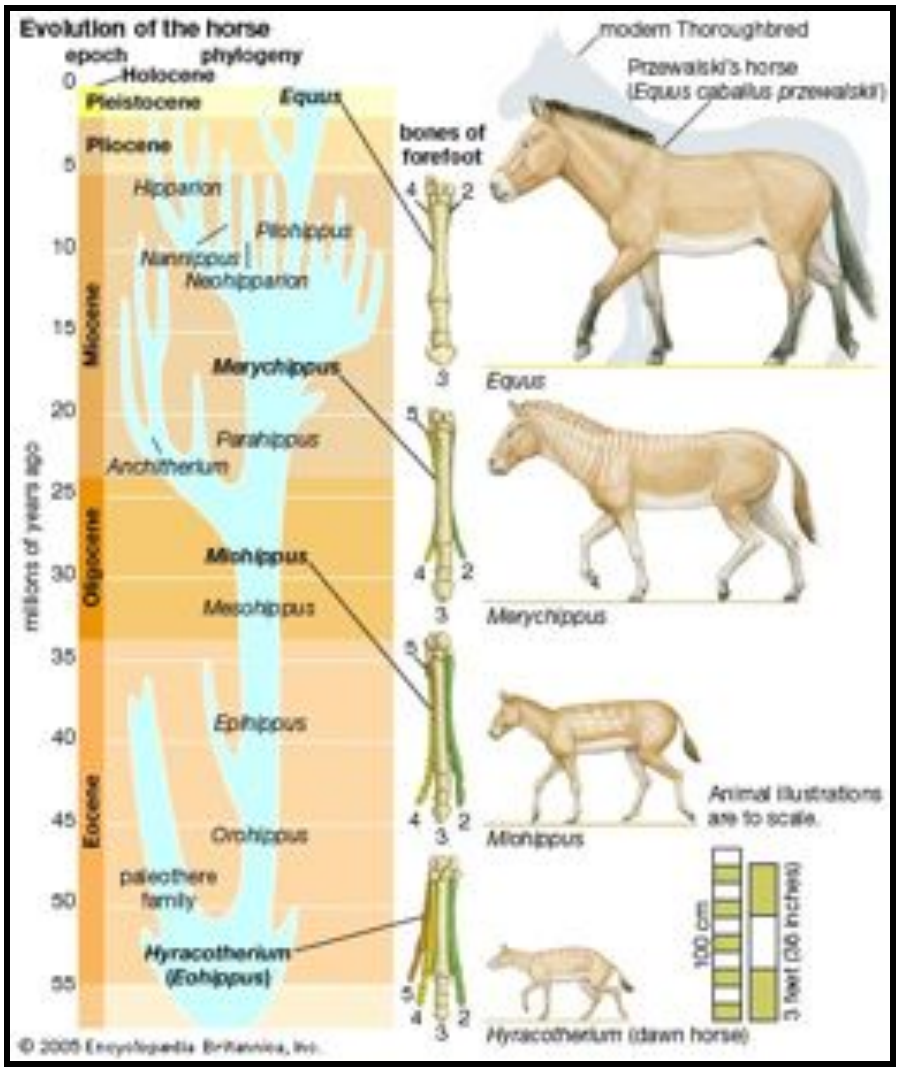
At the end of the Miocene major climate changes further increased the spread of grasslands, causing mass extinction among species, including the three-toed equids. *Pliohippus*, the first of the monodactyl (single-toed) equids appeared around 12 million years ago. His single-toed hooves made *Pliohippus* faster than any of his predecessors. He was also equipped with teeth designed for grazing. These evolutionary changes indicate that *Pliohippus* lived on the open spaces of the grasslands, not within the confines of the forest. *Pliohippus* is considered the 'grandfather' of our domestic horse. After *Pliohippus* came *Hippidion* and *Dinohippus*. *Hippidion* was a large equid species living in South America between 2 million and 10,000 years ago. *Dinohippus*, who appeared 12-10 million years ago in North America, is thought to be the closest relative of our modern horse.

The last link in the chain of equine evolution is *Equus*. *Equus* appeared 5 to 6 million years ago. His habitat spread throughout North and South America, Europe, Asia and Africa. *Equus* gave rise to several species, including the wild ancestors of our modern horse, onagers, zebras and asses. Approximately 10,000 years ago all species of equid became extinct in North and South America. Equids remained unknown in the Americas until the arrival of the Conquistadores. The cause of the extinction was likely a combination of climate change, disease and over hunting by humans.

The evolutionary history of the equids provides an important insight into how environment shaped the development, appearance and adaptations of a species. *Equus caballus* looks nothing like *Hyracotherium*. It shares few genetic characteristics other than being a warm-blooded, mammalian herbivore. *Hyracotherium* developed in a forest habitat. He was small and solitary out of necessity. There was no advantage to his becoming larger, or living in a herd. His padded, toed feet allowed him to move quietly across the forest floor and his jaw structure was designed to grind down the tough, fibrous materials that made up his diet. *Hyracotherium* would not have survived long exposed on the open steppe for two reasons: he was not fast enough to escape predators and he was not designed to be a grazing animal.

As the physical shape of the prehistoric world changed so too did the physical form of the equids. When the equids began to shift their habitat from forests to open plains, their conformation started to become that of a runner – elongated legs and a single hoof on each foot allowed them to cover long distances at spend. Jaw and digestive structure changed to that of a grazing animal. Even behaviour changed as equids became herd animals, living in harem and bachelor groups with strict hierarchies, imposed – essential

for survival out in the open. *Equus*, the end result of these changes, would not have long survived in *Hyracotherium's* habitat. As a large, grazing herd animal, *Equus* could not move stealthily through the forests and his speed would have been of no use in the dense foliage. His longer, slimmer legs would be at risk of injury if he tried to gallop over the debris of the forest floor. Finally, the tough twigs and leaves of a forest diet would quickly wear down teeth designed for grazing.[53]



Evolution of the Horse. www.britannica.com

[53] For a detailed scientific study of equine evolution see J.L. Franzen, *The Rise of Horses: 55 Million Years of Evolution*. (Boston, 2010); B.J. MacFaddon, *Fossil Horses: Systematics, Paleobiology and Evolution of the Family Equidae*. (Cambridge, 1999).

THE ANCESTRAL HORSES

The horse died out in North and South America around 10,000 BCE, but continued to exist in a wild state in Eurasia. It remained this way until the point of its domestication on the Central Asian Steppe sometime after 3500BCE. These wild horses were nothing like the pampered pets and athletes we have today in the west; they were tough, hardy animals. Appearance and behaviour were dictated by the environment: what I refer to as 'non-human influences'. At this point in time the only interaction between horses and humans was that of predator and prey. These early horses are generally referred to as the 'Ancestral Horses' – meaning that they laid the basis from which all of our domestic horses developed. J. Clutton-Brock writes

> The early writers on the history of the horse assumed that because, since ancient times, there have been different forms of domestic horses, with small stock ponies in the north, heavy horses in middle Europe, and the Arab in western Asia and Egypt, these must have come form ancestral races.[54]

The ancestral equines are further categorized into types on the basis of appearance and geographical location. Skeletal remains, artistic representations and the 'native' breeds found in those regions today, give the evidence for these types. The Ancestral horses can be roughly categorized into 'Ancestral types' based on the geographical regions of Northern Europe, Northwestern Europe, the Eurasian Steppe, and Western Asia. This is, of course, a rather generalized view of the situation. Over the past century and a half scholars have proposed various classification systems, which I describe below.

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[54] J. Clutton-Brock, *Horsepower: A History of the Horse and Donkey in Human Societies.* (Cambridge,1992) 59.

André Sanson (1826-1902), a French zoologist, produced one of the earliest classification systems for our ancestral horses. He used skull shape to divide horses into two groups: long-headed and short-headed. The long-headed groups contained four sub-groups of heavy (draft) horses, while the small-headed group comprised three light horse types: African, Asiatic and Irish, as well as one heavy type. These eight sub-types he declared to be the ancestors of all domestic horses.[55] The names assigned to Sanson's types are: *Equus caballus asiaticus, Equus caballus africanus, Equus caballus germanicus, Equus caballus frisius, Equus caballus belgicus, Equus caballus britannicus, Equus caballus hibernicus, and Equus caballus sequanus.*[56] C.A. Pietrement took up Sanson's theory in his work *Les Chevaux dans les Temps Prehistoriques and Historiques* published in 1883. Pietrement agrees with Sanson's six European types (*germanicus, frisius, belgicus, britannicus, hibernicus and sequanus*), but disagrees with his designation of *Equus caballus asiaticus* and *Equus caballus africanus*. According to Pietrement both types are Asiatic in origin. Pietrement agrees with Sanson that *Equus caballus asiaticus* originated in Central Asia, further stating that it was domesticated by the Aryans and thus gives it the name *Equus caballus aryanus*. According to Pietrement this horse had a broad, flat face, rectangular profile with a wide forehead, expressive eyes and small ears. It had a broad chest and almost horizontal croup.[57] Pietrement does not agree with Sanson's designation of *Equus caballus africanus*; he writes

> This last oriental race is most generally given the name Dongolawi or Nubian, because modern travelers first

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[55] Gonzaga (2004) 24; A. Sanson, 'Nouvelle détermination des espèces chevalines du gene Equus' , *Comtes-Rendus* LXIX (Dec.1869) 1204-7.
[56] C.A. Pietrement, *Les Chevaux dans les temps prehistoriques et historiques*. (Paris, 1883) 11.
[57] Pietrement (1883) 13-14.

> reported them in a compact mass in the Province of Dongola, in Nubia, it is of course on account of this consideration that M Sanson was keen to declare "It (*Equus caballus africanus*) originated in the Northeast of Africa, probably Nubia." But other documents allude to the fact that this race originated in Mongolia, where it was domesticated by Mongolian or Tartar-Finnoises peoples; and as a result we give it the name *Equus caballus mongolicus*.[58]

This horse is described as having an ox or rams head and a narrow, angular body. It is more suitable as a riding horse than *Equus caballus asiaticus/aryanus* because of its longer limbs. Pietrement also states that 'under the same environmental conditions, the Mongolian horse will reach a greater size than the Aryan horse.'[59]

Stegman in1924 determined that there were five ancestral wild types, all of which were later domesticated and thus provided the foundation for our modern horses. His five types are:

1. *Equus europaeus*: the Northern European mountain horse
2. *Equus robustus*: the European Forest horse
3. *Equus gmelini*: The Tarpan
4. *Equus orientalis*: The Iranian Mountain horse
5. *Equus przewalskii*: The Mongolian Steppe horse
6. To these five types D.M. Goodall adds a sixth: *Equus stenonius*: The Spanish/Iberian horse.

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[58] Pietrement (1883) 13.
[59] Pietrement (1883) 14.

According the Stegmann and Goodall, *Equus robustus* was the origin of all 'heavy' horses.[60] *Equus gmelini* provided the foundation for all eastern European types of horse. *Equus orientalis* was the basis for the desert types of the Near East. *Equus przewlaskii* founded the domesticated Mongolian horse. The descendants of *Equus* stenonius were the horses of Iberia and later, North Africa.[61] Goodall sums up the theory thus

> There is existed in parts of Europe and Asia the following strains of horses:
> *Equus przewalskii*: The Asiatic wild horse, 12-14hh
> *Equus gmelini*: The Tarpan, 13hh
> *Equus europaeus*: The Exmoor pony etc., 11-12hh
> *Equus robustus*: Kleppe, Dole, Con, 14.2hh
> *Equus orientalis*: Arabian type, Caspian type
> *Equus stenonius*: The wild horse of Southern Spain and North Africa: Berber, Sorraia etc.[62]

Within Europe, Goodall further distinguishes two strains within the six types: The European strain of *Equus przewlaskii* and the Tarpan (*Equus gemlini*). She suggests that *Equus europaeus* resulted from a cross between *Equus przewalskii* and *Equus gmelini*, hence the unique and primitive colouring of the Exmoor pony; while *Equus gmelini* alone led to the development of the Eastern and Central European types, as well as *Equus stenonius* in the form of the Sorraia horse.[63]

J.K. Anderson offers a much more simplified classification system, distinguishing three primary types

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[60] The designation of a heavy horse in the prehistoric world should not be confused with our modern term for draft horses. It refers to a stocky, robust animal much like the Welsh Cob type.
[61] Goodall (1977) 36-42.
[62] Goodall (1977) 36-42.
[63] Goodall (1977) 77.

> 1. A breed from Northern Europe and the Western Steppe, small but spirited, with fine legs and head, and an elegantly set-on tail.
> 2. Przewalski's horse, distinguished by its heavy build, low head carriage, and generally coarse appearance.
> 3. A west European 'cold-blooded' or 'forest' breed, whose blood may run in many of the heavier horses of the present day.[64]

Another 3-type theory is set forth by W. Ridgeway in his substantial volume *The Origin and Breeding of the Thoroughbred Horse*. He is highly supportive of the theories of Professor Ewart. It must, however, be kept in mind that the ultimate purpose of his work is to show that North Africa (particularly Libya) was the original home of the horse. Ridgeway gives descriptions of three types of ancient horse. They are as follows.

1. *Equus caballus*: Ridgeway writes that *Equus caballus* was distinguished by 'the tail being covered with long hairs from its base to its end, and by having chestnuts on the inner sides off its hind-legs, as well as its forelegs.' He goes on to point out that this description no longer holds true on account of the research conducted by Professor Ewart. It was long popular to use chestnuts (bony growths on the inside of the legs) to distinguish 'primitive' horse types, as not all horses have a chestnut on each leg. This argument found support amongst the proponents of the antiquity of the 'Arab' horse, as Arabian-type equids are known to have chestnuts only on their front legs. Ridgeway points out that the presence of four chestnuts no longer distinguishes *Equus caballus* since Ewart's Celtic pony and the Przewalski horse also have four.
2. *Equus caballus celticus*: This horse type was created by Ewart. He believed it was a distinct variety of equid. 'It is a true pony, not a dwarf horse; it has a small

[64] Anderson(1961) 1.

head, with prominent eyes, small ears, a heavy mane, slender limbs, small joints, and well-formed small hoofs. It has similar characteristics to those Arabs that have no ergots, and at the most only minute hock callosities, but with the essential difference that instead of having long hair up to near the root of the tail, the hair on the upper part of the tail forms a fringe or taillock.' This is a characteristic found on several ponies of the British Isles including the Exmoor, Connemara and the ponies of the Hebrides. It is also found on those of the Faeroe Islands. Ewart thought it was 'conceivable that the Celtic pony in its present form never existed in the east, but that it is a modified descendant of a small horse, which left the ancestral home in Central Asia and reached Europe long before the arrival of Neolithic man.' It is further suggested that pure representatives of *Equus caballus celticus* still existed in Northern Iceland at the end of the 19th century as well as on the Faeroe Islands.

3. *Equus prezwalski poliakoff*: the Przewalski horse was described by Poliakoff in 1881. This equine 'has callosities on its hind legs and its hoofs are like that of *Equus caballus*, but it differs from the latter in having a short, erect mane, no forelock, and by the tail, on which the long hairs only begin at the lower third of the dock instead of at the root. The ears are of moderate size, and Poliakoff maintained it was a distinct species.' Before Poliakoff's work with the Prezewalski horse it was common held that no true wild horses existed anywhere in the world. Przewalski himself stated 'whatever may be the lucubrations of naturalists in their cabinets it does not appear that the Tahtar or even the Cossack nations have any doubt upon the subject, for they assert that they can distinguish a

> feral breed from the wild by many tokes; and naming the former *Takja* and *Muzin*, denominate the real wild horse *Tarpan* and *Tarpani*.' Ridgeway, on the other hand, concludes that '1. The Przewalski horse is nothing more than the Tarpan of the older writers; 2. That if pure Tarpans still survive they are those of the Zagan-norr Lake, and 3. That the divergence in colour of these animals which characterizes those found in the middle district, and in a still greater degree those of the most westerly area, is to be ascribed to their being mixed with feral horses rather than to any variation due to environment and any other natural causes.'[65]

Dossenbach, however, returns to a theory of four types based on geographical regions; a northern moor and tundra horse; a larger tundra horse; a North-African (Northwest Africa) horse and a Near Eastern horse. The two northern horses are described as sturdy, broad of body with a tough digestive system. Dossenbach believes that the smaller of the two is represented today by the Exmoor pony and many of the other 'native' British ponies. The later northern horse was *Equus robustus*, the founder of all our 'cold-blooded' breeds, today best represented by the Norwegian Fjord. The two southern types were light and graceful in build. The North African type came from the mountains while the Near Eastern type originated in the desert.[66]

Hermann Ebhardt also followed a 4-type system, but his differed in that it was based primarily on social behaviour as opposed to physical characteristics. He observed the behaviour of domestic herds of various breeds and from these he concluded that our domestic horses are descended from four ancestral types: two pony types and two horse types. Ebhardt's classification is still much favoured today. It is as follows

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[65] Ridgeway (1905) 12-35.
[66] Dossenbach and Dossenbach (1983) 30-31.

1. Pony Type I: The northern pony. Type one had a far-ranging habitat, stretching from the Atlantic coast to the Pontic steppe. This pony was approximately 12hh with a thick, water resistant coat and dark colouration. It had 'a broad forehead, long head and narrow muzzle, large nostrils, big round eyes, a convex or straight profile, and small ears. The teeth were high crowned with thick enamel, appropriate for the kind of food in their main habitat. They had a heavy medium to short, upright ewe neck, strong wide body, with the rump higher than the withers, wide chest, short, somewhat concave back, and a wide and sloping rump with a low-set tail. Short legs with short, broad cannon bones, short pasterns and strong round hooves that gave them the surefootedness necessary in the area where they lived.' This pony type is today best represented by the Exmoor pony of Britain.
2. Pony Type II: is the 'large' northern horse, standing 14.2-15hh. This was a tundra horse, living on the steppes of Chin and Mongolia, with a yellow-dun coat, mealy markings and black legs. The coat was thick and multi-layered as protected against freezing winter temperatures. This pony had 'a big heavy head, a rather short nose, a narrow flat forehead, a large, wide muzzle with a beard, and large nostrils like Type I. It had small teeth, small ears and a convex profile. The wide, strong, long body was divided from the low, heavy, short neck by straight shoulders. The rump was higher than the withers. Strong, relatively short legs, short, flat cannon bones, and short pasterns ended in large, round wide hooves and feathered fetlocks.' The best representation of Type II is the Przewalski horse.

3. Horse Type III: Type III was on average 15.2hh. It moved into Asia from Europe ending up in the Southern Caspian, Iran and Turkestan. Type III had 'a long head with a small narrow forehead and convex profile, a fine delicate muzzle, straight jaw, small teeth, long ears and eyes placed higher on the head, a long neck and clean throatlatch. The prominent withers, higher than the rump, reached far onto a medium to long back, long inclined shoulders, narrow chest and body, and sloping croup. Long legs, cannon bones and pasterns ended in oval, medium-shaped hooves with no feathering. These characteristics made Type III capable of moving with collection, placing the hind legs under the body mass and the nose vertically, the ideal requirements for a good riding horse. The coat was dun or grullo with a darker face.' This type is today represented by the Akhal-Teke and the Turanian sub-types.
4. Horse Type IV: This was a small horse, standing under 13hh. Its habitat stretched across North Africa, the Near East and as far north as the Pontic Steppe. Type IV had 'a small head, medium-to-broad forehead, short broad nose, dished face, round eyes, small ears, small muzzle, straight jaw, and low crowned teeth. The short back had withers higher than the croup and a short horizontal rump with the tail set high, a long slender neck and long shoulders. The fine legs, with long round cannon bones, ended in small oval hooves with no feathering, it may have lacked chestnuts on the hind legs.' The Caspian horse is the closest living representative to the Type IV horse.[67]

[67] Gonzaga (2004) 26-34.

So where does this leave us with respect to the non-domesticated ancestors of our ancient equines? I think it is clear from the above summaries that we can classify these ancestral equids based on geographical locations. Further, we can surmise that physical appearance was the result of adaptations required to successfully survive in and particular environment. Finally, we can look at where equine populations existed at the time of domestication and what these animals looked like. Based on this conclusion, I think the ancestral horses can be categorized into four definite types.

1. Type One: A Northern European pony. This is a true pony type, short and robust with sturdy legs and a tough digestive system. This pony evolved to thrive in the dense forests and wet moors of Northern Europe. These animals needed to live on a mixed diet, of which grasses composed only a small portion. The majority of their diet, especially in late autumn and throughout the winter, was of the browsing type: twigs, leaves and bark. Thus, these animals developed digestion mechanisms that allowed them to efficiently process both a grazing and browsing diet. Particularly in winter, it was essential that these horses used as little energy as possible in order to conserve fat stores. This meant that these ponies were not, aside from the basic flight instincts of the horse, a particularly high-strung animal.
2. Type Two: A Northern Steppe horse, adapted to live on the open grasslands. As we shall see later in this dissertation the Eurasian Steppe is actually a complex environment made up of mountains, grassland and desert. The Northern Steppe horse, which was later domesticated and became the mount of the Central Asian nomad, ranged across the open grasslands of the steppe belt. While ideally suited to support large herds of horses in the summer and fall months, the steppe

grasslands are harsh and unforgiving in the winter. Thus a small, hardy horse developed to withstand the extremes of climate frequently found there. This animal was not elegant or flashy in appearance. He adapted to survive on very little food or water through the winter months.

3. Type Three: A Southern Steppe horse, adapted to survive in the more arid, desert environment found in the southerly reaches of the Eurasian Steppe belt. This was a true desert horse; slender and spare in appearance, with no excess fleshiness or bulky muscles. These animals were capable of living on meager amounts of food and water. Their bodies were long and lean, but not necessarily 'tall,' light and agile for moving across sandy spaces.
4. Type Four: An Iberian/Mediterranean horse, adapted to life in a rocky, continental environment. These horses congregated in the more temperate, moist landscape of northern Iberia. They were suited to live in both the mountains and the alluvial river plains. These were moderately sized animals with a diet made up primarily of grazing, but those living father up in the hills and mountains were capable of browsing as well. Their legs are of moderate length and sturdy, with hard feet and dense cannon bones. They were likely base-narrow to a degree to enable them to traverse mountain trails easily. They were not as lean as a true desert horse, as they needed to maintain bulk and a dense coat during the damp winter months, while also being able to survive the arid heat of a Mediterranean summer.

There is no evidence to support the existence of horses in North Africa before to the mid-second millennium BCE. Indeed, the earliest secure evidence for the presence of equines in North Africa comes from the Eighteenth Dynasty in Egypt (c.1550-1352 BCE) where

they are found on reliefs and wall paintings, while the 'second' Stele of Kamose, also dating to the Eighteenth Dynasty, provides the earliest textual reference to the horse in Egypt.[68]

These four ancestral types were the starting point from which the horse types of antiquity developed. As we shall see through the course of this dissertation, the basic form and adaptations found in these ancestral equines did not change very much during the period covered in the present work. The question of equine domestication is a complex one, and two sites in particular have laid claim to the earliest (thus far) discovered evidence of domestic horses, both falling within the grasslands of the Eurasian steppe: Dereivka in the Ukraine and Botai in Kazakhstan. Certainly at the time of domestication, which evidence suggests occurred by the end of the 4th millennium BCE, the Eurasian steppe supported the largest populations of wild horses.

DOMESTICATION

Given the long human fascination with the horse, which archaeological evidence indicates dates back at least 30,000 years, it is perhaps surprising to discover that the horse was domesticated thousands of years later than the initial period of Neolithic domestication that brought cattle, sheep, goats, pigs and dogs under human control.[69] The equines carved and painted on cave walls are wild animals and they continued to be so for over twenty thousand years. When it did happen, however, the domestication of the horse had an unprecedented and unimagined impact on human history.

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[68] A.Nibbi,'Some Remarks on Ass and Horse in Ancient Egypt and the Absence of the Mule.' *Zeitschrift für Ägyptische Sprache und Altertumskunde* 106 (1979) 160.
[69] S. Bökönyi, *History of Domestic Mammals in Central and Eastern Europe*. (Budapest, 1974b) 230.

Although the horse would eventually fulfill a wide variety of roles in human society, his original function was as a food source. Sites like Solutré in east-central France provide evidence for the regular, systematic hunting of horses. Solutré was used regularly for this purpose over a period of 20,000 years.[70] The horse is a less practical source of meat than other livestock as he is a relatively infecund species.[71] On account of this some scholars have argued that he was not domesticated purely for his nutritional potential.[72] It is possible that prehistoric humans recognized the transportation potential of the horse and domesticated him for this reason; other equids as well as oxen were already used for this purpose in the Near East. Nonetheless, the horse was regularly used as a food source in Asia and Europe for at least 3,000 years after his domestication and he remains a primary food source in Mongolia and other Steppe countries today.[73] More importantly, mare's milk (*airag* or *koumiss*) has been an essential part of the Central Asian diet for thousands of years. Horse milk is very high in vitamin C and thus provides necessary nutrients in a meat-based nomadic diet. Strabo mentions the consumption of mare's milk by the Scythians, something the Greeks and Romans would have considered very bizarre.[74] Analysis of potsherds from the site of Botai in Kazakhstan shows the

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[70] S. Olsen, 'Horse Hunters of the Ice Age.' In S. Olsen (ed.), *Horses Through Time*. (Lanham, 1996) 42-47.
[71] The horse does not become fertile until he is 3 years of age and does not reach maturity until at least 4 (the larger the horse, the longer it takes for him to reach his mature size). The gestation period is 11 months and the mare typically produces a single foal. Twins rarely survive. The foal remains with his mother for at least the first 6 months before being weaned.
[72] M. Levine, 'Dereivka and the Problem of Horse Domestication' *Antiquity* 64 (1990) 729.
[73] D.W. Gade, 'Horses.' In, K.F. Kiple and K.C. Orneias (eds.), *The Cambridge World History of Food*. (Cambridge, 2001) 542,544.
[74] Strabo, *Geography*, 3.7 and 4.6

presence of proteins found in mare's milk as early as 5,500 years ago.[75] While the horse was not as fertile a meat source as other livestock, he was nonetheless far better adapted to survive the harsh winters of the Eurasian steppe than sheep or cattle. Unlike other animals, the horse uses his hoof to break through ice to find water and dig through deep snow banks for buried forage. Cattle and sheep, on the other hand, use their noses to push snow aside; in the course of a harsh, snowy winter their noses quickly become too bloody and raw to use and the animals will starve unless they are fed additional fodder. Furthermore, the naturally high leg action of the horse allows him to move through deep snow with relative ease, unlike the lower-slung cattle, sheep and goats.[76]

Two main sites are associated with the domestication of the horse: Dereivka in the Ukraine and Botai in Kazakhstan. Located in the lower Dneiper valley, Dereivka was inhabited by the Sredni Stog culture c.4200-3500 BCE. Of the over 4,000 animal bones found on the site, 61% belong to horses.[77] Excavations revealed the ritual burial of a skull belonging to a 7-8 year old stallion with domestic canine remains.[78] Anthony and Brown have argued that the teeth of this stallion show wear marks associated with the long-term use of a metal bit. What might be a single antler cheek piece was found near the skull in the pit.[79] Further, the majority of the equine remains from Dereivka are those of young male horses between 4 and 10 years of age. Anthony argues that this indicates

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[75] Kelenka (2009) 36.
[76] D. Anthony, 'The Domestication of the Horse.' In R.H. Meadow and H. Uerpmann (eds.), *Equids in the Ancient World* Volume II. (Wiesbaden, 1991) 251-252. P. Kelenka (New York, 2009) 39.
[77] Kelenka (2009) 32.
[78] Anthony (1991) 263.
[79] D. Anthony and D. Brown, 'Eneolithic Horse Rituals and Riding in the Steppes: New Evidence.' In M. Levine et al (eds.), *Prehistoric Steppe Adaptation and the Horse*. (Cambridge, 2003) 55.

the practice of controlled animal husbandry, particularly for the purposes of slaughter for meat.[80] Levine, on the other hand, states that the skeletal evidence from Dereivka suggests the hunting of wild horses rather than the slaughter of a domestic population. The majority of the Dereivka horses died between the ages of 5 and 8, when they would have been at their reproductive and athletic peak. From a food standpoint, the most tender meat comes from horses killed when they are 2-3 years old.[81] The Dereivka evidence suggests the killing of wild animals not just because of age but based on gender as well. Horses form two types of herds in the wild: harem bands which are comprised of a stallion, mares and their young, and bachelor bands made up of young stallions who have not successfully challenged an older stallion for his harem. In a harem band, it is the alpha mare who leads the herd whenever they flee from possible danger while the stallion guards the rear of the fleeing group, hanging back to threaten or attack any potential threat.[82] Based on this behaviour, it is more likely the stallion would be killed than his mares. When hunting groups were sent to the Mongolian steppe in the early 1900s to catch Przewalski foals, the hunters almost always had to kill the stallion before they could approach the youngsters.[83] In the case of a bachelor band, any horse killed would likely be a young male.

The site of Botai is located in the Tobol-Ishim drainage on the northern Steppes of Kazakhstan. It was home to the Botai culture, which flourished in this region between 3500-3000 BCE. Horse bones and tools made from them are numerous at Botai.

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[80] Anthony (1991) 269.
[81] Levine (1990) 738.
[82] Levine (1990) 738.
[83] J. Bourman, *Particulars about the Przewalski Horse*. (Rotterdam, 1986) 14. E. Mohr, *The Asiatic Wild Horse 'Equus Przewalski Poliakoff' 1881*. (London, 1971) 68.

Slaughter methods, evident from cut marks on bones, support the argument that the Botai peoples hunted wild horses but also slaughtered domesticated animals; there is evidence for poleaxing, a method of slaughter only possible with a domestic animal. Large, concentrated amounts of manure have been found in the vicinity of the site. This suggests that groups of horses were kept in contained spaces. Finally, there is the previously mentioned discovery of mare's milk protein on potsherds from the site.[84] As Olsen points out, Botai is an example of what might be termed a transition horse-culture. The inhabitants of the site practiced a horse-based economy. They clearly hunted wild equines, but there is strong evidence to support their exploitation of domesticated animals as well.[85]

CASE STUDY ONE: THE EXMOOR PONY

The British Isles are home to a number of so-called native ponies. These include the Fell, Dartmoor, New Forest and Welsh. These ponies are referred to as the Mountain and Moorland Ponies – a nod to the regions that produced them. The British ponies are typically elegant, tough, athletic and strong. They can all be classified as a true pony type. Most of these ponies, however, are not truly native to the island, but were introduced in the historical period. For example, the Fell pony was the result of imported Roman horses from Friesland crossing with local British ponies.[86] The oldest and purest of the British ponies is the Exmoor. The relative isolation of the moorlands that are home to the Exmoor pony has served to protect the purity of this ancient equine.

> In every other part of Britain, outside equine blood was introduced to a degree that drastically altered the appearance of the British Hill Pony on Exmoor that did not

[84] Kelenka (2009) 36.
[85] Olsen (1996) 101.
[86] Hendricks (1995) 179-182.

> happen. Most of the changes to ponies elsewhere in Britain took place in the last few hundred years. These changes can be linked to the influences of major trade routes and ports introducing new ideas and new animals, or the influence of landowners doing the same.
> Exmoor, however, until very recently, was a forgotten place with no such routes across it or large ports nearby, and few landowners feature in its history. It is situated in the Southwest of Britain spanning the borders of Devon and Somerset, its northern boundary being the high cliffs of the Bristol Channel. It is an area of high moorland divided by steep wooded valleys and fragmented by farmland. The moorland provides a varied diet of grasses, rushed, heather, and gorse … The area is subject to very wet winters, cold temperatures, and driving winds. It is, in effect, a social island within the British Isles, and because of this, the original type survived.[87]

The Exmoor is the pony type most closely linked with the ancestral northern European pony. The primitive pony shared many traits with the Exmoor. Most notably

> The Exmoor is the only living breed to show jaw development similar to that found in fossilized bones in North America, also showing the beginning development of a seventh molar, found in no other living breed or horse or pony.[88]

It was because of the hostile Arctic habitat that the ponies began to develop an extra molar, which allowed them to survive on a diet of tough, coarse vegetation.[89] Numerous Pleistocene horse remains have been found in the permafrost of the North American and Siberian Arctic. Their appearance is that of a medium sized, robust animal ranging in colour from dark chocolate brown to chestnut.[90] If the prehistoric Exmoor type did originate in the Arctic, then he gradually adapted to environmental changes as he

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[87] Lynghaug (2009) 470.
[88] Hendricks (1995) 180.
[89] Hendricks (1995) 180.
M. Harbury, *Last of the Wild Horses*. (Toronto, 1994) 83.
[90] Olsen (1996) 38-39.

migrated westwards.[91] Before 10,000 BCE horse populations could move between continental Europe and the British Isles. When the English Channel formed, however, the equine population became isolated on the isles and the only interaction with any continental equine populations would have been through the agency of humans.[92]

The Exmoor is believed to be the closest living relative to the British Hill Pony: the prehistoric horse of the British Isles. The Exmoor and its ancestor, the British Hill Pony, are representatives of the ancestral northern European pony. The British Hill Pony evolved from its plains –dwelling relatives by adapting to live on hilly, uneven ground. We usually think of the horse as an animal best suited to life on open grasslands, which indeed they are. The territory of our Ancestral Horses, however, was not made up solely of grasslands and the British Hill Pony is one of several prehistoric horses that moved up into the hills and mountains. To thrive in a mountain environment the physical form of the horse had to change. The mountain dwelling horse had to combine the speed and stamina of the plains horse with the agility and swiftness required to flee from predators over uneven terrain. James Speed, an expert on the British Hill Pony and the Exmoor described the physical qualities of the mountain pony thus:

> They were and are unspecialized and adaptable to almost any environment. Their teeth, although of not quite the degree of hypsodonty of the steppe and tundra horses, being nevertheless suitable for thirty years of efficient grazing on poor rough grass. The curvature of their jaw ensures that even in old age the incisors form a cup and are able to bite cleanly. Their limbs are adapted for activity on rough ground, the scapula and humerus having the same degree of inclination, which ensures balance, agility and sure-footedness, qualities so necessary on mountains. In

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[91] J. Speed and M. Etherington, 'The Origins of British Horses.' In J. and M. Speed, *The Exmoor Pony: Its Origins and Characteristics*. (Colonsay, 1977) 1.
[92] Baker (1993) 32.

> the hind-limbs the femur slopes downward and forward from the hip in the same degree of inclination as the tibia slopes backward to the hock. This means that the hindquarters, although rounded and muscular, appear short. The sacrum continues the line of the lumbar vertebrae and therefore the tail is low-set. The chest is wide with well sprung ribs. All these characteristics are essential for an animal living on high, rough ground where really fast bursts of speed either up or downhill may be necessary.[93]

The British Hill Pony is an excellent example of how the horse adapted to suit a particular environment. Although a mountain habitat might not seem like ideal living conditions it did offer some advantages over the more traditional grassland habitat. Living in the hills allowed the ponies to be able to move to different elevations depending on climatic conditions. Humans also had little interest in trying to cultivate the highlands – the lowlands were the preferred farming terrain. Thus the Hill Pony avoided much of the pressure placed on its lowland dwelling relatives by encroaching human habitation. Indeed more horses might have moved into the hills to avoid the human threat.[94]

There is, of course, the argument that the British Hill Pony went extinct in the Mesolithic period. This would mean that any of the 'native' breeds existing today are the descendants of horses brought over to the British Isles from the mainland. If such a reintroduction occurred, it is thought to have taken place during the Bronze Age. Indeed 'Once the land-bridge between England and the Continent had sunk under the sea, they could only be reintroduced in ships and no Neolithic boat could transport horses alive.' [95] The argument that horses were transported in the Bronze Age from the continent to the British Isles predisposes the notion that these horses must have been domesticated. The

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[93] Baker (1993) 19.
[94] Baker (1993) 20.
[95] Dent and Goodall (1962) 25.

idea of trying to bring wild horses across the Channel is ridiculous in the extreme! Undoubtedly the Celts who migrated to Britain from the Continent did import their local horses when they moved across the Channel. There are, however, some difficulties with the argument that all of the 'native' breeds are descended from these imported animals – particularly with regard to the Exmoor pony.

Speed wrote that

> The Celts imported a small 10 hands high pony but it does not appear to have been pure-bred, because it had some of the characters of the eastern small pony and some characters of the southern horses. It is found buried in the graves of the Celtic settlements and was a somatic horse, but it obviously did not succeed in establishing itself in a wild state here, and its bones show evidence of diseases.[96]

Other Celtic period graves indicate that there were at least two types of horse living in Britain at this time. The graves from Blewburton included 'a slender stallion of about 11 hands while the other was identified by Speed as the original British pony type.'[97] It is not surprising that the Celts would have brought over their own native horse when they crossed the Channel. Why would they not? These were the animals they were familiar with and they were tamed and trained in the style used by the Celts. It is also not unreasonable to assume that upon settling into life on the British Isles, the Celts also began to look at the native British Hill Pony as a useful animal. Their imported horses were not well suited to the climate and fodder of the Isles particularly in the moorland areas. As we will see with the Exmoor, it is an animal perfectly designed to survive the harshness of its environment. The Continental horses would have lacked the physical adaptations of the British Hill Pony. So the imported horses would have required more

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[96] Speed and Etherington (1977) 3.
[97] Baker (1993) 33.

human assistance to survive. They likely would not have needed such things in their own native environment. Their unsuitability for life in Britain does not mean the Celts would have abandoned breeding their imported horses. I think quite the opposite would have happened. The difficulty in keeping these animals would have made them all the more significant and valuable. The extra care required for their upkeep translated to a greater cost, thereby increasing the status associated with the owners of these horses.

What about the native ponies of the British Isles? The logical answer is that the Celts began to make use of the local equine populations. Given the value of the imported horses they would not have been used for regular, everyday work or as a food source. Instead the Celts could turn to the native British ponies: they would have been comparatively inexpensive to keep. Crosses – whether through intentional breeding practices or otherwise – between the native ponies and imported horses must have occurred creating yet another type, the optimal specimen of which would have carried the best qualities of both types. As Baker correctly states

> The Celts began the practice of importing animals to the British Isles and in the case of horses and ponies, it was to continue throughout history. Man quickly found that the genetic flexibility which had served the horse family so well in its natural history provided a wonderful basis for animal husbandry.[98]

What did the British Hill Pony look like? The only surviving physical remains of the British Hill Pony are bones.[99] But bones can still relate a great deal of information about a horse. Bone length (particularly the long bones in the legs) has been shown to give an accurate representation of total height. This fact had been established by 1888. This

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[98] Baker (1993) 33.

[99] In other areas we are lucky enough to have entire horses survive thanks to the fact that they were found in permafrost regions.

means the bones of our fossil horses can be used to indicate the height of the animals. Bone comparisons of fossil horses from Alaska, Mendip and Brighton were all of identical size and indicate that these ancestral horses stood approximately 12.3 hands high at the withers. The leg structure also suggests that this pony had short, stout legs with an even, short stride; ideal for movement on hilly terrain.[100]

The measurements provided by the fossil horses fit with Ebhardt's argument that Pony Type 1 (or the Northern pony, of which the British Hill Pony was a representative) stood 11.3-13.3 hands high. Ebhardt also described the teeth and jaws of the British Hill Pony and its relatives as being unique.

> The premolars as well as the molars swing through to the front with their lower ends growing until all the molars are stretched forwards regularly. If one lengthens the high axis of all the molars upwards, they meet all in one place, in fact 16 to 18cm above the chewing surface. All the molars are placed so regularly in a wheel radius form that it is immediately obvious in the x-ray photos. Harder food in the cold areas required a high chewing pressure which was and is passed on with the growth of the molars onto a much bigger bone length.[101]

How does the Exmoor pony fit into the history of the British native breeds? How does it compare with the physical model of the British Hill Pony?

The Exmoor pony is categorized as a 'Mountain and Moorland' breed. These British Mountain and Moorland types are all descendants of the British Hill Pony. Today there are obvious differences in appearance and size between the various Moorland and Mountain ponies. This is the result of crossbreeding with imported horses and between different Mountain and Moorland types. Although the ancient Mountain and Moorland

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[100] Baker (1993) 35.
[101] Baker (1993).35.

ponies were scattered across the British Isles, the similarity in climate and topography suggests that they were fairly similar in appearance and body type. Sources from the late 18th century on suggest that this was true until quite recently. In 1796, William Marhsall wrote of horses in West Devonshire.

> The native breeds, which are still seen on the mountains that overlook this District, are very small: much resembling the Welsh and highland breeds[102]

In 1899, Lord Edward Cecil wrote

> Personally, I am of the opinion that the one great recommendation should be the power of the animal to live and thrive in winter without and adventitious sustenance, while there are many characteristics which all these possess in common, notably the clean-cut head, small ears, bright full eyes and well curved nostrils together with a strong predisposition to the brown color, with light tan or mealy points, which we see running through as a common attribute of them all.[103]

Cecil moreover writes of the uniformity in appearance:

> In 1890 I went to the New Forest and found that for many years few if any stallions of the old true breed had been kept. As far as I could ascertain, the old type when it appeared, was singularly like the Exmoor, in the wonderfully sharp outlook, clean head and bright eyes and also, singularly enough, the tanned muzzle and flanks. I tried the experiment of bringing a few Exmoors into the Forest, and everyone of all the old Commoners were unanimous (not knowing them to be Exmoors) in saying 'Ah that was the old kind of pony which lived in the Forest.'[104]

Today, as hinted at by Cecil, many of these common features have disappeared from the Mountain and Moorland breeds. This is due to the practice of 'improving' the native

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[102] Baker (1993) 38.
[103] Baker (1993) 38
[104] Baker (1993) 41.

ponies through the introduction of non-native bloodlines. Speed and Etherington (nee Speed) wrote that

> Whole races of hill and moorland ponies have been disposed of in Britain by the simple process of turning Arab or Hackney horses into the herds to replace native stallions. The Monz, the Cushndal, the Tiree, the Long Mynd, the famous Galloways, the Goonhillys and many others have been exterminated by these means, because the offspring of such crossings were so valuable that they were quickly sold out but further crossings produced animals which were no longer able to fend for themselves as native Northern grazing horses.'[105]

The Exmoor, however, seems to have largely avoided the practice of 'improvement' and indeed has, as we shall see, retained many of the primitive features that link it to the British Hill Pony and the ancestral Northern pony. As Baker writes

> Whilst we have found traces of the British Hill Pony in other localities, on Exmoor alone we are faced even today with a population in which every individual fits our concept of the original wild type.[106]

As stated earlier, bones can be used as an indicator of overall height. We established that the average height of the British Hill Pony and its ancestors was 11.3 to 12.3 hands high. How does the Exmoor fit into this mold?

The leg formation, length and thus the height of the pony are very similar to the skeletal remains of the British Hill Pony – strongly indicating that the Exmoor pony experienced little crossbreeding in its history. This means that its appearance and physical form are a response to its environment and not human intervention. This argument is further supported by the strikingly uniform appearance of the Exmoor in build and color. The very primitive characteristics of its coloration are found in few other

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[105] Speed (1977) 22.
[106] Baker (1993) 43.

horses or ponies.[107] Further, the jaw structure of the Exmoor is very close to that of the British Hill Pony

> The molar teeth are very large and well designed for their function. They are set into the jaw so that they meet at a single point, this design creates a strong chewing pressure which is required to deal with the tough moorland plats. Just as the leg bone structure matches that of the British Hill Pony and its ancestors, this arrangement of the teeth seen in the Exmoor is the same as described for one of the four basic types of ancestral equid which Ebhardt identified in his studies.[108]

The Exmoor pony has a distinctive and uniform appearance, displaying many 'primitive' features. Indeed

> Variation in color and markings, which are typical in breeds humans have created, is notably absent. This suggests that the Exmoor remains more a wild race than a selected breed. Characteristics of Exmoor ponies are all survival adaptations for avoiding predators as well as coping with hostile elements.[109]

The coat of the Exmoor is invariably a shade of brown, from light brown to almost black. The legs are dark. The only markings are the mealy (oatmeal) muzzle and eye patches. The belly is sometimes a lighter colour than the rest of the coat. Typically the mane and tail are a darker shade than the coat. The coat of the Exmoor allows it not only to blend in well with the landscape it lives in, but also to comfortably withstand the harsh climate of the moors. During the wet, cold winter the Exmoor pony grows what is, in effect, a double coat. The first layer of hairs (those next to the body) act as insulation, a 'base layer' if you will. These soft hairs keep the pony warm. The outer coat acts as a waterproof 'Gore-Tex' layer. The coarse, greasy hairs cause water to bead up and roll off

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[107] Baker (1993) 43.
[108] Baker (1993) 47.
[109] Lynghaug (2009) 473-474.

the pony preventing the soft insulating layer from becoming damp. This outer coat grows in whorls and vortices, which act as channels that force the water to run off the pony. Thus, even though an Exmoor standing in the pouring rain might look like a drowned rat, he is actually quite warm and dry. This layering system works equally well in the snow. Indeed it is so effective that 'in cold weather, snow does not melt on them. It collects on the ponies' backs as insufficient body heat escapes to melt it.'[110] When a significant amount of snow has accumulated, the pony simply shakes it off. This adaptation is called snow-thatching. Even the mane and tail of the Exmoor act as a form of climate control. The top of the tail is covered by hairs spread out in a fan shape. This is called a snowchute and serves to divert rain over the rump, preventing it from running under the tail. The thick mane and forelock likewise act as insulation against the rain. The Exmoor has a hooded 'toad' eye. This is a fleshy rim above and below the eye that protects it from rainwater.[111] Speed reports how

> As an experiment we put four herds of animals of various ages out on some of the bleakest hills in this bleak winter of 1950-51, some of the mares suckling one foal and carrying another, and some foals weaned at five months, and we hardened our hearts and turned our backs and left them to prove that they knew something about the ecology of Britain. The shepherds were warned off feeding them, but we could not level out all the hillocks that would give them shelter. In the spring we returned to count our losses and were cheerfully greeted by the same totals we had so harshly turned out in the autumn, and they were bouncing and very much alive… One Exmoor pony with a touch of other blood was put out with the others as a matter of interest, and we found it the poorest in condition.[112]

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[110] Lynghaug (2009) 474.
[111] Lynghaug (2009) 474.
[112] J. Speed, 'Native British Ponies.' In J. and M. Speed (1977) 9-11.

The Exmoor stands 11.1-13.1 hh. These ponies have a very high strength-to-size ratio with at least 6.5-7 inches of bone circumference below the knee. The clean, short legs of the Exmoor are well adapted for easy movement over uneven terrain.[113] These ponies have impressive stamina, can easily carry an adult man, work well in harness and are quite good jumpers, making them very versatile animals.[114]

The Exmoor is today a very rare breed, but their purity and bloodlines are carefully protected and many ponies still run in wild herds on the moors. These ponies are rounded up each October for inspection and branding of the foals. Any colt that does not meet the bred standard is gelded. These ponies live with little or no human support. They are 'quite literally the "children of the moor." The food, climate and living conditions produce the pony as it is today.'[115] During the summer and autumn months food is plentiful and the ponies consume mainly grasses, while in the winter months grasses make up less than a quarter of their diet, and they subsist on heather and gorse.[116] Disease is rarely found in the purebred pony populations on the Moors, but increases if crossbreeding is introduced.[117] Ponies bred in domestic conditions begin to lose the 'type' so unique to the moorland Exmoor.[118]

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[113] Lynghaug (2009) 473.
[114] J. Hermsen, *The Horse Encyclopedia* (Toronto, 1998) 28.
[115] Hendricks (1995) 182.
[116] S. Baker et al, *The Exmoor Pony*. (Somerset, 2000) 41-42.
[117] M. Speed, 'An Indigenous British Horse.' In J. and M. Speed (1977) 34.
[118] Hendricks (1995)180-181.

Exmoor Pony. www.dkimages.com

CASE STUDY TWO: THE PRZEWALSKI HORSE

The Przewalski Horse is a truly unique specimen among equines.[119] It resembles no other living horse breed. The Przewalski Horse was 'discovered' by the Russian explorer Colonel Nikolai Przewalski in 1876. While on his way back to Russia from Central Asia he was presented with the skull and hide of a wild horse, which he in turn gave to the Russian Academy of Science in St. Petersburg. The specimen was examined by the zoologist M. Poliakoff who declared this to be a new species of equid and named it *Equus przewalskii* in honor of its 'discoverer.' Poliakoff wrote of Przewalksi's specimen that

> If our new species had more hair on the upper part of the tail, we would have a small dun domestic horse. Its relatively coarse head is not so different from ordinary

[119] Przewalski can also be spelled Prjevalsky. The Przewalski Horse is also commonly called the Asian Wild Horse, Mongolian Wild Horse and the Takhi.

> horses. And if, under the influence of domestication, it were possible for a fuller tail and longer mane, then I am prepared to believe in fact, *Equus przewalskii* is the same animal whose ancestors were tamed by Stone Age people.[120]

Unfortunately for Przewalski and Poliakoff, things were not so clear-cut. European zoologists believed that true wild horses were long extinct. Poliakoff's argument that this was not only a true wild horse but also a new species of equid was not well received and generally disbelieved. In 1891, Sir William Flower, Director of the British Museum wrote

> Much interest, not yet thoroughly satisfied, has been excited among zoologists by the announcement by M. Poliakoff of the discovery by the late distinguished Russian explorer, Prjevalsky, of a distinct species of wild horse. One specimen, unfortunately, only was obtained, while searching for wild camels in the sandy deserts of Central Asia near Zaisan. It is described as being intermediate in character between the equine and asinine groups of Equidae so that it completely breaks down the genetic distinction which some zoologists thought fit to establish between them. It has callosities on all four limbs, as in the horse, but only the lower half of the tail is covered with long hairs, as in the ass. The general colour is dun, with a yellowish tinge on the back, becoming lighter towards the flanks and almost white under the belly, and there is no dorsal stripe. The mane is dark brown, short and erect, and there is no forelock. The hair is long and wavy on the head, cheek and jaws. The skull and hoofs are described as being more like those of the horse than the ass.
> Until more specimens are obtained it is difficult to form a definite opinion as to the validity of the species, or to resist the suspicion that it may not be an accidental hybrid between the Kiang and the horse.[121]

The specimen Poliakoff examined was in its winter coat. This accounts for the absence of a dorsal stripe and other 'primitive' markings, which, as we will see, are commonly,

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[120] M. Poliakoff in Harbury (1994) 56.
[121] W. Flower in Clutton-Brock (1992) 31-32.

found when the Przewalski Horse is in its summer coat. This also explains the lighter coat and the long, wavy hairs on the head. In some regards the basic coloration of the Przewalski horse does resemble the Kiang. Moreover, both the Przewalski horse and the Kiang inhabit the same regions of the Gobi. Hence it is not surprising that European zoologists were suspicious of Poliakoff's specimen and considered it to be a hybrid between a domestic or feral Mongolia horse and a Kiang.

In 1904, Professor C. Ewart stated

> As far as I can gather, it is generally believed in England that Prjevlasky's Horse is a hybrid – a cross between a pony and a Kiang. Beddard, however, admits it may be a distinct type. He says, "this animal has been believed to be a mule between the wild ass and a feral horse, but if a distinct form – and probability seems to urge that view – it is interesting as breaking down the distinctions between horses and asses." It must be admitted that in its mane and tail Prjevalsky's Horse is strongly suggestive of a hybrid, but in t he short mane and mule-like tail we may very well have persistence of ancestral characteristics.[122]

Zalensky likewise commented in 1902

> The mane reminds one, because of its thickness, of that of the onagers. As Poliakoff has stated, it is not very high, begins between the ears and comes down to the middle of the withers. At the top and bottom the mane is shorter and in the middle it is about 16-20 cm … the forelock is just slightly developed in Przewalski Horses as it is in the Kulan and Kiang.[123]

The first obstacle the Przewalski Horse and its supporters had to overcome was to establish its 'purity'- that it was a true horse and not a horse-kiang hybrid. C. Ewart successfully silenced the hybrid argument through some experimental breeding. Ewart who, as Clutton-Brick puts it, 'late in his career was responsible for some hare-brained

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[122] C. Ewart in Clutton-Brock (1992) 32.
[123] Zalensky in E. Mohr, *The Asiatic Wild Horse.* (London, 1971) 20.

ideas about the origins of the domestic horse'[124] nonetheless set out to discover the truth of the matter regarding the Przewalski Horse in a rather sensible and logical manner. For 'failing to understand why so many zoologists persisted in considering the horse of the Great Gobi Desert to be a mule I decided to breed a number of Kiang-horse hybrids.'[125] None of the offspring produced from Ewart's many crosses even slightly resembled the Przewalski Horse. Thus he seemed to successfully refute the hybrid argument. But there was still a group that denied the notion that the Przewalski Horse could be a new species and a true wild horse.

The problem was all in the name. Poliakoff had chosen to name this equid *Equus przewalskii*. This was nothing new or inventive. New species were often named in honor of their 'discoverer'. Ewart had shown through his breeding experiments that *Equus przewalskii* was indeed a true horse and not a hybrid, but it remained to be established whether the Przewalski Horse was really something new or not. The notion of a wild horse was not foreign to Russian or European zoologists who had long known of one – the Tarpan. So the next question to be answered (and it was an important one) was whether or not the Przewalski Horse was actually a Tarpan. Erna Mohr summarizes this complicated issue when she describes the many names assigned to the Przewalski horse

> If we are not using the technical name *Equus przewalskii poliakoff*, we generally refer to the Przewalski horse, the wild horse, or the primitive wild horse (Urwildpferd). In its native country a number of other names are used in which the same elements appear. Behm (1876) refers to the Kirgiz name 'Surtake,' Poliakoff (1881) to 'Surtaken.' According to Kangkarel (1896) the animal is called by the Kirgiz and tartars 'Kertag,' whilst the Mongolians call it

[124] Clutton-Brock (1992) 32. Ewart was a strong supporter of the idea of telegony in horse breeding.
[125] Ewart in Clutton-Brock (1992) 32.

> 'Take' and 'Statur.' Greve (1901) says that in the Turfan region the names 'Jauwat' or 'Takkay,' and in Mongolian 'Statur' or 'Dzurlikadu.' He further adds "Przewalski called the animal 'Kartag,' the Kulan 'Surtag'; but the former means only 'bay' and the latter 'dun'. The Chinese call all wild Equidae 'je-ma.'
>
> The most difficult thing with these names is the difference in the same forms used in the east and west for common names, which adds to the complications. The Russians themselves call *Equus przewalskii* 'Tarpan' and even Przewalski himself recorded one of the skins he brought back as a new variety of the 'Tarpan'. Poliakoff, quite rightly contradicted him and said " but it is entirely different from the Tarpans or wild horses of travelers and scientists of the last century. In any case what I called *Equus przewalskii* cannot be the Tarpan as described by Rytchoff, Gmelin, Pallas and others…" When Matschie and Falz-Fein spoke of the 'Tarpan' they knew quite well that they meant *Equus przewalskii* although other people reading their articles in the popular press did not understand this, not even with the addition of geographical descriptions as 'South Russia' or 'Mongolian Tarpan.' Heptner (1966) describes *Equus przewalskii* as 'Tarpan' and adds the footnote "This description is usually given to the wild horse of our European Steppes; i.e. the True Tarpan (gmelini), but there appears to be good reason to use it for the whole species." [126]

Further complications arose with the scientific taxonomy.

> As we know Poliakoff entered the Mongolian Wild Horse into the literature of zoology under the name of *Equus przewalskii*, in 1881. Later Noack wanted to separate a branch of Przewalski Horses by the name *Equus hagenbecki*, as an independent species; whereas Hilzheimer on the other hand tried to identify the wild horses Pallas had described under the name of *Equus equiferus* with the Przewalski Horse. Heptner considered them as a species identical with the Tarpan and denominated them as a subspecies, *Equus przewalskii przewalskii*. In Nobis' opinion too, the Mongolian Wild horse is a subspecies of the Late Pleistocene – Early Holocene Eurasian Wild

[126] Mohr (1971) 9-10

> Horse, and since the latter's oldest name is *Equus ferus*, he called the Przewalski Horse *Equus ferus przewalskii*.[127]

What exactly is the Tarpan and how does it relate (if at all) to the Przewalski horse?

The Tarpan (*Equus ferus gmelini*) is also known as the European or Ukrainian Wild Horse. The name 'Tarpan' or 'Turpan' is Turkmenian. Similar names exist in Tartar and Bashkirian.[128] It is thought that the 'wild white horses' which Herodotus claimed graze at the headwaters of the Hypanis River (the modern Bug River) were Tarpans.[129] G.S. Gmelin first described the Tarpan in 1769. He took part in a Tarpan hunt on which he killed two mares and a stallion. According to his description,

> The Tarpan is of the same size as the smallest Russian domestic horse. Its head is massive, the ears being pointed and sometimes rather long. The eyes are fiery, the mane short and erect. Its tail is more or less covered with hair and shorter than that of domestic horses. The Tarpan's colour is mouse-grey (though mention is made of white and ash-grey individuals elsewhere), its belly is ash-grey and thick, so much so that one would rather think of a fur than of a horse's fell.[130]

Over a century later a similar description was produced by Hamilton Smith.

> Tarpans are not larger than ordinary mules, their colour invariably tan, Isabella, or mouse, being all shades of the same livery and only varying in depth by the growth or decrease of a whitish surcoat longer than the hair, increasing from midsummer and shedding in May; during the cold season it is long, heavy and soft, lying so close as to feel like a bear's fur, and then it is entirely grizzled; in summer much falls away, leaving only a certain quantity on the back and loins. The head is small, the forehead greatly arched, the ears far back, either long or short, the eyes

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[127] S. Bökönyi, *The Prjevalsky Horse*. (London, 1974) 46
[128] Bökönyi (1974) 70 and Gonzaga (2004) 37.
[129] Herodotus, *Histories,* 4.52 'The third river, the Hypanis, has its source in Scythia, in another great lake, round the borders of which wild white horses graze.'
[130] Bökönyi (1974) 70.

> small and malignant, the chin and muzzle beset with bristles, the neck rather thin, crested with a thick rugged mane, which like the tail is black, as also the pasterns which are long; the hoofs are narrow, high and rather pointed; the tail, descending only to the hocks, is furnished with coarse and rather curly or wavy hairs close up to the crupper; the croup is as high as the withers; the voice of the Tarpan is loud and shriller than that of domestic horses; and their action, standing and general appearance resemble somewhat that of vicious mules.[131]

An engraving of a Tarpan appeared in Gmelin's book on his explorations of Russia, published in 1770. The subject of the engraving is a yearling filly and 'shows only one distinctive feature, the short upstanding mane which is a characteristic of all wild equids.'[132] Over a century later, another engraving was produced to accompany Hamilton Smith's description of the Tarpan. This image 'shows a slender-legged animal, very much more refined in the head than the Asian Wild Horse, but with a pronounced convex profile. The overall impression is of a horse that evolved in dry, steppe-like conditions.'[133] The zoologist Heptner provided an account of the last living Tarpan, a captive animal that died in 1918-19.

> It was a stallion of 140-145cm (13-13.1hh), with a big head, a broad forehead and a straight profile. Its ears were small and pointed, his neck was short and so was the straight back, while the rump was sway-backed. Hew as mouse-grey with a dorsal stripe about 2cm wide running along the middle of the back and with a blurred stripe across the shoulders. His mane was very short, strikingly thick and erect.[134]

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[131] H. Smith in Ridgeway (1905) 31-32.
[132] J. Clutton-Brock (1992) 28.
[133] Edwards (1994) 18-19.
[134] Gonzaga (2004) 38.

The Tarpan is believed to have been the last surviving wild horse in Europe. He inhabited the region now known as the Ukraine. With the exception of Herodotus, our earliest and most detailed description of a Tarpan comes from Gmelin, who captured a live foal and killed a stallion and two mares. Based on Gmelin's account, Bökönyi describes the Tarpan as

> The same size as the smallest Russian domestic horse. Its head is massive, the ears being pointed and sometime rather long. The eyes are fiery, the mane is short and erect. Its tail is more or less covered with hair and is shorter than that of domestic horses. The Tarpan's colour is mouse-grey (though mention is made of white and ash-grey individuals seen elsewhere), its belly is ash-grey, the legs are back downwards from their middle. The hair is very long and thick, so much so that one would rather think of a fur rather than of a horse's coat.[135]

Environmental factors make it unlikely that the Tarpan and Przewalski Horse could be the same animal. The habitat of the Tarpan was the forests of Poland and the Ukraine. If the Tarpan was a true wild horse, his conformation and overall appearance would be that of a forest horse – an animal evolved to live on woodland/meadows borders. The climate in these regions is a Continental one, with warm, humid summers and cold, wet winters. The Przewalski Horse, on the other hand, lived on the open expanse of the Eurasian Steppe and the Gobi Desert. The climate in these regions is dry and extreme. Unlike the Tarpan, the Przewalski Horse could not shelter from storms in the trees, but was exposed to the extremes of nature. The Przewalski Horse had to withstand shortages of food and water that would not be present in the habitat of a forest horse. Thus, based on environmental factors alone, a forest Tarpan and steppe Przewalski Horse were conformationally different from each other.

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[135] Bökönyi (1974) 68-76

There are some distinct differences between the Przewalski horse and descriptions of the Tarpan. The Tarpan is smaller and slighter than the Przewalski horse; his head is shorter and the forehead wider. There is also the obvious difference in colour. It is interesting that horses of grey and dun colours appear in the cave paintings of southwestern Europe. The types of equines portrayed in these images resemble both the Przewalski horse and the Tarpan. I think it is not unrealistic to view the Przewalski horse and the Tarpan as variations of the same type. The Tarpan became a smaller forest-type horse while the Przewalski adapted to survive the extreme climate of the Eurasian steppe. Nor should we be surprised to learn that the Tarpan was hunted to extinction before the Przewalski horse; the Tarpan inhabited a much more densely populated region. This explains two things: 1. Why there are more descriptions of Tarpan-type horses in the literary record, possibly as early as Herodotus; 2. Why there is the appearance of what seem to be Tarpan-domestic crosses intermixed with pure Tarpans. This habitat of the Tarpan had an agriculture-based economy and horses would have played a significant role in daily work. The Przewalski horse, on the other hand, is native to the mostly uninhabited Steppe regions of Central Asia. The population in these regions was (and still is) primarily nomadic or semi-nomadic. There would have been some competition between domestic and wild animals for grazing, but not nearly so much as in the more crowded regions of central and northern Europe. If the Przewalski horse and Tarpan are descendents of the same wild type, they serve as excellent examples to indicate how the physical characteristics of a horse type can change to adapt to a particular environment.

The Przewalski horse is a unique looking animal. He displays many features termed ‘primitive’. As with the Exmoor pony, the Przewalski horse is uniform in colour. Lack

of variation in colour patterns is an indication of little outside influence in breeding. White markings do not appear in any form. As with colour consistency, this is often used to indicate 'purity'. The Przewalski horse is always a shade of yellow-dun with black points (legs and muzzle). The muzzle is black with a mealy-coloured ring surrounding it. The underbelly is cream in colour. These horses commonly have a black dorsal/eel stripe along their spine and back and zebra markings on their legs.[136] Hendricks describes the Przewalski horse thus:

> The Przewalski horse has a large, heavy head with a straight profile. The forehead is broad, the ears are large and heavy, the eyes are small. The jaw is heavy and the teeth are large. The neck is broad and short with a short, upright mane. The withers are flat, the back is straight and quite long, the croup is sloped and short. The tail is set low. The chest is deep, the shoulder is straight and short, the legs are short and sturdy with short pasterns. The hoof is narrow and elongated in shape. The tail has a distinct tuft at the end, especially noticeable during the winter months. The colour is yellowish-dun with a meanly muzzle and dark mane and tail. There is a dorsal stripe and zebra markings on the lower legs. White markings are absent.[137]

Colin Groves gave the following description of one of the captive Prague stallions

> The stallion has a height of 138-146cm and the usual weight is 250-300kg. The build is low and robust with a very strong, relatively short and slender neck. The head is conical, the forehead only slightly vaulted, and the upper and lower profile lines are straight, with an angle between them of only 16-20 degrees (in domestic horses, the two profile lines converge more strongly, the head being less oblong and more triangular, and the angle between the profile lines in 25-32 degrees). The snout region is thus much thicker than a domestic horse, the lower jaw is not concave, and the head is relatively large.[138]

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[136] Harbury (1994) 57.
[137] Hendricks (1995) 351-52.
[138] C. Groves *Horses, Asses and Zebra in the Wild* (Hollywood, 1974) 55.

Aside from his uniform colouration, the most distinctive feature of the Przewalski horse is his mane, which is invariably black, coarse and upright with no forelock. The only instances of a Przewalski horse exhibiting a long, drooping mane occur in captivity. The conclusion was made that the mane grew thus from neglect. In the wild the Przewalski horse sheds his mane every year, he is aided in this through the practice of mutual grooming in the herd. When these conditions are absent, the mane does not properly shed. The tail also differs from that of other horses. Like the Exmoor, The Przewalski has short hairs resembling a 'snowchute' at the top of his tail; longer hairs grow towards the bottom of the tail. The peculiar upright mane of the Przewalski horse is a hallmark of wild equids.[139]

> Normally all wild equids have an upright mane which is rather darker than the rest of the coat but at certain times of the year will take on a lighter tone. All wild equids have a periodic, normally annual, change of hair (mane and tail) – unlike domestic horses in which both the mane and tail grow longer and longer … The change of mane hair begins when the outer hairs fall out 20-25 days after the beginning of the molt, whereas the actual mane itself begins to fall out a bit later. After 30-50 days the change ceases.[140]

The head of the Przewalski horse is heavy and coarse in shape. It appears too large in proportion to the neck. This type of head shape is considered to be very primitive. His large skull houses substantial jaws and large teeth. These are both adaptations required to consume the tough vegetation of the Eurasian steppe. Mohr wryly states that 'Even a beautiful head of a wild horse is not particularly well shaped and appears to be somewhat

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[139] All true surviving wild equids have an upright mane.
[140] Mohr (1971) 9-26.

muscular.'[141] Bökönyi points out that the jaw muscles of Przewalski stallions are particularly pronounced. He suggests that this is to enable more savage biting of opponents.[142]

Like the Exmoor, the coat of the Przewalski horse varies considerably between summer and winter. The summer coat is short and sleek with a richer colour. In winter the coat becomes long and coarse with a woolly under-layer. The shade of the winter coat lightens in comparison with the summer version.[143] Both the summer and winter colours can be seen as an adaptation to allow a Przewalski horse to blend in with his environment.

Przewalski Horse in Hustai National Park, Mongolia.

[141] Mohr (1971) 41-45.
[142] Bökönyi (1974) 46-53.
[143] Mohr (1971) 57-62.

CASE STUDY THREE: THE AKHAL TEKE

The Akhal Teke is considered to be the purest descendent of the ancient Turanian/Turkoman horses of the Near East and Central Asia.[144] The excellence of the Turkoman horse is noted by Marco Polo, who wrote

> They roam over the mountains and plains, wherever they know that there is good pasturage, because they live off their flocks. They have clothing made of skins, and dwellings of felt or of skins. The country breeds good Turcoman horses and good mules of excellent quality.[145]

The Akhal Teke is an unorthodox and striking animal. His conformation does not fit with any western ideal of the 'perfect' horse.[146] To look at an Akhal Teke is to see a collection of sharp angles. This horse has no excess fleshiness or bulging muscles, he is all lean muscles and long, slender lines. He epitomizes the meaning of a 'dry' appearance. At first glance an Akhal Teke goes against all conformational rules. His neck is narrow and very upright with a naturally high head carriage. These horses are not built for deep flexion at the poll to 'come onto the bit' in the manner of European and North American horses. The back is long. This typically denotes a weak back because of the amount of strain put on the tendons and ligaments and makes the animal prone to becoming sway-backed. A long back also indicates difficulty in attaining proper collection as the horse finds it much more difficult to bring his hindquarters well underneath him. The hindquarters are angular and look weak. The legs are long and slender with unusually long, sloping pasterns on the hind legs. All of the above are traditionally considered to be fairly severe physical faults. Clearly this cannot be the case

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[144] J.V. Dohner, *Encyclopedia of Historic and Endangered Livestock and Poultry Breeds*. (New Haven, 2002) 327.
[145] Marco Polo, *The Travels,* 46-47.
[146] Hendricks (1995) 8-9.

with the Akhal Teke. As we shall see below, the husbandry practices used with Akhal Tekes would quickly remove any weak genetics from the bloodlines. So why does the Akhal Teke have such an unusual appearance and why has it been propagated for so long? The answer is found in the very environment in which he lives.

The Akhal Teke was historically bred by the Teke tribes of what is now Turkmenistan. These tribes inhabit the territory between Ashkabad and Merv, a region now crisscrossed by irrigation ditches, but traditionally was dry, open steppe. In his native Turkmenistan the Akhal Teke is raised the long-established manner of Central Asian horse husbandry. The name itself references the degree of dedication the Teke nomads give to the breeding and raising of these horses; the word 'Akhal' translates as pure, and the bloodlines and records of these horses are an important part of the historic Teke oral tradition.[147] These horses are bred, born and raised on the open steppe. The riding horses, usually stallions, remained tethered outside of the family tent whenever he was not being exercised and family members usually fed him by hand, thus encouraging the animal to develop a close bond with his owner(s). One Turkoman saying states: 'In the morning see your father, then your horse.'[148] It is even claimed that the family riding horse(s) was introduced to any prospective suitors seeking to marry a daughter; the reaction of the horse(s) played a part in the final decision.[149] The horse holds an important place in Turkoman folklore and history. He takes a central role in the national epic of the Turkoman people, the *Gorogli Saga*, in which the main character, Gorogli,

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[147] Dohner (2003) 328.
[148] Shirliyev (2003) 71.
[149] Lynghaug (2009) 137.

can be described as 'a musically-inclined Robin Hood with a horse.'[150] In most versions of the saga, Gorogli is said to be a Turkoman of the Teke tribe; thus we should expect him to be mounted on a Teke horse.[151] The importance of the horse to the Turkic peoples, especially the Turkoman tribes, was evident to the European travelers exploring the region. During his travels through Central Asia, A. Vambéry observed the following with regards to the Turkomans and their horses:

> The main instrument, the one to which the Turkoman gives the preference over all others in his forays, is, beyond all question, his horse, which is really a wonderful creature, prized by the son of the desert more than his wife, more than his children, more than his own life. It is interesting to mark with what carefulness he brings him up, how he clothes him to resist cold and heat, what magnificence he displays in the accoutrements of his saddle, in which he, perhaps in a wretched dress of rags, makes, makes a strong contrast with the carefully decorated steed. These fine creatures are well worth all the praise bestowed upon them, and the stories recounted of their speed and powers of endurance are far from being exaggerated.[152]

Traditional breeding practices have made the Teke self-sufficient and hardy. Any horse born with a deformity or other genetic weakness does not survive. Thus only the best characteristics are passed on in the bloodlines. Colts are caught at 6 months of age at which point they are weaned from their dams and brought into the nomad camps to be trained. While still less than 1 year of age, a child is put on their back for the first time and led behind an adult mounted on a trained horse. They are fed a high-protein diet that

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[150] J.M. Wilks, 'The Persianization of Köroglu "Destan." *Asian Folklore Studies* 60.2 (2001) 307.
[151] Wilks (2001) 310; N. Chadwick and V. Zhirmunsky *Oral Epics of Central Asia* (Cambridge, 1969) 301. The horse is not an accessory to Gorgoli alone; the heroes of Central Asian epics are regularly partnered with an extraordinary horse as their companion in adventure. Chadwick and Zhirmunsky (1969) 38, 40, 48, 58, 72, 73, 85, 103, 115, 119, 122, 136, 185, 313.
[152] A. Vambéry *Travels in Central Asia* (New York, 1865) p. 367

includes eggs and even meat as well as raisins, dates and whatever forage might be available such as barley and straw.[153] The horses are regularly covered with thick felt blankets to sweat off any excess fat, keeping a long, lean appearance. The thin coat and lack of fat allows the horse to cool down more efficiently in the desert heat. This is an old custom. The Pazyryk horses found in 'Scythian' kurgans in the Altai Mountains were covered with felts, presumably for the same purpose of 'sweating out,' although, these felt blankets also offered additional warmth in the winter. As we shall see in later discussions about the Steppe type, the felt-cloaked horses of Pazyryk were likely not a native type, but one imported from farther south that thus required certain concessions to survive in the harsh northern environment.[154] They are traditionally galloped in the morning and evening over long distances.[155] There are, in fact, a number of similarities between the traditional training regime of the Teke nomads and that laid out in the Hittite *Kikkuli Text*, particularly with regards to the conditioning of horses for consistent work over long distances.[156] The extreme hardiness of an Akhal Teke raised in this manner is made apparent by the fact that very few horses suffer any sort of physical break down.[157] The very few who do are not used for breeding. Hendricks describes the precise training and conditioning regime as follows:

> The Turkomans traditionally use proven methods to condition their horses – only animals that have shown their ability for traveling great distances are used for racing. Conditioning begins slowly. The first day only the saddle is placed on the horse's back. The second day the horse is

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[153] Golsham (2005) 55-56.
[154] Golshan (2005) 28.
[155] Hendricks (1995) 8.
[156] Shirliyev (2003) 77.
[157] This is in sharp contrast to the situation on North American racetracks where thoroughbreds seem to break down with ever increasing frequency.

> ridden to water and for one week thereafter walked slowly each day for increasing periods. After one week the horse is put to the trot and will not canter for another two weeks. Galloping is done only at night and sweating beneath the blankets is the usual fare for the day. Only small boys are used for jockeys, while all sizes and ages are used for the slow conditioning. While being conditioned for racing and during the racing season, the horses are fed barley up to seven times a day. They are fed chopped straw and alfalfa five times a day.[158]

The Akhal Teke is superbly adapted to desert survival. There is no excess flesh on his body and his coat is sleek and short. He has slender, but dense bone in his legs and his peculiar sloping rear pasterns are an adaptation for movement over soft, sandy ground. The overall shape of a Teke should give the impression of length. He should be longer than he is tall, giving a rectangular profile. The movement of a Teke is, like many other aspects of this horse, unique. He has peculiar floating gaits, a result of his unusual conformation, that give a sense of fluidity and softness without wasting energy on flashiness or high knee action. This type of gait is another adaptation for efficient covering of distance over long periods. The low movement has the added benefit of being quite comfortable, an advantage for long-distance riding.[159] The Akhal Teke is not a tall horse by modern standards; he rarely exceeds 16hh. By far the most striking and unusual feature the Akhal Teke is his colouration. These horses are most commonly a metallic yellow-dun colour. This metallic colouration is only found in horses descended from the Turkoman/Turanian type and for this reason, quite likely existed in antiquity.[160]

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[158] Hendricks (1995) 424-427.
[159] Lynghaug (2009) 141.
[160] Hendricks (1995) 9. Some of the Pazyryk horses display this metallic sheen on their coats.

Today the Akhal Teke is found primarily on the racetracks of Turkmenistan where he competes in races that are several miles long.[161] Their athleticism, however, extends far beyond simple horse racing. Given their historical role as the mounts of Central Asian nomads and cavalry, one should not be surprised to discover the Teke is an extraordinary endurance animal as well as an agile, versatile athlete. In fact the Akhal Teke 'is renowned for its endurance over long distances in severe climatic conditions, even more than for its racing ability…'[162] During the regular veterinary checks in the sport of modern endurance racing, Akhal Tekes have regularly shown themselves to produce some of the quickest cardiac recovery scores.[163] In 1935 the endurance capabilities of the purebred Akhal Tekes were put to the test when a group of Teke tribesman rode their stallions from Ashkabad to Moscow. The purpose of this epic trek was to prove the importance of preserving pure Akhal Teke bloodlines, as crosses with Thoroughbreds were becoming more frequent thus diluting the traditional desert adaptations of this type. The feat was repeated in 1988 when 29 Turkoman stallions – 27 Akhal Tekes and 2 Iomuds – were ridden from Ashkabad to Moscow across Turkmenistan, Uzbekistan, Kazakhstan and Russia. The horses were faced with extreme weather conditions and varying terrain as well as frequent shortages of food and water. The ride was completed in 60 days and only 1 of the 29 horses did not finish.[164] The successful completion of both treks served to prove that despite his all around athleticism, the Akhal Teke is descended from horses who played an essential role in the daily survival of the Turcoman

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[161] This is quite different from Thoroughbred flat racing where the longest race is the Belmont Stakes, the final race in the Triple Crown, which is 1.5 miles.
[162] Edwards (1994) 75.
[163] Lynghaug (2009) 138.
[164] Shirliyev (2003) 141-167 for the 1935 Ashgabat-Moscow race which covered 4300km in 84 days; 171-219 for the 1988 race which covered 3200km in 63 days.

nomads; peoples who depended on the endurance and workman-like attitude of this horse to move them across the desert between water holes and oases, distances on average 80 miles apart.[165]

Akhal Teke. Photo www.boldvantage.ca

CASE STUDY FOUR: THE IBERIAN HORSES- ASTURIAN AND SORRAIA

The Iberian Peninsula lies at the western end of the Mediterranean Basin, at the intersection of the Atlantic Ocean and the Mediterranean Sea. On account of its location, two climatic systems are found in the Peninsula: an Atlantic zone that receives an average of 1200mm of rain per year and the Mediterranean zone which receives c.600mm of rain per year. The most arid part of the Peninsula is the Mediterranean-Atlantic coast between

[165] Lynghaug (2009) 138.

the Segura and Cadiz. The Meseta lands of the Iberian plateau are a mix of the climatic types: dry in the summer and cold in the winter with snow falling as far south as the Sierra Nevada range. The Peninsula is, like many other Mediterranean regions, rocky and mountainous. Historically the northern parts of the region in the Atlantic climatic zone were thickly forested with oak trees. Both the climatic zones and the dominance of mountainous landscapes had an important influence on the development of the two historical Iberian hoses discussed here.[166]

Although the earliest ancestors of the horse- *Hyracotherium* and his descendents - were forest dwellers, *Equus* preferred open spaces and a grassy diet. Iberia was not always rocky and rugged. During the Holocene period only two 'hotspots' of equine genetic diversity existed: in the Caspian region of western Asia and in the Iberian Peninsula. The Peninsula was the only region in central and western Europe with sizable expanses of open landscape during the mid to late Holocene and thus became a refuge for wild horses. These horses continued to live in the Peninsula during the Neolithic and Copper Ages. Horse remains have been found at sites from these periods in the Peninsula. Wild horses seem to have flourished in Iberia during antiquity. According to Varro, wild horses could be found in Iberia in his own time, he writes 'There are even now many quite wild cattle in Dardania, Maedica, and Thrace; wild asses in Phrygia and Lycaonia, and wild horses at several points in Hither Spain.'[167] Likewise, Strabo tells us that 'Iberia produces many deer and wild horses.'[168] Recent genetic studies show that

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[166] U. Morgenroth, *Southern Iberia in the Early Iron Age*. BAR International Series 1330 (Oxford, 2004) 5-6.
[167] Varro *On Agriculture* 2.1.19
[168] Strabo *Geography* 3.4.15.

several pre-domestic maternal lineages survive in modern horses of Iberian descent, indicating the genetic contribution of Iberian wild equines to local domestic horses.[169]

As the climate and topography of the Peninsula changed, so to did its equine inhabitants. The horses depicted in the Côa Valley and Altamira caves are a very 'primitive' type. They look nothing like modern Iberian horses, but closely resemble the Przewalski horse of Central Asia.[170] As we have already seen, the Przewalski horse is well suited to steppe survival. The presence of Przewalski type equines in Iberia suggests that at the time these images were made the Iberian Peninsula was considerably less forested than in the later historical period. As the climate and topography changed, a horse better suited to a rocky, mountainous home began to develop in Northern Iberia. This animal was lighter in build thanks to a sparser diet. He became 'base narrow' to navigate narrow mountain tracks and, most interestingly, he, like many other mountain equids, became gaited. Indeed, a narrow but clear trail of ambling/gaited horses can be found in Iberia, Greece, Turkey, China, Mongolia and Siberia. Pliny the Elder writes that

> …in Spain the Gallaic and Asturian tribes breed those of the horse kind that we call 'theldones,' though when more of a pony type they are designated 'cobs', which have not the usual paces in running but a smooth trot, straightening the near and off-side legs alternately, from which the horses are taught by training to adopt an ambling pace.[171]

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[169] V. Warmuth et al, 'European Domestic Horses originated in Two Holocene Refugia,' PLoS ONE 6.3 (2011) 1-6. See also J. Lira et al, 'Ancient DNA reveals traces of Iberian Neolithic and Bronze Age lineages in modern Iberian Horses,' *Molecular Biology* 19 (2010) 64-78.

[170] The prehistoric images of horses in the caves of France, Spain and Iberia typically resemble the Przewalski horse.

[171] Pliny the Elder *Natural History* 8.67.166

Martial describes '…This little Asturian horse that picks up its fleet hooves in rhythm.'[172] Strabo informs us the Iberian horses are 'smoother runners than the other horses.'[173]

The descendant of the Asturian (or Asturcon) horse mentioned in our Classical texts still survives today, though he is very rare. The Asturcon is a small, hardy horse standing 11.2-12.2 hands. He lives as a feral horse in Northern Spain, in the regions of Asturias and Galicia high up in the Asturian mountains. These horses were highly prized from Classical times through the Middle Ages for their comfortable gait. They were frequently used as palfreys and ladies' mounts. Despite his popularity in Western Europe in antiquity and the Middle Ages, we actually know very little about the history of this diminutive equine.[174] He is a sturdy, well-built animal with a long, slender neck, sloping shoulders, a straight and strong back, a sloping croup, straight legs with good bone and well-shaped, tough feet. Interestingly, the head can be heavy and primitive in appearance. This is possibly a throwback to the 'primitive' prehistoric ancestors found in Iberian cave are.[175]

The Asturian ambled his way through the mountainous tracks of Northern Iberia, but the environment of Central and Southern Iberia was much more arid and open. This necessitated the development of a different type of horse. This animal had a finer, 'dryer' appearance, giving the impression of a lean-muscled, slender animal resembling those found in Italy, Greece and Western Asia Minor during antiquity. These horses were well adapted to an arid environment. Their long, open strides allowed them to easily cross the grasslands of southern Iberia while their compact bodies enabled them to work in the

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[172] Martial *Epigrams* 1.14.199
[173] Strabo *Geography* 3.4.15
[174] S. Loch, *The Royal Horse of Europe* (1986) 20.
[175] Hendricks (1995) 50-51.

rocky terrain so frequently found across the Mediterranean Basin. These were versatile equines, suitable for travel, war and the hippodrome. A living representative of this type can be found in the Sorraia.

The Sorraia originated in the western reaches of the Iberian Peninsula, particularly the area to the north of Lisbon. The name Sorraia is taken from the rivers Sor and Raia that irrigate the plains where these horses have roamed for millennia. This breed is very hardy and noted for his ability to thrive on very little food of the lowest quality in what can be a very harsh environment, all the while maintaining his robust health. The Sorraia rarely exceeds 13.2 hands, but because of his tough, wiry build he was for centuries the chosen mount of the Iberian cowboy. There were likely many Sorraia horses on the ships of the Conquistadors. Their stamp can certainly be seen in the Mustangs of the United States and the Criollo horses of Argentina. The Sorraia has a calm, workmanlike attitude. He is intelligent and responsive. His colour in invariably dun or grullo with a black dorsal stripe, black-tipped ears, heavy black mane and tail, black zebra stripes on the legs and across the shoulders. There are never any white markings on the Sorraia. The head is large and convex, once again recalling the prehistoric cave images. The neck is long and slender, set on a straight to slightly sloping shoulder. He has a narrow chest, but a deep girth. His back is short and straight, making him very close-coupled. The croup is sloping. The legs are long, solid and clean; the hooves hard and dark. Most hippologists today strongly believe that the Sorraia heavily influenced the development of the modern Iberian horse.[176]

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[176] Gonzaga (2004) 40-46; Hendricks (1995) 384-385; Loch (1986) 21-22.

A herd of Sorraia horses at the Vale de Zebro Sorraia refuge in Portugal.
www.sorraia.org

CASE STUDY FIVE: THE CASPIAN HORSE

One final case study remains to be discussed. While he does not fall directly into any of the four ancestral types: Northern European, Northern Steppe, Southern Steppe and Iberian, the Caspian horse is nonetheless a unique animal with an important link to the equines of antiquity. The Caspian horse, much like the other three native types discussed in this section, is today a very rare animal. Moreover, as with the Przewalski Horse and the Akhal Teke, the Caspian has only come to the attention of horse breeders outside his native Iran fairly recently.

The Caspian is a truly diminutive equine, rarely exceeding 12 hands in height. He is not, however, a pony. Like the Mediterranean, Near Eastern and Central Asian horses of antiquity, the Caspian is a miniature horse. Indeed, the appearance and proportions of the Caspian closely resemble the 4th Ancestral Horse proposed by Ebhardt and accepted by many others.[177] The Caspian is native to the mountainous regions of Northern Iran. This environment has made these little horses very tough and athletic, displaying nimbleness

[177] Edwards (1994) 36.

over rocky terrain, while being able to survive the arid, cold of winter.[178] The Caspian is lean and dry in appearance, much like the Akhal Teke. His head is small and elegant in shape, with a unique, pronounced forehead. His neck is long and slender, arching through the crest and running into pronounced withers at its base. The back is short and level, with powerful, well-shaped hindquarters. This horse has long, slender legs with dense bone and no excess hair or fleshiness. When viewed as a whole, the Caspian should look like a well-proportioned small horse, not a pony.[179]

Miniature horses resembling the Caspian in appearance do appear in ancient Near Eastern art. The gold *quadriga* found in the Oxus Treasure is pulled by four slender-bodied, small (in comparison with the chariot and human occupants) equines. This is certainly interesting as the royal chariot is, at least in the Classical sources, said to have been drawn by Nesaean horses, but the horses yoked to the Oxus chariot resemble the Neseaean only in the shape of their heads.[180]

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[178] Dalton (2000) 20.
[179] Hendricks (1995) 113; Lynghaug (2009) 443-444.
[180] O.M. Dalton, *The Treasure of the Oxus*. (London, 1964) xxxvii-xlii, Plate 7.

Quadriga from the Oxus Treasure. The British Museum Catalogue online

Small horses are also yoked to a chariot on the frieze of the Apadana staircase at Persepolis.[181] A cylindrical seal of Darius I, the so-called 'Darius Seal,' depicts the king lion hunting from a chariot pulled by a rather diminutive horse.[182]

The Darius Seal. The British Museum Catalogue online

Small horses can also be found in the reliefs of Sargon II's palace at Khorsabad. An Assyrian groom leads four caparisoned horses in façade L, Court I and two richly

[181] A. Ashfar and J. Lerner, 'The Horses of the Ancient Persian Empire at Persepolis,' *Antiquity* 53 (1979) 44-46

[182] M.A. Littauer and J. Crouwel, *Wheeled Vehicles and Ridden Animals in the Ancient Near East*. (Leiden, 1979) fig.81

decorated diminutive equines are found in the procession of foreigners in façade N, Court VII.

Groom leading four horses. Façade L, Court I, palace of Sargon II at Khorsabad. Louvre Catalogue online.

These small equines can also be found in the South West palace at Nineveh, in a series of reliefs depicting the battle of Til Tuba between the Assyrians and the Elamites.[183]

Of course, we cannot state that the Caspian horse is an entirely pure descendent of the horses of antiquity, no more so than with any other native type. Nevertheless, he represents one of the oldest existing equine types and without a doubt has been influential in the establishment of many modern light-horse types. Iran and its environs were the crossroads of a huge number of cultures, including the Greeks, Romans, Persians, Parthians, Sasanians and Arabs. A good many of the cultures that swept through or established themselves in this area were horse cultures and the ancient Caspian type horse

[183] P. Albenda, 'Horses of Different Breeds: Observations in Assyrian Art.' In, C. Nicolle (ed.), *Nomades et Sédentaires dans le Proche-Orient Ancien: Compte Rendu de la XLVI Recontre Assyriologique Internationale*. (Paris, 2004) 324.

must have influenced horse breeding. Certainly the similarities in appearance between the Caspian and Arabian horse are apparent, with the Caspian displaying the more unique, primitive characteristics, thus suggesting he pre-dated the Arabian.

Caspian Horse. www.caspianhorsesociety.org.uk

CHAPTER 3: EQUINE CONFORMATION AND THE HORSES OF THE ANCIENT WORLD

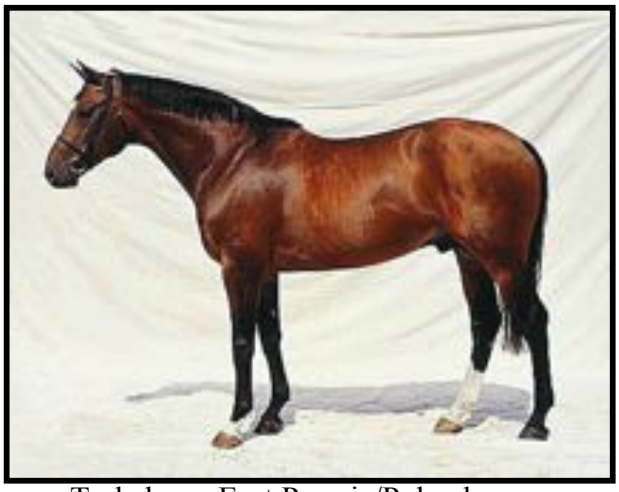
BREED OR TYPE?

As discussed at the beginning of this dissertation, one of the primary issues related to the study of ancient horses is the need to differentiate a horse 'type' from a 'breed'. The word 'breed' denotes intensive human interference in the selection of particular physical traits such as size, head shape and colour. The chosen traits do not necessarily improve an equine's ability to survive; rather they are looked upon favourably for aesthetic or economic reasons. Moreover, selective breeding for the purpose of enhancing particular features makes horses more dependent on human care. 'Breed' denotes a sense of exclusivity, especially when accompanied by brands and papers. For the most part, however, as shown with the example of the European Sport Horse, these supposedly unique 'breeds' can really be seen as 'types' based on their physical appearance and suitability for particular jobs. Today, some types have been much altered by selective breeding, enhancing their ability to succeed at a particular task. This is the result of the horse being made obsolete in agriculture, industry and transportation. In antiquity, however, horse types developed as a result of environmental conditions. The conformation of the horse was dictated by climate, terrain and nutrition. As a result, we can define the horses of the ancient world on the basis of their geographical location – the Northern European horse, the Steppe horse, the Near Eastern horse, the Mediterranean horse and the North African horse.

THE EUROPEAN SPORTHORSE TYPE[184]

Hannoverian, Germany

Selle Francais, France



Danish Warmblood, Denmark

Trakehner, East Prussia/Poland

Oldenburg, Germany

Dutch Warmblood, Holland

[184] All photos from www.dkimages.com

Within these types we encounter references to what appear to be 'breeds.' Horses are frequently referred to by their regional origins, the most famous example being, of course, Bucephalus the Thessalian. The 3rd-century-CE writer Oppian gives a whole list of names in his *Cynegetica*;

> Various are the tribes of horses, even as the countless races of men, the diverse tribes of mortals that live by breed. Nevertheless I will declare which are the best among them all, which are foremost in the companies of horses; to wit, the Tuscan, Sicilian, Cretan, Mazican, Achaean, Cappadocian, Moorish, Scythian, Magnesian, Epeian, Ionian, Armenian, Libyan, Thracian, Erembrian.[185]

Likewise Strabo makes note of particular areas within the Greek peninsula:

> But there are ample pastures for cattle, particularly for horses and asses that are used as stallions. And the Arcadian breed of horses, like the Argolic and the Epidaurian, is most excellent. And the deserted lands of the Aetolians and Acarnanians are also well adapted to horseracing- no less so than Thessaly.[186]

These passages certainly seem to suggest a wide variety of different horse breeds to be found throughout the ancient world. Moreover, each region had its own brand by which all horses born in that territory were marked. Greece provides an excellent example of the prevalence of local brands. A collection lead tablets from the Kerameikos and the northwest corner of the Athenian Agora dating from the mid-fourth to the mid-third centuries BCE have been identified as records of the *timesis* of the Athenian cavalry. Each tablet is inscribed with the name of the cavalryman, the colour of his horse, the

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[185] Oppian, *On Hunting*, 1.166-172
[186] Strabo, *Geography*, 8.8.1

horse's brand and its replacement value. A total of 25 brands are recorded on the tablets.[187]

Figure 1: Brands from the Agora wells[188]

Brand	Date	Frequency
Dolphin	4th century	1
Circle	4th century	1
Thunderbolt	4th and 3rd century	1
Caduceus	4th and 3rd century	2
Helmet	4th and 3rd century	2
Krater	4th and 3rd century	5
Nike	4th and 3rd century	3
Dove	4th and 3rd century	1
Axe	4th and 3rd century	6
San	4th and 3rd century	5
Trident	4th and 3rd century	3
Agyieus	3rd century	1
Eagle	3rd century	5
Arkadian	3rd century	2
Ox-head	3rd century	2
Snake	3rd century	12
Centaur	3rd century	1

[187] Camp (1998) 31-38; Gaebel (2002) 20.
[188] Based on Kroll (1977) 87-88.

Cerberus	3rd century	1
Crow	3rd century	2
Lioness	3rd century	1
Lyre	3rd century	3
Quail	3rd century	3
Club	3rd century	2
Triton	3rd century	1
Bridle	3rd century	1

An example of the Nike brand can be seen on the bronze racehorse from Artemision, dated to the Hellenistic period.[189]

This, of course, begs the question of why there would be so many different brands if the Greek horses can all be grouped under the physiological type of the Mediterranean horse? The answer is relatively straightforward. The brand was a mark of regionalism. It was a

[189] See Hemingway (2004) 101-103.

way for a *polis* to stake personal claim to a particular animal, as in the case of Bucephalus. The brands were in actuality a means of creating an artificial distinction among Greek horses. They allowed horses from a particular region, such as Thessaly, to claim higher prices. Brands are used in much the same way today, as we can see from the European sport horses. Each of these breeds has its own unique brand. In some cases, as with the Trakhener, there are separate brands used to distinguish horses born and registered in Europe from those in North America. This allows the owner of a branded animal to claim the superiority of that particular breed because it is a Hannoverian, Oldenburg etc. As we have already seen, these animals are all physically similar to each other and the brand is simply a synthetic creation to distinguish the local origins of a wide-ranging type. Furthermore, given the rare occurrence of many brands, we must also suspect that large stud farms used their own personal brands to mark horses born at that facility. Hence, we should regard the branding of horses in antiquity as similar to the practice followed on ranches today. The argument for the existence of individual brands is supported by a passage in Strabo about Venetian horses:

> And it is said that one of the prominent men, who was known from his fondness for giving bail for people and was twitted for this, fell in with some hunters who had a wolf in their nets, and, upon saying in jest that if he would give bail for the wolf, and agree to settle al the damage the wolf should do, they would set the wolf free from the toils, he agreed to the proposal; and the wolf, when set free, drove off a considerable herd of unbranded horses and brought them to the steading of the man who was fond of giving bail; and the man who received the favour not only branded all the mares with a wolf, but also called them the "wolf-breed"- mares exceptional for speed rather than beauty; and his successors kept not only the brand but also the name for the breed of the horses, and made it a custom not to sell a mare to outsiders, in order that the genuine breed might remain in their family alone, since horses of that breed had

> become famous. But, at the present time, as I was saying, the practice of horse breeding has wholly disappeared.[190]

The use of private brands further supports my argument that horses in antiquity should be classified by type rather than breed; it supports the argument that brands create an artificial sense of individuality or uniqueness, attaching a man-made value to particular animals.

THE IDEAL HORSE IN ANCIENT LITERATURE

When looking at horses and assessing their suitability for work, we examine their conformation. This is not a matter of aesthetics. A true horseman will look past superficial features like colour and markings to see the basic structure of the animal. No matter what type a horse might be, there are specific conformational features that are necessary to ensure the longevity of an equine's working life. These requirements have not changed over time even if the way humans use horses has. Conformation is not just a matter of aesthetics; it also dictates the suitability of a horse for a particular job.[191] It is, as M.H. Hayes states, 'the adaptability of the horse's body for general or special work.'[192] A horse can be used only as its anatomy permits. Attempting to force a horse to perform a task for which it is not designed often leads to serious injury. As one noted equine veterinarian writes, 'Every horse must be ridden [or driven] to its natural anatomy.'[193] This fact is illustrated by the German horses mentioned by Caesar in his Gallic Wars:

> …he sent across the Rhine into Germany … and fetched horsemen … On their arrival he found that the horses they were using were unsuitable, and therefore he took the horses from the military tribunes and the rest of the Roman

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[190] Strabo, *Geography*, 5.1.9
[191] W.H. Carter, *Horses, Saddles and Bridles*. (Baltimore, 1906) 8.
[192] M.H. Hayes *The Points of the Horse.* (London, 1897) 1.
[193] G. Heuschmann, *Tug of War: Classical versus 'Modern' Dressage.* (London, 2007) 109.

> knights and the re-enlisted veterans, and distributed them among the Germans.'[194]

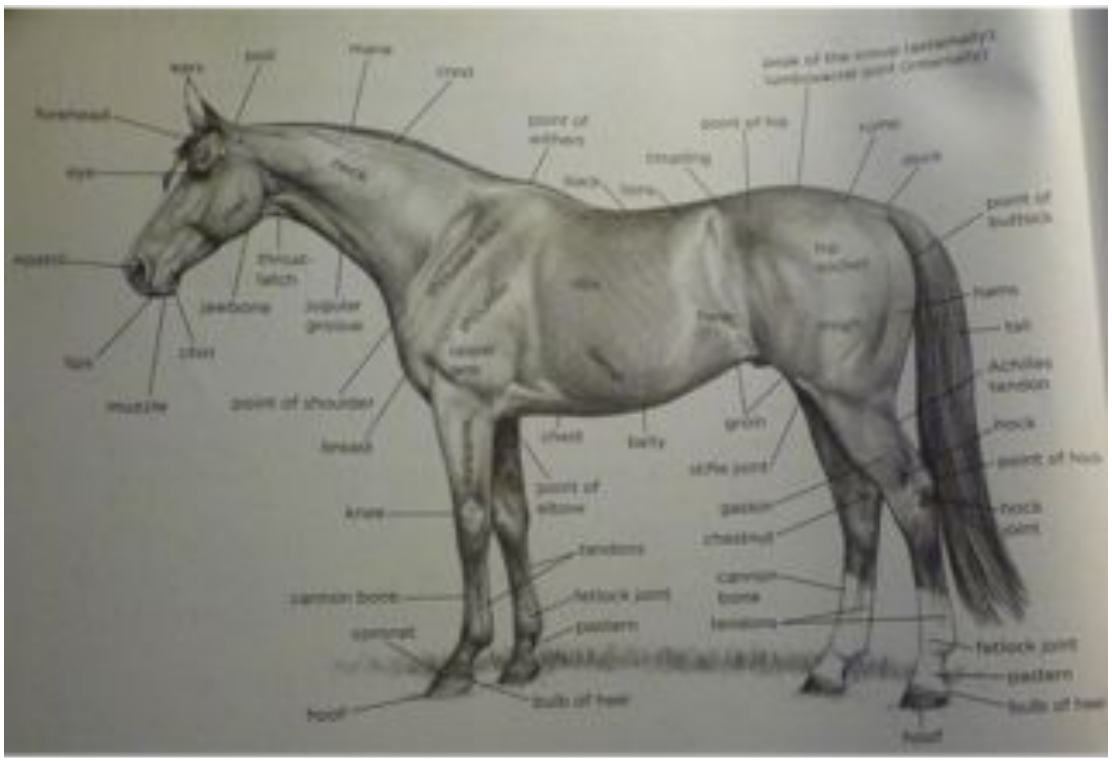
This suggests that while the German horses were ideal for Germanic cavalry tactics, they did not suit the style of the Roman cavalry.

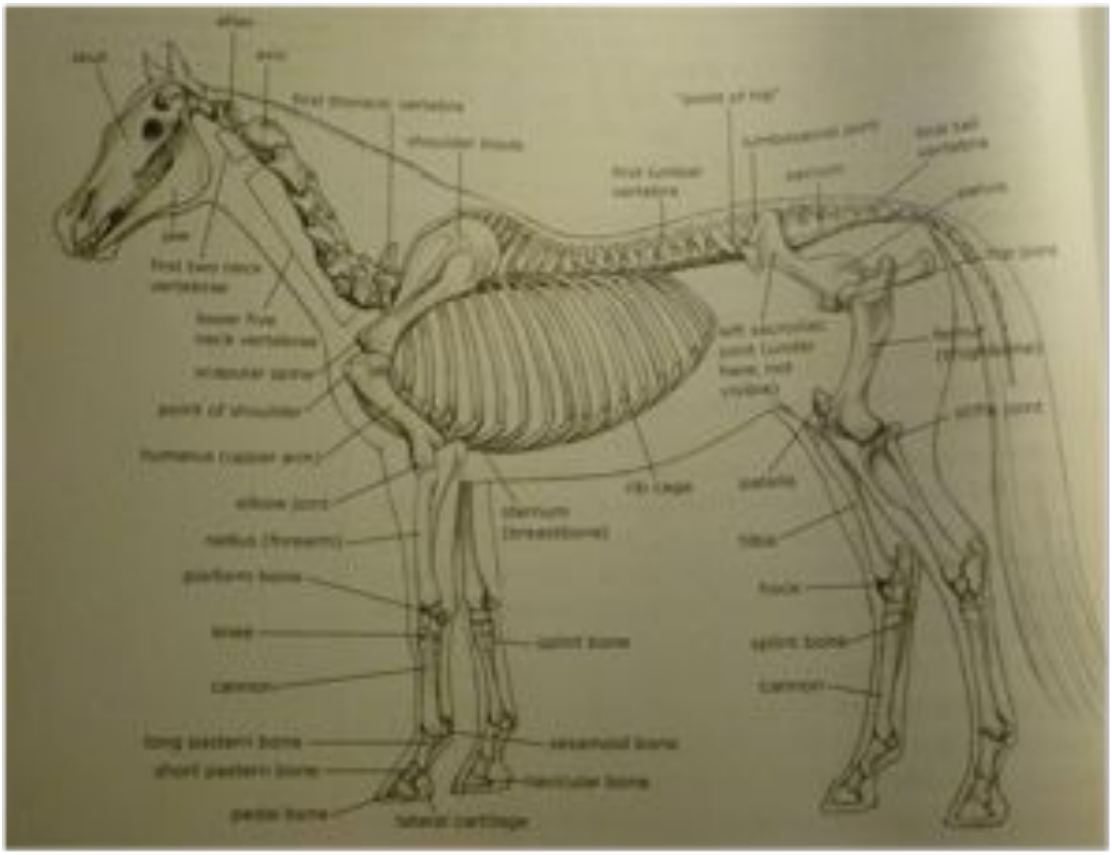
Xenophon, Varro, Virgil, Oppian and Columella each provide a literary description of the ideal horse. These five authors come from different periods; they are writing different genres of text and for different purposes, yet their ideal horses are all strikingly similar. Further, these ideal horses are not all intended for the same job: there is the warhorse of Xenophon and Virgil, the breeding stud of Varro, Columella's racehorse and Oppian's hunter.[195]

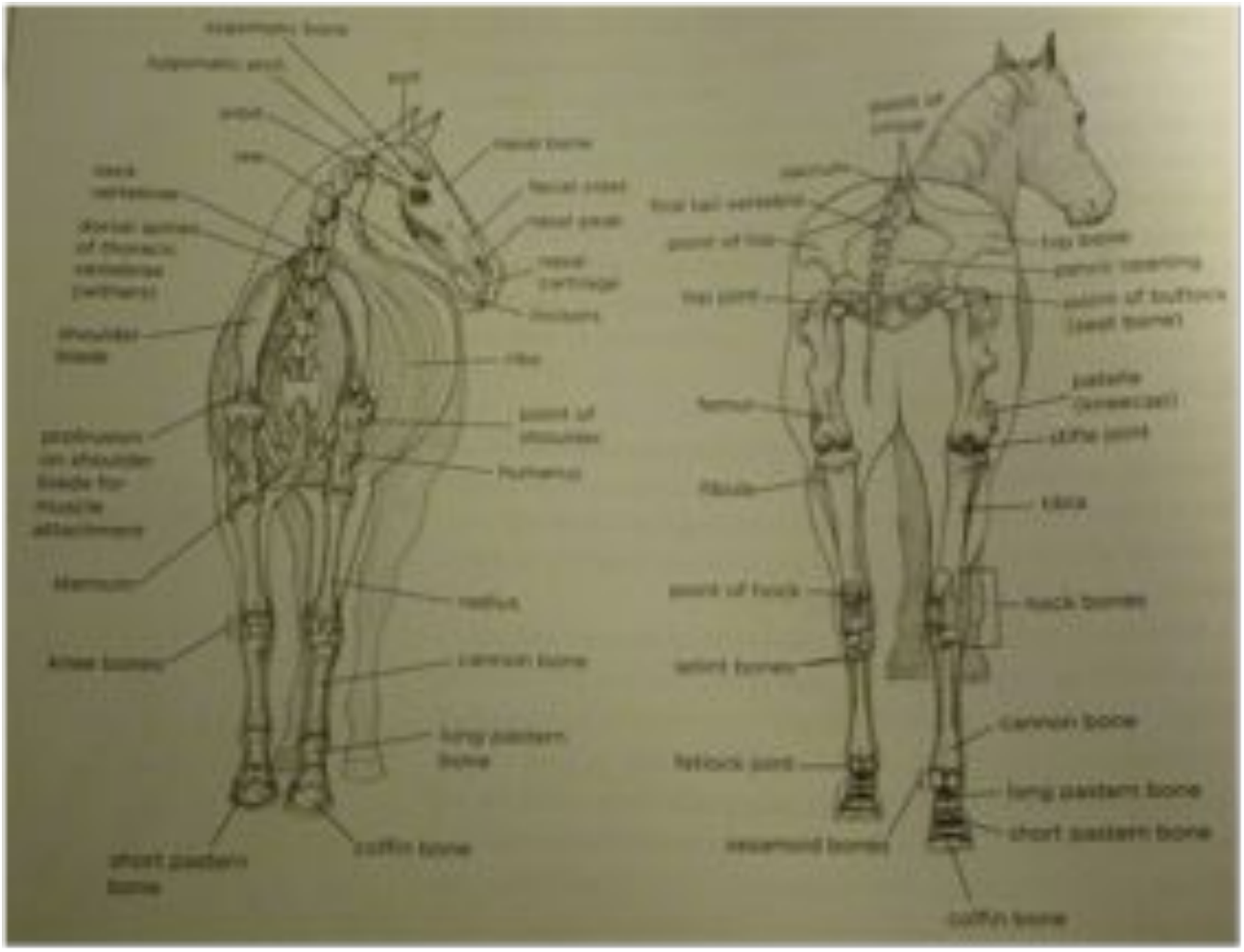
	Xenophon	**Varro**	**Virgil**	**Columella**	**Oppian**
Hoof	Thick horn, high walls, ringing sound.	Hard.	Solid horn	High, hard, round, hollow sound.	Round, high above the ground, good horn.
Limbs	Moderately sloping pastern; thick, clean cannons; supple knees.	Well proportioned; straight and symmetrical legs; round, but not large knees.	N/A	Soft, tall and straight legs; knees that are small, tapering and not turned inwards.	Sloping pasterns; straight, long and thin cannons; unfleshy limbs.
Chest	Broad.	Broad and full.	Muscular.	Broad and muscular.	Large.
Shoulders	N/A	Broad.	N/A	Big and straight.	N/A
Body	Flanks deep and swelling towards the belly.	Broad and harmonious; fair-sized barrel; flanks sloping downwards.	Short belly.	Drawn in belly; arched flanks.	Large body.

[194] Caesar, *The Conquest of Gaul,* 7.65
[195] For the full text see Appendix A

Back	Double-back.	Double-back.	Plump.	Double-back.	Broad, double-back.
Loins	Broad and short.	N/A	Double-loins.	Broad and sunken.	N/A
Haunches	Broad and fleshy.	N/A	N/A	Brawny and muscled.	Hips fat; thighs compact and muscular.
Neck	Upright and flexible and the poll.	N/A	High.	Soft and broad, but not thick.	Curved.
Head	Bony, with small cheeks.	Not oversize.	Clean-cut.	Small.	Small, high above the neck, broad forehead.
Jaws	Symmetrical.	N/A	N/A	N/A	Curving towards neck.
Mouth	N/A	N/A	N/A	N/A	Adequate.
Nostrils	Wide open.	Full.	N/A	Wide open.	Wide.
Eyes	Prominent.	Dark.	N/A	Dark.	Clear and fiery.
Ears	N/A	Close-lying.	N/A	Short, upstanding.	Small.


ears
poll
mane
crest
forehead
eye
point of withers
point of hip
croup
back
loin
point of buttock
muzzle
throat latch
jawbone
jugular groove
hip socket
hamm
tail
lips
chin
muzzle
point of shoulder
breast
chest
belly
groin
stifle joint
Achilles tendon
hock
point of hock
point of elbow
knee
gaskin
chestnut
hock joint
tendons
cannon bone
fetlock joint
pastern
coronet
hoof
bulb of heel
fetlock joint
pastern
bulb of heel
hoof


skull
atlas
axis
first thoracic vertebra
shoulder blade
"point of hip"
first lumbar vertebra
sacrum
first two neck vertebrae
lower five neck vertebrae
scapular spine
point of shoulder
humerus (upper arm)
elbow joint
radius (forearm)
pectoral bone
knee
cannon
long pastern bone
short pastern bone
pedal bone
lateral cartilage
sternum (breastbone)
rib cage
patella
tibia
hock
splint bone
cannon
sesamoid bone
navicular bone



The Parts of the Horse. From H.S. Thomas, *The Horse Conformation Handbook* 10,14,16.

THE HOOF

The hoof is one of the most important structures in equine anatomy; the oft repeated phrase 'no hoof, no horse,' certainly holds true. Xenophon wisely states

> In examining his body, we say you must first look at his feet. For, just as a house is bound to be worthless if the foundations are unsound, however well the upper parts may look, so a war-horse will be quite useless, even though all his other points are good, if he has bad feet; for in that case he will be unable to use any of his good points.[196]

[196] Xenophon, *Art of Horsemanship*, 1.2

Bennett is quite correct when she calls the hoof 'a miracle of living engineering.'[197] At its most basic level, the hoof performs three functions: it supports the horse's weight, absorbs impact and provides traction. The parts of the foot can be divided into two categories: the outer foot is made up of the horny wall, sole and frog and acts to protect the sensitive structures of the inner foot, which is made up of bones, blood vessels and cartilage.[198]

All our authors indicate that the hoof should be hard. It is also recommended that it be thick with solid horn. The hoof is a complex structure. Since the hooves bear the entirety of a horse's weight, any unsoundness or conformational problems can incapacitate the animal.[199] The ideal hoof should be round and proportionate to the horse's size; the horn and wall thick and hard; the frog healthy and the sole arched upwards so as not to touch the ground.[200]

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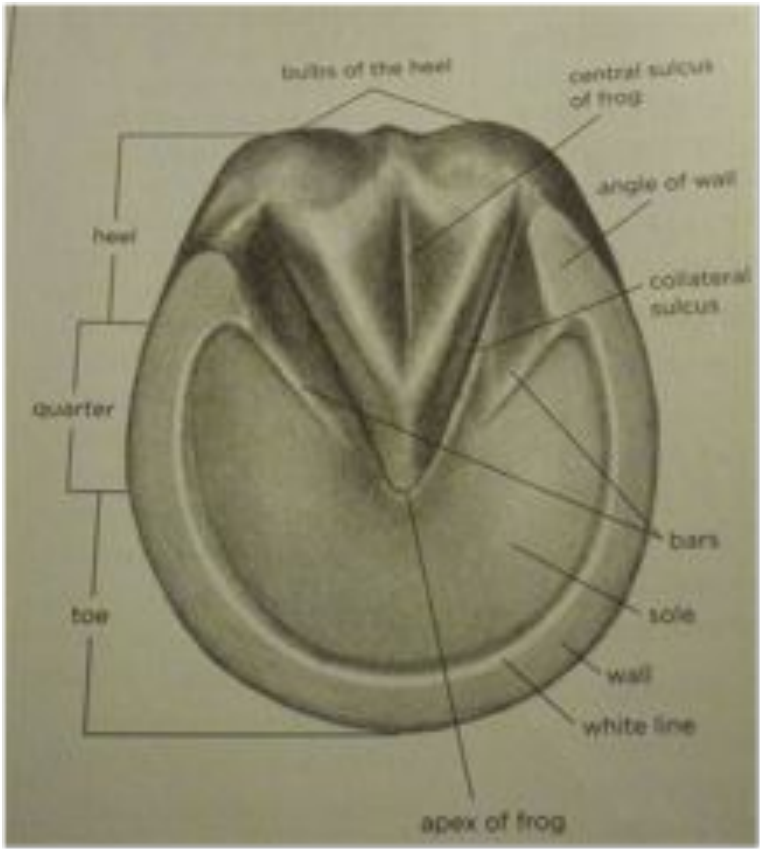
[197] D. Bennett, *Principles of Conformation Analysis vol.III*. (Gaithersburg, 1991) 44.
[198] Bennett (1991) 44.
[199] Equine Research Group, *Equine Genetics and Selection Procedure.* (Dallas,1978) 10.
[200] Equine Research Group (1978) 102 and R. Oliver, *A Photographic Guide to Horse Conformation.* (London, 1991) 55



The parts of the hoof. From H.S. Thomas, *The Horse Conformation Handbook* 172, 174.

The strength and durability of the hoof is dependent on a number of factors including its size, shape and colour. The size of the hoof should be proportionate to the horse. A large hoof is heavier and more strenuous to lift as it places greater strain on a horse's joints. The oversized foot is also more likely to cause injuries from knocking, brushing or overstepping.[201] A hoof that is too small in relation to the size of the horse can cause unsoundness as the hoof structures are unable to bear the weight of the animal efficiently. Of the two size extremes, the small foot is generally considered a lesser conformational fault than a hoof that is too large.[202] In shape the hooves should look like two pairs. While the front and back feet are both round, the hind hooves are narrower and more oval in appearance.[203] The five predominant faulty hoof shapes are the following

1. The Wide Hoof: This is characterized by a wide circumference of the foot; angular walls; truncated, low heels; a flat sole.
2. The Narrow Hoof: This is identifiable by its oval shape; high, upright heels; long walls creating a narrow frog; an excessively concave sole; narrow heels.
3. The Flat Hoof: This kind of foot has low, flat heels, a very flat frog, a flat sole and a horizontal wall. The flat hoof is prone to severe bruising because there is no mechanism to effectively absorb the shock of concussion when the foot strikes the ground.
4. The Curved Hoof: This results from faulty conformation in other parts of the body. If a horse is base narrow, meaning the space taken up by the feet is smaller than that of the body with a toe-in or -out conformation, the increased pressure on the outside wall will cause the hoof to push inwards and thus grow in a curve.

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[201] Bennett (1991) 15; W. Jones, *Genetics and Horse Breeding.* (Philadelphia,1982) 401.
[202] Bennet (1991) 15; Hyland (2003) 35.
[203] Equine Research Group (1978) 101.

5. The Upright Hoof: This has a pastern-hoof angle greater than 55 degrees and resulting growth issues can create a club-foot.[204]

The question of whether or not the colour of a hoof affects its durability is much debated. The general belief is that light coloured hooves are softer than dark ones and thus more prone to ailments. Hyland states:

> Black hooves are frequently tougher than the indeterminate grayish-black of many chestnuts or the whitish horn of the white-legged or totally grey horses. Solid bay horses with no white markings always have black hooves and are well known to have far fewer hoof problems than horses of other colours, as are dun horses which also have black legs and hooves.[205]

Today, many hoof faults can be corrected or compensated for through aggressive trimming, corrective shoeing and high-tech supplements. These options did not exist in the ancient world. General practice dictates that horses working on hard, rocky ground – the terrain found in much of Greece and Italy - should be shod, but this option did not exist in the ancient world. Hyland correctly points out that 'as the Romans [and Greeks] lacked iron horseshoes, it would be imperative for their horses, particularly a military horse, to remain sound footed over extended periods.'[206] On account of this it was necessary for a horse to have good, solid hooves if it was to be of any long-term use. The risk of hoof problems is apparent in the account of Thucydides describing issues faced by the Athenian cavalry: 'as the cavalry rode out to Decelea every day to make attacks on the enemy or to patrol the country, the horses were lamed on the rough ground and by the

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[204] R.Van Nassau, *Hoof Problems*. (Shrewsbury, 2007) 30-32.
[205] Hyland (2003) 33-34.
[206] Hyland (1990) 10.

continuous hard work to which they were put…'[207] Likewise, the importance of the correct hoof type for a particular environment is revealed by Xenophon, who was taught 'to wrap the feet of the horses and the yoke-animals in small bags for any journeys through the snow…'[208]

Without human interference the type of hooves a horse has is dictated by the environment in which they were bred and raised.[209] Horses from cool, damp climates tend to have wider, flatter hooves that help them to move on soft ground by providing a greater surface area to displace their weight. On the other hand, horses from hot, dry climates like our Greek and Italian equines have small, hard hooves designed to withstand abrasive conditions and prevent the development of chips and cracks.[210] The hoof abrades on average ¼ to ½ inch per month; but the thicker the horn is, the slower it will wear down. Thus, horses from rocky terrain should have thick horn, just as Virgil and Oppian describe.

Hoof of the Viccolo della Palme horse showing the frog. 5th century BCE. The Capitoline Museum.

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[207] Thucydides, *The Peloponnesian War,* 7.27
[208] Xenophon, *The Expedition of Cyrus,* 4.5.35. When advancing through Armenia
[209] Carter (1906) 40.
[210] Hayes (1897) 201.

Hoof of Marcus Aurelius' horse showing the frog. The Capitoline Museum.

Hoof of Marcus Aurelius' horse showing the shape of the foot. The Capitoline Museum.

THE LEGS

If a horse's hooves form the foundation of the animal, the legs are the framework. The length and shape of the leg, in conjunction with the hoof and shoulder, influence smoothness and efficiency of gait as well as the longevity of an equid's working life. The legs tell us a lot about breeding, history and suitability for work. A horse's legs are susceptible to a number of injuries, deformities and conformational faults. As in the case

of the hoof, any weakness in the legs can affect the overall durability of a horse because 'a horse is as old as his legs.'[211]

At first glance, the legs of most horses appear to be fragile and spindly. A horse has unusually long legs for its size. This is because the horse has evolved to stand on his toes – the hoof. Toes have very little tendon and muscle mass, which contributes to a leg that is lightweight for its size; this in turn allows a horse to accelerate rapidly. The ability to travel at a high rate of speed is an important survival skill for a prey animal that lives on the open plains. Speed alone is not enough to ensure survival. A horse's legs must also be strong enough to withstand the concussion of galloping on rough terrain. To deal with this, the leg joints permit only forward and backward movement. The joints such as the stifle, hock and fetlock are constructed with grooves and flanges to stabilize the limbs and prevent them from twisting or flexing sideways. This allows the horse to have relatively strong legs without the added weight of muscle mass. The downside to this construction is that it leaves the legs susceptible to injury from transverse forces. Speed and endurance are further enhanced by the concentration of weight at the pivot point of the shoulders and hips. This placement allows the animal to move at high rates of speed while conserving energy. When a horse lifts his legs off the ground, the energy accelerates forward at the shoulder, while at the same time slowing down the shoulder swing. This allows the momentum of the heavier upper leg to transfer down to the lower leg. The result is maximum speed created from minimal energy output.[212]

For a horse to remain sound throughout his working life the bones of the legs must be streamlined and dense. This means that the weight-bearing ability of a horse depends

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[211] Hayes (1897) 5-7.
[212] Budiansky (1997) 177-185.

not on the overall size of the leg bones, but the density of the substance itself. When referring to the legs, the term 'bone' refers to a measurement of the circumference of the cannon bone below the knees and hocks.[213] The greater this circumference, the more weight a horse will be able to carry. Thus, some small ponies are capable of carrying a heavier load than a 17hh thoroughbred. A common misconception about bone is that some breeds of horse have denser bone than others, but this is not the case. Rather, 'bone density is related to weight, not breed; the smaller the horse, the greater the chance that bone density will be normal; the larger the horse, the lower the bone density is likely to be.'[214] Bone is an incredibly strong material that can withstand significant amounts of force. In a healthy horse 'bone loaded parallel to the long axis of the limb bones will bear a static load of 19,000 to 30,000 pounds per square inch (1330 to 2100 kg per square centimeter)… The resistance of compact bone to shear stress (compressive stress applied at an angle) is 7,150 to 16,800 pounds per square inch (500 to 1,176 kg per square centimeter).[215] These numbers imply that a horse's legs should be extraordinarily strong. If this is the case, why are leg injuries so prevalent? The answer lies in the way a horse is used. During any sort of strenuous work, the legs of a horse must withstand a number of forces. Any rapid change of speed or direction, not to mention the heavy impact of jumping causes tendons and ligaments to pull on the skeleton, altering the amount of force placed upon the bones, sometimes to a point beyond its limitations. 'When this

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[213] Hayes (1897) 6-7.
[214] D. Bennett 'A Sense of Proportion' *Equus* 388(2010) 48.
[215] Bennett (2010) 48.

point is reached – in bone as in any other material – damage or even catastrophic failure will occur.'[216]

What do our ancient sources have to say about a perfect leg? Xenophon states that the pasterns should not be upright. This is a sound observation. The pastern is composed of two bones that reach down into the foot.[217] These two bones, in conjunction with the fetlock, act to absorb the shock of concussion.[218] The length and angle of the pastern also influence smoothness of gait.[219] A long, sloping pastern masquerades as a desirable trait because it produces a more comfortable ride. This occurs because there is a greater length of bone to absorb impact, but such pasterns are structurally weak and often become swollen from the resulting strain. On the other hand, short and upright pasterns produce a stiff, uncomfortable gait and make a horse prone to concussive injuries.[220]

The hoof-pastern angle on the horse of Marcus Aurelius. The Capitoline Museum.

The ancient texts also indicate that the cannon bone should be straight, slender and clean-cut with a measurement of good, dense bone. Xenophon quite correctly points out

[216] Bennett (2010) 48.
[217] Oliver (1991) 50.
[218] Hayes (1896) 197.
[219] Jones (1982) 379-403.
[220] Oliver (1991) 50.

that a fleshy and varicose cannon is a cause for worry. What he is describing is a bowed tendon, a very serious injury.[221] Hayes confirms Xenophon's remarks when he writes that the cannon should 'feel hard to the touch and free from any excess of soft tissues between it and the skin, or from enlargement from the effects of work or disease.'[222] Ideally, the cannon should look straight and wide when viewed from the side, but narrow from the front.

Side view of the cannon bone on the Viccolo della Palme horse. The Capitoline Museum.

[221] Hyland (2003) 34.
[222] Hayes (1896) 196.

Front view of the cannon bone. Greek bronze statuette of a horse. Late 2nd-early 1st century. The Metropolitan Museum of Art.

This design increases the solidity of the bone, creating strong and tougher legs.[223] The length of the cannon bone, like the pastern, also influences a horse's gait. For a smoother, more efficient stride the cannon should be shorter than the forearm.[224] A greater length of forearm increases muscle mass, which in turn helps to increase speed as stride length extends. Thus, the longer the leg, the greater the amount of ground covered with each stride; hence, a long leg equals improved efficiency.[225] For increased durability, the legs should be straight. Indeed, they should appear to be 'rigorously parallel.'[226] When viewed from the front, an imaginary line should bisect the middle of the foreleg from the point of the shoulder to the toe; from the side, a straight line should

[223] Equine Research Group (1978) 96.
[224] J. Winkel 'Conformation Clinic' *Practical Horseman* (April 2010) 32.
[225] Carter (1905) 8-17.
[226] A. DeCarpentry, *Academic Equitation*. (London, 2012) p28.

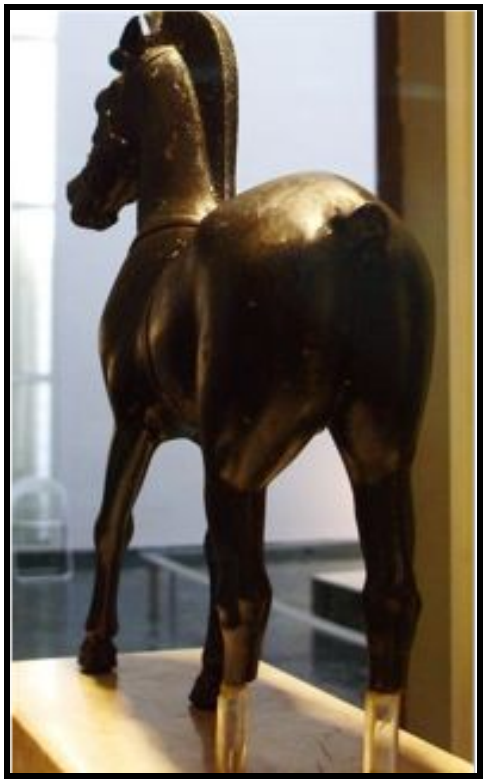
drop from the point of elbow along the back of the leg to the fetlock.[227] Any inconsistencies in the straightness of the leg increase the risk of injury to the joints.

Horse from the Satrap Sarcophagus showing 'rigorously parallel' forelimbs. Second half of the 5th century BCE. Istanbul Archaeological Museum.

The forelegs of the horse carry 65% of his weight. Clean sound limbs are of paramount importance if the animal is to be used for any kind of work. The forelimbs perform five functions: they support the weight of the animal, withstand the rigors of work, give stability to the body, aid in movement and act to lift the forehand for collection.[228] The hind legs should be slightly longer than the forelegs. The overall appearance of the hind limbs is different since they function to provide strong, forward propulsion. In order to do this, they must be straight, strong and well-muscled, especially through the stifle and gaskin. The hock joint is integral to the length of stride and propulsive power. As with the forelegs, the cannons should be shorter than the upper portion of the leg with a good measure of bone.[229] When viewed from the back, a straight line should bisect the middle of the limb from the point of the buttock to the

[227] S. McBane, *The Competition Horse*. (London, 1991) 49.
[228] Hayes (1896) 179-188.
[229] Equine Research Group (1978) 98.

fetlock; from the side, a straight line should fall from the point of the buttock to the point of the hock and along the back of the cannon to the fetlock. Once again, any deviation in straightness will affect the soundness and effectiveness of the limbs.[230]



Rear view of the bronze chariot horse at Olympia. 4th century BCE. Archaeological Museum of Olympia.

Given the terrain over which they were used – particularly warhorses and hunters – strong, sound legs were of great importance. These horses were expected to travel long distances over rugged ground. A racehorse required sound legs to withstand constant work at speed and to increase his stride efficiency. Many of the breakdowns that happen on the racetrack today occur because thoroughbred legs are becoming too fragile to bear the mass and force placed on them.

[230] McBane (1991) 50.

THE SHOULDER AND CHEST

The shoulders of a horse play an important part in determining an animal's athleticism. As discussed above, the forelimbs of the horse carry 65% of his body weight. The slope/angle of the shoulders in turn influences the degree of action, movement and extension in the front legs. The more oblique the angle of the shoulder the greater the freedom of movement through the forepart of the horse.[231] A long, sloping shoulder is termed 'well-laid back' and ideally will be about 45 degrees. The angle of the shoulder should closely match the angle of the pastern in the legs. The primary function of the shoulder is to control the movement of the forelegs and the swing of the forearm. This consequently affects the overall length of stride; the longer and smoother the stride, the more efficient are the gaits of the horse.[232] This does not, however, mean the long, sloping shoulder is ideal for all types of horses. Rather, the shoulder should be suited to the kind of work required of the horse. A successful racehorse will have a shoulder blade of considerable length and the shoulder region will be lightly muscled since this encourages speed and serves to lighten the weight of the forehand. The hunter or cross-country horse should have a long, sloping shoulder like the racehorse, but with a much greater amount of muscle. The sloping shoulder helps the horse lift his front end up over jumps and uneven terrain, while the muscle mass absorbs the impact of landing after clearing an obstacle or moving at speed over broken ground. Draft horses, particularly the heavier types, have shorter, straighter shoulder. These horses do not require the

[231] Oliver (1991) 68-71.
[232] Equine Research Group (1978) 90.

flashy, expressive gaits of the ridden horse. Instead they move with short, careful strides that have very little suspension in their action. [233]

Example of a long, sloping shoulder on a black figure horse. Corinthian 570-560. Royal Ontario Museum.

The humerus, in conjunction with the shoulder, also plays a key role in the action of the forelimbs. The placement of the humerus in a ball-and-socket joint permits lateral movement through the legs. Thus, the humerus helps to control length and smoothness of stride, as well as the overall balance and athleticism of a horse through lateral motion. As we shall see in the second part of this dissertation, an equine's ability to move laterally can be just as important as speed and forward momentum/impulsion. The length and angle of the humerus affects movement in four ways:

1. The longer the humerus, the more 'scopey' the horse's gait since swinging a long humerus results in a greater arc at the elbow end of the bone.

[233] Hayes (1896) 191.

2. The shorter the humerus, the more choppy the horse's gaits will be. A horse with a short humerus moves with correspondingly short, stiff strides, has difficulty with lateral work and is frequently dangerous to jump.
3. The steeper the resting angle of the humerus, the higher the horse can raise his knees.
4. The more horizontal the resting angle of the humerus, the less natural ability a horse will have for high action or tight folding. A horizontally oriented humerus guarantees that the horse will be a 'grass clipper'[234]

THE TRUNK AND BACK

The trunk accounts for a significant portion of total body mass. The majority of this weight comes not from the skeleton but the internal organs of the trunk and abdominal cavity. This substantial amount of weight is freely suspended from the spinal column of the horse.[235] The equine spine has changed dramatically through the stages of the evolutionary process. *Hyracotherium,* the earliest ancestor of the horse, had an arched spine with loosely articulated vertebrae, giving it a greater degree of side-to-side movement through his spine and permitting the use of twisting, slinky movements. He could also accelerate rapidly and make sudden changes of direction at speed. These were all essential survival skills for a solitary little herbivore in a forest habitat. When the equids evolved to live on the open steppe, the backbone consequently became flatter and stiffer. This meant they could no longer perform the agile, twisty movements of their forest-dwelling ancestors, but such actions offered no advantage on the grasslands.

[234] Bennett (1991) 68-70.
[235] Heuschmann (2007) 48.

Instead, the stiff, non-arched spine allowed for longer limbs and a stronger loin. The features translated into a significant increase in speed.[236]

The length of the back influences not only the aesthetic appearance of the horse, but also his ability to bear weight. The back proper is the region of the spine found between the withers and the hips. Ideally, a horse will be what is termed 'close-coupled.' Such an animal has a relatively short back in relation to the overall size of his body. This kind of back places the limbs closer together, which in turn increases weight-carrying ability and athleticism because the horse is better able to collect his body by bringing his hind end underneath him. An excessively short back, however, is not desirable since it suggests a lack of flexibility through the spine and trunk. The long back tends to be weak and less able to bear weight.[237]

The back should appear to be level between the withers and the croup. Any convexity to this line indicates the presence of a roach back. The horse with a roach back has weak muscles along his spine and will lack strength. The concave or 'sway' back is occasionally a conformational fault present from birth, but more commonly is the result of wear and tear that causes the ligaments of the spine to lengthen and loosen. The longed-backed horse is more prone to become sway-backed over time than the close-coupled or short-backed animal.[238] The close-coupled horse has a short, muscular back and well-developed loins. This conformation allows the animal to contract the *longissimus* muscle along the spine.[239]

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[236] D. Bennett, *Principles of Conformation Analysis Volume I.* (Gaithersburg, 1988) 17-18.
[237] Oliver (1991) 25-29.
[238] Hayes (1896) 172-173.
[239] Equine Research Group (1978) 93.

A short-backed Assyrian horse. From Nineveh c.645 BCE. The British Museum.

The *M. longissimus dorsi* (long back muscle) is one of the strongest and most important muscles in the equine body. It extends the length of the back from the neck to the sacrum and ilium running along both sides of the lumbar and thoracic spine. The *longissimus* muscle is of great importance for the propulsive power of the horse. Although the *longissimus* muscle lies along the spine, it actually has nothing to do with the animal's weight-bearing capacity. Rather, the contraction of the *longissimus* muscles allows the horse to bring his hind end well underneath his body, while lightening and lifting the forehand. This permits the horse to collect and extend his movement in a balanced, free manner.[240] A correct, well-developed *longissimus* muscle creates an athletic and very rideable mount. With this in mind, we should re-evaluate the concept of the 'double-back' mentioned in our five accounts of the ideal horse. The 'double-back' is generally believed to refer to a recessed spine created by the build-up of muscle or fat on either side of the vertebrae. This recessed spine was considered a favourable trait

[240] Heuschman (2007) 55-58.

because it offered the bareback rider a greater degree of comfort.[241] I agree with the idea that the double-back provided a more comfortable ride, but not because it provided a softer seat, and not because of fat pads on either side of the spine. I think the double-back refers to a horse with a well-developed *longissimus* muscle. Still, this does provide a degree of comfort in the sense that a well-developed back prevents the rider from sitting directly on the spinal column. More importantly, it places the rider in a secure seat on a horse made comfortable and ridable by its ability to move in a balanced and controlled way.

THE HINDQUARTERS

The hindquarters act as the engine or powerhouse of the horse; for it is here that impulsion and balance originate. The shape of the hindquarters dictates, to a large degree, what sort of job that animal is best suited for because it indicates what kind of power and movement the horse is capable of.[242] The hindquarters refer not just to the rump of the horse, but the entire hind-end structure, including the hind legs. Because of the importance the hindquarters play in the overall movement and balance of the animal, they are often considered to be a key element in the assessment of equine conformation.[243] The hindquarters begin at the lumbrosacral joint, which joins the hind-end to the rest of the equine body and is located where the loin meets the croup. This small joint, less than six inches square, controls all the energy produced in the hind-limbs; the shorter the loin area the more powerful the horse. A horse with a short loin is what we term 'close-coupled.' This is an ideal conformational feature because

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[241] The roach-backed horse or one with a prominent spine is not at all comfortable to ride bareback.
[242] Bennet (1991) 5.
[243] Oliver (1991) 36.

> A horse that is *close coupled*, with a short loin area, usually has strong, short muscles and can tense the spine more readily to raise and propel the front quarters and this is more easily collected. As the back muscles stiffen his spine and the loin muscles contract to pull the hindquarters farther underneath himself, he can lift his front end.[244]

The resting horse carries 65% of his weight on his forelimbs. In order to move in an athletic and efficient way, he must bring his hindquarters under him to shift his weight back. This is achieved through the raising and flexing of the lumbosacral joint, and when done correctly, it allows the horse to achieve collection. When a horse coils the lumbosacral joint, his hindquarters shift farther underneath him, his spine lifts up, the *longissimus* muscle contracts and his neck and head are raised up. Collection is what almost all riders work towards since the horse moving in a collected frame is much more balanced and thus has the potential for a longer, sounder working life. A collected horse is producing contained energy or impulsion, which can be unleashed by the rider for forward, lateral or rear movement.

A very close-coupled horse displaying a great degree of collection. Alexander Sarcophagus. Late 4th century BCE. Istanbul Archaeological Museum.

[244] H.S. Thomas, *The Horse Conformation Handbook*. (North Adams, 2005) 88.

The horse's rump should be large, but in proportion to the overall size of the animal. It should appear almost square when viewed from behind, and slightly rounded when viewed from the side. The square shape is created by the width of the hips; moderately wide hips are desirable because they allow for the creation of greater power and allow the proper swinging forward of the hind legs. The size of the pelvis varies from horse to horse, and a wide pelvis is ideal in the broodmare, since it allows for easier birthing. In most horses, however, it is the length of the pelvis that is important. The longer the pelvis, the more energy and swing the hind legs produce. A long, sloping pelvis is especially desirable in the racehorse. The shape of the rump is determined by the size of the hips and pelvis, as well as the large muscles that cover these bones. If the rump is too large and bulging, the horse will lack stamina as the energy produced by the hindquarters becomes less efficient. Likewise, narrow hindquarters indicate a horse that lacks the ability to produce speed or power.[245]

The very rotund hindquarters of Marcus Aurelius' horse. The Capitoline Museum.

[245] Thomas (2005) 142-144.

Hindquarters of a Persian horse. Alexander Mosaic. National Archaeological Museum of Naples.

The hind legs are longer than the front, and should be capable of greater flexion. As with the front limbs, the ideal hind legs give an impression of straightness; a line dropped from the point of the buttocks should run along the hock and cannon bones.[246] The hind legs are made up of what is termed a 'stay system.' This system serves to control the action and movement of the hind end, allowing it to function in a controlled, regular manner. The stay system is made up of tendons and tendonized muscles that basically work like a set of cables. This systems governs the hind end in two basic ways

> Whatever the stifle does, the hock must do. If the stifle folds, the hock must fold; if the stifle opens, the hock must open.
> Whatever the loins do, the stifle must follow. If the loins coil, the hock must fold; if the loins are flattened and extended, the stifle must open.[247]

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[246] S.E. Harris, *Horse Gaits, Balance and Movement*. (Hoboken, 1993) 119.
[247] Bennett (1991) 6.

The upper part of the leg, from the point of the hip to the hock should be long and slightly sloping. The hocks must be clean, large and square. If the hocks appear angled, asymmetrical or offset when viewed from behind, the strength and stability of the lower limb is suspect. The rear cannons should be short and straight, and the hock joint 'well let down'- as close to the ground as possible. As with the fore limbs, the pastern should be short and slope on a 45-degree angle.[248] Unlike the front legs, the toes of the hind leg should point out slightly, as should the stifle joint. This slight angle at the top and bottom of the leg allows the horse to reach farther forward under his body when the stifle is engaged.[249]

Geometric horses showing the greater length of the hind limbs. 750-735 BCE. Kerameikos Museum.

THE NECK

The length and shape of a horse's neck are among the most aesthetically apparent parts of equine conformation. The neck can make a horse appear athletic and elegant, or scrawny and gangly. In actuality, this is a very important part of equine conformation, and the type of neck a horse has will have a significant influence on the work he is capable of doing. Every equine neck is made up of seven vertebrae, whatever the length of the neck,

[248] Oliver (1991) 36-41.
[249] Harris (1993.) 123.

since the length of the vertebrae is proportional to the length of the neck. These vertebrae, unlike those of the back, are not attached to ribs or any other bones, making the neck the most flexible appendage on the equine body.[250] Because of this flexibility and its placement on the shoulders, the neck acts as a balancing point or level for the horse.[251] The positioning of the neck on the shoulders will either aid or hinder the ability of a horse to collect; the lower the placement of the neck, the more a horse will move on his forehand, in a 'downhill' frame which is the opposite of the collected frame and gives the rider a feeling of being constantly pulled forward out of balance. If the neck is placed higher on the shoulder, the horse typically finds it easier to raise his neck and poll when his weight shifts back and the lumbosacral joint flexes.[252] The long, powerful *braciocephalic* muscle runs the length of the neck from the base of the ears, into the *deltoid* muscle of the shoulder. The contraction and release of this muscle contributes to stride length by influencing the freedom of movement in the shoulder and humerus. The size and shape of the *braciocephalic* muscle are an indication of fitness and correct training, since it develops in accordance with them. If a horse is consistently ridden incorrectly, this muscle will be weak and underdeveloped.[253]

Ideally, as in all other aspects of equine conformation, the length of the neck should be in proportion to the rest of the body: 'Measured from poll to withers, the neck of a riding horse should be proportional to the rest of his body: about one-third of the horse's overall

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[250] Bennett (1989) 35.
[251] Oliver (1991) 74.
[252] Harris (1993) 116.
[253] R.H. Smythe, *Horse Structure and Movement*. (London,1967) 106.

length. It should be fairly long and slender, slightly arched along its topline, and relatively straight on its underside.[254]

If the neck is proportionally too long for the body, the horse is likely to have difficulty balancing and collecting himself because his center of gravity has been shifted forwards. Likewise, the neck will have less flexibility on account of the length of the vertebrae and the resulting distance between each joint since every equine neck is made up of seven vertebrae, in a long neck, there is a greater distance between each joint. Similarly, a neck that is too short will also affect the ability of a horse to collect and bend. The short neck is typically bulky and thick, adding weight to the forequarters of the horse and making it more difficult for the animal to balance and collect himself. The horse with a short neck will often have a short, upright shoulder as well, the combination of which results in a shorter stride; this creates less efficient movement and a greater amount of stress on the legs and body over time.[255]

The long, muscular necks of a chariot team. Apulia. C.300-200. The British Museum.

[254] Thomas (2005) 38.
[255] Thomas (2005) 38-39.

The short, thick neck of a Sasanid horse. Late 5th-early 6th century CE. The Metropolitan Museum of Art.

The long, slender neck of the Artemision racehorse. 3rd-1st century BCE. National Archaeological Museum of Athens.

THE HEAD

The head is the most prominent feature of equine conformation, by which I mean it is the thing that is first noticed when someone looks at a horse. The shape and size of the head, as well as the components found on it – eyes, ears, mouth, nostrils – have a great influence on whether a horse is perceived as beautiful or not. Our perception or definition of the 'beautiful' equine head has changed over time and between cultures. As

we shall see in the analysis of equine types later in this dissertation, the ideal shape of the head was not uniform in the ancient world. As Bennett states,

> Over time, points of view have changed greatly and so have peoples' preferences for the shape of a horse's head. It is possible, through the process of selective breeding, to 'blueprint' many different kinds of heads, all of which can be considered good.[256]

The Nesaean type of horse is an excellent example of the changing trends in aesthetically pleasing head shapes. Over a roughly 2,000-year period we can see how preferences changed between flat, convex and concave profiles.

Assyrian horse 8th-7th century. The British Museum.

Achaemenid horse 5th century. The British Museum.

[256] Bennet (1991) 70.

Sasanid Horse 5th-7th century. The British Museum.

So what makes a good head? As with many other aspects of equine conformation, it is all in the bones and angles. First is the head/neck angle: the angle at which the top vertebra of the neck (the atlas) is attached to the axis (the second vertebra) and the skull. This angle will influence the animal's ability to flex his poll, which enables him to collect himself into balance. If this angle is abrupt, the horse may have trouble breathing when he exerts himself. This is due to excess fleshiness at the throatlatch where the jowls and neck meet.[257] A clean, open throatlatch is ideal because it better enables the horse to swallow, breathe and flex through his poll. The head can be convex, straight or concave in profile, but most importantly, it should be in proportion to the overall size of the horse. The head should not be longer than the neck. A head that is too small or too large will - as is the case with the neck - affect the horse's ability to balance himself. A too-small head does not serve as an effective counter-balance to the hindquarters. It also does not allow space for large, strong teeth and sufficiently large nasal passages, thereby hindering the animal's ability to eat and breathe properly. A too-large head is heavy and places excess weight on the forehand of the horse, causing him to move 'downhill' and thus

[257] Thomas (1996) 41.

putting extra weight on his front legs. The large-headed horse finds is difficult to raise his head and neck to work in a collected frame.[258]

The jaw-line should be clean and broad since ample space between the jaw bones is necessary for the respiratory system to work effectively.[259] A broad forehead is desirable, no matter what profile the head has, because it increases the animal's range of vision. Traditionally, the wide forehead has been associated with a larger brain and greater intelligence, resulting in an animal that is easier to train and work with. The opposite of this is the narrow forehead, which is typically associated with animals that are ornery and less intelligent. A wide forehead correlates with a wider poll and throatlatch, both of which enable the horse to flex and soften into the rider's hands through the reins.[260]

The equine face is very expressive. It can tell us how the animal is feeling: if he is tired, or excited; relaxed, anxious or frightened; in pain or feeling in fine fettle.

Red figure Amphora from Campania. 340-320. Royal Ontario Museum.

[258] Thomas (1996) 28-29.
[259] Oliver (1991) 78.
[260] Bennett (1991) 72-73; Thomas (1996) 30-31.

Barbarian horse on the Ludovisi Sarcophagus. 3rd century CE. Palazzo Altemps.

The eyes are the most expressive feature of the horse's head: they should be large, spaced wide apart and placed on the side of the head. This is not just aesthetic preference, but it allows the horse a wide range of vision. A horse with small 'pig eyes' has a narrower range of vision. This explains why the horse with large, widely spaced eyes is considered easier to work with, while the pig-eyed animal is traditionally thought to be mean and stubborn. In reality, the pig-eyed horse does not see as clearly and is more easily startled.[261]

[261] Bennett (1991) 78-79; Oliver (1991) 89; Thomas (1996) 31-32.

Greco-Parthian rhyton. 2nd century BCE. The Metropolitan Museum of Art.

Large, well-shaped nostrils are essential, since the horse can breathe only through his nostrils. This is especially true of animals that are expected to work at speed, because they must be able to inhale and exhale sufficient amounts of air. The ideal nostril is large, open and thin. This makes the nostril very elastic, allowing for it to expand and contract easily.[262] If the nostrils are too small and thick, the animal will have difficulty catching his breath when exerting himself.

[262] Oliver (1991) 86; Thomas (1996) 36.

Head of the Viccolo della Palme horse. 5th century BCE. The Capitoline Museum.

Head of the Artemision horse. 3rd-1st century. National Archaeological Museum of Athens.

The shape and size of the ears do not affect the overall fitness or athleticism of the horse; however, from an aesthetic view, they should be in proportion to the rest of the animal. The ears tell us where the horse's attention is, as well as his mood.[263]

[263] Oliver (1991) 93.

Assyrian horses with ears pricked forward: paying attention to something in front of them. The British Museum.

Assyrian horse listening to something behind him. The British Museum.

Greek horse paying attention to what is happening in front of and behind him. The British Museum.

Greek horse with pinned ears- angry and agitated. The British Museum.

CONCLUSION

Conformation is a consideration of the utmost importance when determining what sort of work a horse is suited for. It is more than just simple aesthetics. Correct conformation is essential if a horse is to have any sort of consistent working life. Minor conformational defects can be overcome by an equine's willingness to learn and try - what horsemen call 'heart' - but the basic physical building blocks must be present. To expect a horse to perform a task for which his body is not at all suited is to court disaster. This necessity of correct conformation was just as important in antiquity as it is today. I expect that one would not want to find himself mounted on an unsound animal while about to ride into battle. What I think is of key importance in the study of ancient equine types is that the basics of correct equine conformation remain the same the world over; no matter what environment a horse comes from, good overall conformation is a necessity of survival. Where regional types start to appear is in nuanced differences: size of body, muscle mass, length of leg, shape of the head and so on. The Nesaean horse and the Mediterranean horse look quite different from each other in their overall appearance, but the basic

building blocks of conformation are the same. Likewise, a Shetland pony, Thoroughbred and Shire are three very different examples of the modern equine, but once again, the basis of their conformation is very similar. This is because at the root of it, all horses are designed for the same thing: to survive as prey animals on the open grasslands. Any differences in size and shape are simply a response to specific environmental conditions.

CHAPTER FOUR: THE CENTRAL ASIAN HORSE

The horsemen of the Eurasian Steppe are perhaps some of the most elusive and enigmatic warriors from the ancient and medieval worlds. Steppe cultures and tribes from across the centuries blend together into a single iconic image: the ruthless barbarian horde. This is not an interpretation unique to modern scholars; even the authors of antiquity had trouble, or a lack of desire, to distinguish between the various steppe groups. For example, the term 'Scythian' was frequently used to denote the generic horse archer: the Eastern Roman Priscus refers to the Huns as 'Scythians' in the 5th century CE and Anna Comnena uses the term in this way in her *Alexiad*.[264] The literary sources make it clear that the nomadic inhabitants of the steppe produced a universal sense of unease amongst the residents of the urbanized west. This was due in part to the fact that everything about the traditional Steppe lifestyle was different and unfamiliar, even bizarre. These invaders represented the 'Other' in every possible sense of the word- culturally and militarily; as one scholar puts it 'the bow-wielding Scythian and Sarmatian horsemen summon up the worst type of nomadic marauder.'[265] They were seemingly indestructible on the battlefield. Accounts of these nomads being defeated by urban/western armies are rare. Why were they so successful? How did they manage to outwit and outmanouver the supposedly technologically and tactically 'superior' western armies time and again?

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[264] Anna mentions to 'Scyths' several times in the *Alexiad*. For example at 1.5 we read of 'Scythian allies equipped with barbarian weapons' in the army of Bryennius. They were to 'fall upon the rear as soon as the enemy appeared and the trumpet sounded the charge; they were to shoot at them and harass them ceaselessly with showers of arrows…' Anna Comnena, *The Alexiad*, 1.5 As we shall see below, this was a common mode of attack for the mounted archers of the Steppe.

[265] R.M. Batty, 'On Getic and Sarmatian Shores: Ovid's Account of the Danube Lands', *Historia* 43.1(1994) 93.

ENVIRONMENT

Central Asia lies at the heartland of Eurasia. It is a vast region, although the enormity of its size is frequently lost when viewed in tandem with the entirety of Europe and Asia. This region, more than any other studied in this dissertation, is one of extremes. This is a place where lifestyle and survival are dictated by nature, not humans. Until the 1900s there was very little attempt made at mastering or subduing the Central Asian environment and bending it to human agricultural and urban will.

Geographers traditionally divide Central Asia into two parts: Western and Eastern Turkestan. Western Turkestan encompasses 'the Turin plain east of the Caspian Sea and the Kazakh upland north of it, stretching eastward to the foot of the T'ien-Shan and Pamir-Alay mountains and southward to the Kopet Dag mountains.' Eastern Turkestan includes 'the high plateaus of the Tarim Basin and the Junghar Basin (separated from one another by the T'ien Shan mountains, while the Tarim Basin is separated from the even higher Tibetan Plateau by the Kunlun range).'[266]

Climatic conditions in Central Asia have changed frequently, even in the past three or so million years (the Quaternary period). It went through a period of glaciation, which witnessed the growth and retreat of large glaciers several times. Whenever these glaciers retreated, highland savannah and temperate woodlands appeared. The bones of Przewalski type horses have been found in the mountains of Northern Afghanistan in caves used by Stone-Age humans. The presence of the bones suggests the existence of temperate, humid grasslands during these interglacial periods. Steppe and semi-arid deserts began to appear as early as the Tertiary period. These deserts, however, were far from barren. For example, the deserts in the Xinjiang region were home to a plethora of

[266] Y. Bregel, *An Historical Atlas of Central Asia* (Leiden, 2003) 2

wildlife, including crocodiles, ostriches, bison, antelopes and rhinoceroses. Animal assemblages are an excellent indicator of climate and climate change. Whenever a dramatic change occurred, animal migrations would happen. Records of animal assemblages from Kazakhstan provide a great example of this. As the climate changed, the assemblages changed from woolly mammoths, woolly rhinoceroses, bison and cave bears to animals better suited to an arid habitat like the kulan, antelope and gazelle. It is interesting to note that both wild camels (the Bactrian variety) and wild horses are found in the cooler and arid climates.[267]

Since the end of the last Ice Age Central Asia has been, for the most part, a very arid region. It experiences an extreme Continental climate. The winters are short but bitterly cold thanks to the predominance of the Asiatic High, a high-pressure system originating in Siberia with frigid northeastern winds. The summers are hot and dry with very little precipitation.[268]

The topography of Central Asia can be categorized into three types: desert, steppe and mountains. Although we typically associate Central Asia with the open spaces of the steppe, parts of it are actually very mountainous: four-fifths of Afghanistan is made up of mountains.[269] These mountains control climate and agriculture as well as the movement of people and animals. As Grousset puts it,

> In their physical manifestation, the high plateaus of Asia bear witness to the most tremendous geological drama in the history of the planet. The upheaval and isolation of this huge continental mass were due to the converging assaults

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[267] V.W. Masson 'The Environment.' In Dani and Masson (eds.) *History of Civilizations of Central Asia Volume I: The Dawn of civilization- earliest times to 700 BC* (Delhi, 1992) 41-42

[268] R. Lewis, *Geographic Perspectives on Soviet Central Asia* (Florence, 1992) 74-75.

[269] Masson (1992) 35

> of two great chains of folded mountains formed in two different periods: the Hercynian folds of the T'ien Shan and Altai and the Himalayan Alpine folds. The arc of the T'ien Shan and Altai to the northwest and the opposing curve of the Himalayas, together encircle and isolate Turkestan and Mongolia.[270]

The mountains of Central Asia are unique in that they are not shrinking through the typical erosion process of mountains, but actually growing; a process called 'uplifting.' This is due to the almost constant collision of the Indian subcontinent against Asia. This ongoing 'plate' battle also makes Central Asia one of the most seismically active areas in the world. The T'ien Shan mountains stretch approximately 2,450km east-west with some peaks reaching over 7,000m in height. The range is organized into densely clustered groups of mountains, between which lie flat steppe and desert environments the most important of which was the Fergana Basin. The Pamir-Alay mountains extend from the southern edge of the Fergana basin to the point where China and Afghanistan meet. The Pamir range can be divided into east and west: the western part of the range is high and snowy, while the eastern Pamir is the driest region in Central Asia and has much lower peaks than its western counterpart. The highest peak in the Pamirs measures 7,495m. The Kopet-Dag mountains of Turkmenistan are an extension of the Iranian desert tableland. They are not large; few of the peaks exceed 3,000m. Nonetheless these mountains are very steep and frequently cut with deep ravines. The environment of the Kopet-Dag is arid to semi-arid, though some of the ravines are more humid and fruit trees can thrive there.[271]

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[270] R. Grousset, *The Empire of the Steppes: A History of Central Asia* (New Jersey, 1970) xxi

[271] Lewis (1992) 77-79; Masson (1992) 34.

The term 'desert' can be misleading. It does not necessarily designate a dry, *sandy*, expanse. Deserts can take many forms including stones, sand, salt or clay. Three-quarters of Central Asia is covered by desert. The largest of these is the Kara Kum desert which is a primarily sandy expanse covering an area of more the 350,000 square kilometers.[272] Only hardy, drought resistant vegetation grows here, the most predominant of which is the saxaul tree.[273] Ironically, many of the arid and semi-arid desert plains contain yellow loess soil, which is very fertile. Thanks to the lack of water in most of these areas, little cultivation occurred *despite* the fertility of the soil. Only in areas where there was access to a constant water source was the soil made use of.[274] The southern border of Mongolia is an expanse of gravelly, almost waterless plains where it joins the Gobi desert. These conditions continued into eastern Turkestan. Very little wildlife can survive the extreme aridity of this area, and those animals that do are very specialized and unique. They include the Bactrian camel, Persian gazelle, Mongolian gazelle and the Przewalski horse.[275]

At the northern edge of Central Asia lie the forest-steppe zone, which butts up against the *taiga* and boreal forests of Siberia. This area does provide plentiful grazing for the traditional five snouts: goats, sheep, bovines, camels and horses; but it is reindeer that are traditionally herded here.[276] Moving south from the *taiga* and boreal forests we enter the steppe, a vast grassy belt that horizontally bisects almost all of continental Asia. Wherever the steppe-lands are irrigated or have access to permanent water sources the

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[272] The name Kara Kum means 'Black Sand' in Turkic.
[273] Lewis (1992) 80
[274] Bregel (2003) 2
[275] Masson (1992) 32
[276] Masson (1992) 32

ground is covered with rich, fertile grass. Without this, however, or in times of drought, the grasslands shrivel and dry up. This vast 'highway' extends east to west from Manchuria to the Crimea and served as a major thoroughfare for most of history. These open spaces are inhabited by herd-dwelling, fleet-footed mammals like antelope, kulan and horses; animals that have few natural predators other than humans. The rivers that cut through the steppe are lined with *tugai* shrubland made up of tamarisk, poplar, maple and small shrubs.[277]

Herds grazing in the Gun Gulaat nature reserve along the Eurasian Steppe belt.

[277] Masson (1992) 38-39

The Gun Gulaat reserve in early summer with grasslands well-watered by the Kherlenii river.

Entering the *taiga* region at the northern edge of the steppe.

Riding through the Saxaul trees along the Kherlenii river.

Sand dunes criss-crossing the grasslands of the steppe.

Scattered throughout the mountains of Central Asia are oases, which became focal points of sedentary settlement and urbanization. In these locations the rich yellow loess soil could be utilized thanks to the presence of a permanent water source. Thus, a wide

variety of crops could be cultivated. Many of these oases became stops on the various routes of the Silk Road. Historically, the most important of these oases was the Fergana Valley, an area 300km long and 170km wide surrounded by mountains that give way to loess-rich foothills. This nutrient rich soil is washed down onto the alluvial plains by the mountain streams.

The frequently extreme environment of Central Asia necessitated the evolution of animals with peculiar adaptations to be able to survive and thrive there. The horse was no exception. We have already looked at the Przewalski horse and his ability to survive in some of the most hostile environments in the world. The domestic steppe horse, as we shall see, had to be equally as tough as his wild counterpart.

The climatic and topographical extremes of Central Asia clearly made an impression on ancient travelers to the region. Ancient texts dealing with the region frequently point out the harshness of this environment.

> The entire land I am describing experiences such harsh winters that for eight months the frost is intolerable and you could not create mud by pouring water on the ground unless you light a fire. The sea freezes over, as does the whole Cimmerian Bosporus; and they Scythians who live within the trench conduct expeditions over the ice, driving their wagons across the land of the Sindi. Winter continues like this for eight months and the remaining four months of the year are cold here, too. But the winter differs from winters in all other regions in that during this season here there is no appreciable rainfall, while in summer in never stops raining. And at the time when thunder occurs elsewhere, it does not happen here, but instead is frequent in summer. If thunder does occur during the winter, the Scythians regard it with amazement and consider it a portent, as they do also in the event of earthquakes, no matter whether they occur in summer or winter. While horses can tolerate the Scythian winter, mules and donkeys cannot bear it here, although elsewhere horses standing on

> ice suffer frostbite on their legs, whereas mules and donkeys are able to tolerate it.[278]
>
> Far otherwise is it where dwell the tribes of Scythia by the waters of Maeotis, where the turbid Danube tosses his yellow sands, and where Rhodope bends back, stretching up to the central pole. There they keep the herds penned up in stalls, and no blade is seen upon the plain, or leaf upon the tree; but far and wide earth lie shapeless under mounds of snow and piles of ice, rising seven cubits high. Tis every winter; ever Northwest blasts, with icy breath.[279]

Perhaps the most poignant descriptions are those of Ovid, who was exiled by Augustus to the 'town' of Tomis on the barren borders of the Black Sea. Ovid's poetic expressions of a savage land might seem to be exaggerated but this is unlikely. As Evans points out, the bitter winters and extreme weather of the Pontic region would have been a great shock and source of horror to Ovid, accustomed as he was to the more temperate seasons of Italy.[280] He writes that

> …summer is short. The winds blow from the north;
> the fens freeze hard; and those desperate tribes can march
> over the ice and squeaky snow to plunder
> whenever their mood or hunger prompts, which is all the
> time.
> The snow is nothing like what you have in Rome,
> But constant. It falls and lies there under a wan sun
> And an important rain that cannot melt it but freezes
> To make another crust for a new snowfall to cover
> Deeper than before.[281]

In one of his many pleading letters to Rome, he tells Maximus that

> The terrain, meanwhile, is bleak, its horizontals severe
> And unrelieved by any tree. The climate

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[278] Herodotus, *Histories*, 4.28.
[279] Virgil, *Georgics*, 3.349-256.
[280] H.B. Evans, 'Winter and Warfare in Ovid's Tomis: (*'Tristia'* 3:10)', *Classical Journal* 70.3(1975) 1.
[281] Ovid, *Tristia,* 3.10

> Is also severe, the seasons' round a change of winters:
> Deeper, milder, wet, less wet, but always
> Cold, dank and dismal.

Later in the same poem he describes with an almost desperate degree of sarcasm how Maximus might be able to win sympathy for Ovid's cause if he:

> Still, you might describe,
> By way of making a joke, how when the Danube freezes,
> The tribesmen's horses' hooves ring out on the ice[282]

LIFESTYLE AND HUSBANDRY

The vast swath of plains provides ideal terrain for the practice of nomadic pastoralism. This region has never been known for urban development, or any sort of permanent settlements at all. With regards to the nomads who 'know nothing of agriculture'[283] we find both semi-nomadic and nomadic groups; the term nomadic being defined as 'a migration that is either 'fixed'- following a well-worn migratory track - or 'un-fixed' with an unstructured pattern of wandering. Thus the term 'Nomadic' can be defined as

> Migration that can be described as 'fixed' or 'tied,' following a well-worn migratory track, rather like a comet. It could also be 'untied,' with an unstructured pattern of wandering. The type of migration was determined by the conditions of a particular location.[284]

The Nomads are described by Strabo as those who

> Lived not only on meats in general but also on the meat of horses, as also on cheese made from mare's milk, on mare's fresh milk, and on mare's sour milk, which last, when prepared in a particular way, is much relished by them.[285]

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[282] Ovid, *Epistulae ex Ponto,* 1.2
[283] Herodotus, *Histories*, 4.18.
[284] R.W. Wendelken 'Horses and Gold: The Scythians of the Eurasian Steppes.' In A. Bell-Fialkoff ed *The Role of Migration in the History of the Eurasian Steppe: Sedentary Civilization vs. 'Barbarian' and Nomad.* (New York, 2000) 193.
[285] Strabo, *Geography,* 7.4.6,

He also names two tribes: the *Hippemolgoi* 'mare milkers' and *Galactophagi* 'curdled-milk eaters.'[286] It may seem as if Strabo is over-exaggerating the nomadic taste for equine dairy products, but he really is not. Mare's milk and all of its related products form an essential component of the nomadic diet. Although the nomads had access to other types of milk (goat, sheep, yak) mare's milk contains exceptionally high levels of vitamin C and in a diet particularly lacking in fruits and vegetables, this vitamin C was necessary to stave off certain diseases including scurvy. The nomads lived, as Strabo described, off of their animals, which included horses, sheep and goats. The sheep were particularly useful because their wool could be turned into felt and used for a variety of purposes. The horses were used for transportation but also for food: horsemeat was eaten, the hides were turned into leather, and their milk was used in a fermented drink, now called *koumiss* or *airag*. The milk was also turned into cheeses that could be dried. Mare's milk contains high levels of vitamin C, making it an important staple in the nomadic diet.[287]

The importance of animals and hunting to nomadic steppe society is reflected in their animal-style art. The most common motifs in the animal-style are the bird (a raptor), feline and deer and the conflict between the animals represented in the art could be seen as a parallel to everyday life on the steppe.[288] Scythian territories were inhabited by an abundance of wildlife including snow and spotted leopards, red deer, bear, ibex, foxes,

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[286] Strabo, *Geography,* 7.3.7.
[287] Wendelken (2000) 195-6.
[288] E.D. Reeder, 'Scythian Art', in E.D. Reeder (ed.), *Scythian Gold: Treasures from Ancient Ukraine*. (New York, 1999) 38.

wolves and small antelope as well as the golden eagle.[289] The golden eagle was of particular importance and held much symbolism. These birds were trained to hunt and used from horseback. The eagle hunter achieved a certain status or respect in his tribe since he was held to have a special connection with the bird. Eagle hunters can still be found in Kazakhstan and in northern Mongolia.[290]

The Steppe nomads lived in portable homes. These were structures that could be transported easily and erected quickly without much hassle. The 'houses' needed to be large enough to accommodate families as well as being suitable to extremes of both heat and cold. Aeschylus, Herodotus, Hippocrates and Strabo[291] all write that the nomadic Scythians lived in tents on the back of their wagons. Strabo and Hippocrates both describe these tents as being made from felt.

> As for the Nomads, their tents, made of felt, are fastened on the wagons in which they spend their lives.[292]
>
> There too live the Scythians called Nomads because they have no houses but live in wagons. The smallest have four wheels, others six wheels. They are covered over with felt and are constructed, like houses, sometimes in two compartments and sometimes in three, which are proof against rain, snow and wind.[293]

What did these mobile homes look like? No examples survived due because the organic materials they were made from have long since disintegrated. A belt plaque from Siberia dated to the second or first century shows a light, covered two-wheeled cart drawn by

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[289] Reeder (1999) 38-39.
[290] S.J. Bodio's *Eagle Dreams: Searching for Legends in Wild Mongolia*. (Guilford, 2003) provides a fascinating insight to the topic of falconry and the Central Asian nomad.
[291] Aeschylus, *Prometheus Bound,* 708-710; Herodotus, *Histories,* 4.46; Strabo, *Geography,* 7.3.17.
[292] Strabo, *Geography,* 7.3.17.
[293] Hippocrates, *Airs, Waters, Places,* 18.9-16.

three horses. While the nomadic homes would not have been this small, the plaque gives us a rare image of a wheeled vehicle used on the Eurasian steppe.[294] A light four-wheeled cart was found in Barrow Five at Pazyryk. This vehicle would have been covered, but clearly is not large or sturdy enough to have been used for habitation. This cart was likely drawn by the four horses found nearby. Also found in barrow 5 were parts of a frame that may have been used for a felt cover.[295]

The cart from Barrow Five. The State Hermitage Museum: www.hermitagemuseum.org

[294] E.C. Bunker et al (eds.), *Ancient Bronzes of the Eastern Eurasian Steppe from the Arthur M. Sackler Collections*. (New York, 1997) 275.
[295] Rudenko (1970) 63.

Two horses pulling a covered cart. 2nd-1st century BCE. The Metropolitan Museum of Art: www.metmuseum.org

Three horses pulling a covered cart. E.C. Bunker et al, *Ancient Bronzes of the Eastern Eurasian Steppe* 275.

Felt was one of the most versatile materials available to the nomads: it could be made in varying thicknesses and could be treated so that it became both wind and waterproof, when lined with fur it provided a warm garment to withstand the harsh steppe winters. Even if the nomads did not 'live' in their wagons, the vehicles would nonetheless have

been indispensable for moving belongings from one encampment to the next. It is a possibility that our Greek authors describe the Scythians living in their wagons because they came in contact with them only while on the move. Also, once the Scythians did set up their seasonal camp, we should not envision an entire tribe of Scythians living in close proximity. The size of their herds meant that they had to scatter their tents over a wide-ranging area. Today the Kazakh and Mongolian nomads live in a *yurt/ger*: a large round structure made up of a felt covering over a wooden frame. There is a circular opening at the top of the structure much like an Roman *oculus* that can be opened to let smoke out and closed over during inclement weather. The interior is lavishly decorated with colourful rugs that are decorative as well as functional- the thick wool and felt rugs help to keep the home insulated and can be used as bedding. The need to move the herds on a regular basis meant the nomads developed an impressive degree of efficiency with regards to packing and unpacking their easily portable belongings.[296] This easily lent itself to military advantages as it enabled a group to disappear with lightning speed.[297]

Three *gers* in Mongolia.

[296] For example, a *ger* can be set up or dismantled in less than an hour.
[297] Hildinger, (1997) 13.

The interior of a Mongolian *ger*.

APPEARANCE

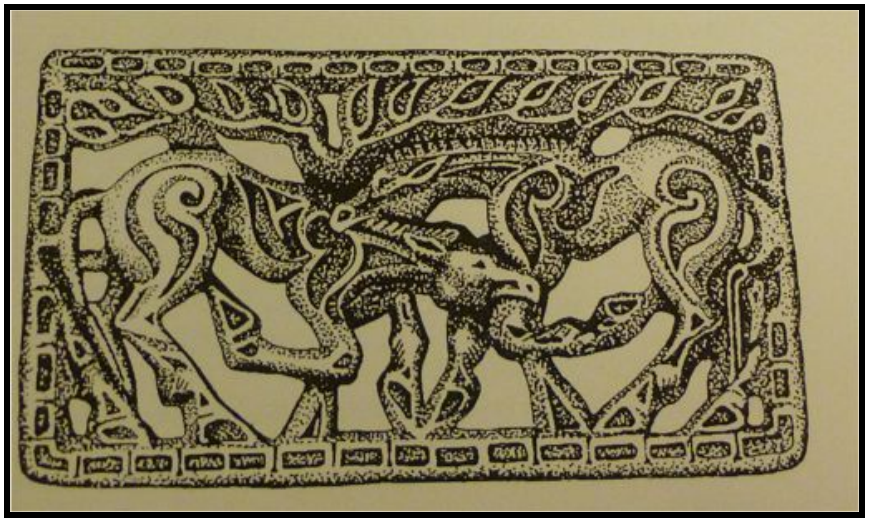
The horses of the Eurasian steppe are truly a product of their environment. The nomads of the steppe practiced very little controlled or selective breeding. The only human control placed upon the breeding of these horses was the practice of castration: gelding. Only the 'best' male horses were kept entire as stallions; the remainder were gelded. Strabo writes 'It is a peculiarity of the whole Scythian and Sarmatian race that they castrate their horses….'[298] Given the social organization of equine society, however, being a stallion was not enough to secure breeding rights. In the wild, horses live in a herd. Two types of herds occur naturally: the harem band and the bachelor band. A harem band is composed of a stallion, his mares and the colts and fillies under the age of two. The stallion acquires his harem either by defeating another stallion in combat and thus taking over an existing harem, or by stealing mares and acquiring young fillies

[298] Strabo *Geography* 7.4.8

recently ousted from the family harem. A bachelor band is made up of male horses. These include youngsters that have yet to successfully challenge a dominant stallion for his harem, and older stallions that have been usurped by younger studs. Although the domestic steppe horses did not live in entirely natural herds on account of the inclusion of geldings, a stallion was not guaranteed the right to be breed: he still had to 'win' his own mares and defend them from the overtures of any other studs. What does this mean for the development of a steppe type? It means that only the toughest, strongest and most dominant stallions would earn the right to breed, thereby passing on primarily desirable genes. These genes did not necessarily refer to aesthetic appeal. The priority was not to breed 'beautiful' horses, but rather animals capable of surviving in an environment of extremes.

A harem band of Przewalski's horses in Hustai National Park, Mongolia.

Belt plaque with two fighting horses. 2nd-1st century BCE. The Metropolitan Museum of Art.



Line drawing of two fighting horses. E.C. Bunker et al, *Ancient Bronzes of the Eastern Eurasian Steppe* 261.

As we have already seen, the environment of the Central Asian steppes can be very harsh. This region is prone to dramatic temperature shifts and unpredictable weather patterns. The Central Asian horse had to survive these extremes on the open steppelands with little natural shelter and minimal support from the nomads. Weather then, played a significant part in the development of this type. To flourish in this environment requires a horse that is hardy and intelligent: physically tough enough to withstand the rigors of the weather, as well as clever enough to find food, water and safety even in the depths of

winter. This region is frequently subject to what the Mongolians call a *dzud* 'a distinctive climatic phenomenon in northern Asian drylands, [that] occurs when snow, ice, cold, or freezing wind restricts animal access to forage, often leading to high livestock mortality rates… Estimates are that *dzuds* take place every three to seven years.'[299] In the winter of 2010, Mongolia experienced one of its worst *dzuds* in recorded history, beginning in its Western provinces before spreading across much of the country. Successive weeks of extreme cold – consistent temperatures below -40 degrees Celsius – as well as high snowfall rates caused a national disaster. The impact of this *dzud* was exacerbated by the poor condition of livestock heading into the winter months after a summer of drought and poor grazing. By April, 2010 over six million animals had died, with 75,000 families reporting the loss of over half their livestock.[300]

The events of 2010 serve as an excellent example of just how difficult life in the northern Steppe could be. The development and survival of an equine type was determined almost entirely by environmental factors. The process of natural selection allowed for the survival of only the toughest horses; animals suffering from any sort of weakness rarely survived the winter. While in Mongolia in June- July, 2008, I became accustomed to the sight of horse carcasses scattered across the plains.

The Head: The head of the Steppe type is rarely elegant in appearance, and it often tends towards coarseness. It can look similar to that of the Przewalski horse in shape. Typically it presents a flat profile, but can also be convex. Rarely do we see a dished profile. The forehead is broad. The skull frequently appears to be long and heavy when

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[299] T. Sternberg, 'Unraveling Mongolia's Extreme Winter Disaster of 2010.' *Nomadic Peoples* 14.1(2010) 74.
[300] Sternberg (2010) 75.

viewed in proportion to the rest of the body. The muzzle is large with wide-open nostrils. The throatlatch can be thick at its point of attachment to the neck. The ears are large, well spaced and very hairy. The eyes are large, almond-shaped and spaced far apart. The overall appearance of the head is very primitive, closely resembling that of the Przewalski horse. The size and balance points of the head do not preclude an animal to working in a collected frame as the heaviness and size of the skull encourage a stretched-out, downhill way of moving.

Head of a Central Asian horse. 3rd-1st century BCE. The Metropolitan Museum of Art.

Exaggerated head of a Central Asian horse. J. Aruz et al (eds.), *The Golden Deer of Eurasia* 96.

The Neck: The neck is short to moderate in length when compared to the rest of the body. It is typically either thick, a feature commonly found with shorter-necked horses, or skinny and ewe-necked. It attaches low down on the shoulders. Flexion at the poll is rarely depicted. This is largely due to the thickness of the throatlatch and the overall head and neck conformation.

Belt plaque showing the thick neck and heavy head of a Central Asian horse. 4th-3rd century BCE. State Hermitage Museum: www.hermitagemuseum.org

Belt plaque depicting Central Asian horses with short, lean necks. J. Aruz et al (eds.), *The Golden Deer of Eurasia* 291.

Three examples of ewe-necked Mongolian horses.

The Shoulder and Chest: The shoulder is moderately sloping to upright. This suggests an animal with a medium to short stride. The chest is short and moderate in width, but very well-muscled.

'Toots' showing off his compact, but well-muscled chest.

The Body and Trunk: The back is typically close-coupled. The ribs are very well sprung with a deep girth when viewed in proportion to overall size. This indicates the presence of an impressive set of lungs and lots of room for the heart. When the animal is in good summer condition, the ribs are frequently still visible. This is due to the breadth of the rib cage. The deep girth and ribs indicate an animal with impressive endurance abilities, capable of maintaining a moderate to swift, steady pace over long distances. The back is sometimes roached. This, combined with the visible ribs, can create the impression of a gaunt, unfit animal when he is actually quite healthy. A roach back would not have any significant physical impact on the horse, but it would make riding bareback an uncomfortable experience. Such a horse would not possess the 'double-back' so praised by Xenophon et al. This could account for the necessity of using a padded saddle blanket like those found in the Pazyryk tombs of Siberia.

Felt saddle blanket. 5th century BCE. State Hermitage Museum: www.hermitagemuseum.org

A Mongolian *Nadaam* medal showing the Steppe horse in peak racing condition.

A Mongolian mare displaying the well-sprung ribs found on the Steppe type.

Hindquarters: The hindquarters tend to be moderate to small in size but well shaped. There is no excess fleshiness or muscling. The size and shape of the hindquarters suggest an animal that is not given to sudden, short bursts of speed or rapid changes of direction. Instead they indicate a horse that can maintain a regular, steady pace for a considerable length of time over uneven and unpredictable terrain.

Belt plaque showing the small but well shaped hindquarters of a Central Asian horse. 2nd -1st century BCE. The Metropolitan Museum of Art.

Legs and Feet: The legs are average to short when compared to overall height. They are thick with dense bone, creating a stocky appearance somewhat at odds with the 'gauntness' of the body. The legs are well shaped with short canons, large joints and a typically straight and symmetrical appearance. The pasterns can tend towards uprightness, creating a more jarring stride for the rider, but they are rarely long and sloping. The hooves are well shaped and strong. The legs and feet suggest a sure-footed animal with no great length of stride, but with sound limbs capable of withstanding the rigors of long-distance work.

Belt plaque depicting the short, sturdy legs of the Central Asian horse. 3rd-2nd century BCE. The Metropolitan Museum of Art.

The overall impression of the Steppe type is one of workmanlike efficiency. The dense legs and close-coupledness indicate that the animal is capable of carrying a considerable amount of weight in proportion to his size. These awkward looking horses are not suitable for the work of collection, precision drills or perfect obedience that we see further west.

A steppe horse. 6th century BCE. The Metropolitan Museum of Art: www.metmuseum.org

They are expected to think for themselves and are thus responsible for where they place their feet as well as keeping their own balance when moving at speed, no matter what their riders are doing. The Steppe horse is a working endurance animal capable of keeping a steady, rapid pace for hours on end. This regularity allowed the rider to do almost anything on horseback. In reference to the Huns, Ammianus states

> From their horses by night or day everyone of that nation buys and sells, eats and drinks, and bowed over the narrow neck of the animal relaxes into a sleep so deep as to be accompanied by many dreams.[301]

[301] Ammianus Marcellinus, *Histories*, 31.2.6. While they do not necessarily sleep on their horses anymore, the horsemen of the steppe are still perfectly comfortable multi-tasking as their horses gallop across the steppe. The men I rode with in Mongolia thought nothing of smoking a cigarette and texting on their mobile phones at the gallop!

These horses were ridden with the simplest of equipment: a basic bridle and loose-ring snaffle. In Mongolia many horses, including one of my mounts, were ridden with the bit hanging under their chin, making it easier for the animal to eat and drink while on the move.

Bridle from Pazyryk Barrow Three. 5th century BCE. State Hermitage Museum: www.hermitagemuseum.org

'Toots' and the author in Central Mongolia. Notice the simplicity of the bridle and the bit hanging below.

The Steppe horse was expected to be a good all-around working animal, capable of switching between a variety of jobs. Such is still the case with the Central Asian horse today. They perform a whole retinue of tasks ranging from long-distance travel to herding, racing and breeding. These animals are not 'trained' to the same degree as North American or European horses, but simply broken to saddle. When providing a reason for the castration of male horses Strabo states that 'they are exceedingly quick and hard to manage.'[302] The rider is assumed to be a fully capable horseman who can control the horse with no issues if it does misbehave.[303]

CENTRAL ASIAN WARFARE

The very art of the nomadic lifestyle enabled the warriors of the Steppe to become virtually impossible to come to grips with. The very mobility required for successful pastoralism ensured that permanent settlements of any kind were rare. This, in turn, made it quite easy for the nomads to simply disappear into the vastness of the Steppe when faced with a military invasion, a fact explained most succinctly by Herodotus:

> The Pontic region to which Darius was leading his army is, except for the Scythians, inhabited by the most ignorant peoples of all. For we cannot cite the wisdom of any nation there, other than the Scythian people, nor do we know of any man noted for wisdom in the Pontic region other than Anacharsis. The Scythians were more clever than any other people in making the most important discovery we know of concerning human affairs, though I do not admire them in other respects. They have discovered how to prevent any attacker from escaping them and how to make

[302] Strabo *Geography* 7.4.8

[303] The Mongolians I met found it difficult to understand that someone might not know how to ride a horse. Many tourists expecting North American style trail rides where horses obediently follow one another down a path were quite surprised when they were put on half broke Mongolian horses instead.

> it impossible for anyone to overtake them against their will. For instead of establishing towns or walls, they are all mounted archers who carry their homes along with them and derive their sustenance not from cultivated fields but from their herds. Since they make their homes on carts how could they not be invincible or impossible even to engage in battle?
> They were helped in making this discovery by their land and their rivers, which foster and support this way of life. For their land is flat, grassy, and well watered, and the rivers running through it are not much fewer in number than the canals of Egypt.[304]

These elusive warriors rarely engaged in pitched battle or close-quarters combat. When Darius I invaded Scythia, the nomads reportedly 'decided… not to directly resist by giving battle, but instead to withdraw, and as they retreated, to destroy whatever wells and springs they passed and obliterate the grass from the earth.'[305] When an exasperated Darius sent a messenger to Idanthyrsos, the Scythian king, belittling him for avoiding battle, the king replied:

> This is my situation, Persian. I have never yet fled from anyone out of fear before, and I am not fleeing from you now. What I have been doing is in fact no different from what I am accustomed to do in times of peace. I will tell you why I do not engage you now: it is because we have neither towns nor cultivated land to worry about being captured or razed, which might induce us to engage you in battle sooner.[306]

On those rare occasions they did engage in battle, the nomad remained difficult to catch.

> The Macedonians and Scythians fought a pitched battle, and the Macedonians were victorious. A hundred and fifty Scythian horsemen perished; the rest had no difficulty

[304] Herodotus, *Histories,* 4.46.1-47.1.
[305] Herodotus, *Histories*, 4.120.1
[306] Herodotus, *Histories*, 4.127.1-2.

> reaching safety by slipping into the desert, where it was impossible for the Macedonians to pursue them further. [307]

The nomadic warrior was the master of mobility. He perfected the techniques of hit and run tactics, never allowing his opponents to close in with him. He was able to do this because they basically had nothing to lose; if they failed to stop an invading force with their demoralizing rapid attacks and were forced to fall back they did not have to worry about having towns plundered or crops destroyed; there was nothing but open grasslands. This was a fact discovered by Darius I only after he made the mistake of allowing himself to be drawn farther and farther into the endless plains.

To maintain the advantage of mobility, the Steppe horsemen needed to sacrifice the protection offered by heavy-duty armour since any extra weight would slow them down. The use of minimal light-weight armour necessitated the use of a primary weapon that would enable them to fight from a distance, as well as tactics which, when used in conjunction with this weapon, would prevent the enemy from trying to close in. The weapon of choice was the bow – specifically the re-curve composite bow, a small, lightweight and extremely powerful weapon designed to be used efficiently and effectively from horseback.

With regards to tactics, the favoured formation was to ride at a consistent speed in a circle around their opponents. This style of attack served several purposes: it allowed the archers to harass their opponents from all sides, forcing them into a tight but static formation; it disoriented and demoralized those under attack as they were constantly assailed by arrows but could not do anything about it, it created (for the attackers) a huge

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[307] Arrian, *The Campaigns of Alexander,* 4.17.2.

amount of dust, noise and confusion; finally, because it allowed the archers to maintain a sizeable distance between themselves and their opponents, they created (for themselves) a safety buffer zone – if the beleaguered enemy did try to counter-attack the circling nomads, the mounted archers would already have a head start to escape.

> Spitamenes, on receiving word that the men Alexander had sent to Marakanda were approaching, abandoned the siege of the citadel and retired to the inaccessible regions of Sogdiana. Pharnoukes and his fellow commanders, in their eagerness to drive him out entirely, pursued him as he withdrew to the frontier of Sogdiana and, without taking account of what they were doing, entered the territory of the Nomad Scythians. Spitamenes, meanwhile, had enlisted nearly six hundred Scythian horsemen and was encouraged by his alliance with the Scythians to stand and fight the approaching Macedonians. But when he had arrayed his men on level ground near the Scythian desert, he chose neither to await the attack of the enemy forces nor to attack them himself, but ride in a circle around their infantry phalanx while firing arrows. When Pharnoukes' forces attacked them, Spitamenes easily escaped, since his horses were swifter and, for the moment, fresher, whereas Andromakhos' horses, in need of fodder after their long march, were in distress. Whether the Macedonians stood their ground or retreated, the Scythians assaulted them with zeal.[308]

> Crassus ordered his light-armed troops to make a charge, but they were unable to make much progress. They ran into a shower of arrows and soon gave in, hurrying back for shelter to the lines of the regular infantry among whom they began to cause some disorder and terror, since the men could now see how strong and fast these Parthian arrows were, which could pierce armour and go through every kind of defensive covering, hard or soft alike.
> The Parthians now spread out and began to shoot their arrows from all sides at once. There was no attempt at accurate marksmanship, since the Romans were so densely crowded together that it was impossible to miss the target even if one wished to do so. They merely kept on shooting

[308] Arrian, *The Campaigns of Alexander,* 4.5.3-4.

> with their great strong bows, curved so as to give the maximum impetus to the arrows, and the blows fell powerfully and heavily upon the Romans. Thus the position of the Romans was, from the first, a very awkward one. If they stayed in their ranks they were wounded one after the other; if they attempted to come to close quarters with the enemy, they were still unable to do the enemy any harm and suffered just as much themselves. For the Parthians shot as they fled, being, indeed, more adept at this than anyone else except the Scythians; and it is certainly a very clever maneuver – to fight and to look after one's own safety at the same time, so that there is no dishonour in running away.[309]

The horse-archers of the Steppe also proved themselves to be very versatile; whenever they found themselves employed or conscripted within the larger force of another army they made use of the disorienting hit-and-run tactics that made them such successful raiders. The battles of Plataea and the Hydaspes both show how mounted archers could be sent out ahead of the main force to harass and frustrate their opponents, darting to and fro while firing their bows from a safe distance, all the while being able to make a hasty withdraw when necessary. At Plataea,

> Mardonius, overjoyed and exalted by this phantom victory, sent out his cavalry against the Hellenes. The horsemen rode out and attacked, inflicting injuries on the entire Greek army with their javelins and arrows, for they were mounted archers and it was impossible for the Hellenes to close with them.[310]

Alexander made use of his mounted archers more than once during the battle at the Hydaspes, every time to good effect:

> Aristoboulos says that Poros' son arrived with nearly 60 chariots before Alexander made his last crossing from the

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[309] Plutarch, *Life of Crassus,* 24.
[310] Herodotus, *Histories,* 9.49.

> small island, and that he would have been able to prevent Alexander's crossing, which was difficult even with no one preventing it, if the Indians had leaped down from their chariots and attacked Alexander's men as they landed. Instead, Poros' son drove past with his chariots and thereby enabled Alexander to cross safely. Alexander sent the mounted bowmen out against these men, and they were driven off easily after sustaining casualties.
>
> When he was within range of enemy fire, Alexander sent the mounted bowmen, who numbered nearly 1000, against the Indians' left wing, so as to confuse the Indians stationed there with a barrage of arrows and incursions of horses.[311]

Again at Sangala, Alexander

> … instantly sent out the mounted bowmen against the defenders with orders to ride by and shoot at them from a distance, so that the Indians would not sally out before the Macedonians had formed up in position, but would suffer injuries within their stronghold even before the battle began.[312]

The secret behind the consistent success of these Steppe tactics was not the bow, or even the mobile lifestyle. It was the animal that made their nomadic existence possible – the Steppe horse. The horse was, without a doubt, the single most important animal to the to the Steppe nomads. He was a necessity for everyday life, essential in warfare and a sign of wealth: the larger your herd, the higher your social status. Strabo writes that

> It is a peculiarity of the whole Scythian and Sarmatian race that they castrate their horses to make them easy to manage; for although the horses are small, they are exceedingly quick and hard to manage.[313]

To the Greeks and Romans this custom of castration would seem strange indeed. It was not common practice in Greece or Italy to castrate male horses; they preferred to keep

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[311] Arrian, *Campaigns of Alexander,* 5.14.3-4; 5.16.4.
[312] Arrian, *Campaigns of Alexander,* 5.22.5.
[313] Strabo, *Geography,* 7.4.8.

their stallions entire whether for breeding purposes or out of habit. Perhaps they considered it 'unmanly' to ride to war on a gelding. The Greek and Roman preference for stallions had both its benefits and downfalls. Physically stallions are more imposing since they develop muscles that geldings do not. They tend to be more aggressive and will lash out if mistreated; however, if they are trained and raised properly, this innate aggression can be used to the riders benefit on the battlefield. Scholars generally overlook the fact that stallions are usually more tractable than mares. A mare has a more unpredictable temperament, particularly when she is in heat. She often challenges the 'dominance' of her rider and can display a stubborn streak. This behaviour translates back to the role of the alpha mare in her herd. It is she who leads the herd when they are on the move: the stallion breeds and defends the herd, the alpha mare does just about everything else.

What about the nomads and their geldings? There is archaeological evidence to support Strabo's statement: all of the horses found in the Pazyryk burials were geldings and ranged in age from two to twenty.[314] The quality of these horses indicated that they were not gelded because of physical deformities or conformational faults as a number of them are excellent specimens of the steppe-type horse.[315] The practice of castration can be explained by the manner of horse husbandry on the steppe. The nomads kept their

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[314] Rudenko (Berkeley,1970) 118-119.

[315] The western mindset today is that male horses should be kept as stallions if they are excellent breeding specimens, all others should be gelded. This is not necessarily the case elsewhere. M. Phillips recounts a story of her mother's travels to Iran in the 1960s 'where she rode an ebony stallion across the mountains. She persuaded her reluctant cameraman to get on another one, but she failed with her father. He…insisted that he would only rider a nice, safe gelding which caused some worried head scratching – there was scarcely such an animal in Iran, and the one that was eventually found for him was understandably depressed.' M. Phillips, *Horseshoes and Holy Water: On the Hoof from Canterbury to Santiago de Compostela*. (London, 2005) 80.

horses in large herds and they were not kept indoors or in a confined space, but instead were left to roam the grasslands followed by herders on horseback. If all the male horses had been left un-castrated in such living conditions havoc would have resulted, particularly during breeding season. To prevent this, the nomads castrated the majority of their colts, leaving only a few of the best as studs.[316] This meant that the nomads did not take the risk of losing their stallions in battle. Further, stallions who are used for breeding lose quite a lot of conditioning during the breeding season, making them unfit for hard work at that point. Geldings do not have this problem and can be used regularly year-round. Unlike stallions and mares, a gelding has an even temperament, is tractable and relatively easy to work with.[317]

For the Steppe tactics of mobility to be even remotely feasible the nomads had to be able to outdistance any pursuit. This required a horse capable of great feats of endurance; an animal that could maintain a rapid and steady pace for hours on end if need be, a horse that would continue to run long after others had broken down from exhaustion. Moreover, this horse had to be able to accomplish such a feat without needing to stop for food or water breaks. Finally, he had to be sturdy and surefooted enough to move at a fair rate of speed over all kinds of broken, rocky, boggy and uneven terrain. The harsh, unpredictable environment of the Eurasian Steppe produced exactly the type of horse suited for this style of combat.

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[316] M.J. Kust, *Man and Horse*. (Alexandria, 1983) 24-25.
[317] This continues to be the style of horse husbandry used in Central Asia today as I witnessed in Mongolia in 2008. The stallions are used only for breeding and in the annual Nadaam horse races; mares are likewise used primarily for breeding and milk production. It is the geldings that act as the all around work horses – used for herding, travel and any other necessity.

As we have already seen, the Steppe horse is neither beautiful nor physically imposing. He is small, scrawny and often awkwardly put together. He is exactly as Ammianus describes when he confesses that the Hunnish horses are 'admittedly hardy, it is true, but ugly.'[318] Arrian reiterates this point when he describes the superior endurance abilities of the 'Scythian' horse for hunting

> But where the plains offer scope for horsemen, among the Mysians and the Getae, and in Scythia and throughout Illyria, they ride after the deer on Scythian and Illyrian horses; these are at first sight not good for riding, but even if you have a very low opinion when you see them running beside a Thessalian or Sicilian or Peloponnesian horse, they have exceptional stamina. And then you may see that the fast, large and proud horse giving up, but the thin and mangy one first passing it, then leaving it behind, and then pursuing the wild animal into the distance.[319]

The Steppe horse is perfectly adapted to perform both the unpredictable hit and run raids of marauding nomads and the persistent, circling tactics of the mounted archer in battle. His small size made it easier for his rider to control him with weight and balance, a necessity for an archer who had to drop his reins to shoot a bow. His sturdiness made him surefooted. This was an essential requirement for the mount of a horse archer any sudden or unexpected changes in pace or direction affected the flight of the arrow as well as the balance and security of the rider.

The husbandry practices used by the nomads ensured that only the toughest of their horses survived. Those afflicted with any inherent weakness perished during the long, cruel winters. The horses that survived were capable of enduring the harshest weather and any ensuing scarcity of food or water. As far as endurance levels, I can personally

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[318] Ammianus Marcellinus, *Histories,* 31.2.6.
[319] Arrian, *On Hunting*, 23.2-3.

attest to the remarkable abilities of these animals. When in Mongolia in 2008, I rode over 500 miles on these resilient little horses, often covering 40-50 miles in a day. The horses rarely showed any indication of fatigue at the end of the day, although the same could not always be said of their rider. The annual Nadaam races held every July across Mongolia also display the endurance abilities of these animals. Lebreton describes the feat performed by the three-year-old racehorses at the Gal Shar Nadaam

> One of these horses is Koubilai…As he stands there with his weight on three legs, resting a slightly trembling hind hoof, it is as if he is hardly breathing. With 600 other horses, he has just covered 25 miles (40km), a 12.5 mile (20km) ride to the starting point followed by a 12.5 miles (20km) race back to the finishing line.[320]

These long-distance races are run entirely at a gallop. The longest Nadaam races are for the horses 7 years and older; these animals race 28km after being ridden 28km to the start line. The Mongolians informed me that the horses usually finish the race in about 20 minutes.

The Steppe horse was not well suited to any sort of close combat because of his small size. When compared to other types of horse, particularly the Nesaean, we can see that he lacked the bulk and sheer physical presence required to push a larger enemy mount around. Moreover, the nomad preference for riding geldings would work against them in any sort of pitched battle against non-Steppe cavalry. Geldings were ideal for Steppe tactics as they were tractable, level headed and dependable; when faced with a mare or stallion, however, a gelding is easily cowed by the more aggressive 'intact' opponent.

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[320] S. Lebreton, *Wild Lives: Horseback Cultures from Idaho to Indonesia*. (London, 2003) 193.

CONCLUSION

Central Asia is not an easy place to live. The extremes of climate and topography discourage sedentary life and urbanization in all but a few places. Apart from the oases like the Fergana valley, conditions were not capable of supporting any sort of intensive crop cultivation. Instead, Central Asia was the ideal environment for the nomad. The vast swaths of grassland allowed for regular migrations between winter pastures in the lowlands and summer pastures in the higher plateaus. The size of the grasslands permitted families to keep sizable herds with which to support themselves. The products obtained from the animals could be traded with the sedentary populations to the east and west in exchange for goods produced in urban or agricultural environments. The success of the nomadic lifestyle was closely tied to animals, and the horse in particular. The animals allowed mobility, and the horse provided a form of mobility unrivalled until the invention of the steam engine. Mobility and the horse became a central component of nomadic life. The only way in which the horse could continually benefit the nomad was for the nomad to take a 'hands off' approach with regards to horse husbandry. To meddle with the horse created by the natural environment was to risk the security and stability of nomadic life. As a result of this, Central Asia produced a horse that was far from aesthetically pleasing or particularly affectionate towards humans. It created an animal that fell somewhere between the wild Przewalski horse and the truly domesticated equines of the west. This horse was small, wiry and tough. His conformation and semi-wild attitude made him unsuitable for the training regimes of the Neat East and Mediterranean; but his drive for survival was ideal for both the nomadic lifestyle and style of warfare.

CHAPTER FIVE: THE NEAR EASTERN HORSE

From its introduction to the region until the present day, the horse has played a prominent role in the cultures of the Near East. At the time of its domestication, the horse was not indigenous to the Near East, but he was very quickly adopted into the day-to-day workings of warfare, religion and society. The horse became a necessary accoutrement of combat and an overwhelmingly apparent status symbol. The horse seems to have made his way into the Near East by c.2400: artistic depictions of equines from Susa and Northern Mesopotamia date to this period.[321] The earliest references to the horse in Near Eastern literature are found in Sumerian texts dating from the Ur III period c.2100-2000. References to the horse in Sumerian fables suggest a degree of familiarity with the animal. One such fable states 'You sweat like a horse; (it is) what you have drunk'; while in another we read, 'The horse, after he had thrown off his rider, (said): "If my burden is always to be this, I shall become weak!"'[322] In the Sumerian *Curse of Agade*, the horse is called the 'ass of the mountains.'[323] Members of the elite from across the Near Eastern world built up substantial herds of horses, both for the own personal use and for the battlefield. Some monarchs made no attempt to disguise their affection for these animals. The Nubian Pharaoh, Piankhi, was a great lover of horses. The Piankhi Stela records an incident when

> His majesty proceeded to the stable of the horses and the quarters of the foals. When he saw that they had suffered

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[321] J. Zarins 'The Domesticated Equidae of Third Millennium BC Mesopotamia' *Journal of Cuneiform Studies* 4. The proliferation of equines in Near Eastern art following their introduction to the region is noted in M. Cool-Root 'Animals of Ancient Iran' 204-206 and A. Caubet 'Animals in Syrio-Palestinian Art' 215-220 both in B.J. Collins (ed.), *A History of the Animal World in the Ancient Near East* (Leiden, 2002).
[322] E.I. Gordon 'Sumerian Animal Proverbs and Fables: "Collection Five"' *Journal of Cuneiform Studies* 18-19
[323] Hyland (2003) 9.

> hunger, he said: 'I swear, as Re loves me, and as my nostrils are rejuvenated with life, it is more grievous in my heart that my horses have suffered hunger, than any evil deed that thou has done, in the prosecution of thy desire…'[324]

The same *stela* records a meeting between the Pharaoh and local rulers from the Delta region during which

> Said these kings and princes to his majesty: 'Dismiss us to our cities, that we may open our treasuries, that we may choose as much as thy heart desires, that we may bring to thee the best of our stables, the first of our horses.' Then his majesty did so.[325]

The monumental reliefs of Rameses II depicting the battle of Kadesh record the names of the Pharaoh's horses

> …The great horse of his majesty: 'Victory in Thebes;' of the great stable: 'Usermare-Setepnere,-Beloved-of-Amon.'
>
> Great first span of his majesty (named): 'Mut-is-Satisfied,' of the great stable: 'Usermare-Setepnere-Beloved-of-Amon.'
>
> Great first span of his majesty (named): 'Meriamon,' of the great stable of Ramses-Meriamon.[326]

The Amarna letters, records of correspondence between the various ruling powers of the Bronze-Age world give further evidence of the prestige and value given to the horse. The formulaic greetings at the beginning of each letter includes a wish that 'your horses be

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[324] *Ancient Records of Egypt volume IV* 850.

[325] *Ancient Records of Egypt volume IV* 877. See also *Ancient Records of Egypt volume IV* 853. Of all the Pharaohs, the Nubian 23rd Dynasty seems to have had the closest affinity with horses. The above-mentioned Piankhi founded a horse cult during his reign. The only royal burials to contain horses are the tombs of this dynasty at Kurru near the fourth cataract of the Nile. These tombs contained the remains of 16 horses buried upright and facing south. As Azzaroli points out '[t]hese are the only ritual burials of horses in Egypt prior to the Christian era.' Azzaroli (1985) 50. CF A. Nibbi,'Some Remarks on Ass and Horse in Ancient Egypt and the Absence of the Mule'. *Zeitschrift für Ägyptische Sprache und Altertumskunde* 106 (1979) 162.

very well….'[327] The importance of horses and horsemanship remained important to the rulers of the Near Eastern kingdoms during the Achaemenid period. Darius I's inscription at Naqsh-I Rustam records that he is

> …Coordinated in both hands and feet.
> As a horseman, I am a good horseman.
> As an archer, I am a good archer both on foot and on horse.
> As a spearman, I am a good spearman both on foot and on horse.[328]

In another inscription from Naqsh-I Rustam, Darius praises 'good men and good horses.'[329] Horses became a key item of trade and negotiation, with rulers sending them to each other as gifts and bribes. They were a regular part of tribute lists and, along with their equipment, a much desired prize of war.[330] During his thirteenth campaign, Thutmose III received from Syria as tribute '328 horses; 522 slaves, male and female; 9

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[326] *Ancient Records of Egypt volume III* 337,347,361. Rameses credits his victory at Kadesh to his two horses and his shield bearer. In his record of the battle, Rameses notes that his two horses were the only members of his army that did not contemplate abandoning him when the fighting became difficult. In thanks, he states that he will feed the two animals himself every day from then on out. R. Chadwick *First Civilizations: Ancient Mesopotamia and Ancient Egypt* (London, 2005) 198.

[327] See for example, EA 1,2,3,5,6,8,9,10,11,17,19,20,21,23,24,27,28,29,34,35,38,39 in *Les lettres d'El Amarna*. Cf. Azzaroli (1985) 28.

[328] P.O. Skjævø, 'The Achaemenids of the *Avesta*' In V.S. Curtis and S. Stewart (eds.), *Birth of the Persian Empire, Volume I* (London, 2005) 77.

[329] F. Davaran, *Continuity in Iranian Identity: Resilience of a Cultural Heritage* (London, 2010) 23. Cf. D. Stronach, 'Court Dress and Riding Dress at Persepolis: New Approaches to Old Questions'. In J. Álvarez-Mon and M.B. Garrison (eds.), *Elam and Persia* (Winona Lake, 2011) 477

[330] See *Ancient Records of Egypt volume II:* 435,501,508,109,511,518; *volume III:* 420,428; *Ancient Records of Assyria and Babylonia volume I:* 236,253,301,440,441,443,446,447,451,466,470,475,687,605,607,611,663,691,772,775,776,812; *volume II:* 58,64,148,519,781,809; *Royal Correspondence of the Assyrian Empire volume I:* 60,61,63,64,68,69,71,165,192,241,242,268,371,372,373,374,375,376,393,394,395,466,511,529,538,545,575,601,637,649,684,686,729; *volume II:* 884,891,973,1009,1017,1122,1159,1450.

chariots wrought with silver and gold; 61 (painted) chariots; total, 70…'[331] Assurnasirpal received

> …Tribute from the lands of Kirruri, Simesi, Simera, Ulmania, Adaush, (from) the Hargeans and Harmaseans, - horses, mules, cattle, sheep, wine, vessels of copper, I received as their tribute and I imposed the carrying of the headpad(?) upon them.[332]

During the third year of his reign, Shalmaneser III records:

> To Arzashku, the royal city of Arrame, the Urartean (Armenian), I drew near. Arramu, the Urartean, became frightened at my mighty, awe-inspiring weapons, and my grim warfare, and forsook his city. He went up into Mount Adduri. I climbed the mountain after him; fought a terrible battle in the midst of the mountains; 3400 of his warriors I slew with the sword. Like Adad I rained destruction upon them. With their blood I dyed the mountain like red wool. I took his camp from him. His chariots, his cavalry, his horses, his mules, his colts (?), his goods, his spoil, his property, in large quantities I brought out of the mountain.[333]

Esarhaddon attacked the Medes of

> …(Patusharra, a district on the border of the salt desert, which lies in the land of the distant Medes), on the edge of Mount Bikni, the lapis-lazuli mountain, the territory of whose land (not one among the kings, my ancestors), had trodden; --(Shidirparna and Epardu, powerful chieftains who had not submitted to my yoke, these, together with their people, their (riding horses), cattle, sheep and

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[331] *Ancient Records of Egypt volume II* 509. This tribute was in response to Thutmose's victory at Megiddo in c.1468. The spoils of Megiddo itself included "----340 living prisoners; 83 hands; 2,041 mares; 191 foals; 6 stallions; ---young---; a chariot, wrought with gold, (its) poles of gold, belonging to that foe; a beautiful chariot wrought with gold, belonging to the chief of (Megiddo); ----- 892 chariots of his wretched army; total, 294 (chariots)…." *Ancient Records of Egypt volume II* 435.
[332] *Ancient Records of Assyria and Babylonia volume I* 440.
[333] *Ancient Records of Assyria and Babylonia volume I* 605.

> (Bactrian) camels, and enormous spoil, I carried off to Assyria.[334]

During his eighth campaign against Elam, Assurbanipal took 'chariots, coaches, wagons, whose ornaments were of sariru and zahalu; great horses (and) mules, whose trappings were of gold and silver, I carried off to Assyria.'[335] Correspondence between the Assyrian King and his officials regularly deals with the arrival of tribute horses. One such document from Nabushumiddin to King Esarhaddon records that

> One hundred and twenty-one riding horses, one stallion (?) a riding horse, a total of one hundred and twenty-two riding horses have arrived from the commander-in-chief. They are not complete. Five riding horses have arrived from the prefect of the city of Calah. They are not complete. A total of one hundred and twenty-seven riding horses have arrived today. …….yoke horses from the land of Barhalza (and) the city of Arrapha which reached me yesterday (and which) I have (ordered) sent to the king my lord, I shall have ready in line at dawn. The Median draught horses, which they harness together regularly, I shall get ready according as the king my lord has sent. (Dated) the fifth day.[336]

The above letter is one in a series of communications between Nabushumiddin and King Esarhaddon over a three-month period. These letters the 'Horse Reports' from the Nineveh archives, record the arrival of tribute horses in the city. These documents classify the horses into the following categories: Kusean yoke horse, Mesean yoke horse, stud horses, cavalry horses for riding and mules (although there are not many of these recorded). The Kusean horses, from Kush in Nubia, are of a lighter desert type. The Mesean horses came from Iran and likely resembled the Nesaean type. Fewer Mesean than Kusean horses are recorded, suggesting they were a rarer type. Postgate suggests

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[334] *Ancient Records of Assyria and Babylonia volume II* 519.
[335] *Ancient Records of Assyria and Babylonia volume II* 809.
[336] *Royal Correspondence of the Assyrian Empire volume I* 71.

that these horses were intended for service to the gods. I would add royalty to this as well. The cavalry horses are not designated as coming from a particular region. In total the number of horses and mules recorded as arriving in Nineveh over a three month period equals 2911 animals - an average of over 100 equids per day.[337] Royal brethren of the Near East sent horses and their accoutrements as gifts to each other, or bribes, as it may be. The Mitannian king, Tushtratta, sent Amenhotep III 'booty from the land of Hatti….a chariot, two horses and a virgin. And as a gift for my brothers I send five horse rigs.'[338] In an attempt to be welcomed – or at least recognized – by the great powers of the Near East, Ahuruballit of Assyria sent Akhenaten of Egypt 'a beautiful chariot, two horses…'[339] Horses and their accoutrements were part of the wedding gifts given to Amenhotep II on his marriage to the Mitannian princess Taduhepa.[340] 'Spans of horses without limit' were included in the dowry of a Hittite princess married to Rameses II.[341] So important was the horse to royal status and warfare in the Near East that kings would send letters requesting or even demanding the trade of horses. The Hittite king Hattusilis III wrote to Kodashman Enlil III requesting of his 'brother' to

> …send me horses, young good sized stallions. The stallions your father sent me were good but have broken down, and old horses have no stamina. At Hatti there is severe frost and an old broken-down horse does not live long. Therefore send me, brother, young stallions. Jade is

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[337] J.N. Postgate, *Taxation and Conscription in the Assyrian Empire* (Rome, 1974). 7-14.
[338] Azzaroli (1985) 28.
[339] T. Bryce *Letters of the Great Kings of the Ancient Near East* (London, 2003) 81. Cf. EA 15 *Les lettres d'El Amarna.*
[340] Bryce (2003) 96-97. Amenhotep II considered himself an excellent horseman and horses bred in the land of the Mittani were renowned in the Bronze Age world. Podany (2010) 178.
[341] Bryce (2003) 118.

> plentiful in my country. Ask your messenger, brother, and he will tell you.[342]

ENVIRONMENT

The geographical region known as the Near East is an environmentally complex area. These environmental variations as well as the region's location at what was quite literally the crossroads of the ancient world led to the development of a diverse group of cultures congregating, settling and thriving within the boundaries of the Near East. On account of its great geographical variations the inhabitants of the Near East, more so than any other region in antiquity, blended sedentary and nomadic, urban and rural, pastoral and agriculturalist lifestyles to suit the surroundings in which they lived. In all of this, the horse became a tool of the utmost importance to success.

From a geological point of view, the region we define as the Near East literally is a central crossroads or meeting point, situated as it is at the confluence of three continents: Africa, Asia and Europe, as well as three tectonic plates

> The Arabian plate presses to the north underneath the Iranian plate pushing it upwards, and is itself forced down. Where the two plates meet, there is a long depression stretching from the Mediterranean Sea to the Persian Gulf in which the Tigris and Euphrates rivers flow, turning a desert into highly fertile land wherever their waters reach. The African and Arabian plates meet at the western edge of the Near East and are separated by the Great Rift, which runs parallel to the Mediterranean coast and creates a

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[342] Azzaroli (1985) 29. The earliest such 'diplomatic' letter between royal 'brothers' is a request from the king of Elba- Irkabdamu – to the king of the Hamazi for equids of the finest quality in exchange for gifts sent with the letter. A. Podany (2010) 27. These diplomatic gifts could go awry, however, if the recipient felt he was being 'stiffed' by his compatriot. Such an instance occurred in a diplomatic gift-exchange between the kings of Ekallatum and Qatna in which the king of Qatna sent 20 minas of tin in exchange for two horses from Ekallatum. Needless to say, the king of Ekallatum felt rather cheated in the whole process! Podany (2010) 76-77.

> narrow valley lined by the Amanus and Lebanon mountains.[343]

The movement of peoples into and across the Near East has always been largely connected to climate. Groups migrated in search of more hospitable regions in which to settle down. The Near East is typically viewed as a predominately arid region, with pockets of fertile land along the flood plains of the Tigris and Euphrates. Indeed, throughout recorded history and certainly during the periods studied in this dissertation this has been the case; however, the climate of the Near East has not always been such. At the beginning of the Quaternary period the Near East became very green and humid, creating an ideal passageway for *Homo erectus* and *Homo sapiens* to travel through as they migrated north from the increasingly inhospitable environment of Africa. Later, during the Last Glacial Period, the Near East developed a cool, humid climate creating an overall moist environment. Far from the broad deserts we now associate with the region, at this time much of the Near East was covered with lakes and swamps. At the end of the Last Glacial Period the climate began to warm up thus melting the highland glaciers and causing a decrease in precipitation. This in turn led to the drying up of most of the lakes, turning previously well-watered regions into desert. As a result of this all life forms- human, animal and plant – were forced to migrate to areas provided with a constant water source - the fertile regions of Mesopotamia were especially popular – and make early attempts at permanent settlement, thus beginning the 'agricultural revolution' of the Neolithic period.[344] In sum,

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[343] M. Van der Mieroop *A History of the Ancient Near East*. (London, 2007) 7.
[344] A.S. Issar and M. Zohar *Climate Change: Environment and History of the Near East* (Berlin, 2007) 39-41.

> The steady desiccation at the end of the Pleistocene urged some human groups to improve upon nature by inventing agriculture and animal domestication, along with the subsequent social and cultural changes.[345]

Climate change and geological phenomena have made the Near East a diverse and varied area. Within this region we find topography ranging from rich alluvial plains to craggy, inhospitable mountains. Within each of these many topographical zones are what we might call 'micro-environments' in which developed particular cultures and ways of life to suit the available natural resources. Thus, along parts of the Tigris and Euphrates we see the developments of intensive agriculture and irrigation- the inhabitants making use of the fertile soils and constant water source.[346] Intensive agriculture necessitates a sedentary population, and the rivers also served as relatively straightforward transportation routes. It is not surprising, then, that major urban centers were built at strategic locations along these routes. Once we leave these fertile regions and enter the semi-arid and arid plains, permanent agriculture becomes scarce thanks to its impracticality.[347] Here the pastoralist nomad reigns supreme, grazing his herds in the highlands of the mountains and plateaus during the hot summer months, bringing them down to the more sheltered lowlands in the winter. This lifestyle, as we saw in Central

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[345] Issar and Zohar (2007) 59-60

[346] The Tigris and Euphrates both originate in Armenia. The Tigris, which begins south of Lake Van is some 2,032 km long. The Euphrates begins near Mt. Ararat and flows along a circuitous route of approximately 2,720km. The Euphrates is the more predictable of the two rivers and has a drainage basin of 163,120 square km, while the more volatile Tigris covers 68,975 square km. C.K. Maisels *Emergence of Civilization: From Hunting and Gathering to Agriculture, Cities and the State in the Near East* (London, 1990) 44-45

[347] 'Legumes require around 500mm of rainfall to flourish, but the grasses, even cereal grasses, can do well on half that amount… The temperature range of grasslands in the Near East extends from just above freezing-point to almost 90 degrees Fahrenheit. At one extreme of precipitation grasses overlap with desert, while at the other they merge into deciduous and coniferous forest.' Maisels (1990) 51.

Asia, does not encourage the development of permanent settlement or urban centers, but relies on the fluidity of movement and migration to be successful.

Given the general topographical variation of the Near East, it is not surprising to discover an equally diverse pattern of precipitation. For example, the majority of Anatolia receives at least 400mm of rain per year. This means it is possible to cultivate crops by relying on rainfall alone. In opposition to this, Central Iran receives so little rain that crop cultivation is confined primarily to areas close to permanent water sources so that irrigation is possible.

> …but Clearchus, although the truce had been made, marched with the army in battle order and took command of the rear himself. They came upon ditches and canals which were so full of water that they could not be crossed without bridges. However, they made crossings by using palm trees which had fallen and cutting down others.[348]

Basically, then, life in the ancient Near East was controlled by two major factors: water and natural boundaries. Water, for the most part, dictated lifestyle- whether a group was sedentary, nomadic or somewhere in between. It also determined the pattern of urban and agricultural development. The numerous natural barriers/boundaries made by rivers, seas, mountains and deserts controlled the movement of people and animals. These barriers controlled where and when people and animals could travel across or through them, and thus influenced the development of trade routes, the isolation or lack thereof of kingdoms and the pattern of military campaigns and conquests.[349]

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[348] Xenophon *Anabasis* 2.3.
[349] Van de Mieroop (2007) 8-9.

The plains of Cappadocia.

Cultivated fields outside of Gordion.

The Hittite capital, Hattusas.

The Taurus Mountains.

LIFESTYLE AND HUSBANDRY

The Near East was, as we have just seen, a diverse environment. On account of this, the inhabitants of the Near East followed a variety of lifestyles, from living in major urban

centers, to following a nomadic-pastoralist lifestyle. Essentially, Near Easterners followed three main types of lifestyle: urban, sedentary agriculture and nomadic-pastoralist. Obviously there could be combinations of these three main styles. For example, an individual might live as a nomad part of the year and in a settled village the rest of the time. With regard to horse husbandry, the manner in which a horse was maintained and the difficulty/expense in doing so was closely tied to the style of life his owner followed.

The most difficult, expensive and unnatural place to keep a horse was in a city, particularly a major urban center like Babylon. Undoubtedly there were many horses living in the city at any given time; but their use in urban confines was somewhat limited. Due to a lack of open pasture, grazing would have been restricted and the horses unable to live outside permanently. The only feasible option of keeping horses in any significant number within an urban setting was to use stables. This was not ideal as it meant the horses were confined most of the time; it was also expensive. The stables needed to be kept clean and the stalls mucked out regularly to maintain the health of the horses. Moreover, the restricted access to grazing required the animals to be fed primarily on supplemental foodstuffs like hay and grain. Again, this is more expensive than maintaining a horse primarily on pasture. On the other hand, it was easier to manage a horse's diet and exercise regimes to produce a fit animal.

The author and Kelebek outside the walls of ancient Nicea.

The ancient sources make reference to stud farms or breeding operations throughout the Near East. Strabo tell us that

> Apameia also has a city that is in general well fortified; for it is a beautifully fortified hill in a hollow plain, and this hill is formed onto a peninsula by the Orontes and by a large lake which lies near by and spreads into broad marshes and exceedingly large cattle-pasturing and horse-pasturing meadows….
> Here, too, were the war-office and the royal stud. The royal stud consisted of more than thirty thousand mares and three hundred stallions.[350]

These farms could range from small-scale facilities to large-scale, complex and highly organized breeding operations dealing with substantial numbers of animals. Horse breeding in parts of the Near East occurred on a very large scale, much more so than anything in the Mediterranean and certainly in a more organized, managed form than in

[350] Strabo, *Geography*, 16.2.10

Central Asia.[351] Documents from the Mitanni, Kassites, and Egyptians can be interpreted as a basic type of stud book or breeding records listing chariot horses by the colour of the coat and the name of their sire.[352] As we have already seen above, the 'Horse Reports' from Nineveh are daily records of the arrival of tribute horses, but might also mention the running of breeding farms as well. This degree of organization suggests breeding on a large scale took place by the mid-second millennium in the Near East. In the *Old Testament* we read that Solomon had 'forty thousand chariot horses in his stables and twelve thousand cavalry horses.'[353] The Alalakh tablets from Alalah in Syria date to the second half for the second millennium BCE. These tablets are the earliest extant record of organized, state-run horse breeding in the ancient world.[354] Not all of these stud farms were state owned. Wealthy individuals maintained their own breeding programs- both to provide mounts for their own personal cavalries as well as for the state. Herodotus tells us that

> Tritantaichmes son of Artabazos, who ruled this province (Babylon) for the King, received daily revenues of a full artabe of silver…And besides the warhorses he maintained, he had his own private herd of 800 stallions and 16,000 mares, one stallion for breeding with every 20 mares.[355]

This was possibly because of topography and the environment; however stud farms on a large scale were feasible only in certain areas, Nesaea being the most renowned. The ancient sources repeatedly refer to the large numbers of horses bred in parts of the Near

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[351] Goodall (1977) 101-103.
[352] Azzaroli (1985) 29.
[353] *1 Kings* 5.6. For a detailed analysis of this passage, see G.I Davies, ''Urwöt in I Kings 5:6 (EVV.4:26) and the Assyrian Horse Lists', *Journal of Semitic Studies* 34.1(1989) 25-38.
[354] D.J. Wiseman, *The Alalakh Tablets* (London, 1953) 94-95 (tablets 239-331).
[355] Herodotus *Histories* 1.192.2-3

East. The Nuzi Tablets include records of highly organized, state-run breeding farms and training facilities used for producing chariot horses.[356] Media was long prized for its horses. The Assyrian King Sargon recalls: 'With a view to subjugating the Medes, I strengthened the defenses of the neighbourhood of Kar-Sharrukin. 34 districts of the Medes, I conquered and brought them within the borders of Assyria. I imposed upon them a yearly tribute of horses.'[357] Tiglath-Pileser III sent his official Assur-daninanni 'against the powerful Medes of the east. 5000 horses, people, cattle and sheep, without number, he carried off.[358]

Arrian tells us that

> Alexander is said to have also seen the plain in which the royal mares were pastured; the plain itself was called the Nesaean and the horses Nesaean, as Herodotus tells us; and there were originally about one hundred and fifty thousand mares, but at that time Alexander found no more than fifty thousand, as most of them had been driven off by robbers.[359]

Strabo cites both Media and Armenia as home to substantial breeding operations

> This, as well as Armenia, is an exceptionally good "horse-pasturing" country; and a certain meadow there is called "Horse-pasturing," and those who travel from Persis and Babylon to Caspian Gates pass through it; and in the time of the Persians it is said that fifty thousand mares were pastured in it and that these herds belonged to the kings.[360]

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[356]At the time these tablets were written, Nuzi (modern Kirkuk, in Syria), was under the control of the Mitanni empire. The Mitanni were famed horsemen- Kikkuki was from Mitanni. At the height of their power, their empire included the excellent horse-pasturing regions around Lake Van. For a detailed analysis of the relevant Nuzi Tablets, see T. Kendall, *Warfare and Military Matters in the Nuzi Tablets* (Brandeis University, 1974). 287-305.
[357] *Ancient Records of Assyria and Babylonia volume II* 58.
[358] *Ancient Records of Assyria and Babylonia volume I* 812.
[359] Arrian *Anabasis* 7.13.1
[360] Strabo *Geography* 11.13.7

> The country is so very good for "horse-pasturing," not even inferior to Media, that the Nesaean horses, which were used by the Persian kings, are also bred there. The satrap of Armenia used to send to the Persian king twenty thousand foals every year at the time of the Mitrhacina.[361]

Armenia (ancient Nairi and Urartu) was a key horse-breeding region from the second millennium onwards. Hittite and Assyrian rulers expended much time and effort to secure a supply of horses from Urartu, whether by trade or force. Any potential defection by the Urarteans was cause for immediate military action.

> To Arzashku, the royal city of Arrame, the Urartean (Armenian), I drew near. Arramu, the Urartean, became frightened at my mighty, awe-inspiring weapons, and my grim warfare, and forsook his city. He went up into Mount Adduri. I climbed the mountain after him; fought a terrible battle in the midst of the mountains; 3400 of his warriors I slew with the sword. Like Adad I rained destruction upon them. With their blood I dyed the mountain like red wool. I took his camp from him. His chariots, his cavalry, his horses, his mules, his colts (?), his goods, his spoil, his property, in large quantities I brought out of the mountain.[362]

Sargon took from Mannea '…Large draft horses…'[363] At Various points in its history royal stud farms seem to have been established in Armenian territory. We read of what must be a state/palace-owned stud farm in a letter from Sharruemurani to King Sargon:

> To the king my lord, your servant Sharruemurani. May it be well with the king my lord. It is well with the pack animals of the king my lord. It is well with the servants of the king my lord. It is well with the land of Bit-Zamani. Now the servants (?) and…..I shall cause to ride and the grain (?) I shall cut for the walled (?) enclosure of the animals, (that is) for the mares. For fifteen (horses) of the month Tammuz let me go. The eleven hundred of the king

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[361] Strabo *Geography* 11.14.9
[362] *Ancient Records of Assyria and Babylonia volume I* 605.
[363] The region of Mannea lies just to the South East of Armenia. *Ancient Records of Assyria and Babylonia volume II* 148.

> my lord are not considered. Directly opposite me I see fifteen. The work of Dur-Sharruukin I have inspected.[364]

These areas were well watered and had abundant grassy pastureland. The topography did not have to be flat. Indeed, there are many benefits associated with raising youngstock on hilly terrain: running over varying terrain is beneficial to the development of bones, muscles and the cardiovascular system, not to mention instilling a sense of surefootedness in the youngsters.

The purpose of these large-scale stud farms must have been first and foremost to supply cavalry/chariotry horses. This practice dates back to the late third-early second millennium. Sumerian tablets from the regions of Girsu and Diyala can be read as early stud books, recording lists of broodmares, stallions and offspring.[365] The Royal Annals of the Assyrian Empire record the importance a ruler placed on increasing the number of horses bred in his kingdom. The Annals of Adad-Nirari II boast of how the King '…built palaces throughout my land. Plows throughout my land I constructed. The grain piles I increased over those of former days and heaped them up. Horses broken to yoke I increased and…throughout my country, over those of former days.'[366] In a fragmented passage from the annals of Tukultri-Ninurta II we read the following 'The glory of my might, which Assur, my lord, my sun… high mountains, from the land of the Shubari to

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[364] *Royal Correspondence of the Assyrian Empire volume II* 757. The land of Bit-Zamani is located at the confluence of the Tigris on the western edge of the Kingdom of Nairi. The reference to an enclosure for mares suggests that this was indeed a breeding facility.
[365] Hyland (2003) 10.
[366] *Ancient Records of Assyria and Babylonia volume I* 374.

the lands of Gilzanu and Nairi… which I had raised on high (?). Total 2,720 horses…. (the temples?) of my land, I made greater than before, I made firm.'[367]

The Kikkuli texts, written by a Mitanni horseman of that name during the reign of the Hittite king Suppilulimas I, deal with the selection of suitable chariot horses and dictates a 5 month culling process for weeding out unsuitable animals and training the acceptable equines for war. These didactic texts explain in much detail a regiment of feeding, grooming and training.[368] This suggests that green youngstock arrived at the state stables in large numbers and the first task of the horsemasters/trainers was to identify those animals worth the time and expense of training. Kikkuli's method effectively takes an untrained colt or filly from a raw prospect to a fit, trained chariot horse over a process of several weeks. This follows Urartian equestrian tradition: they did not invest time into the extensive training of a horse until his abilities had been assessed and approved of.[369] We also know that specific areas like Urartia (Lake Van region) were renowned for their horses and a primary supplier of large numbers of horses for the chariotries and cavalries of the empires of the Near East.

Documents from the Near East provide our most extensive knowledge concerning equine diets in the ancient world. This is interesting and important information not only because it tells us what cereals and grasses were commonly used, but primarily because it

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[367] *Ancient Records of Assyria and Babylonia volume I* 414.

[368] Similar texts have been found at Hattusas and in Syria dating to a slightly later period. Azzaroli (1985) 39. As Azzaroli points out, the methodical, straightforward nature of Kikkuli's instructions suggest that he was heir to a long-standing Mittanian equestrian tradition. See Kikkuli *L'Art de Soigner et D'Entraîner les Chevaux: Texte Hittite du Maître Écuyer Kikkuli* (Lausanne, 1998); CF A. Salonen, *Hippologica Accadica* (Helsinki, 1955).

[369] P.R.S. Moorey 'Iran and the West. The Case of the Terracotta Persian Riders in the Achaemenid Empire', in R. Dittmann et al (eds.) *Variatio Delectat. Iran und der Westen*. (Munich, 2000) 476.

can indicate the kind of work a horse was used for as well as potentially telling us something about the type of horse that was being used. Based on the rations they describe, tablets from the site of Chagar Bazar in Northern Syria seem to differentiate between two types of horse: the war horse and the parade horse. Tablet 929 records

> List of 52 homers, 50 *sila* of barley, in the *ki-na-te-e* measure, as (one month's) fodder for the following animals: 20 horses at 5 *sila* (daily) apiece, 3 yokes at 15 *sila* (daily) apiece, 10 asses at 3 *sila* (daily) apiece.[370]

Tablet 938 records 'Note of 52 homers, 50 *sila* of barley, in the *ki-na-te-e* measure, as fodder for 3 'yokes' at 15 *sila* daily apiece.'[371] Compare this to tablet 972 which records

> …A total of 1 homer, 45 *sila* of barley, in the *ki-na-te-e-* measure, for animals, as follows: 30 *sila* for 4 ANSE.NUN.NA at 7.5 *sila each*, 20 *sila* for 1 'team', 40 *sila* for 4 horses (ANSE.KUR.RA) at 10 *sila* each, 15 *sila* for 3 ANSE.LA.GU at 5 *sila* each…[372]

Aside from the ANSE.LA.GU which must refer to a 'yoke' of three horses, the equines in tablet 972 receive considerably larger rations than their counterparts in tablets 939 and 938. Further, as Gadd points out, the 'team' must equal a pair of horses. As I have already noted, most war chariots during this period in the Near East were pulled by three horses; thus the 'team' must refer to a conveyance of a different sort. Gadd suggests that this might have been a state chariot of sorts either for a royal personage or a deity.[373] If this is true, and I am inclined to agree with Gadd, why are these horses being fed more

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[370] A 'yoke' refers to a team of horses for a war chariot. These chariots were pulled by three horses, not two. Thus 15 *sila* for a yoke equals 5 *sila* for each horse in the team. C.J. Gadd 'Tablets from Chagar Bazar and Tall Brak', *Iraq* 48.
[371] Gadd (1940) 49
[372] Gadd (1940) 54. ANSE.NUN.NA, ANSE.KUR.RA and ANSE.LA.GU refer to either different types of horses or horses used for different jobs. For a detailed discussion of these terms see Zarins (1978) 4-11.
[373] Gadd (1940) 31.

than those in a 'yoke?' Pulling a ceremonial vehicle is considerably less taxing than a military one. The 'parade' team would rarely exceed a walk or slow jog while engaged in whatever sort of ceremonial purpose. The military horses, on the other hand, undertook a strict fitness regime to prepare them for the rigors of the battlefield. I think the answer lies in the type of horse that was being used. As we saw earlier in this chapter, the Near East produced two distinct types of horses: a lighter, leaner type and the robust Nesaean type. I believe that the 'yoke' horses were of the lighter type and thus did not require substantial amounts of fodder to maintain their fitness, while the ceremonial 'pairs' were the heavier Nesaean type, the beginning of a tradition that continued into Achaemenid times where the Nesaean was the 'Royal' horse of the Near East. These robust equines required a particular diet to maintain their body condition. The Persepolis Fortification Tablets contain numerous records of rations allotted to horses- in this case, primarily horses used in the royal courier system. Postgate categorizes the horses as 'express' post horses for messengers on a speedy mission and regular traveling horses. The rations given to each type differed depending on the work the horse was intended for and his age and ranged from 1QA to 4.5QA per day while at rest. Horses classified as 'mature' received the highest rations, while those termed 'young' received the lowest. The rations were made up primarily of grains, but they could also be allotted 'special rations' which included beer and wine.[374] For example, PF 1685 records that

> 464 (BAR of) grain, supplied by Mirayauda, Kakka
> received, and it was taken (to the place) Irmus.
> 1 horse daily consumes 1 BAR. 7 horses daily consumed
> each 3 QA. 2 horses daily consumed each 2 QA. (For) a
> period of 4 months (and) 10 days.

[374] R.T. Hallock, *Persepolis Fortification Tablets* (Chicago, 1969) 47-49. Regular rations PF1635-1704; Special rations PF 1757-1779.

While PF 1763 records that

> 7.5 (BAR of) wine, supplied by Marriyadadda, Pumesa
> received and fed (?) (it) to 3 young horses, (for) 2 months.

The rations allocated increased when a horse was in 'active service' – i.e. on the road. This is logical- horses at the post station were on a maintenance diet and it was essential they not gain too much weight. While on messenger duty they would use a lot of energy and calories and thus required larger portions of food each day.[375]

APPEARANCE

Near Eastern Type 1: The Nesaean Type

Head: The first impression is of a large, heavy head. When viewed in relation to overall size, however, the head is actually moderate to short in length. The profile is convex, giving the horse a distinctive ram's head shape. The bugle is no at the forehead, as with the *jibbah* found in Caspian and Arabian horses, but rather along the length of the skull ending in a straight to slightly Roman-nosed muzzle. The muzzle is large with well-shaped, moderate nostrils. The forehead is broad and the eyes well-spaced. The eyes are usually large, but do occasionally appear small when viewed in relation to the overall size of the skull. The ears are small, finely shaped and delicate. The throatlatch is adequate, though it frequently appears thickset given the breadth and musculature of the neck. Head carriage is usually slightly flexed at the poll and jaw, but ahead of the vertical.

[375] Travel rations PF 1780-1785

Head of a Cypriot horse. 590-540 BCE. The British Museum.

Head of a Lycian horse. C.460 BCE. The British Museum.

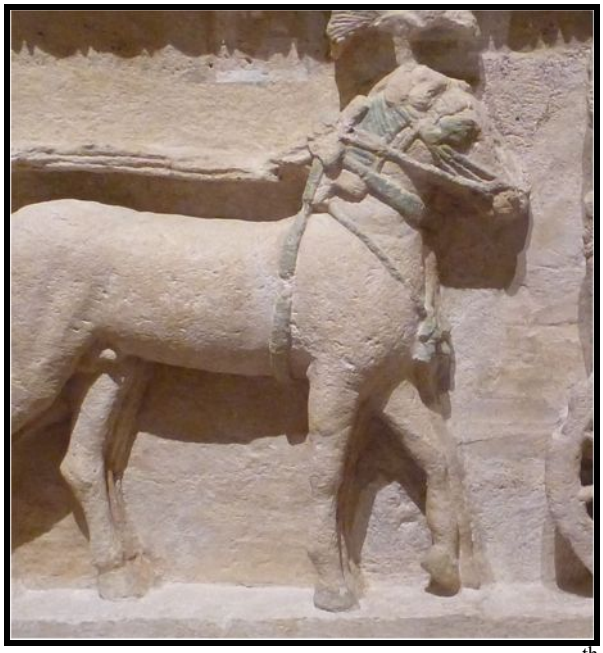
Head of a Neo-Hittite horse. Museum of Anatolian Civilizations.

Head of a Persian horse. 4th century BCE. Çannakale Museum.

Head of a Persian horse. 5th century BCE. Istanbul National Archaeological Museum.

Neck: The neck is thick, cresty and very robust. This gives it neck a short, stubby appearance, but in actuality it is of a moderate length with a smoothly arched, well-developed crest. The neck attaches to the midpoint of the shoulder and is invariably depicted as upright, riding to a slightly flexed poll. The thickness of the muscle of the neck suggests potential difficulty developing lateral suppleness along its length, while the size of the throatlatch means these animals are rarely depicted in a high state of collection but are nonetheless quite well balanced. The head-neck ratio is nicely proportionate and well-balanced.

The short, cresty neck of an Assyrian horse. 9th-8th century BCE. The British Museum



The short, cresty neck of a Cypriot horse. 5th century BCE. The Metropolitan Museum of Art.

Chest and Shoulders: The chest is very broad and well muscled, but not so wide as to give the animal an excessively thick, waddling appearance. The shoulder is moderately sloping, allowing for a good length of stride and comfortable gait, but not suitable for producing a huge, large galloping stride.

Greco-Parthian rhyton displaying the sloping shoulder and breadth of chest in a Persian horse. 2nd century BCE. The Metropolitan Museum of Art.

The Body and Trunk: The body is very thick and broad, but not fat. Much like the chest, the overall breadth of the body presents a stocky, bullish picture, making this type quite base wide, especially when compared to the other three types discussed in this dissertation. They are not, however, so wide as to be impractical or unsound. The back is close-coupled, broad and flat with well-developed muscles along the topline. The girth is very deep, providing more than sufficient room for a large heart. The span of the ribs is in proportion to the overall breadth of the body, suggesting an animal with the cardiovascular and respiratory capacity for steady, consistent/rhythmic work though he might have trouble working at speed over long distances. The conformation of the back provides a comfortable, relatively secure seat. The breadth of the body permits the rider's legs to wrap easily around the barrel.

Assyrian horses. 9th-8th century BCE. The British Museum.

Persian horse. 5th century BCE. The British Museum.

Hindquarters: The hindquarters are massive and round, but in proportion to the rest of the body. Not surprisingly these horses have the most powerful hindquarters of the four types. Much like the modern Quarter Horse, the Nesaean type was capable of sudden starts and stops, thanks to his robust hindquarters. As with the forequarters, the hindquarters do allow for a degree of collection and elevated movement, but not to the same degree as the Mediterranean type.

Sasanid horse. 5th-6th century CE. The Metropolitan Museum of Art.

Legs: The legs are moderate in length but frequently appear to look short when viewed with the entire body. The legs are thick, with lots of bone. The cannons are short; knees and hocks are large, clean and well formed. The hocks typically are 'well let down.' The pasterns are short and slightly sloping. The overall impression of the legs is stocky and sturdy. The hooves are of a good size and in proportion to the overall body mass.

Nesaean horse from the Apadana Staircase. 5th century BCE. Copy in the British Museum, original at Persepolis.

The Nesaean type presents an image of a stocky, robust, well-built working animal. This horse is very noticeably well muscled and is, as a result, very powerful. His close-coupled, well-proportioned build makes him an excellent weight carrier. Of all the types studied in this dissertation, the Nesaean is capable of carrying the heaviest load on a regular basis. On account of his mass this type is not particularly fast, but still capable of short bursts of speed thanks to the size of his hindquarters. The larger mass of this type required high-protein food to ensure proper skeletal and muscular development and to maintain condition. Foods very high in fat or rich had to be fed in moderation as this type was likely susceptible to weight issues. The Nesaean type was capable of collected work, and indeed working in a 'proper' collected frame would increase the suppleness and working life of this type, even if the degree of collection was not to the same degree as the Mediterranean type. Given the size and strength of this animal, it was especially important that he be able to shift his weight to the hindquarters and lighten his forequarters, as well as being obedient and easily responsive to his rider's aids.

Near Eastern Type 2: The Southern Steppe Horse

Head: The head is long and slender with a flat profile. The head has a chiseled, clean-cut, dry appearance. The forehead is broad with large, well-spaced eyes. The ears are long, slender and well shaped with little hair. The muzzle is delicate and slender, with large, wide-open nostrils. The throatlatch is clean and open. Much like the Mediterranean type, the face of this horse is very expressive. The shape of the head gives the animal a refined, intelligent appearance. The length and size of the skull is in proportion to the rest of the body.

Egyptian horses. 1353-1336 BCE. The Metropolitan Museum of Art.

Assyrian horses. 9th century BCE. The Metropolitan Museum of Art: www.metmuseum.org

Assyrian horse. 9th-8th century BCE. The British Museum.

Neck: The neck is long and slender, but not skinny. It has moderate muscling and is typically well formed with lean muscles and an arched crest. The neck is set high up on the shoulder, giving a naturally elevated head carriage which when combined with the size of the head encourages a naturally light forehand. If the necks gets too long in proportion to the rest of the body there is a loss of suppleness and flexibility: since all horses have seven vertebrae in the neck, the longer the neck the greater the length of the individual vertebrae and thus the distance between each joint. On the other hand, a proportionately long neck can act as a good counter-balance to the hindquarters. A good length of neck also allows the horse to stretch out and open up his shoulder, thus lengthening his stride to a maximum extent. Even the highly-collected horse must lower and stretch his neck to lengthen stride. Thus, the longer-necked horse has better potential for tasks that involve opening the shoulder and lengthening stride than those requiring high degrees of collection and flexibility.

Babylonian horse. 2000-1600 BCE. The British Museum Online Catalogue

Persian horse. 1000-800 BCE. The British Museum Online Catalogue

Horses from the Satrap Sarcophagus. 5th century BCE. Istanbul Archaeological Museum.

Chest and Shoulder: The shoulder is long and sloping, allowing for an easy lengthening of stride. The long, sloping shoulder also encourages a loose, flowing gait. The chest is of moderate-to-narrow width, but well muscled.

Cypriot horse. 750-600 BCE. The Metropolitan Museum of Art.

The Body and Trunk: The back is moderate to long. This makes it more difficult for the horse to rotate his lumbosacral joint to bring his hindquarters well underneath him into a truly collected frame. The ribs are well spring and the girth deceptively deep. The back is typically flat and well muscled, though not nearly as broad as the Nesaean type. The body presents a lean appearance with a tucked-up stomach and visible ribs. This type of horse could be slab sided. This is not a major fault, but did give the rider less mass to wrap his legs around. The good girth and breadth of the ribs indicate plenty of room for the cardiovascular and respiratory systems to work, particularly when under stress. This type, like the Central Asian horse, was an excellent endurance animal. The length of the back could pose potential soundness problems particularly if the animal was not worked regularly to build up the proper and necessary muscles along the spine.

Egyptian horse. 1390-1353. The Metropolitan Museum of Art: www.metmuseum.org

Egyptian horses. 1353-1336. The Metropolitan Museum of Art.

Luristanian horse. 8th-7th century BCE. The British Museum.

Hindquarters: The hindquarters are moderate in size in relation to the overall body mass. They are rounded and well shaped with lean muscle. The length of the back means that a 'hunters bump' can appear at the lumbosacral joint, but again this is not a major conformational defect. The size and shape of the hindquarters are ideal for long periods of steady work, jumping and substantial speed.

Assyrian horses. 8th century BCE. The British Museum.

Legs: The legs are long, clean and slender. There is no excess fleshiness or hair. The knees and hocks are clean and large, while a good measure of bone below them indicates durability and strength. The cannon bones are moderate to slightly long. The hooves are a good size in proportion to the rest of the body.

The overall impression of this type is lean and sleek, with long, angular lines. This type is well adapted for an arid environment, presenting a clean-cut, chiseled and dry appearance. Their neck/shoulder/leg conformation gives a loose, free-flowing stride with no flashy or high leg and knee action. This type could cover ground while expending less energy than the other types. Conformation suggests this type was the fastest of the four types. Herodotus mentions a race between Thessalian and Persian horses

> Two days previously Xerxes with the army had passed through Thessaly and Achaea and entered the country of the Malians. While he was in Thessaly he had held races between the native horses and his own because he had heard that the horses of Thessaly were the best in Greece. The Greek mares were, however, soundly beaten.[376]

There is no chance that the Persian horses were the of the famous Nesaean type: conformational limitations negate the possibility. The bulky mass of that type did not predispose it to speed. Herodotus must be referring to the leaner Turanian type. The strong, long and light leg conformation found on this type required less energy to move the limbs and resulted in the natural tendency to lengthen stride: the longer the stride, the less effort there is expended to move quickly- one long stride is more efficient than two shorter ones when galloping. Further, this conformation allowed the horse to maintain a sweeping, steady gait for long distances meaning that this horse could excel at both short

[376] Herodotus, *Histories*, 7.196.

and long distance races. The Artemision horse is an excellent example of this equine type.

Horse and Jockey of Artemision. 3rd-1stC BCE. National Archaeological Museum of Athens.

Although body length meant that these horses were not the most agile or flexible of the four types, they were still a very versatile animal suited to long-distance travel, hunting and light to moderately armed cavalry. The leanness of the body required little food to maintain condition. Their 'dryness' allowed them to cool down and dry off quickly after hard exercise. The general lightness of this type made them easier to balance and control than the Nesaean type, making them ideal, like the Central Asian type, for a mounted archer.

NEAR EASTERN WARFARE

The presence of two distinct equine types in the Near East led, not surprisingly, to the development of more than one style of mounted combat. This is unique in the ancient world, and once again reflects clearly the influence of conformation and overall type on the way in which a horse can be used. The Near East was a hotspot of equestrian innovation in antiquity. The cavalries of the ancient Near East seem to have been the most willing to experiment with new tactics and technologies and for this reason became a formidable cavalry power. The only comparison to the situation in the Near East is the Macedonian cavalry during the reign of Alexander the Great. This is not unexpected, though. As the Roman disaster at Carrhae shows, a strong, competent cavalry force with suitable horses was an essential element in any battle against a Near Eastern army. Alexander clearly recognized this and thus trained his horsemen to fight from horseback in an entirely new way.

On account of its central geographical location, the inhabitants of the Near East were uniquely situated to receive equestrian ideas from across the ancient world. The fortuitousness of this location is first evident with the introduction of the domestic horse to the Near East directly from the steppe of Central Asia some time in the late 3rd/early 2nd millennium. Unlike the inhabitants of Central Asia, the Near Easterners had a well-established tradition of riding and driving equids: asses and onagers, as well as oxen and other bovines. The concept of using the horse for similar jobs was nothing unexpected, and equines very quickly became woven into the fabric of Near Eastern society.

As we saw above, the two Near Eastern types – the Turanian and the Nesaean – were physically very different from each other. This was, of course, a result of the diverse

Near Eastern climate and geography. Each type was suited to a particular style of mounted combat - one light, the other heavy.

NEAR EASTERN TYPE 1

The Nesaean horse originated on the Nesaean plains of Media, or possibly Armenia, later part of the Persian Empire. With regards to the Nesaean horse, Strabo (XI.13.7) says:

> Media, as well as Armenia, is an exceptionally good "horse-pasturing" country; and a certain meadow there is called "Horse-pasturing," and those who travel from Persis and Babylon to the Caspian Gates pass through it; and in the time of the Persians it is said that fifty thousand mares were pastured in it and that these herds belonged to the kings. As for the Nesaean horses, which the king used because they were the best and the largest, some writers say that the breed came from here, while others say from Armenia. They are characteristically different in form, as are also the Parthian horses, as they are now called, as compared with the Helladic and the other horses in our country. Further, we call the grass that makes the best food for horses by the special name "Medic," from the fact that it abounds there.

The ancient sources refer to the Nesaean as 'huge' or 'massive' – in this they refer not to height but to breadth of body. The Nesaean was a stout, robust animal with a short, thick neck, broad chest, deep girth, strong legs with good, dense bone. His most distinctive characteristic was a heavy ram's head (like a Roman nose), giving him a convex profile. Horses of similar physical type appear in the imperial art of the Assyrian Empire and the Sassanian Empire. The Nesaean horse was more robust because of its diet- the Nesaean plains of Media produced alfalfa (Lucerne) - a highly nutritious clover/grass: the protein levels of other grasses/hays at best reach 7-10% but alfalfa can reach 20%.[377] This high protein content is what allowed the Nesaean horse to grow so substantial, far more so

[377] Hyland (2003) 30.

than the plains-raised horses of the Steppe, the mountain horses of the Mediterranean or the forest horses of Northern Europe.

The Nesaean horse was a powerful animal, with considerably greater muscle mass than other horses of the period. Not designed for speed, their short-coupled bodies made them ideal for collected work and well suited for carrying cavalrymen in a controlled charge. They were ideal for bearing the equipment of a heavily-armed cataphract. Their shape also made them relatively agile, not unlike the Iberian horses used in the bullring today. A significant disadvantage to this type is the diet that made them unique: to maintain their physical condition the Nesaean horses required a diet rich in alfalfa, which meant that this would have to be transported when on campaign. Nesaean horses raised away from the alfalfa fields would have been smaller and slimmer, lacking the essential protein needed to develop a robust body. Oppian describes the Nesaean thus:

> In beauty the most excellent of all horses is the Nesaean, which wealthy kings drive; beautiful to behold, gentle to ride and obedient to the bit, small of head but shaggy maned, glorying in the yellow-locks on either side of his neck.[378]

What is interesting about Oppian's description is his reference to the Nesaean's temperament: 'gentle to ride and obedient to the bit.' This is an important characteristic, especially with regard to use and trainability. This was not a high-strung, hot-blooded horse, but a calm, amenable animal. His broad back and naturally collected gaits made him comfortable, while a generally workmanlike, calm temperament made him easy to work with. His 'obedience' meant it was possible for a wide range of riders to manage

[378] Oppian *On Hunting* 1.311-315.

him easily. This is more important than it may at first seem. Remember, the Nesaean was the horse of the aristocracy: only elite members of society were permitted to ride them. These men were supposed to be consummate horsemen – riding skill being a mark of the Persian nobleman. Just because they were supposed to excel at it does not necessarily mean they all did. Not every individual is a natural horseman, and sometimes all the practice in the world will never make someone highly skilled. If such a man were mounted on a high-strung, flighty horse he could very well loose control of his horse and lose face and respect at the same time. The level-headed, obedient Nesaean horse was (typically) more forgiving of mistakes and could take care of an awkward or nervous rider.[379]

The Nesaean type seems to have been given special consideration and held in particular esteem by the kingdoms of the Near East. His robust size certainly made him unique amongst the equines of the ancient world. As we have already seen, official correspondence and other records from the Near East suggest that this type was less common that other types and thus the property of gods and royalty. There is no doubt that the Nesaean type would have been more expensive to maintain because of his dietary requirements and overall mass. From a military perspective, although any cavalryman must have come from a moderate to wealthy economic background, those who rode or drove the Nesaean horse into battle were members of the elite. This was the armoured

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[379] This might seem far-fetched, but there is quite a bit of truth in this analysis. Certain breeds such as the American Quarter Horse- which closely resembles the Nesaean in appearance – are known for their gentle, forgiving nature while at the same time they are athletic and intelligent enough for skilled horsemen to ride and compete at the top levels of equine sport. There appears to be a correlation of sorts between temperament and work ethic in horses. Draft horses like Clydesdales and Shires are among the largest and gentlest horse breeds today.

cavalry of antiquity- the cataphract and his predecessors. The amount of metal required to build armour for both horse and rider was expensive and only the upper echelons of Near Eastern society could afford it.[380] The term 'cataphract' does not appear in literary sources until the Hellenistic period, although armored cavalry and chariotries existed from at least the second millennium onwards. In the *Anabasis*, Xenophon describes Cyrus' personal guard of cavalry as wearing

> …breastplates and cuirasses, and all of them except Cyrus, who rode into battle bare-headed, wore helmets as well. All the horses in Cyrus' squadron were equipped with protective armour on their foreheads and chests, and their riders also carried Greek-style swords.[381]

At the battle of Gaugamela, Arrian describes a close cavalry fight in which

> Alexander ordered the Paeonians with Ariston and the mercenaries to charge the Scythians, and the barbarians wavered. The rest of the Bactrians, however, came up against the Paeonians and mercenaries, restored to the battle those on their own side who were then turning to flight, and made the cavalry engagement a close one. Alexander's men fell in greater number, under pressure from the number of the barbarians, and also because the Scythians, riders and horses alike, were better protected by defensive armour.[382]

Appian lists the units of Antiochus' army thus:

> His horse were stationed on either wing, consisting of the mail-clad Galatians and the Macedonian corps called the Agema, so named because they were picked horsemen. An equal number of these were stationed on either side of the phalanx. Besides these the right wing had certain light-armed troops, and other horsemen with silver shields, and 200 mounted archers. On the left were the Galatian bands of the Tectosagi, the Trocmi, the Tolistoboii, and certain

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[380] Azzaroli (1985) 90.
[381] Xenophon *Anabasis* I.8.8
[382] Arrian *Anabasis of Alexander* 3.13.3-4

> Cappadocians furnished by King Ariarthes, and a mingling of other tribes. There was another body of horse, mail-clad but light-armed, called the Companion cavalry. In this way Antiochus drew up his forces. He seems to have placed most reliance on his cavalry, whom he stationed in large numbers on his front.[383]

Lucullus came across fully-armoured horsemen while campaigning in the east

> And his boldness was not altogether that of a mad man, nor without good reason, when he saw so many nations and kings in his following, with phalanxes of heavy infantry and myriads of horsemen. For he was in command of twenty thousand bowmen and slingers, and fifty-five thousand horsemen, of whom seventeen thousand were clad in mail, as Lucullus said in his letter to the Senate…[384]

Xenophon was a proponent of equine armour. In his *Art of Horsemanship* he recommends the horse be as well protected as his rider.

> Since the rider is seriously imperiled in the event of his horse being wounded, the horse should also be armed, having head, chest, and thigh pieces: the last also serve to cover the rider's thighs. But above all the horse's belly must be protected; for this, which is the most vital part, is also the weakest. It is possible to make the cloth serve partly as a protection to it. The quilting of the cloth should be such as to give the rider a safer seat and not to gall the horse's back.[385]

The cavalry horse on the Çan sarcophagus (early 4th century BCE) wears a chamfron that covers the entire front of his face- forehead to nose – and encircles his eyes.[386]

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[383] Appian *Syrian Wars*
[384] Plutarch *Lucullus* 26.5-6
[385] Xenophon *Art of Horsemanship* 12.8-9.
[386] N. Servibc et al., 'A New Painted Sarcophagus from Çan', *Studia Troica* 11 (2001) 396-397.

Livy describes the Seleucid army as '… a countless force of horsemen was crossing into Europe by the Hellespont, he said. Some of these were men wearing breastplates, the so-called *cataphracti*… '[387] In his account of Carrhae, Plutarch writes of how '…their enemies dropped the coverings of their armour, and were seen to be themselves blazing in helmets and breastplates, their Margianian steel glittering keen and bright, and their horses clad in plates of bronze and steel.'[388] Ammianus Marcellinus states:

> …there marched on either side twin lines of infantrymen with shields and crests gleaming with glittering rays, clad in shining mail; and scattered among them were the full-

[387] Livy *Histories* 35.38
[388] Plutarch *Crassus* 24.1

> armoured cavalry (whom they call *clibinarii*), all masked, furnished with protecting breastplates and girt with iron belts, so that you might have supposed them statues polished by the hand of Praxiteles, not men. Thin circles of iron plates, fitted to the curves of their bodies, completely covered their limbs; so that whichever way they had to move their members, their garment fitted, so skillfully were the joinings made. [389]

Julian notes,

> Of these troops some carry lances and are protected by cuirasses and helmets of wrought iron mail. They wear greaves that fit the legs closely, and knee-caps, and on their thighs the same sort of iron covering. They ride their horses exactly like statues, and need no shield.[390]

The most detailed description of the cataphract's equipment comes from Heliodorus' *Aethiopian Story*.

> The only troops he [Oroodates] stationed ahead of himself were the armored cavalry, and it was largely because of his reliance on these that he ventured to fight at all. Of all the Persian formations these are generally the most effective, ranged before the line like a wall, impervious to the tides of war.
> The form of their armor is as follows. A man chosen for his exceptional physical strength dons a close-fitting helmet, beaten from a single piece of metal and cunningly crafted into a realistic representation of a human face, like a mask. This covers his head completely from crown to neck, apart from slits over the eyes so that he can see. His right hand is armed with a lance somewhat longer than a spear, leaving his left free to work the reins. A scimitar hangs at his side. His body armour covers not just his breast but the whole of the rest of his body as well. It is constructed in the following way. They take rods of bronze and iron and beat them into squares about a span in size; these are then fitted together so that they overlap at the edges, each plate riding over the one beneath and the one

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[389] Ammianus Marcellinus *Histories* 16.10.8
[390] Julian *Orations* II.57.C

> beside it so as to leave no gaps. This contexture is then fastened together with stitches underneath the overlaps, thus producing a garment of plate-mail that sits comfortable on the body, yet fits tightly all over, shaping itself onto every limb and contracting and expanding so as to allow unimpeded movement. The armour also has sleeves and extends from head to knee, the only opening being at the thighs, where it is necessary for the rider to bestride his horse. This, then, is their body armour, impervious to arrows and resistant to all injury. Their greaves reach from the soles of the feet to the knee, where they meet the body armour.
> The horse too is protected by armour of a very similar kind; shin-plates are fastened round its legs, its head is totally sheathed in tight-fitting frontlets, and a skirt of iron mail is draped over its back, down to its belly on either side, thus affording the animal protection while at the same time being loose enough not to hamper its galloping. Equipped and virtually encased in armour of this kind, the rider bestrides his steed, though he is so heavy that he cannot mount it by himself but has to rely on others to lift him on. The, in the hour of battle, he gives his horse its rein, digs in his spurs, and bears down at full tilt on the enemy, looking just like a man of steel or a hammer-worked statue come to life. The sharp end of the lance projects some way ahead horizontally and is supported by a clasp on the horse's neck, while the butt end is fastened into a loop on the animal's flank. Thus the lance is held firm against the force of impact and does not act against the rider's hand, which has only to direct the thrust as the rider braces himself and lunges forward to increase the force of the impact – which is so violent that the lance transfixes everyone in its path, often impaling two or more opponents at a single blow and carrying them along, skewered.[391]

Plutarch's account of Carrhae provides an excellent description of how the cataphract functioned and his ideal use in battle. Their main offensive weapon was a long, solid spear- a pre-cursor to the medieval lance. Plutarch writes that the cataphracts at Carrhae initially'…proposed to charge upon the Romans with their long spears, and throw their

[391] Heliodorus *Aethiopian Story* 9.14-15.

front ranks into confusion.'[392] This tactic could work in several ways. The Parthians need not necessarily come into contact with the front ranks of the Romans to throw their ranks into confusion. The sight and sound of a unit of these heavily armed horsemen coming steadily towards the lines could cause men to waver and break. It is important to visualize what this must have looked like. It was not a dramatic, flat out galloping charge. These horses were not built to gallop madly across a plain, especially when carrying the extra weight of armour. Instead, it must have been something like a steam train slowly picking up speed and impulsion, eventually rolling down on whatever stood in front of it. Even if the Roman infantrymen knew the horses would try to avoid crashing into them, the less rational part of their minds would have seen the heavy mass or horsemen barreling down on them with ever increasing speed (and mass). The armoured cataphract horse was not capable of making a sudden stop or turn at speed because of the weight he was carrying and this would be obvious to anyone standing in front of him. Thus, the infantry lines could break as men flinched away from anticipated impact. The chance of this happening with seasoned veterans, however, was slim. The Parthians could also destroy the front ranks by simply impaling men on their spears, but this was less likely to happen with the enemy formed up in solid ranks as the Roman infantry would have been. It is also difficult, but not impossible to make a horse charge into an ostensibly solid object as the overlapping shields of the infantry would have appeared to be. Indeed, the Parthian cataphracts at Carrhae recognized this '…but when they saw the depth of their formation, where shield was locked with shield, and the firmness and composure of the men, they drew back, and while seeming to break their

[392] Plutarch *Crassus* 24.3

ranks and disperse, they surrounded the hollow square in which their enemy stood before he was aware of the maneuver.'[393] The conformational close-coupledness of the Nesaean horse made them easier to collect and maneuver than other types. This must be what Plutarch refers to when he says the cataphracts seemed to 'break their ranks and disperse': the riders were skillfully maneuvering their horses into position with quiet, organized efficiency by using the numerous lateral movements like half-passes and leg-yields now schooled in the sport of dressage. Conformation in conjunction with the calm temperament of the Nesaean horse allowed the Parthians to accomplish this re-positioning with minimal fuss, even though the horses had been pulled up from a charge. Hotter tempered horses could not manage this; they would become extremely agitated and disobedient.

Having positioned themselves, the Parthians next

> …stationed their mail-clad horsemen in front of the Romans, and then, with the rest of their cavalry in loose array rode round them, tearing up the surface of the ground, and raising from the depths great heaps of sand which feel in limitless showers of dust…'[394]

Here we should not envisage the cataphracts galloping madly in circles around the Roman ranks. This would not only be unnecessary, but also a waste of energy. The Nesaean is not an endurance horse and cannot sustain high speeds for any length of time. Given his mass, especially with the inclusion of armour, he need not go faster than a collected canter to cause havoc. The impact of thousands of heavily armoured hooves hitting the ground would have literally caused the earth to shake while at the same time kicking up a massive could of dust and grit. The combination of obscured vision and the

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[393] Plutarch *Crassus* 24.3
[394] Plutarch *Crassus* 25.4

deafening thunder of hooves mixed with the clanking of armour and the snorting of horses would have disoriented even the most stalwart of soldiers.

For offensive weapons the cataphract made use of a long spear and his horse, particularly if the horse was armoured. Plutarch describes how the '…mail-clad horsemen in front, plying their long spears, kept driving them together into a narrow space…'[395] This was a slow and methodical process taking advantage of both conformation and temperament. Once again the riders could use the natural collection of the Nesaean horses to herd their opponents into an ever more confined space, spinning and shifting in all directions to cut off any attempts at escape. This calls to mind the image of cowboys cutting and herding cattle. The men and their horses work together mostly at a controlled pace with occasional explosions of movement to prevent a cow, or in this case a Roman, from getting past. Temperament is important as the horses could not become agitated or disorganized from the ruckus created by the panicked enemy or rattled when asked to perform a sudden movement and then come back under control. Finally, the overall mass of the Nesaean horse was intimidating, especially to a routed enemy being pressed ever closer together by these large animals. The same tactics could work against enemy cavalry as well, particularly if they were mounted on smaller, more high-strung Mediterranean type horses. According to Plutarch '…the Gauls were distressed above all things by the heat and their thirst, to both of which they were unused; and most of their horses had perished by being driven against the long spears.'[396] Crassus' son, Publius, discovered just how powerful the cataphract could be when he attempted to rally and attack the Parthians.

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[395] Plutarch *Crassus* 27.1
[396] Plutarch *Crassus* 25.9

> Publius himself, accordingly, cheered on his cavalry, made a vigorous charge with them, and closed with the enemy. But his struggle was an unequal one both offensively and defensively, for his thrusting was done with small and feeble spears against the breastplates of raw hide and steel, whereas the thrusts of the enemy were made with pike against the lightly equipped and unprotected bodies of the Gauls…[397]

This passage shows how effective a trained, organized unit of cataphracts could be. The Gallic cavalry was defeated by the combination of equipment and horses.

To create a unit of cataphract cavalry was no easy matter despite what sources like the *Historia Augusta* might suggest when they write

> One hundred and twenty thousand of their cavalry we have routed, ten thousand of their horsemen clad in full mail, whom they call *cataphractoi,* we have slain in battle, and with their armour we have armed our own men.[398]

Appropriate horses, ideally those of the Nesaean type, had to be acquired. The armour had to be made. In order for it to protect the wearer to the greatest degree, it had to be custom fitted to each man.[399] Likewise, custom armour had to be made for the horses as well. Particular pieces like the chamfron had to be fitted to the individual horse, much like human armour. The horse had to be introduced to wearing armour. Even the most placid equine has to become used to wearing it and moving in it. The rider had to become accustomed to bearing the additional weight of cataphract armour- it fits and moves in a manner that is entirely different from mail. It is more balanced on the body, but much less flexible. Many observers compare the cataphract to a statue because of the

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[397] Plutarch *Crassus* 25.7
[398] Historia Augusta *Alexander Severus* 56.5
[399] Because the armour is so form fitting, it was essential that the joins fit together correctly and over the correct parts of the body. If the armour is too big and gapes or too small, it will restrict movement and cause injury in the event of a fall. Many a modern-day jouster has suffered a dislocated shoulder from incorrectly fitted armour.

stiffness his armour creates.[400] This necessitated learning a new way to ride because balance and movement were affected by the equipment. Thus, the process of equipping and training a cataphract unit was a long one and no easy feat, as Julian points out in his *Orations*:

> What emperor can one cite in the past who first planned and then reproduced so admirable a type of cavalry, and such accoutrements? First you trained yourself to wear them, and then you taught others how to use such weapons so that none could withstand them. This is a subject on which many have ventured to speak, but they have failed to do it justice, so much so that those who heard their descriptions, and later had the good fortuned to see it for themselves, decided that their eyes must accept what their ears had refused to credit. Your cavalry was almost unlimited in numbers and they all sat their horses like statues, while their limbs were fitted with armour that followed closely the outline of the human form. It covers the arms from wrist to elbow and thence to the shoulder, while a coat of mail protects the shoulders, back and breast. The head and face are covered by a metal mask which makes its wearer look like a glittering statue, for not even the thighs and legs and the very ends of the feet lack this armour. It is attached to the cuirass by fine chain-armour like a web, so that no part of the body is visible and uncovered, for this woven covering protects the hands as well, and is so flexible that the wearers can bend even their fingers.[401]

Third-century-CE reliefs at Firuzabad and Naqsh-i-Rustam from the Sasanid period show what can be interpreted as an early form of jousting. The Sasanid king charges his

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[400] Ammianus Marcellinus *Histories* 16.10.8 "…all masked, furnished with protecting breastplates and girt with iron belts, so that you might have supposed them statues polished by the hand of Praxiteles, not men."
Julian *Orations* 2.57.C "They ride their horses exactly like statues, and need no shield."
[401] Julian *Orations* I.38.C-D.

opponent in single combat, holding a long, heavy lance in both hands. These images 'anticipate some motives common in representations of medieval cavalry fights: there is even the broken lance of the vanquished cavalier.'[402]

The heavily armed cataphract mounted on his robust steed clearly made an impression on the authors of antiquity, and no doubt the armies of the ancient world as well. For sheer strength and presence, the Nesaean type horse outclassed every other horse type of antiquity. The advantages of size came with a price, however. While the amount of armour on both horse and rider offered a greater degree of protection, it took away the advantages of speed and agility. At the battle of Issus, Curtius describes

> The horses and horsemen alike of the Persians, weighed down by the linked plates which covered them as far as the knees, were hard put to it to heave their column along; for it was one which depended all on speed; for the Thessalians in wheeling their horses had far outstripped them.[403]

Lucullus recognized the disadvantages attached to wearing full armour:

> But when he saw that the mail-clad horsemen, on whom the greatest reliance was placed, were stationed at the foot of a considerable hill which was crowned by a broad and level space, and that the approach to this was a matter of only four stadia, and neither rough nor steep, he ordered his Thracian and Gallic horsemen to attack the enemy in the flank, and to parry their long spears with their own short swords. (Now the sole resource of the mail-clad horsemen is their long spear, and they have none other whatsoever, either in defending themselves or attacking their enemies, owing to the weight and rigidity of their armour; in this they are, as it were, immured).[404]
> With these words, he led his men against the mail-clad horsemen, ordering them not to hurl their javelins yet, but taking each his own man, to smite the enemy's legs and thighs, which are the only parts of these mail-clad

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[402] Azzaroli (1985) 92.
[403] Q. Curtius *History of Alexander* 3.11.15
[404] Plutarch *Lucullus* 28.2-3

> horsemen left exposed. However, there was no need of this mode of fighting, for the enemy did not await the Romans, but, with loud cries and in most disgraceful flight, they hurled themselves and their horses, with all their weight, upon the ranks of their own infantry…[405]

The extra weight carried by these animals- both in terms of their natural mass and the additional pounds created by the armour – affected the stamina of the cataphract. He was not capable of sustaining any semblance of speed over distances.[406] At Issus, Arrian tells us that 'the Persians' horses were suffering in the retreat, carrying their heavily armed riders.'[407] Basic equine physiology dictates that larger mass equals decreased endurance at speed and durability when put in any type of intensive, strenuous work.

> …as the horse passes 1,300 pounds, it begins to suffer from certain disadvantages: It can become ponderous in movement; it is often too wide in the barrel to sit on comfortable; it loses endurance capability; and it becomes more prone to joint and hoof damage.[408]

The truly massive draft horses of northern Europe are designed to do repetitive work at a walk and jog and can do so for hours at a time, but any change from this or attempts to perform more 'athletic' jobs requires a skilled, knowledgeable rider and a host of other experts to maintain the animal's soundness over a working career.[409]

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[405] Plutarch *Lucullus* 28.4
[406] M. Littaeur 'Equids at Persepolis', *Antiquity* 53(1979) 218.
[407] Arrian *Anabasis of Alexander* 2.11.3
[408] D. Bennett 'The Riding Type', *Equus* 387 (2009) 31-32.
[409] D. Bennett (2009) 35-36. I have first hand experience dealing with this problem. My own horse, Percy, is a 17.3hh Clydesdale cross who is truly massive. He has very good conformation and is quite athletic for his size, displaying a particular enthusiasm for jumping and galloping across country. Despite my ongoing attentiveness to proper diet (including joint supplements), protective equipment – boots and bandages when exercising; and methodical training sessions which included lots of suppling gymnastic work to build up strength and balance he still sustained a serious injury- torn suspensory ligament and bone chip – likely from playing in a muddy field. The rehabilitation

NEAR EASTERN TYPE 2

As we have just seen, the Neasaean type of horse provided an unique military advantage in the ancient Near East; however he was not perfect and came with a specific set of disadvantages. To make up for this, the Near Eastern cavalries were fortunate in having another type of 'native' horse at their disposal, what Azzaroli calls 'blood horses, capable of high performances.'[410] When marching through ancient Armenia, Xenophon describes their horses thus: 'The horses in that part of the world were smaller than the Persian breed, but much more lively.'[411] These horses are the type of equines that filled the ranks of the Near Eastern messenger systems. The speed with which these courier systems worked was noteworthy in antiquity. Herodotus tells us that Xerxes

> …sent a courier to Persia to report his present misfortune. There is nothing that travels faster, and yet is mortal, than these couriers; the Persians invented this system, which works as follows. It is said that there are as many horses and men posted at intervals as there are days required for the entire journey, so that one horse and one man are assigned to each day. And neither snow nor rain nor heat nor dark of night keeps them from completing their appointed course as swiftly as possible.[412]

The Southern Steppe or Turanian type followed the same traditions as the Central Asian type in that he lived amongst a primarily nomadic people on the open steppelands. Although he was physically quite different from his northern counterpart- being all long,

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progress is a long one. It began with two months of confined stall rest and controlled in-hand walks, regular icing, joint injections, ultrasounds to monitor progress and finally a return to light riding work. His size and the severity of the injury basically require at least a year recovery before he can return to 'regular' work, and even at that, it is unlikely he will ever do much jumping or high-intensity work again.

[410] Azzaroli (1985) 172.

[411] Xenophon *Anabasis* 4.5

[412] Herodotus *Histories* 8.98.1. See also the *Book of Esther* 8.14 which mentions messengers of Artaxerxes mounted on swift horses. Cf. J. Naveh, 'The Aramaic Ostraca from Tell-Arad', in Y. Aharônî, *Arad Inscriptions* (Jerusalem, 1981) 176.

lean angles instead of short and wiry - he nonetheless fulfilled many of the same tasks. Where the two differed was in their environmental adaptations. The short, shaggy Central Asian horse was well suited to the extreme winters of northern Steppe. While he could manage the dry heat of the desert, it was (and is) far more common for the inhabitants of these regions to rely on the Bactrian camel than the horse. The Turanian horse, on the other hand, was ideally adapted for life in the desert with his 'dry', sparse appearance. Much like the Akhal-Teke, the long, angular limbs of these animals allowed them to move effortlessly over soft terrain. Their 'dryness', as with the Mediterranean horse, permitted them to dispel heat quickly and for sweat to dry fast. These horses, however, were not well suited to life in regions that experienced bitter cold winters. Excavations of the Pazyryk kurgans in the Altai Mountains have shown that this Near Eastern type was imported to the region and thus required specialized care not provided to the native Central Asian type. Rudenko tells us

> On the horny walls of the hoofs of many horses from the excavation uneven creases can be seen, the so-called 'rings', testifying to famines survived, found commonly, as is well known, in winter conditions on open-air feeding 'underfoot'. It indicates that the majority of horses during the winter received little or no supplementary feed. At the same time the hoofs, or more exactly the horny walls of the hoofs, of the best or as Vitt calls them the true saddle-horses, do not show this feature. Evidently during winter special conditions were created for them, different from those experienced by the others.[413]

What does this mean for warfare? Although the Central Asian horse had a broader range of environmental adaptation, the Turanian horse had a much greater repertoire of uses on the battlefield. The Turanian horse, like his Central Asian relative, was used for

[413] Rudenko (1970) 58.

a variety of day-to-day tasks, as well as war. This made for a very workmanlike animal. The nomads of the Near East relied on their horses for mobility for precisely the same reasons as the Central Asian nomads- the success of the nomadic lifestyle depended on it. The traditional mode of mounted combat echoed that of the north – the mounted archer. These horses were just as suited to the job, being surefooted and light. Although taller than the Central Asian horse, their lean, slender build was conducive to the style of riding required by the mounted archer who could easily direct the animal with leg and weight aids alone.

Where the southern horse differed from the Central Asian was in his suitability for various kinds of mounted combat. The larger size of this horse permitted his use not only for mounted archery, but for light to moderately armed combat as well. The cavalry forces that accompanied Xerxes to Greece were armed with lassos, swords, bows and spears depending on their place of origin.[414] Some of the Persian cavalry at the Granicus fought with javelins. Arrian tells us that during the opening action of the battle …the Persians shot at them from above, some hurling javelins into the river from the bank…'[415] The cavalry at Carrhae included a variety of arms and armour

> 'In the rear of these was posted a large body of the rest of the cavalry, who carried shields, while others fought on horseback with bows and arrows.'[416]

There was clearly some difference in the amount of training the horses received as they were deployed in tactical formations, something rarely recorded amongst Central Asian cavalry. To do this required a significant degree of training and drill practice, not

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[414] Herodotus *Histories* 7.84.1-87.1
[415] Arrian *Anabasis of Alexander* 1.15.1
[416] Julian *Orations* 2.57.C

perhaps to the same degree as we shall see in the Mediterranean world; after all, these cavalrymen spent most of their time on horseback, but nonetheless training to a sufficient degree to allow a group of horses and riders to work in concert with each other.

> A countless force of horsemen was crossing into Europe by the Hellespont, he said. Some of these were men wearing breastplates, the so-called *cataphracti*, others were warriors who fired arrows from horseback and – something against which there was no effective defense – found their mark more accurately when they had turned their horses in flight.[417]

Like the Central Asian horsemen, those of the Near East had a long tradition of mounted archery. The Assyrian king Ashurbanipal is depicted hunting from horseback with bow and arrow. Darius I recorded that 'as an archer, I am a good archer both on foot and on horse. As a spearman, I am a good spearman both on foot and on horse.[418] At Plataea the Persian cavalry proved a nuisance to the Greeks thanks to their skill with bow and spear

> The horsemen rode out and attacked, inflicting injuries on the entire Greek army with their javelins and arrows, for they were mounted archers and it was impossible for the Hellenes to close with them.[419]

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[417] Livy *Histories* 35.38

[418] P.O. Skjævø, 'The Achaemenids of the *Avesta*' In V.S. Curtis and S. Stewart (eds.), *Birth of the Persian Empire, Volume I* (London, 2005) 77.

[419] Herodotus *Histories* 9.49.2 cf 9.52.1 '…they suffered throughout the whole day from attacks by the Persian cavalry; and it was not until the day was drawing to a close that the horsemen finally ceased their assaults.'

After the death of Cyrus and the Greek generals, Xenophon and his fellow mercenaries were attacked by Mithridates, who

> …approached the Greeks as if he had friendly intentions, but, once he was close, his archers, both mounted an on foot, suddenly fired their bows and his slingers hurled their stones.[420]

The Parthians remained true to their nomadic origins when it came to skill with the bow as the Romans discovered at Carrhae

> But the Parthians now stood at long intervals from one another and began to shoot their arrows from all sides at once, not with any accurate aim (for the dense formation of the Romans would not suffer an archer to miss his man even if he wished it), but making vigorous and powerful shots from bows which were large and mighty and curved so as to discharge their missiles with great force. At once, then, the plight of the Romans was a grievous one; for if they kept their ranks, they were wounded in great numbers, and if they tried to come to close quarters with the enemy, they were just as far from effecting anything and suffered just as much. For the Parthians shot as they fled, and next to the Scythians, they do this most effectively; and it is a very clever thing to seek safety while still fighting, and to take away the shame of flight.'[421]

CONCLUSION

On account of its immense geographical variation, the Near Eastern environment produced two distinct types of horse: the Nesaean and the Southern Steppe or Turnaian horse. As we have seen, these two types were physically very different from each other and thus suited to a range of uses. This natural equine diversity allowed the kingdoms of the Near East to build armies heavily based on the horse. Likewise, it follows that the Near East was a locus for equine military innovations. The horsemen of the Near East

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[420] Xenophon *Anabasis* 3.3.8

[421] Plutarch *Crassus* 24.5-6. See also 27.1 'Then, as the enemy got to work, their light cavalry rode round on the flanks of the Romans and shot them with arrows…'

were the first to make large scale use of chariots in battle, the first to deploy organized cavalry units, they created the first 'high-speed' communication system, they regularly deployed mixed 'heavy' and 'light' cavalry and they produced the first true heavily armored cavalry in the ancient world.

The Nesaean horse was truly unique among the ancient horse types. He represents what a fluke of nature can create- in this case naturally occurring high-protein clover led to the natural development of a muscular, robust animal. This in turn allowed the armies of the Near East to create a kind of cavalry not possible elsewhere- the cataphract. Effective cataphract units require Nesaean type horses, and these must have access to high-protein lucerne in order to create and maintain body condition. Thus, the Nesaean horse represents what nature can create, but also the limitations placed on it.

The Southern Steppe horse was a rangy, versatile animal. He developed to thrive and arid, rocky and mountainous climates. As a result, this type was a great all-around horse ideal for travel/long-distance riding, athletics and a variety of fighting styles on the battlefield including skirmishing and rapid attacks. The agility and endurance of these horses made them particularly suited to mounted archery, much like their Northern counterpart the Central Asian horse. The lean spare build of this type meant they were not suite to carrying heavy loads like the Nesaean.

CHAPTER SIX: THE MEDITERRANEAN HORSE

The Mediterranean world produced what could be considered the most unlikely cavalry power of the ancient world. The climate and topography of the Mediterranean countries were not the most ideal for horse rearing; only select regions such as Thessaly and Etruria provided the grassy meadows necessary for large-scale horse breeding. As a result of this horses became a high-priced luxury item. They were not used for day-to-day labour in town or on the farm. Instead horses were reserved for use in sport, spectacle and war, or as White writes:

> In Roman times horses were used for three purposes: for cavalry, for chariot-racing in the circus, and for riding and pulling carriages; they were not employed as draught-animals, either for pulling implements or for road-haulage. Their role in the economy of the farm was, therefore, restricted to that of providing sires or dams for the breeding of mules and hinnies. [422]

Likewise, in reference to the Greek world:

> Horses were not required for heavy work, which was carried out by oxen, donkeys, and mules – animals that require much less fodder. So the Greek horses were first and foremost mounts and race-horses.[423]

This inherent Mediterranean association of horses with luxury had a significant influence on the way equines were used in war. Greece and Italy were, militarily speaking, infantry cultures. In their armies, the hoplite and legionary reigned supreme. Before Macedonian hegemony in the Greek world, the horse and cavalry rarely played more than a supporting and skirmishing role on the battlefield. The horse appears to have been an even less

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[422] K.D. White, *Roman Farming*. (Ithaca, 1970) 288.
[423] S. Isager and J.E. Skydsgaard *Ancient Greek Agriculture: An Introduction*. (New York, 1992) 86.

significant part of Mediterranean-style fighting in the Italian Peninsula, and it is a commonly accepted fact that the Romans were never thought to be interested in producing a native cavalry, let alone becoming consummate horsemen. The role of the horse in Italian and Greek warfare is closely tied to the cost of breeding and raising horses in an environment that is, for the most part, less that ideal for such purposes. This, in turn, meant that the owners of these equines were not eager to waste them on the battlefield. Unlike in Central Asia and the Near East, the cavalry of the Mediterranean did not have access to a seemingly endless supply of horseflesh.

ENVIRONMENT

The Mediterranean region is the only place in the world where an inland sea is touched by three continents: Asia, Europe and Africa. This unique geographical setting makes the Mediterranean Basin a rich and complex geological zone. No single type of ecosystem dominates this region. Instead, it is an ecological mosaic made up of tesserae of forests, shrubland, plains, mountains, wetlands and thousands of islands.

Of all the regions studied in this dissertation, the Mediterranean Basin and its complex ecology is without a doubt the most inextricably linked with human evolution: 'Nowhere else more than in the Mediterranean region has nature molded people so much and have people in turn so deeply influenced landscapes.'[424] The Mediterranean Sea, much like the Near East, was a central crossroads throughout history. The Near East served as a center-point for overland travel and trade. The Mediterranean was a center of sea-

[424]J.A. Blondel et al, *The Mediterranean Region: Biological Diversity in Space and Time* (Oxford, 2010) 202.

transport. As we shall see, the lands of the Mediterranean Basin are by no means homogenous, but they are all connected by one thing: the Sea.

The diverse mosaic of territories surrounding the Mediterranean was not always the most benevolent of environments. Nonetheless, urbanization and agriculture have flourished across the Mediterranean Basin. Why? Even though it was not always an easy place to live, this region was a tactically and economically favourable location. Thus, the inhabitants of the Mediterranean lands have manipulated and molded its ecosystems to suit their needs for thousands of years: close to 10,000 years in the eastern Mediterranean and 8,000 years in the west.[425] From the beginning of the Holocene period, the Mediterranean Basin became a melting pot of people, animals and plants as they migrated into previously glacier-covered regions to escape the increasingly hot climates of the south. The climate change of the early Holocene began a trend that would continue for thousands of years in the Mediterranean and Near East. The centrality of these regions led to the development of numerous powerful civilization, all of which

> …profoundly shaped the landscapes everywhere in the basin. Apart from sheer, high cliffs, and some very remote mountainous areas, there is probably no square meter of the Mediterranean basin which has not been directly and repeatedly manipulated and, one might say 're-designed' by humans.[426]

The sea is, of course, central to our notions of the Mediterranean Basin as well as the ecological evolution of the region. Nonetheless, it is difficult to define what precisely delineates what we call the 'Mediterranean' and where its boundaries lie. Aside from proximity to the sea itself, a primary factor connecting 'Mediterranean' lands is climate

[425] Blondel et al (2010) 202.
[426] Blondel et al (2010) 204.

patterns: hot dry summers and mild, wet winters.[427] Aside from this climatic connection and the consistent presence of certain species of vegetation like the olive and holm oak, the Mediterranean Basin is a remarkably heterogeneous region.

The Mediterranean Sea itself is unique in the world. The Basin is almost completely closed. It attaches to the Atlantic Ocean only through the 12km wide Strait of Gibraltar.[428] The morphology of the Mediterranean makes it much more geographically complex than it first appears. It should not be viewed as a single, massive aquatic mass, but rather a tapestry of smaller seas and basins.[429] Indeed, the Mediterranean can be dissected into nine specific regions: The Alboran Sea, the Balearic Sea, the Tyrrhenian Sea, the Ligurnian Sea, the Adriatic Sea, the Ionian Sea, the Aegean Sea, the Algeio-Provencial Basin and the Levantine Basin.[430]

The geographical layout of the Mediterranean as we know it today was formed primarily during the Tertiary era through the shifting and collisions of tectonic plates and microplates. These movements took place over hundreds of millions of years, beginning with the splitting of Pangaea and Tethys Ocean c.200 million years ago. These shifts had the greatest impact on the Mediterranean during the Pliocene and Pleistocene periods c.5 million years ago-12,000 years ago, when movement between the African and Eurasian plates increased the elevation of the Alps while at the same time shrinking the size of the Tethys Ocean which came to survive only as the Mediterranean, Black, Aral

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[427] P. Harden and N. Purcell, *The Corrupting Sea: A Study of Mediterranean History* (Oxford, 2000) 12.
[428] At its eastern end the Mediterranean Sea connects to the Black Sea through the narrow straits of the Dardanelles.
[429] P. Lionello et al., 'The Mediterranean Climate: An Overview of the Main Characteristics and Issues' in P. Lionello et al (eds.), *Mediterranean Climate Variability Volume 4* (Amsterdam, 2006) 2
[430] Blondel et al (2010) 6.

and Caspian Seas. The collision of the two plates had a massive impact on Mediterranean topography as it created a ring of mountains that surrounds the entirety of the Mediterranean Basin excepting the region between Egypt and Tunisia.[431] These frequently high ranges - the Alps reach a height of 4,800m - have an important impact on the Mediterranean climate as their presence causes sharp climatic variations and features that would otherwise not have been found in this region.[432] The active movement of several microplates in the Mediterranean makes this region an active seismic and volcanic zone. Both factors have played a significant role in the topographical evolution of this area.

If we include the Black Sea, the waters of the Mediterranean cover an area of c.2.5 million square kilometers, stretching about 3700 km east-west and 1,600 km north-south with an average depth of 1500m; at its deepest point the Mediterranean reaches c.5,150m in the Ionian Sea.[433] The topography of the Mediterranean is, as I have already stated, far from homogeneous. It is home to widely diverse landscapes, all of which have shaped how people and animals live. The predominant topographical feature of the Mediterranean is its many mountains, which include the Alps, Pyrenees, Apennines, Caucasus, Pontic, Pindos, Taurus ranges, the mountains of Lebanon, the Rif, Kabylie, Atlas and Anti-Atlas ranges of North Africa and the numerous cordilleros of the Iberian peninsula. These mountains are very important to the flora and fauna of the

[431] Blondel et al. (2010) 1-3.
[432] Lionello et al. (2006) 2
[433] Lionello et al. (2006) 2.

Mediterranean as they are the sources of the many rivers and watersheds that crisscross the region.[434] The various biomes that make up the Mediterranean lands are as follows

1. Forests and woodlands: Today these cover about 8.5% of the region. They are rarely dense forests with closed in canopies, but rather open woodlands with a forest floor of mixed vegetation.

2. Marotrras/Maquis (Shrublands): Matorras are dominated by hardy evergreen shrubs.

3. Steppes and Grasslands: They occur predominately in the Southern regions of the Mediterranean and areas that receive less than 300mm of precipitation per year. Grasslands dominate large tracts of land in North Africa and the South East corner of Spain.

4. Old Fields: Abandoned farmland

5. Cliffs and Caves: These create very specialized habitats due to the micro-climates associated with them.

6. Riverine/Riparian forests: These forests are dominated by deciduous trees. They once covered more than 2000 square km of Mediterranean land.

7. Wetlands: These range from large inland lakes to temporary ponds and large networks of coastal lagoon.

8. Freshwater lakes: These are typically found at high altitudes as they are fed by glaciers.

9. Deltas and coastal lagoons: These areas have a huge variation in biodiversity depending on the specific geological/topographical elements of each delta/lagoon.

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[434] Blondel et al. (2010) 10-11

10. Temporary marshes: These marshes are dependent on rainfall and thus are dry for several months of the year, creating temporary ecosystems.[435]

The one major unifying element of the Mediterranean Basin is its bimodal climate of hot, dry summers and temperate, wet winters. This is not to say that the climate of the region is actually simple or benevolent. The Mediterranean is, as we have already seen, not always an easy place to live. Factors like rainfall can vary from less than 100mm per year in the deserts of North Africa and Syria to over 4m per year in parts of Southern Europe. All parts of the Mediterranean receive at least 2 months per year where there is no precipitation whatsoever, creating a significant stress on plant and animal life. Mean annual temperature ranges from 2-3º Celsius in some mountain ranges to over 20º Celsius in North Africa. Despite its predictable bimodal climate the weather patterns are often notoriously unpredictable

> The wide range of diurnal temperature fluctuation at certain seasons, the violence of certain winds, and calamitous short-lived rainfall events make the Mediterranean climate notoriously capricious and unpredictable.[436]

Heavy rainfall in particular can be an economic catastrophe as the resulting floods wash away crops, drown livestock and devastate the often densely populated areas surrounding river basins.[437]

Where does this leave us in our understanding of the Mediterranean horse? Clearly the key to survival in this environment was versatility. A horse had to be able to navigate a wide variety of terrain, including steep mountain trails. He had to endure long hot and

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[435] For a more in-depth analysis of each biome type, see Blondel et al. (2010) 118-135.
[436] Blondel et al. (2010) 12-14.
[437] Lionello et al. (2006) 17.

arid months with little food or water and withstand the drastic weather and temperature changes that afflict the region.

The Cortona region of Tuscany

Sparta and the Eurotas Valley

Pylos

The plains of central Thessaly.

Bay of Naples

The Via Appia outside Rome

LIFESTYLE AND HUSBANDRY

Unlike the Central Asian horse, the Mediterranean horse was regularly housed in stables and fenced, secure fields or paddocks. Ancient texts provide some description of the

ideal stable – although they do not go into any great detail and are part of a larger chapter on horse husbandry as a whole. Rarely do these texts describe how a stable should be built, where or on what dimensions. For this we turn to archaeological remains. Numerous stable-type buildings have been excavated across Europe, the Middle East and North Africa. Many of the structures seem to have served a military function, but we also have examples of small stables included in the architectural layout of urban houses. Finally, we can use artistic remains. Mosaics from North Africa display what appear to be stud farms and give an idea of what the stables and stalls may have looked like.[438]

The majority of ancient sources recognize the unnaturalness of keeping a horse in a stable; they all encourage the owner or breeder of horses to keep his animals outside as much as possible. In the case of young stock, this is to encourage physical development – particularly for the potential war or racehorse. As Anderson points out, common practice in the Greek world was to allow the broodmares to live in a field.[439] They were brought in only when they were close to their due dates, and turned out again with their foal once he was robust enough to be exposed to the outside world.[440] For Xenophon, it was only the war-horse that required stabling on a regular basis. This was because he needed to be placed in a regular training and fitness program. This seems to have been the case in Sparta, a region (despite the dominance of its infantry) that became renowned for its horse-breeding programs. As Howe points out, each Spartan was required to

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[438] J.M.C. Toynbee, *Animals in Roman Life and Art* (Ithaca, 1973) 180-181.
[439] Anderson (1961) 89.
[440] Varro, *On Agriculture,* 2.7.11 'Within ten days after birth colts should be driven to pasture with their dams, so that the dung may not burn their tender hooves.' Columella, *On Agriculture,* 6.27.12 'Then gradually it [the foal] will have to be made to leave the stable, and care must be taken that it does not burn its hoofs with dung. Soon, when it has become stronger, It must be sent out to the same pasture as its mother…'

provide horses for the Spartan cavalry.[441] The region of Lacedaimonia, especially the Eurotas valley around ancient Sparta is lush and fertile. Presumably each Spartan citizen maintained a breeding program at his country estate. From here, potential war-horses were sent to a central location for training at the appropriate age. This again calls to mind the program followed at the Spanish School where male young-stock are left to run free over the foothills of the Alps at Piber until they are four years of age. Only then are they brought into the stables to begin training. Mares are used only for breeding and thus stabled only when they are due to give birth and for a short while afterwards. Once all the foals are ready, the mares and their little ones are released in the fields.

Of course, not all parts of the Mediterranean world were suitable for keeping a horse at pasture; in urban settings there was no option other than using stables. In some cases the stables may have been located outside the city walls, but several examples from the city of Pompeii in southern Italy indicate that stables could be built into the structure of the city house, as can be seen in the plan of the House of the Chaste Lovers and several other houses. The stables located in the House of Popidius Secundus were built like a micro-shedrow around a small courtyard, which included both stalls and rooms for the grooms.[442] At the time of Vesuvius' eruption in August 79CE, several equids had the terrifying misfortune of being locked in these stables. Likewise, houses in Israel and

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[441] T. Howe, *Pastoral Politics: Animals, Agriculture and Society in Ancient Greece.* (Camas, 2008) 66-67
Xenophon, *Constitution of the Lacedaemonians,* 6.3 'A similar plan of borrowing is applied to horses also; thus a man who falls ill or wants a carriage or wishes to get some place quickly, if he sees a horse anywhere, takes it and uses it carefully and duly restores it.'
Xenophon, *Hellenica,* 6.4.11 '…the horses were kept by the very rich, and it was only after an order for mobilization that the appointed cavalryman appeared to get his horse and whatever arms were given him; he then had to take the field at once.'
[442] Hyland (1990) 37 and Toynbee (1973) 172.

other parts of the Middle East often contained a small stable on the main floor of the building – the stalls may have been small loose boxes or tie stalls; how often these structures were intended for horses in uncertain, but other equids, especially donkeys, would have been common.[443]

Most of our literary sources emphasize the importance of maintaining a clean, dry stall. The use of deep bedding does not seem to have been a concern for the regular horse; only with sick or injured horses (presumably on stall rest) and pregnant mares was any sort of deep bedding recommended and in these instances the material of choice was straw or chaff. Cleanliness of the stable was considered of great importance. Xenophon recommends that the groom 'have orders to remove the dung and litter daily to one and the same place'[444]; while Columella recommends that horses '…are stabled in a dry place, so that their hooves are not wetted. This we shall easily avoid if the stable is floored with boards of hard wood, or if the ground is carefully cleaned from time to time and chaff thrown over it.'[445]

Plans of non-military stables suggest that the buildings were designed, as White describes, to catch as much natural sunlight as possible. Our ancient authors place a certain amount of emphasis on the importance of keeping a stable snug and warm, and so

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[443] A. Faust and S. Bunimovitz, 'The Four Room House: Embodying Iron Age Isrealite Society,' *Near Eastern Archaeology* 66.1/2 (2003) 22-31.
[444] Xenophon, *Art of Horsemanship,* 5.3.
[445] Columella, *On Agriculture,* 6.30.1-2. See also Cato, *On Agriculture,* 5.7-8 'Litter the cattle and flocks carefully, and see that their hoofs are kept clean… If bedding runs short, gather oak leaves and use them for bedding down sheep and cattle. See that you have a large dunghill; save the manure carefully, and when you carry it out, clean it of foreign matter and break it up. Autumn is the time to haul it out.' The same advice also applies to equine stable management.

it would be helpful to obtain as much natural warmth as possible. Varro advises that the expectant broodmares,

> …after conceiving, are not worked over hard or kept in cold places, as chill is extremely injurious to those with foal. So in their stalls the ground should be kept free of dampness, the doors and windows should be kept shut, and poles should be placed in the pen to separate each mare, so that they cannot fight one another.[446]

Today we understand that the horse does not require as much heat as humans to be comfortable and indeed, the snug, warm, sealed stable is not really the most healthful environment in which to house a horse. In less salubrious climates like Britain stables were heated by means of a brazier located at the end of the shedrow. Needless to say, this was not the safest way to heat a stable. The military stables, at least, also provided accommodation for humans – whether these were grooms or cavalrymen (or perhaps both) is unclear. Their rooms were sometimes located on a second floor, or in the same room as the brazier on the main level. It makes sense that many of the regular cavalrymen would feel more comfortable sleeping near their mounts – their lives depended on the health and happiness of these animals.

Most of our knowledge about the construction of Roman stables comes from military barracks. The logistics of equine management on a military frontier are quite different from those at a permanent stud farm in a peaceful and 'Romanized' location. First off,

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[446] Varro, *On Agriculture,* 2.7.10. Likewise Columella, *On Agriculture,* 6.27.10-12 'From the time when mares become pregnant they need special care and must be fortified by generous fodder. If the grass has failed owing to the cold of winter, they should be kept under cover and not be fatigued by work or journeys, and they should not be exposed to the cold nor enclosed in a narrow space lest they should cause one another to miscarry…
All that one will have to do is to take care that the foal lives with its mother in a place which is both roomy and warm, so that the cold may not hurt it while it is still weak and that its mother may not crush it because its quarters are narrow.'

the majority of the equines housed would be stallions- the choice of gender for the Roman war-horse; mares and geldings would have been used as pack-horses and as mounts for messengers. Again, it is safe to assume that the war-horses would have been housed separately from the other animals, which may not have been stabled at all, but kept in pens or picket lines.

Archaeological evidence from Roman barracks in Britain, along Hadrian's wall indicates that two types of stabling were used: larger loose boxes, and the equivalent of the standing stall. The buildings were long, rectangular shedrow type structures, like those found at many racetracks. The horses were tied to a wall above a manger, presumably with enough room to lie down in necessary, but this may not have been the case if several horses were tied between a set of partitions – the risk of the animals getting tangled in ropes would be too high. To ensure that each horse received an appropriate amount of food, our authors suggest that the manger be divided into sections. Presumably, then, each section of tie-stalls had one long manger attached to the wall. This manger was the divided into a section for each horse preventing less dominant animals from being chased off their feed by an aggressive neighbour- a particular concern with both stallions and mares.[447]

Despite common belief, stallions can be housed in close-quarters- so long as there are no mares 'in heat' nearby. The Spanish School in Vienna uses only stallions for its shows, and these are housed and transported together without problems. This is further evidence suggesting that any mares were housed in a different building. The presence of geldings does not normally bother a stallion unless there are mares in the vicinity.

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[447] N. Hodgson and P.T. Bidwell, 'Auxiliary Barracks in a New Light: Recent Discoveries on Hadrian's Wall,' *Britannia* 35 (2004) 121-157.

Several stable structures in these barracks also had what appear to be loose boxes. It is safe to assume that these stalls housed the mounts belonging to the general and his officers. These horses would have been more valuable because of bloodlines and appearance (i.e. they cost more) than the horse assigned to the regular cavalry trooper; thus they garnered more spacious housing

APPEARANCE

The Head: Flat to slightly dished profile. The head is long and slender, but balanced in proportion to the rest of the body. It presents a very 'dry' profile: the shape of the bones and veins is clearly visible and frequently delineated in artistic representations. This gives the head of the Mediterranean type a distinctive chiseled appearance. The forehead is broad with large, well-spaced eyes. The ears are small, delicate and well-shaped, rarely shown as hairy. These horses typically have a clean throatlatch, with plenty of room between the jaw and vertebrae. The nostrils are large and thin-skinned. The overall impression is of a head that is clean, light and refined.

Parian horses. 650-600 BCE. National Archaeological Museum of Athens.

Athenian horse. 4th century BCE. National Archaeological Museum of Athens.

Head of the general's horse from the Portonaccio Sarcophagus. 180-190CE. Palazzo Massimo.

Head of a racehorse. 3rd century CE. Palazzo Massimo.

In both relief and sculpture in the round, we are often given the impression that the horse is champing at the bit. This can be a sign of excitement and tension, but this also happens when the horse accepts the bridle and flexes through his jaw and poll.

Head of the Viccolo della Palme horse showing a high degree of flexion. 5th century BCE. Capitoline Museum.

Head of the Artemision horse showing no flexion at all. 3rd-1st century BCE. National Archaeological Museum of Athens.

The Neck: The neck is moderate to long in length and well muscled. The Mediterranean typically displays a 'cresty' neck, often an indicator of a stallion, which builds up more

muscle on the crest of the neck than mares or geldings. The longer neck is more frequently found in racing scenes and is typically less muscled, while the military and riding horse tends to the moderate, muscled neck. The long neck is suitable for the racehorse since it helps him to stretch out and lengthen his stride through his whole body. The medium-length neck is ideal for the Mediterranean military horse and is indicative of a high degree of suppleness and balance, essential for the cavalry maneuvers used in the Mediterranean cavalries.

The long neck of a racehorse. Black figure Panathenaic amphora. 525-500 BCE. The Metropolitan Museum of Art.

Muscular necks of the warhorses on the Siphnian Treasury. 6th century BCE. Delphi Archaeological Museum.

Muscular neck of a riding horse. 1st century CE. National Archaeological Museum of Naples.

Circus horses. 3rd Century CE. The Vatican Museums.

The Shoulders and Chest: This type typically displays a nicely sloping shoulder, which encourages the animal to open and lengthen his stride, creating a loose, smooth, free-flowing gait. The chest is moderate to narrow in breadth but always well-muscled.

Bronze Tarentine horse. c.550 BCE. The British Museum.

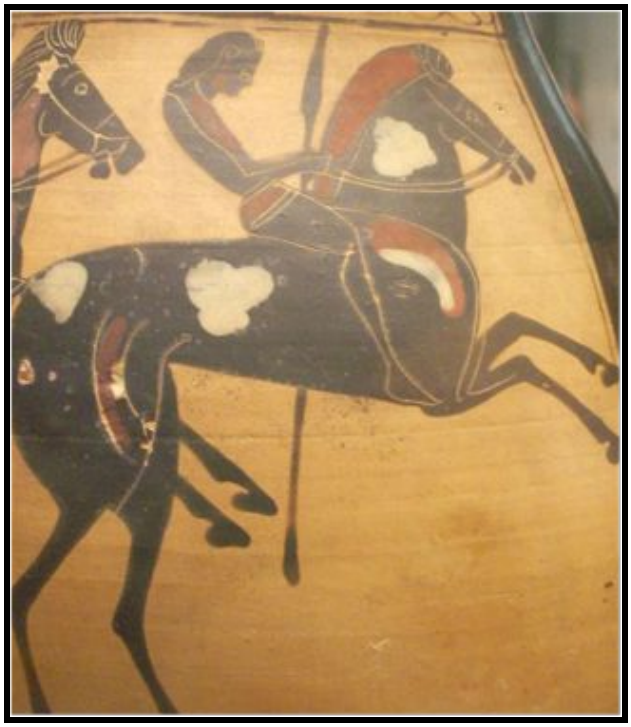
A Parthenon horse showing the slope of the shoulder. Cast from the West Frieze of the Parthenon. 5th century BCE. The British Museum.

Red figure horse showing the slope of the shoulder. C.400 BCE. The Agora Museum.

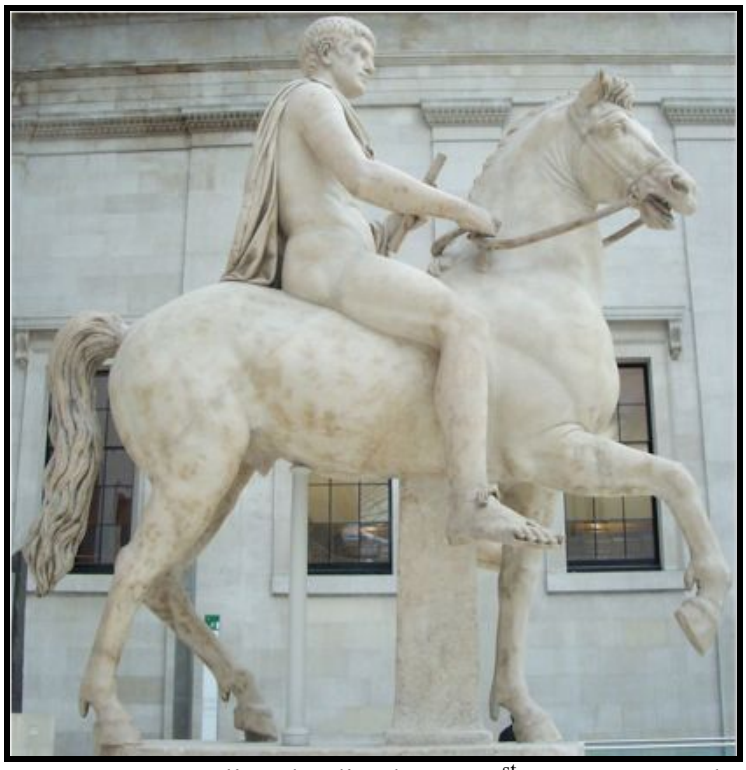
Three circus horses. 2nd-3rd century CE. Thessaloniki Archaeological Museum.

The Body/Trunk: Typically close-coupled, though longer backs do appear. The girth is deep in proportion to the rest of the trunk. The stomach often looks 'tucked-up'- a trait commonly found in racehorses. The body is very lean; faint traces of the ribs can usually be seen. The ribs are moderately well sprung, but not overly so especially when compared to the Steppe type. This suggests an animal with a degree of endurance, although lacking in speed and staying power when compared with other types. This is a

fact found in the primary sources, and is possibly reflected in Circus inscriptions listing the place of origin for racehorses, Africa being quite common (the Near Eastern type). The body is relatively spare. As with the head, veins, musculature and bones are visible. This suggests a thin-skinned animal. The back is usually conformationally correct. It is well muscled as a result of the animal's consistently working in a collected frame, thereby encouraging the development of a 'double-back' which is the muscling up of *m.longissimus* alongside the spine.



Corinthian black Figure horse. c.575-555. The British Museum.



Julio-Claudian horse. 1st century CE. The British Museum.

Hindquarters: The hindquarters are moderate in size, certainly not excessively large in proportion to the body. They are well shaped with a smooth, rounded appearance. The muscles are well developed and emphasized. In the depictions of the moving horse, the hindquarters are usually tucked under the animal, indicating that he has shifted his weight back and underneath him, thereby lightning the amount of weight on his forequarters.

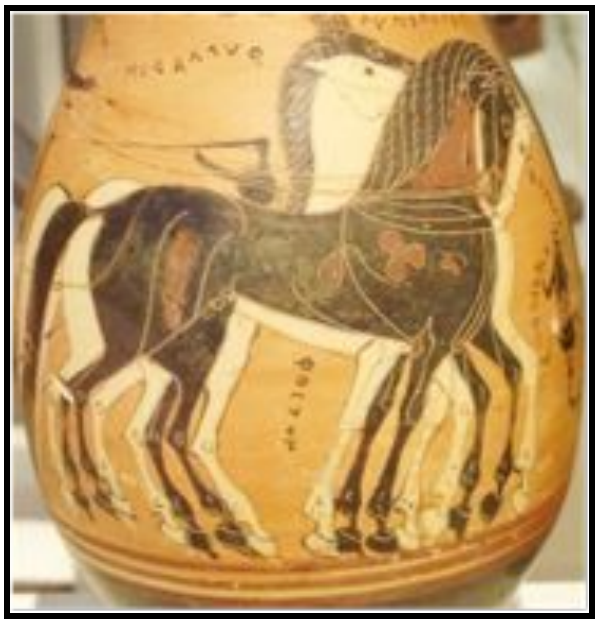
The well-muscled, close-coupled hindquarters of an *apobates* horse. 5th century BCE. The British Museum.

Hellenistic horse. 3rd-1st century BCE. The National Archaeological Museum of Athens.

Roman horses. Early 3rd century CE. The Metropolitan Museum of Art.

Legs: The legs are clean and slender, displaying no excess hair or fleshiness. They have short, well-formed cannons with good, dense bone. The hocks and knees are large and clean. The pasterns can be long and sloping, but they are rarely short and upright. The length of the legs is long in proportion to overall height. The hooves are moderately sized in comparison to over all body mass.

Geometric bronze horse. 8th century BCE. Olympia Archaeological Museum.



Corinthian horses. 575-550 BCE. The National Archaeological Museum of Athens

Opus Sectile horse. 4th century CE. Palazzo Massimo.

The overall impression of the Mediterranean type is that of a slender, compact and muscular horse. This animal is frequently portrayed in a state of collection; indicative of the training and schooling methods used for these horses. These methods are possible

with the Mediterranean horse because it is a conformational type that allows for this kind of work. The iconographic and literary records suggest this is a sensitive, potentially high-strung horse that can be difficult at times. Obedience is emphasized to a degree, but we are rarely given the image of an entirely subservient animal. The Mediterranean type is a very athletic horse. It is capable of a quick turn of speed and sudden changes of direction as well as lateral movement and some of the 'high school' elements found in Classical dressage. The levade is frequently seen, particularly in the Greek iconographic tradition. The well-shaped legs and hooves suggest a horse likely to remain sound through regular, steady work; although terrain could be an issue. The general topography of the Mediterranean region suggests a type that is surefooted and nimble enough to navigate steep and narrow mountain trails. Environmental requirements are also reflected in the 'dry' appearance of this type: there is little excess fat or hair, and muscle tends to be well-defined but lean.

Etruscan racehorse. 490-470 BCE. The British Museum.

Parthenon horse. 5th century BCE. The British Museum.

TRAINING

Literary and archaeological sources suggest that both Greek and Roman cavalry mounts were trained and schooled in controlled environments, such as a parade ground or the Roman *gyrus*. Xenophon tells us that at Ephesus one might see 'the racecourse thronged with cavalrymen riding…'[448] In his *Cavalry Commander*, Xenophon mentions Athenian reviews 'in the Academy, in the Lyceum, at Phalerum and in the Hippodrome.'[449] In the *Art of Horsemanship*, he distinguishes between the uneven or oblong ring and the circular one.[450] Virgil tells us that the prospective war or race horse should 'begin to run round the circuit, to make his steps ring evenly, to bend his legs in alternating curves…'[451] A

[448] Xenophon, *Agesilaus,* 1.25
[449] Xenophon, *The Cavalry Commander,* 3.1
[450] Xenophon, *Art of Horsemanship,* 7.14
[451] *Gyrus*: The place where horses are trained. Virgil, *Georgics,* 3.190-193; Propertius, *Elegies,* 3.14 '*gyrum pulsat equis.*' According to Virgil, it was the Thessalian Lapiths who created the training ring – *'frena Pelethronii Lapithae gyrosque dedere impositi dorso…'* Virgil, *Georgics,* 3.115-116

tombstone from Caesarea in Mauretania inscribed for Q. Gavius Frontinus of the *singulares* horse guard shows what Speidel correctly identifies as a figure-of-eight riding track.[452] Spaces identified as equestrian training grounds have been found in connection with numerous Roman military forts. One would expect any fort housing a permanent cavalry detachment to provide a suitable space for the conditioning and training of horses. At the basic level this could be a simple *gyrus*, but where space and resources were available training grounds must have been quite elaborate acting as a true riding school.[453] These training grounds were selected carefully; they were not *ad hoc* open spaces. Arrian tells us that cavalrymen

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[452] M. Speidel, 'Roman Cavalry Training and the Riding School of the Mauritanian Horse Guard', *Antiquités Africanes* 32(1996) 57.

[453] An excellent example of the *gyrus* has been uncovered within the walls of the Roman camp at Lambèse in Numidia. The *gyrus*, measuring 14m in diameter, was located at the center of the compound, near the basilica. See Y. Le Bohec, *La troisième legion Auguste.* (Paris,1989) 364. The site of Tocolosida in Morocco has a *gyrus* located outside the walls, on what must have been the *campus*. About half of the structure survives, allowing us to determine a size of approximately 30m in diameter for the entire ring. See M. Euzennat, *Le Limes de Tingitane: La Frontière Méridionale.* (Paris, 1989) 246-247 & 252-253.

The equestrian training grounds – particularly the *campus* – of the Roman forts and camps are connected to the worship of the *Campestres*: the goddesses of the parade-grounds. Altars/inscriptions set up to the *Campestres* are always found in a cavalry context; they are never associated with infantry. The equestrian *Campestres* were imported by Gallic cavalry serving in the Roman army. R.W. Davies, *Service in the Roman Army*. (Edinburgh, 1989) 93-94.

R.G. Collingwood and R.P. Wright, *The Roman Inscriptions of Britain volume I.* (London, 1965). Henceforth, *RIB*

RIB 1206: Part of an altar from Gloster Hill *'[Ca]mpestri[bus c]oh(ors) I'*

RIB 1334: Dedication-slab from Benwell '*Matr(ibus) Tribus Campes[t]r[i]b(us)* | *et Genio alae pri(mae) Hispano* | *rum Asturum [… | …] Grodi[a]nae T(erentius?)* | *Agrippa prae(fectus) templum a so(lo) res* | *tituit*

RIB 2121:Altar from Newstead *'Campestr(ibus)* | *sacrum Ael(ius)* | *Marcus* | *dec(urio) alae Aug(ustae)* | *Vocontio(rum)* | *u(otum) s(oluit) l(aetus) l(ibens) m(erito)*

RIB 2135: Altar from Cramond (now lost) '*Matrib(us) Ala* | *terius et* | *Matrib(us) Cam* | *estribu(us) coh(ors) I* | *Tungr(orum) ins(tante)* | *VERSCAR* | *[c(enturione)} leg(ionis) XX V(aleriae) V(ictricis)*

> … not only choose a smooth place where their exercises are completed, but they work so much as to dig the middle to a proportionate depth and they break up the clods to fineness and softness. From the whole plain they then cut the (space) in front of the rostra into the shape of an equilateral rectangle.[454]

As the Roman world expanded to include less salubrious climates, indoor or covered 'arenas' were constructed to provide suitable training areas in winter or inclement weather.

> …in winter-time they built riding schools for the cavalry and a kind of drill-hall for the infantry, roofed with tiles or shingles or, failing these, thatched with reeds, sedge or straw. In them the army was trained in arms under cover, when the weather was disturbed by wind and rain. But for the rest of the time, even in winter, so soon as snow and rain ceased, they were made to train in the exercise-field, so that no interruption to routine might weaken soldiers' minds and bodies.[455]

Archaeological evidence for these indoor spaces has been found throughout the northern reaches of the Roman Empire, particularly in Britain at Inchtuthil, Chester, Haltonchesters, Netherby, Ilkley and Newstead, and in Germany.[456] Speidel suggests some schools must have included varied terrain and a variety of obstacles such as ditches and walls for training horse and rider to jump.[457] The training grounds, then, were not uniform in size or shape but followed whatever form the topography allowed.[458]

RIB 2177: Altar from Auchencdavy '*Marti | Minervae | Campestri | bus Herc(u)l(i) | Eponae | Victoriae | M(arcus) Coccei(us) | Firmus | c(enturio) leg(ionis) II Aug(ustae)*
RIB 2195: Altar from Castelhill (Antonine Wall) '*Campes | tribus et | Britanni(ae) | Q(uintus) Pisentius | Iustus pr(a)ef(ectus) | coh(ortis) IIII Gal(lorum) | u(otum) s(oluit) l(aetus) l(ibens) m(erito)*

[454] Arrian, *Ars Tactica,* 34.
[455] Vegetius, *On Warfare,* 2.23
[456] Davies (1989) 95-96; see also Hyland (1990) 120.
[457] Speidel (1996) 59.
[458] Hyland (1993) 20-22.

The results of this intensive training were displayed before the public in spectacular mounted performances. Xenophon reports that one duty of the cavalry commander is to 'conduct all the other obligatory displays before the people with as much splendor as possible…'[459] Xenophon goes on to describe what he considers to be the best maneuvers

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It was of the utmost importance for both horse and rider to be kept in consistent, regular training. This was especially important for the fitness of the horse. An unfit horse is not physically or mentally prepared to launch himself into hard, strenuous work. Any horse that has enjoyed a prolonged break from regular work must be gradually re-introduced to fitness training. The longer the period of rest, the slower the build up of the training regime. For an in-depth explanation of the fitness process see C. Henderson *Getting Horses Fit*, especially pp.97-105, for a short description of the process. While Henderson's book is meant for the modern competition horse, the principles she describes are just as applicable to the ancient war-horse. A discussion of some main ailments that plagued the military horse – particularly the unfit one – can be found in C.Willekes *The Greek Warhorse: Its Breeding, Training and Military Role*. (Calgary, 2006) 71-83, but especially 80-82 on azoturia or typing-up syndrome.
Some generals seem to have been aware of the importance of keeping their warhorses fit. For example, Eumenes, he developed an unusual solution to the problem while besieged in Nora: 'Seeing that the horses, unable to exercise themselves because of the rough and confined space, would become unfit for use in mounted battle, Eumenes devised a certain strange and extraordinary exercise for them. Attaching their heads by ropes to beams or pegs and lifting them two or three double palms, he forced them to rest their weight upon their hind feet with their forefeet just clearing the ground. At once each horse, in an effort to find footing for its forefeet, began to struggle with its whole body and with its legs, all its members sharing in the exertion. At such activity sweat poured freely from the body and thus kept the animal in top condition through their excessive labours.' Diodorus, *Library,* 28.43.3-4.
In a letter to L. Verus, Fronto describes the disorganized and lazy state of soldiers based in Antioch: 'The army you took over was demoralized by luxury and immorality and prolonged idleness. The soldiers at Antioch were wont to spend their time applauding actors and were most often found in the nearest tavern garden than in their ranks. **Horses shaggy from neglect**, but every hair plucked from their riders, a rare sigh was a soldier with arm or leg hairy…he found horses saddled with cushions, and by his orders the little pommels on them were slit open and the down plucked from the saddles of the cavalry as from geese. Few of the soldiers could vault upon their steeds, the rest scrambled clumsily up by dint of heel or knee or ham; not many could make their spears hurtle, most of them tossed them like toy lances without verve and vigour…' Fronto *Correspondence* II.19.
[459] Xenophon, *The Cavalry Commander,* 3.1

for the public displays, including a 'gala ride in the agora.'[460] He suggests 'the cavalcade gallop at top speed by regiments as far as the Eleusinium' and later 'ride back to the temples by the same route, but at a slow place…'[461] The reason he gives for such a display is to show off the beauty of the horsemen and their mounts, but it also tests skills required in combat. To begin with, the horses must be trained to behave in a crowd as they start off in the Agora saluting the various temples. One must imagine the Agora would be packed with people wishing to view the spectacle. The regiments then explode forward into a fast gallop, one group at a time. Such a maneuver would achieve its full effect only if the members of each regiment struck off simultaneously – anyone lagging behind would be awkwardly obvious. At the same time, those regiments waiting to run had to keep control of horses that would become increasingly more agitated the longer they had to wait. One must imagine that Xenophon wanted the regiments to gallop in an ordered formation. This means the cavalrymen had to keep control of their mounts while moving at 'top speed', not a simple thing to do given the competitive nature of some horses as well as their basic flight instincts. If the animals took control and began to race each other, the spectacle would soon become chaotic and present a less formidable appearance. Finally, the men must pull their horses up before riding them back at a calm, stately walk. This is not an easy thing to do. The horses would be fired up after an explosive gallop and thus be inclined to fight their riders and prance out of formation on their way back to the temples. The skill and control Xenophon's cavalrymen required to perform a seemingly straightforward display were necessary on a battlefield where a squadron might be required to perform sudden starts and stops at speed. An out-of-

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[460] Xenophon, *The Cavalry Commander,* 3.2
[461] Xenophon, *The Cavalry Commander,* 3.2-3

control horse in the Agora was embarrassing for his rider and commander, but on the battlefield it could be deadly. For performances in the Lyceum, Xenophon suggests the commanders split the men into 'two divisions in line of battle' with the line 'so extended that the whole breadth of the course will be covered.'[462] He then advises the commanders to display 'your men's ability to gallop downhill in fairly large companies.'[463] In both of his cavalry-related treatises Xenophon places a fair degree of importance on the ability to canter or gallop downhill.[464] Riding a horse downhill in balance is more difficult than up even a steep slope. The horse naturally carries 60 percent of his weight on his forehand, so this uneven shift is exaggerated when the animals moves downhill and the need to shift the animal's weight back with his hindquarters brought well underneath him is even more important. Riding an unbalanced horse downhill is an unnerving experience even at a slow pace; at speed one feels out of control. As the competitors in the mounted hill race at Trapezus discovered 'on the way down, most of the horses lurched around, and on the way back up they could hardly walk on the steepest stretches…'[465] Xenophon rightly places much emphasis on training horse and rider to ride comfortably downhill since flat

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[462] Xenophon, *The Cavalry Commander,* 3.6
[463] Xenophon, *The Cavalry Commander* 3.7
[464]For example, Xenophon, *Art of Horsemanship,* 8.6 'Going downhill should first be taught on soft ground; and in the end, when the horse gets used to this, he will canter down more readily than up hill. If some fear that horses may put out their shoulders by being ridden down hill, they make take comfort when they understand that the Persians and Odrysians all ride races down hill, and yet keep their horses just as sound as the Greeks'
Xenophon, *Anabasis,* 4.8.28 'There were also horse races, in which the riders had to ride downhill, turn their horses on the seashore, and make their way back up the hill again towards the altar.'
[465] Xenophon, *Anabasis,* 4.8.28

ground was not always available on the battlefield.[466] The topography of Mediterranean countries is hilly and mountainous, thus it was not unusual for combat to take place on a hill.[467]

The cavalry were also expected to provide demonstrations of their fighting prowess and skill at arms. Xenophon mentions javelin contests that took place in the Lyceum.[468] This may have been similar to the mounted javelin competition at the Panathenaiac Games, or else have followed a pattern along the lines of the javelin exercises in the

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[466] I can personally attest to the discomfort most riders have about riding downhill especially at speed. When competing in my first one-day event, I was literally in a cold sweat about one fence on the cross-country course – a log jumped on a downhill slope. The angle of the slope was mild and the log small, but the fear of losing control and balance was overwhelming (we did make it over fine, but I kept my horse's stride and pace unnaturally short and slow). Likewise, it took a considerable amount of time to become accustomed to cantering and galloping downhill in Mongolia. At first the feeling was akin to riding a rollercoaster – at the top of a steep incline I just wanted to close my eyes and hang on, but I slowly adjusted to the feeling and while I was never entirely comfortable with the process, became adept enough at galloping down steep hills.

[467] Thucydides, *Peloponnesian War,* 5.10 'The Athenian right put up more of a resistance. Cleon himself had no intention of standing his ground; he immediately took to flight and was overtaken and killed by a Myrcinian peltast. But his hoplites formed up in close order on a hill, where they beat back two or three attacks made on them by Clearidas, and only gave way in the end when they were surrounded by the Myrcinian and Chalcidian cavalry and the peltasts, whose weapons thrown from a distance made them break their ranks.'

Also, Xenophon, *Hellenica,* 3.4.13-14 'There was one occasion however, when he was near Dascylium, when his cavalry in the vanguard had ridden on ahead to a hill to see what was in front; and it so happened that Pharnabazus' cavalry also, under the command of Rhathines and Bagaeus, his bastard brother, had been sent forward by Pharnabazus and rode to the top of the very same hill. They were a force about equal to the Greeks in number. When they saw each other, only about four hundred feet apart, at first both sides halted. The Greek cavalry was drawn up about four deep in a phalanx formation, and the natives were in a column with a front of not more than twelve but many more deep. Then the natives charged and when they got to close quarters every Greek who hit his man broke his spear, but the natives with their javelins of cornel wood soon killed twelve men and two horses. At this the Greek cavalry broke and fled, but Agesilaus came up in support with the hoplites, and then the natives retired, with the loss of one man.'

[468] Xenophon, *The Cavalry Commander,* 3.6.

hippika gymnasia discussed below. The mounted display in the Athenian Hippodrome included a sham fight during which

> …the regiments pursue and fly from one another at the gallop in two squadrons of five regiments, each side led by its commander, the regiments should ride through one another. How formidable they will look when they charge front to front; how imposing when, after sweeping across the Hippodrome, they stand facing one another again; how splendid, when the trumpet sounds and they charge once more at a quicker pace! After the halt, the trumpet should sound once more, and they should charge yet a third time at top speed; and when they have crossed, they should all range themselves in battle line preparatory to being dismissed…[469]

The sham battle described by Xenophon sounds like a staged affair, not an *ad hoc* melee as in medieval tournaments. Nonetheless, it displayed the skill and control required to maneuver a horse on the battlefield. Moreover, it introduced the horses to the sounds of battle in a controlled and safe environment.

The *hippika gymnasia* was a performance put on by elite members of the Roman cavalry for visiting dignitaries or the emperor. Arrian describes the *hippika* as

> … the customary exercises of the Romans' horsemen from old. The king decided (that) they also train (in) barbarian ones, such as the Parthians' and Armenians' mounted archers practice and such wheelings around and wheelings back as charging light-spear bearers of the Sauromatian and Keltic riders (do) in part.[470]

In his *Ars Tactica,* Arrian details the order and movements of the *hippika* program.[471] The display begins with a charge from concealment. The riders burst suddenly into the arena

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[469] Xenophon, *The Cavalry Commander,* 3.11-13
[470] Arrian, *Ars Tactica,* 44.
[471] Arrian, *Ars Tactica,* 33-44.

> Their charge, practiced (to be) the most suitable for beauty and most brilliant possible, is onto the indicated plain where they might seem to charge from a (place) unseen and to make not a simple, but a multicoloured sally as (in) one (rush). Separated by banners not only Roman, but even Scythian ones, they charge so that the attack becomes more colourful and frightening.[472]

This is not a simple, straightforward action. As with the group charges described by Xenophon in his *Cavalry Commander* the horses must gallop as a cohesive unit, maintaining a uniform, steady pace. If any one horseman were to bolt forward or lag behind the flaw would be immediately apparent to the dignitaries watching from their elevated seat on the rostra. After all, 'banner confounded with banner or horse falling (afoul) of horse would perturb the whole formation and would destroy not only the beauty, but even the usefulness of the work.'[473] The charge from concealment tests the boldness of the horses as they must explode with flash and panache into a large open space most likely ringed with spectators. Immediately after the excitement of the charge, the riders must bring their horses under perfect control to perform the mounted *testudo* in which

> Two horsemen, holding apart from this line so as to provide sallying (spaces) to friendly riders, have been set in front of the tortoise's right horn (=wing) to receive the javelin throws of those charging straight ahead. Thus protected, half of the horsemen stand at forward rest. When one signals (by) trumpet, half attack again, releasing as many javelins as continuously as possible.[474]

The charge into the arena would fire up the horses (and riders) by 'getting their blood up.' The *testudo* exercises, on the other hand, required a calm and steady control. The

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[472] Arrian, *Ars Tactica,* 35.
[473] Arrian, *Ars Tactica,* 35.
[474] Arrian, *Ars Tactica,* 36.

horses could not paw the ground or fidget, but must stand rock-still in formation until it is their turn to run the pattern. When running the course, their gait had to be controlled and even, not a mad gallop, if the rider hoped to have any degree of accuracy with his javelins. This was followed by several javelin exercises with the horsemen divided into two teams. These teams galloped back and forth across the arena throwing javelins at each other as well as at two stationary target horsemen. From this the two groups moved into the Cantabrian gallop, a drill involving the formation of two large circles, with one team riding clockwise and the other counter-clockwise. As riders rode against each other on opposing circles they attempted to strike each-other's shields with javelins. The horsemen next begin a series of individual and group drills of javelin throwing and other riding skills. The show concludes with riders mounting their galloping horses while wearing armour. The formal *hippika* was an important display of cavalry skills and it required highly trained riders and horses. The teams performing the *hippika* would have been the best of their squadrons, but these exercises would have been practiced by all the cavalry troopers in the Roman army.[475]

The skill required to execute the *hippika* maneuvers with any degree of proficiency could not be learned in a short period of time particularly in an urban culture like that of the Romans. Unlike the horse cultures of the Steppe and Near East, the Romans did not spend the majority of their day on horseback. Instead it was part of regular training and training in horseback riding was something begun at a young age. In the *Aeneid*, Virgil describes an event similar to the *hippika gymnasia* performed by adolescent boys at the funeral games for Anchises:

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[475] For a detailed examination of the *hippika gymnasia* see Hyland (1993).

> The column spilt apart
> As files in the three squadrons all in line
> Turned away, cantering left and right; recalled,
> They wheeled and dipped their lances for a charge.
> They entered then on parades and counter-parades,
> The two detachments, matched in the arena,
> Winding in and out of one another,
> And whipped into sham cavalry skirmishes
> By baring backs in flight, then whirling round
> With leveled points, then patching up a truce
> And riding side by side.[476]

The 'Troy Games' of the late Republic and early Imperial periods must have re-created a similar display.[477] Nero is reported to have participated in the Troy games as a young boy.[478] The Troy Games were primarily a spectacle of celebration, but they were occasionally used in a funerary context. At the funeral for Caligula's sister Drusilla 'The Praetorians with their commander and the equestrian order by itself (ran about the pyre) and the boys of noble birth performed the equestrian exercise called 'Troy' about her tomb.'[479] This junior version of the *hippika gymnasia* required a fair degree of skill and was not risk-free. Even modified or performed in a 'watered-down' version, there was always a risk of injury for the participants. According to Suetonius, during a performance of the Troy Games 'Caius Nonius Asprenas… was lamed by a fall in this diversion.' He goes on to state that 'he (Augustus) gave up the representation of such pastimes because Asinus Pollio, the orator, made a grievous and invidious complaint in the senate house, of the fall that Aeserninus, his grandson, sustained, by which he had broken his leg.'[480]

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[476] Virgil, *Aeneid,* 5.749-759.
[477] Suetonius, *Julius Caesar* 39.3; *Augustus* 43.2.
[478] Suetonius, *Nero,* 7.1
[479] Dio Cassius, *Roman History,* 49.2.2.
[480] Suetonius, *Augustus* 43.2

The intensive training methods used by the Greeks and Romans were excellent for creating a finely-tuned and obedient horse.[481] Battles, however, were not fought on the parade ground or in a fenced arena. Thus, the Mediterranean cavalry mount, while being a highly trained, supple and balanced animal thanks to his *ménage* schooling also had to be taught how to remain obedient and balanced outside of a controlled environment. Xenophon rightly points out that the warhorse

> …will frequently have to gallop down hill and up hill and along a slope, and as he will have to leap over, and to leap out, and to jump down at various times, the rider much teach and practice both himself and his horse in all these things. For thus they will be able to help each other, and will be thought altogether more efficient.[482]

One of Xenophon's recommendations is to

> …call the men together, and recommend them to practice turning off the roads and galloping over all sorts of ground when they are riding to quarters or any other place.[483]

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[481] The practice of schooling the horse in a *ménage* based on the principles of Xenophon re-emerged with much fervor in fifteenth-century Naples and has continued to the present day. The primary difference between Xenophon and the later practitioners of what is now termed 'Classical Horsemanship' is the final intended use of the horse. Xenophon and his Greek and Roman successors were striving to achieve the ideal Mediterranean type war-horse. From the 15th century on, however, what develops is a clear distinction between training the cavalry horse and the civilian mount. This is not to suggest that before the 15th century humans in the Mediterranean world rode only for the purpose of war and never received any form of pleasure or enjoyment from the act! Rather, that their end goal was always to produce an animal suitable for the battlefield. In opposition to this, the practitioners of Classical Horsemanship, beginning in the 15th century, were focused on the art and aesthetics of horse training purely for the challenge of trying to breed, train and school the perfect horse. These principles are exemplified by the Spanish Riding School in Vienna, founded in the 1700s, as well as the Real Escuela Andaluza del Arte Ecuestre in Jerez and the Escola Portuguesa d'Arte in Lisbon. On the other hand, Le Cadre Noir de Saumur, while following the principles and general purposes of Classical Horsemanship, maintained its military connection as the training school for the French cavalry.

[482] Xenophon, *Art of Horsemanship,* 8.1

[483] Xenophon, *The Cavalry Commander,* 1.18.

Onasander echoes Xenophon's sentiments when he instructs the cavalry commander to

> …exercise the cavalry; he should arrange practice battles including pursuits, hand-to-hand struggles, and skirmishes; these maneuvers should be held on the plains and around the base of the hills as far as possible in broken country, as it is impossible to gallop at full speed either uphill or downhill.[484]

Likewise, Vegetius explains the practice of the *ambulation*:

> Similarly, the cavalry were also divided into troops, armed in the same way, and traveled the same distance, although in the equestrian exercise from time to time they pursued, and from time to time retreated, and made ready to charge back again. It was not only in the plains but also in hilly and difficult terrain that both arms of the service were compelled to ascend and descend, so that they might never experience any chance incident while fighting that they had not as trained soldiers learnt by continual practice.[485]

The most efficient means of introducing a horse and rider to the rigors of cross-country riding was through hunting. Hunting on horseback was long considered an essential training tool in the preparation of horse and rider for the battlefield.[486] There are the obvious analogies between hunting and warfare. The accoutrements and iconography of the hunt suggest a psychological parallel between the chase and battle. As Barringer states 'Taken as a whole, the weapons, poses, and accompanying images heroize hunting and hunters and demonstrate that, for the Greeks, hunting is battle.'[487] It enabled rider

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[484] Onasander, *Strategikos,* 10.6
[485] Vegetius, *On Warfare* 1.27
[486] Today mounted hunting- whether a mock or actual blood hunt – is often used as a testing ground for potential three-day-event horses as well as point-to-point or steeplechase racers.
[487] J. Barringer *The Hunt in Ancient Greece.* (Baltimore, 2001) 43 see also 204 where she concludes 'Hunting, which can be a heroic activity, according to aristocratic thinking, not only prepares one for warfare but *is* warfare.' For the association between hunting and warfare see also Y. Hamilakis 'The Sacred geography of hunting: wild animals, social power and gender in early farming societies' *British School at Athens* 9 (2003) 239-247.

and mount to use the skills honed by hours of practice in the riding arena in an unfamiliar and unpredictable environment. Balance, bravery, obedience and response times were tested constantly. The hunt was not viewed as a sterile or safe alternative to battle; combat between animal and human could be just as deadly as that between two soldiers.[488] Quarry like the wild boar were dangerous opponents. Xenophon states that,

> [Hunting] makes them [young men] modest and straight, because they are educated in things that are real; and they understood that they were successful in many respects because of these young men, and particularly in relation to war.[489]

Moreover, hunting provided training in the skills required to allow an army of mixed arms to work together. The hunt included not only horsemen, but rather a diverse group including 'one or more horsemen accompanied by an army of huntsmen on foot, beaters, hounds and so forth…'[490] This statement corresponds with the hunting manuals. Each type of quarry required a specific arrangement of huntsmen, horses, hounds, weapons and attendants for the chase.[491] With regards to hunting boar Xenophon instructs the hunter to

> …get Indian, Cretan, Locrian, Laconian hounds, and purse nets, javelins, boar-spears and traps. The hounds of each type must be exceptional, to be willing to engage with the beast. The purse nets should be of the same linen threads as those for hares, of 45 threads, in three strands, each strand of fifteen threads… The javelins should be of all sorts, with broad and razor-sharp blades, and strong shafts.

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[488] There was also the risk of being injured by another member of the hunting party- either accidentally or intentionally- as the story of Croesus' son Atys indicates. Herodotus, *Histories,* 1.36-43.
[489] Xenophon, *On Hunting,* 12.7
[490] J.M.C. Toynbee, *Animals in Roman Life and Art.* (Ithaca, 1973) 173. Toynbee also describes the hunt as a 'battle between men and beasts' (Ithaca, 1973) 173.
[491] Xenophon, *On Hunting,* 10.1-3.

> The boar-spears should first of all have blades fifteen inches long, strongly made, with metal tines in the middle of the socket; their shafts should be of cornel wood, thick as military spears… There should be fellow huntsmen. For this animal is difficult to catch, and requires a team.

Also, Arrian:

> As for those who do not have men to look for the hares, some of them assemble a crowd of fellow-hunters and go out on horseback, and proceeding to the places where they think there may be a hare, wherever one is roused, they let their hounds go. But those who are rather 'do it yourself' hunters go out on foot; one man goes with them on horseback, and this man's job is to chase with the hounds.[492]

Mosaics from around the Mediterranean world provide detailed images of Roman hunting and the risks associated with the practice, even if the purpose of the chase was to capture animals alive for the arena.[493] One of the most detailed examples of this genre of mosaic is the 'Great Hunt' pavement from Piazza Armerina in Sicily dating to the 4th century CE. This mosaic depicts the capture of animals for the wild beast fights in the arena. Although the purpose is different from the traditional hunt, it nonetheless displays

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[492] Arrian, *On Hunting,* 20.1. An example of the second method can be seen in the Diaeta of the Small Game Hunt at the villa of Casale in Piazza Amerina – one of the scenes shows a mounted hunter about to kill a fleeing hare.

[493] L. Casson explains the process of capturing wild elephants, which required the use of trained horses accustomed to the sight and smell of the elephant. 'Ptolemy II and the Hunting of African Elephants', *Transactions of the American Philological Association* 123 (1993) 250.

From the Hellenistic period on, it was essential for the war-horse to be familiar with the elephant, particularly when fighting in North Africa or the Near East. Arrian, in his description of the Hydaspes, succinctly describes the potential risk of presenting unfamiliar horses with elephants 'He [Alexander] thought the horses would not be willing even to set foot on the other bank, as the elephant would immediately advance to attack them and scare them both by their appearance and their trumpeting, and that even before this they would not stay during the crossing on the rafts made of skins, but would jump off into the water, once frenzied by the sight of the elephants on the other side.' Arrian, *Campaigns of Alexander,* 5.10.2.

in great detail the various methods used to capture – or in the case of the traditional hunt kill – different animals. Both artistic and literary evidence suggest that mounted hunting was a regular pastime among the horse-owning classes of the Mediterranean world. Hadrian reportedly euloguized his favorite hunting horse with both burial and an epigram

> Borysthenes the Alan
> Was mighty Caesar's steed:
> O'er marshland and o'er level,
> O'er Tuscan hills, with speed
> He used to fly, and never
> Could any rushing boar
> Amid Pannonian boar-hunt
> Make bold his flank to gore
> With sharp tusk whitely gleaming:
> The foam from off his lips,
> As oft may chance, would sprinkle
> His tail e'en to the tips.
> But he in youthful vigour,
> His limbs unsapped by toil,
> On his own day extinguished,
> Here lies beneath the soil.[494]

Xenophon, Arrian, Oppian, Nemesian and Grattius wrote *Cynegeticae*- manuals on hunting. Aside from that of Xenophon, they all include descriptions of the ideal hunting horse and where he could be found.[495]

MEDITERRANEAN WARFARE

The hesitation to endanger their mounts on the battlefield did, to an extent, limit the way the Mediterranean horse was used in combat. Unlike other regions of the ancient world, military use was not dictated entirely by conformation, but by the practicalities and cost

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[494] Hadrian, *Minor Latin Poets*, Fragment 4.

[495] Perhaps Xenophon elected not to describe the ideal hunting horse because he devotes an entire chapter (1) of *The Art of Horsemanship* to the discussion of the ideal horse. Xenophon, it seems, did not distinguish between the ideal horse for war or the hunt. Indeed, he gives additional suggestions only when it comes to purchasing a flashy parade horse. For the other texts see: Arrian, *On Hunting,* 23-24; Gratius, *On Hunting,* 496-541; Nemesian, *On Hunting,* 240-398; Oppian, *On Hunting,* 1.158-367.

of raising, training and fielding a cavalry corps. The Mediterranean horse himself was a relatively versatile animal. He had evolved to survive in less than ideal conditions; he may not have been required to endure the extremes of Central Asia, but he nonetheless managed to flourish in a predominantly mountainous, arid environment.

Despite what might appear to be a tentativeness to engage in mounted combat, the horse actually fulfilled a number of important roles on the battlefield and on the march. Mounted troops served as scouts when reconnaissance was required; they were used to harass enemy troops on the march; similarly they were beneficial for skirmishing and raiding. In battle proper, cavalry could be used against enemy horse units; they protected the flanks of the phalanx; they could be used to harass the flanks of enemy infantry and (rarely) to attack heavily armed infantry.[496]

SCOUTING

Mounted troops were ideal for reconnaissance. They could cover more ground than a man on foot; gained a better vantage point of the surrounding land from their elevated position and had a better chance of escaping if spotted by the enemy. In his *Cavalry Commander* Xenophon places much emphasis on the importance of using horsemen for reconnaissance

> When riding on difficult ground away from roads, whether in hostile or friend country, it is very useful to have some of the aides-de-camp in advance of each regiment, that they may find a way round into the open in case they come across pathless woodland, and show the men what line they should follow, so that whole companies do not go astray. If your route lies in dangerous country, a prudent commander will have a second advance guard ahead of his scouts for reconnaissance purposes. For it is useful both

[496] The best-known example of a mounted unit successfully defeating a phalanx of heavily armed infantry is Alexander's attack with the Companion Cavalry against the Theban Sacred Band at Chaeronea. Diodorus *Library of History* 16.86.3

> for attack and defense to discover an enemy as far off as possible.[497]

Likewise, the psychological advantage of mounted scouts can be seen from Thucydides' account of the ill-fated Athenian expedition on Sicily

> Syracusan cavalry on reconnaissance was constantly riding up to the Athenian army and, among other insulting remarks used, asking them whether they had not really come to settle down in someone else's land rather than to resettle the people of Leontini in their own.[498]

One can only imagine what a demoralizing effect the Syracusan cavalry had on the Athenian troops as they constantly taunted and hurled insults at them, while the Athenians, who were predominantly infantrymen, were unable to chase them off, let alone retaliate in any significant way.

The primary function of the mounted scout was to search for any possible dangers ahead of the main portion of the army. They might be used to look for the shortest and most secure route for the army to take; Agricola relied on both mounted and un-mounted scouts to protect his army in Britain. Tacitcus reports that

> Had not Agricola been everywhere and ordered his strong, light-armed cohorts to scour the woods, like a cordon, and where the woods were thicker, dismounted cavalry, where thinner, mounted cavalry to do the same, undue confidence might have provoked a serious reverse.[499]

Scouts could also watch over the route taken by an enemy force and report back to the main army with their findings. As Xenophon notes:

> … when he wanted to find out whether the Thebans had got past Oneum, he sent out the entire cavalry force of the

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[497] Xenophon, *The Cavalry Commander,* 4.4-5.
[498] Thucydides, *Peloponnesian War,* 6.63.
[499] Tacitus, *Agricola,* 37.4

> Athenians and the Corinthians to act as scouts. And yet a few men are just as good as a lot for seeing what is happening. Moreover, if it should be necessary to retreat, it would be much easier for a small force than a large one to find an easy route and to retire in their own time…and in fact, since his cavalry, being in great numbers, were in a widely extended line, they found themselves very often on very difficult ground when they had to retreat. The result was that at least twenty of them were killed.[500]

Scouts reported on the most advantageous places to stage an ambush or attack on the enemy. Caesar and his commanders frequently made use of cavalry in this way during the campaigns in Gaul

> When the crops were beginning to ripen Caesar set out through the Ardennes to fight Ambiorix. He sent Lucius Minucius Basilus in advance with all the cavalry, to see if he could gain any advantage by traveling quickly and striking at a favourable opportunity.[501]

As well as finding ideal locations for battle, mounted men could travel ahead of an army on the march to find a suitable spot to set up camp: 'He (Metellus) therefore sent his lieutenant Rutilius with the light-armed cohorts and a part of the cavalry towards the river, with instructions to occupy in advance a position for the camp…'[502]

These mounted scouts had to be excellent horsemen as well as trained in cavalry combat. They were required to ride their horses over all sorts of unknown terrain, from rocky hillsides, to forests, to open plains. A rider can become very familiar with local terrain, remembering where holes or broken ground is located, but when riding through unfamiliar territory he has no such luxury. In this situation – especially if forced to ride at speed – the scouts have to rely on the athleticism and surefootedness of their horses

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[500] Xenophon, *Hellenica,* 6.6.52.
[501] Caesar, *The Conquest of Gaul,* 6.29; see also 3.25 where Crassus makes use of mounted scouts to look for weaknesses in the fortifications of the enemy camp.
[502] Sallust, *The War with Jugurtha,* 50.1.

while maintaining a secure and balanced seat to help their mounts in the event of a stumble. Xenophon is clearly aware of this for the regular cavalry trooper, but his advice is even more applicable for the mounted scout.

> Since it is necessary that the rider should have a firm seat when riding at top speed over all sorts of country, and should be able to use his weapons properly on horseback, the practice of horsemanship by hunting is to be recommended where the country is suitable and big game is to be found. Where these conditions are lacking, it is a good method of training for two riders to work together thus: one flies on his horse over all kinds of ground and retreats reversing his spear so that it points backwards, while the other pursues, having buttons on his javelins and holding his spear in the same position, and when he gets within javelin shot, tries to hit the fugitive with the blunted weapons, and if he gets near enough to use his spear, strikes his captive with it.[503]

As we saw above, training across country was especially important for the Mediterranean type horse, not because of any inherent physical faults, but on account of the husbandry practices followed in many part of the Mediterranean basin.

It is likely these scouts/reconnaissance troops were at least lightly armed as they were venturing into unknown and often hostile territory. I doubt they would be equipped in full cavalry panoply, but they would have at least worn some form of light body-armour and carried a sword and possibly more. The exact specifications of arms and armament must have depended on each particular situation- whether the troops were sent out as a specific reconnaissance unit, or were a detachment of the regular cavalry acting as scouts while on the march. Either way, they had to be prepared for the possibility of attack[504]

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[503] Xenophon, *Art of Horsemanship,* 8.8.10.
[504] Xenophon, *Hellenica,* 3.4.13-14.

Encounters between enemy scouting parties were not infrequent and could result in minor skirmishes as occurred between the scouts of Caesar and Labienus in Africa

> Caesar sent some cavalry out ahead, but came right up to the place without being aware of the ambush. Labienus's men, however, either because they misunderstood or forgot his instructions, or because they were afraid of being caught in the hollow by Caesar's men, began coming out in ones and twos from the rocks and making for the crest of the hill. Caesar's cavalry pursued them, killed some and captured some alive; they then pushed straight on towards the hill, dislodged Labienus's holding force, and occupied the position. Labienus and part of his force managed with difficulty to escape.[505]

These unexpected encounters occasionally resulted in a full-scale battle. Livy describes an unplanned pitched battle between the armies of Hannibal and Scipio at the Ticinus River in 218BCE

> '…and then Scipio moved: advancing with his cavalry and light-armed infantry spearmen to reconnoiter the enemy's position and get what information he could at close range about the nature and strength of their forces, he unexpectedly fell in with Hannibal and his own cavalry who were out on a similar reconnaissance…for each the first sign of an approaching army was the cloud of dust raised by the movement of horses and men over the dry ground. Both columns halted and prepared to engage. Scipio posted his spearmen and Gallic cavalry in the front line, with the Roman troops and the pick of the allies in support. The native (or 'bridled') cavalry formed the center of Hannibal's line, with the Numidian horse on the wings. Hardly had the battle-cry been raised, when Scipio's spearmen broke and ran, hoping to save themselves amongst the support-troops in the rear. For a time the respective cavalry formations maintained an equal struggle, until Scipio's squadrons found themselves seriously handicapped by the spearmen – infantry troops – who had got mixed up with them. Many fell from their horses, or dismounted to bring aid to hard-pressed comrades; to a great extent things were assuming the aspect of an infantry

[505] Caesar, *African War,* 51.

> battle, when suddenly the Numidian horse, which had formed the enemy wings, executed a circling movement and appeared in the Roman rear … The route of the spearmen – the first object of the Numidians' attack – was pretty complete; the cavalry, on the other hand, maintained cohesion, forming a screen round the wounded consul…[506]

The scout's horse had to be a sturdy, sure-footed animal with great stamina and a sensible temperament, neither flashy nor imposing. They had to blend into the landscape, moving quietly and carefully across the ground. As they were ridden over unfamiliar and unpredictable terrain, they needed to be sure-footed. These horses could not be slow plods, however. Numerous accounts from the literary sources indicate that mounted reconnaissance expeditions were often involved in skirmishes and combat. Thus, the scouting horse had to be trained as a warhorse as well. Likewise, he needed to provide a turn of speed in situations where a hasty retreat was deemed the better option. Most importantly, the reconnaissance horse had to be calm and sensible. This horse could not get agitated when forced to separate from the group, his 'herd.' In other words, he could not be a herd-bound animal. Herd-bound horses become stressed when taken away from their herd-mates. Typically they become vocal – constantly calling to their companions. They will also resist the commands of their rider, often refusing to move forward while constantly attempting to bolt back towards the herd. It is easy to understand why such a horse was undesirable as a scout. The equine scout also had to keep calm in high-stress situations, even if his rider was tense and anxious. Many high-strung or hyper-sensitive horses become attuned to the emotions of their riders and react accordingly. When on reconnaissance, the troopers would be understandably watchful in an unfamiliar or

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[506] Livy, *Histories,* 21.46.

unpredictable environment. The horses had to overcome their instinctual flightiness to remain obedient to their riders.

The Mediterranean type of horse filled these requirements. These primarily mountain horses were tough and sure-footed, able to pick their way neatly and efficiently over rocky, uneven terrain. They had the stamina to cross steep hills or mountain slopes, were small and nimble enough to navigate dense forests and had the stamina to carry on over long distances. The compact, athletic conformation of these horses allowed them to wheel and spin – whether in combat or flight.[507]

RAIDING AND FORAGING

Horsemen were used to fulfill several functions when it came to providing an army with supplies. The speed and mobility offered by the horse allowed small bands of cavalrymen to move goods with relative ease.[508] Of primary concern for any large army on the march was access to a steady supply of food. Horsemen were ideal for moving livestock from one area to another.

> So he [Epaminondas] marched back as fast as he could to Tegea. Here he rested his hoplites, but sent the cavalry on to Mantinea. In calling upon them for this further effort, he told them that in all probability all the cattle of the Mantineans were outside the city wall and all the people too.[509]

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[507] In January 2008 I had the opportunity to ride several Greek mountain horses while on Crete. These horses were all remarkably strong for their size and capable of carrying an adult man for long rides. They navigated the terrain of the Dictys mountains with ease, even when it was slippery or exceptionally steep. One mare – a Jorkalidiko (Cretan horse) had no problems scrambling up steep scree slopes or sliding down the other side. The same could not be said of the modern European warmbloods I rode over the same terrain.

[508] Presumably the foraging or raiding horsemen would have pack animals with them to carry whatever food and other supplies were obtained.

[509] Xenophon, *Hellenica,* 7.5.14. I cannot help but wonder whether Nestor made use of mounted men in his Eleian raid where
'we got and drove off together much spoil from this pastureland:

Mounted units were frequently sent into enemy territory to destroy crops and buildings in order to deprive their opponents of food and shelter. Livy relates such an attack on Falernian territory by Hannibal.

> He (Hannibal) had the guide scourged and crucified as an example to others, took up a position which he strongly fortified, and sent a squadron of cavalry under Maharbal to raid Falernian territory. The raid was a destructive one, and caused immense damage to property as far as Sinuessa, and terror and confusion over a still wider area.[510]

More importantly, however, horsemen provided essential protection to unmounted foraging parties sent out from camps and towns during times of war. Even a small group of enemy horsemen presented a considerable threat to foragers on foot. One horseman can control a much larger group of men on foot with relative ease thanks to the agility and speed, not to mention to intimidation, offered by his mount. One need only look at the manner in which a small number of cowboys can control a substantial herd of cattle, or the effect of a small group of mounted police on a much larger mob to see the truth in this. Caesar discovered this while engaged in skirmishes with Pompeian forces near the town of Ucubi:

> On the following day some cavalry and light infantry deserted to us from the enemy camp. At that time also about forty of their cavalry made a sortie against a watering party of ours, killed several, and carried some off alive; eight of their cavalrymen were captured.[511]

Fifty herds of oxen, as many sheep flocks, as many
Droves of pigs, and against as many wide-ranging goat flocks,
And a hundred and fifty brown horses, mares all of them
And many with foals following underneath.'
Homer, *Iliad,* 11.676-680; see also Strabo, *Geography,* 8.3.28.
[510] Livy, *Histories*, 22.13.
[511] Caesar, *Spanish War,* 21

When the Thirty took control of Athens after the Peloponnesian War, they quickly recognized the importance of using horsemen to prevent their opponents from plundering the Attic countryside:

> It was clear to the Thirty that the enemy would also get plunder from the country estates unless there were forces available to protect them, so they sent out nearly the whole of the Spartan garrison and two divisions of cavalry and stationed them in the outlying districts about two miles from Phyle.[512]

The perpetually clever Julius Caesar not surprisingly recognized the amount of protection offered by even a small group of mounted men, and apparently never sent out foragers without a detachment of cavalry.

> These attacks became more and more frequent. Eventually Caesar learnt from a prisoner that Correus had assembled a picked force of 6000 of his bravest infantrymen and a thousand cavalry, with which he intended to lay an ambush at a place where he expected the abundance of corn and hay would attract the Romans. Accordingly, the cavalry which always escorted the Roman foragers was sent there…[513]

The speed and mobility provided by the horse ensured that the only way to stop an incursion of mounted raiders was to send horsemen out against them. Any attempt to capture or avert mounted raiders on foot would be quite difficult, even in territory that did not favour cavalry.

Finally, cavalry provided a more immediate threat to any raiders. A unit of horsemen could burst out unexpectedly from behind city gates at a rapid pace to fall upon unsuspecting raiders much faster than any infantry group. The speed and endurance of

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[512] Xenophon, *Hellenica,* 2.4.4
[513] Caesar, *Conquest of Gaul,* 8.17

the Mediterranean horse also allowed him to chase down the invaders over a great distance.

> It so happened that on this same day Derdas had arrived with his own cavalry and was having his morning meal in Apollonia. When he saw the raiders he made no immediate move, but saw that his horses were saddled and bridled and that their riders were fully armed. The Olynthians now came riding up insolently right into the suburbs and even up to the city gates and it was just at this moment that Derdas with his men in close battle order charged out on them. As soon as they saw him, the Olynthians turned and ran, and he, once they were in flight, did not stop pursuing them and cutting them down for twelve miles until he had driven them right up to the wall of Olynthus.[514]
>
> Meanwhile he[Pericles] saw to the defenses of the city and kept things as quiet as he could. He did, however, constantly send out cavalry in order to stop enemy patrols from breaking into the country near the city and doing harm[515]

Even the hoplite-loving Spartans were forced to acknowledge the necessity of maintaining a unit of cavalry for the purpose of protecting their territory from raids

> …and [the Spartans] committed as they were on every side to a form of warfare where mobility was what counted and where attacks were very difficult to guard against. Thus they raised a force of 400 cavalry and a force of archers- something quite at variance with their normal way of doing things- and in fact they now became more than ever irresolute in their military conduct…[516]

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[514] Xenophon, *Hellenica*, 5.3.1-2

[515] Thucydides, *Peloponnesian War,* 2.22; see also 3.1 'Next summer, at the time when the corn was ripe, the Peloponnesians and their allies marched into Attica under the command of the Spartan King Archidamus, the son of Zeuxidamus. They settled down in the country and laid it to waste. As on previous occasions, the Athenian cavalry went into action wherever possible and prevented the mass of enemy light troops from leaving the protection of the main body of the army and doing harm in the districts close to the city.'

[516] Thucydides, *Peloponnesian War,* 4.55-56

The Mediterranean horse was generally suitable for the task of raiding and foraging and defending territory from enemy raids. They were not, however, invincible. If deployed daily over any length of time, the topography of the Greek and Italian Peninsulas could have a detrimental effect on the horses. The best example of this can be found in Thucydides' description of the Athenian mounts stationed at Decelea:

> And as the cavalry rode out daily upon excursions to Decelea and the guard the country, their horses were either lamed by being constantly worked upon rocky ground, or were wounded by the enemy.[517]

The effects of these continuous excursions on the Athenian horses are not surprising. The ground of Attica and most of the Greek peninsula is dry and rocky. Even the most well-built, sturdy hoof would not be able to withstand the constant abrasion caused by daily use on such terrain. The hoof wall would be worn down and the sole of the foot bruised from concussion. Exceedingly dry conditions might also cause the hoof wall to crack, creating further weaknesses in the foot structure. The only cure for these ailments is rest and time to allow the wall and frog to grow. It was for this reason that the horseshoe was eventually created as a means of providing stability and durability for the hoof. This did not happen during the time periods covered in the scope of this dissertation.

ON THE MARCH

The primary use for cavalrymen when an army was on the move was to protect their lines from attack; generals recognized the likelihood of enemy horsemen falling upon the flanks of a column. When marching against Jugurtha, Metellus

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[517] Thucydides, *Peloponnesian War,* 7.27

> …himself led the van with the light-armed cohorts as well as a picked body of slingers and archers, his lieutenant Gaius Marius with the cavalry had charge of the rear, while on both flanks he had apportioned the cavalry of the auxiliaries to the tribunes of the legions and the prefects of the cohorts. With these light-armed troops were mingled, whose duty it was to repel the attacks of the enemy's horsemen, wherever they might be made.[518]

Horsemen were ideal for this job for two reasons. Their higher elevation on horseback gave them a better vantage point to watch for enemy attacks. Unlike the marching infantrymen who focused on staying in time with each other and where they were putting their feet, the horseman was constantly looking ahead and thus more likely to spot any potential threat. Secondly, the cavalry did not necessarily march in neatly ordered ranks like the infantry, but rather in loose groups. This allowed them to break away from the main body of troops rapidly to defend the column without disturbing the overall organization of the marching formations. Once again, the Mediterranean horse was well built for these actions. His lightweight, compact body was quick and nimble thus allowing him to wheel away with a controlled burst of speed. At the same time, he was well suited and regularly trained to work up-and-downhill at speed. Xenophon especially emphasizes the importance to training a horse to leave his companions while still remaining obedient:

> As soon as the horse faces the straight after turning, push him along at once. For of course, in war too, turns are made with a view to pursuit or retreat. It is well, therefore, to practice increasing the pace after turning. So soon as the horse appears to have been exercised enough, it is well to let him rest a certain time, and then suddenly to put him to his top speed again, of course away from, not towards, other horses, and to pull him up again in the midst of his career as short as possible, and then to turn and start him

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[518] Sallust, *Jugurthine War,* 46.7-8

> again from the stand. For it is obvious that a time will come when it will be necessary to do one or the other.[519]

Likewise, the charge from concealment performed at the beginning of the *hippika gymnasia* was useful for training horses to perform sudden actions while on the march.

In the same way that the Mediterranean horse provided protection for a marching column of troops, he could likewise harass enemy troops on the move with rapid and sudden attacks. The physical requirements to perform this task were similar to those found in horses defending a column, as well as those needed for scouting. Once again the horses had to be perfectly obedient, agile and surefooted, as we can see from the following episode in the *Hellenica*:

> The cavalry of the Athenians and Corinthians, seeing the strength and the numbers of the opposition, kept their distance from the enemy army. But the cavalry sent by Dionysius, in spite of their small numbers, rode along the enemy's line either as individuals or in small detachments and charged down on them, hurling their javelins. When the enemy moved out against them, they would fall back, and then face about and hurl their javelins again. And in the course of all this they would dismount and have a rest; and if they were attacked while dismounted, they would easily leap on their horses and ride away. But if the enemy pressed his pursuit far from the main army, they would turn on them while they were going back again, and with volleys of javelins give them a very rough time.[520]

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[519] Xenophon, *Art of Horsemanship,* 7.27.17-18.

[520] Xenophon, *Hellenica,* 7.1.20-21. See also Caesar, *African War,* 6 'Accordingly, Caesar was thinking of moving camp; then suddenly a large crowd made a sally from the town and reinforced just then, as it happened, by the arrival of a force of cavalry, sent by Juba, to collect their pay. They seized the camp, which he had just left in beginning his march, and then they began to pursue the rear of his column. Observing this, the legionaries suddenly halted and the cavalry, despite their small numbers, joined battle most courageously against heavy odds. An incredible thing happened; less than thirty Gallic cavalry beat off 2,000 Moorish cavalry, and drove them into the town. Once these had been repulsed and driven within the fortifications, Caesar continued his march. As this was repeated several times – the enemy would attack, and then be driven back into the town by the cavalry – Caesar posted at the rear of the column a few cohorts of the

Small groups of horsemen could be sent out in conjunction with light-armed infantry to harass forces on the move. The two groups could work together and independently; the horsemen excelling at rapid attacks and maneuvers in open ground, whilst the light infantry could move quickly through wooded areas and broken ground, as well as being easier to conceal.

> Nero with the cavalry contingent was the first to appear; then, hard on his heels, came Licinius with the light troops. They at once began to harass Hasdrubal's weary column with rapid multiple attacks on various points.[521]

In a similar vein, Mediterranean cavalry with their discipline and mobility could be used to crate a delaying tactic or diversion to allow a marching army to reach a particular location.

> The only course left to Caesar was to use his cavalry to harass and impede the enemy's column on the march, for his own bridge required a long detour, and so the enemy could reach the Ebro by a much shorter route. Accordingly, he sent cavalry across the river, and when the Pompeian commanders broke up camp in the small hours of the morning, these cavalry suddenly showed themselves at the rear of the column and, milling around in great numbers began to hinder and obstruct the march.[522]

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veteran troops he had with him, and some of the cavalry, then began to march on at an easy pace with the rest of his forces.'

[521] Livy, *Histories*, 27.48.

[522] Caesar, *Civil War,* 1.63. Similarly, cavalry could be used to delay the onset of battle: 'Before the fortifications of the camp were completed, the cavalry on guard reported that large reinforcements of cavalry and infantry sent by the king were approaching Utica; at the same time a great cloud of dust came into view and in a moment the head of the column was in sight. Startled by this unexpected development, Curio sent out cavalry to bear the brunt of the initial onset and hold them up, while he himself quickly withdrew the legions from the defense-works and drew them up for battle. The king's forces had been marching along without apprehension, not troubling to keep in order, and being in consequence unable to maneuver and in disarray, they were routed when our cavalry

DEPLOYED AGAINST ENEMY CAVALRY

The most logical use of cavalry in battle is against enemy horsemen. Because of the speed at which they could move, cavalry were frequently used to open a battle. These opening engagements were rarely mild affairs. In many cases the effect of the initial cavalry attack determined the outcome of the entire battle.

> After the enemy had come out and formed up in line in front of the city wall, their cavalry in massed formation charged down on the Laconians and Boeotians. They struck Polycharmus, the Spartan cavalry commander, down from his horse and covered him with wounds as he lay on the ground; they killed others, and in the end forced the cavalry on the right wing to turn and run. As the cavalry fled, the infantry on their left began to give way.[523]

At Pharsalus, it was the struggle between Caesarean and Pompeian cavalry that turned the tide of the battle in Caesar's favour.

> At the same time the cavalry all charged forward, as instructed, from Pompey's left wing, and the whole horde of archers rushed out. Our cavalry failed to withstand their onslaught; they were dislodged from their position and gave ground a little. Pompey's cavalry thereupon pressed on the more hotly and began to deploy in squadrons and surround our line on its exposed flank. Observing this, Caesar gave the signal to the fourth line which he had formed of single cohorts. They ran forward swiftly to the attack with their standards and charged at Pompey's cavalry with such force that none of them could hold

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engaged, before our legions even had time to deploy and take up their positions. The royal cavalry escaped almost unharmed, since they raced along the shore and took refuge in the town, but a great many of the infantry were killed.' Caesar *Civil War* II.26

[523] Xenophon, *Hellenica,* 5.2.41.

> ground. They all turned, and not only gave ground but fled precipitately to the hilltops.[524]

Cavalry units were not only deployed at the start of an engagement, but also to re-invigorate the fighting after lulls or pauses in the action.

> On this the fighting once again flared up. The Roman cavalry was ordered forward; and as it met with spirited resistance from the Numidians, and the cavalry of both sides became as hotly engaged as the infantry…[525]

After fighting the opening maneuvers of a pitched battle, the cavalry typically continued to fight as the infantry moved up to join them. The infantry would quickly take advantage of any gaps or weaknesses in the enemy ranks created by the initial cavalry battle. The infantry that joined the cavalry were usually of the light-armed variety; these troops being swifter and more agile thus allowing them to move around the cavalry; moreover they were not required to keep the same tight phalanx as the heavier infantry. Nonetheless, under certain circumstances, the heavy infantry would move up to fight alongside the cavalry.

> Both sides waited; Caesar made no move, and saw that in putting his own scant number against the great host of the enemy he would have to employ strategy rather than force. Suddenly the enemy cavalry began to spread out towards the flanks and take in the high ground, thus causing Caesar's cavalry to spread out thinly and at the same time threatening them with encirclement. Caesar's cavalry had difficulty standing up to their numbers. Meanwhile the two lines were about to engage in the centre when suddenly the Numidian light infantry ran forward alongside the cavalry out of the close formation and threw javelins into the ranks

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[524] Caesar, *Civil War,* 3.93; see also Caesar, *Gallic War,* 7.13 'Caesar ordered his Gallic cavalry out of camp and engaged Vergingetorix's horse; when the cavalry got into difficulties, he reinforced it with 400 German horsemen whom he had kept with his army from the start of this campaign. Their charge overpowered the enemy, who were put to flight and fell back with heavy loss on their main body.'

[525] Livy, *Histories,* 24.15

> of the legionary infantry. Caesar's men thereupon attacked them, and the cavalry fled; but the infantry withstood them for the time being, until the cavalry should charge again and come to their assistance.[526]
>
> First the cavalry of both sides rode down onto the plain and began the battle. Then the Lyncestian hoplites came down from their hill to join their cavalry and to offer battle[527]

Units of horsemen were also used to relieve pressure on their infantry, especially when that infantry was under aggressive attack by enemy cavalry. The purpose of these charges was not always to annihilate the enemy cavalry, but to give the foot soldiers time to catch their breath and re-organize themselves. At other times, an unexpected cavalry charge could bring the engagement to a stalemate, or force a halt in the action for the time being. On more than one occasion, the cavalry could determine the outcome of a battle by halting the charge of their opponents and thereby giving the infantry a chance to catch their breath and re-group.

> When the enemy could be seen riding towards the city, the Mantineans begged the Athenian cavalry, if it was at all possible, to come to their help…Neither the Athenians nor their horses had had anything to eat that morning, but when they heard what the Mantineans said, they rode out to the rescue. Now here again the gallantry of these men was truly admirable. They could see that the enemy greatly outnumbered them, and their cavalry had already suffered misfortune at Corinth; but they were took no account of this, nor of the fact that they were going to fight against both the Thebans and the Thessalians, who were supposed to be the best cavalry in the world. Instead they were ashamed to be on the spot and not doing anything to help their allies, and as soon as they saw the enemy, they came charging down on them…by engaging in this battle they were responsible for saving for the Mantineans of everything outside the walls.[528]

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[526] Caesar, *African War,* 24
[527] Thucydides, *Peloponnesian War,* 4.124
[528] Xenophon, *Hellenica,* 7.5.15-17

> When the action began, the Romans' line was hard pressed, especially by the Carthaginian cavalry and the weight and number of missiles, until the order was given to their own cavalry to advance to the attack…Accordingly, almost as if by agreement, both had the order to break off the engagement and returned to camp with the honours more or less equal, though in the first cavalry charge the Roman losses were the greater.

Cavalry skirmishes frequently broke out between enemy units of mounted scouts. These encounters could lead to unexpectedly savage battles.

> While this operation was in progress, Hannibal had sent a part of 500 Numidian horsemen to try to find out the location, strength, and intentions of the Roman force. The Numidians were met by a party of 300 Roman cavalrymen, who had been sent, as I have already mentioned, from the mouth of the Rhone to reconnoiter. The fight which followed was, in spite of the small numbers engaged, a surprisingly savage one; many were wounded and the losses in killed were about equal on both sides. It was only when the Romans had already had nearly enough that the Numidians broke and fled, and so gave them the victory.[529]

AGAINST ENEMY INFANTRY

Cavalry could prove most useful in hindering the maneuvers of enemy infantry. This did not necessarily require a full-on cavalry charge against a massed phalanx of infantry, but was more frequently a series of rapid attacks and withdrawals to harass the flanks of the infantry, causing them to break formation or loosen their ranks.

> The Athenian right put up more of a resistance. Cleon himself had no intention of standing his ground; he immediately took to flight and was overtaken and killed by a Myrcinian peltast. But his hoplites formed up in close order on a hill, where they beat back two or three attacks made on them by Clearidas, and only gave way in the end when they were surrounded by the Myrcinian and

[529] Livy, *Histories,* 21.29.

> Chalcidian cavalry and the peltasts, whose weapons thrown from a distance made them break their ranks.[530]

The sources make it perfectly clear that any hoplite phalanx was very much at risk if they were without cavalry to protect their flanks, a fact Athenagoras points out in the Sicilian debate:

> I [Athenagoras] know certainly that they will not have any horses with them, nor will they get any here, except for a few from the Egestaeans; nor will they have a force of hoplites equal to ours…and how much less of a chance will they have with the whole of Sicily united, as it will be, against them, with their own base a mere fortification thrown up my a naval expedition, living in tents, and only provided with the barest necessities, unable to move in any direction because of our cavalry?[531]

As mentioned above, cavalry would only very rarely attack a massed infantry formation head on. The reasons for this are straightforward enough: basic equine behaviour does not encourage a horse to move willingly into what would appear to be a solid, sharp wall! Even with horses willing to charge said wall, the risk of serious injury is greater- both for breaking legs on solid shields or being impaled on a solidly planted spear. It was far more logical to attack the exposed flanks as this was a more inviting option for the horses. My own experiments have shown that the most important factor is whether or not

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[530] Thucydides, *Peloponnesian War,* 5.10.

[531] Thucydides, *Peloponnesian War*, 6.37. For the effect of this, see 6.70 'It was the Argives who first forced the Syracusan left wing back, and then the Athenians broke through the troops in front of them. The Syracusan army was now cut in two and took to flight. The Athenians did not pursue them far. They were prevented from doing so by the numbers of still undefeated Syracusan cavalry who charged and drove back any of the hoplites whom they saw pressing the pursuit in advance of the rest.' This situation is echoed in Xenophon, *Anabasis,* 2.4 'Also, suppose we have to fight: we have no cavalry on our side, but the enemy has a great many horsemen of outstanding ability. This means that if we win we won't be able to kill anyone, and if we lose we won't be able to save anyone.' *Anabasis,* 3.1 repeats the statement, indicating the difficulties presented by the absence of cavalry in a country well suited to *hippotrophia* and mounted combat.

the horse thinks he can fit his body through a gap. If he can easily put his head and neck through an opening, he will willingly go through, even if he bumps or shoves the infantry on either side of him. To train a horse to push through a gap is not as complex as it might seem, once again thanks to equine behaviour. The main formations used by the Greek cavalry- the wedge, rhomboid, diamond – all have one thing in common: they start with a narrow point. If the cavalry commander puts brave and dominant horses as these points, simple herd mentality will ensure that the rest of the cavalry horses follow. The Mediterranean preference for riding stallions was well suited to these tactics as a dominant stallion – like Bucephalus – will 'attack' a threat with very little encouragement from his rider, especially if this characteristic is encouraged through training. Not all horses are brave. This does not, however, negate their usefulness in a cavalry formation. These less dominant or more cautious horses can be placed in the center of the formation, where they will follow the leaders with little to no hesitation. Using the same principle, cavalry horses could be trained to attack the front of a phalanx, as Alexander proved at Chaeronea; nonetheless, this is still a very risky move, even with well-trained animals.

> Then Alexander, his heart set on showing his father his prowess and yielding to none in will to win, ably seconded by his men, first succeeded in rupturing the solid front of the enemy line and striking down many he bore heavily on the troops opposite him. As the same success was won by his companions, gaps in the front were constantly opened. Corpses piled up, until finally Alexander forced himself through the line and put his opponents to flight.[532]

USED WTH INFANTRY

As we saw above, infantry frequently moved up to join the cavalry after the initial skirmishes of a battle had begun. A combined attack of horsemen and infantry would

[532] Diodorus, *Library of History,* 16.86.3-4

have been formidable. The cavalry could scatter and ride down opponents, while the infantry both protected the horsemen from attack and cut down anyone on the ground. The infantry that accompanied cavalry were typically of the light-armed variety as their fighting style and armaments did not require them to remain in close ranks to be effective. The greater speed permitted by their light equipment also made it easier for them to keep pace with the horsemen who would not have been galloping flat out, but advancing at a steady, controlled pace.

> Agesilaus was aware that the enemy were still without their infantry, while he had every branch of his newly trained army at his disposal. Now, therefore, he thought, was the moment to bring the enemy to battle, if he could. So, after he had made the sacrifices, he led his phalanx directly against the line of cavalry that was facing him. He ordered the hoplites in the age group 20 to 30 to run and close with them and told the peltasts to take the lead at the double. He also ordered the cavalry to charge, telling them that he and the whole army were following them in support. This charge of the cavalry was held by the Persians, but when they found themselves confronted by the whole force and fury of the attack, they broke.[533]
>
> It was hardly daylight when he (Scipio) ordered all his cavalry and light troops against the Carthaginian outposts; he then immediately advanced in person at the head of his heavy legionaries, and, contrary to what both his own men and the enemy confidently expected, posted Roman troops on the wings and allied troops in the center. Hasdrubal hurried from his tent when he heard the cries of the Roman cavalrymen; seeing all in confusion outside the rampart of his camp, his own men running excitedly for their arms and in the distance the gleaming standards of the legions and the ground rapidly filling with enemy troops, he at once ordered out his whole cavalry strength against the Roman horsemen…For a time the cavalry struggle was indecisive, and could hardly have been otherwise because each of the opposing squadrons when overpowered, as happened more or less by turns, could safely withdraw to the protection of

[533] Xenophon, *Hellenica,* 3.4.23-24

> the infantry line. But a change was to come, for when the two lines were not more than 500 paces apart, Scipio sounded the recall, opened his ranks, let through the cavalry and light troops and then, dividing them into two sections, posted them as reserves behind the wings. The moment for action had now come. Ordering the Spaniards, who formed the center, to advance slowly, Scipio, from the right wing where he commanded in person, sent orders to Silanus and Marcius to watch his extension towards the right and to match it by a simultaneous extension of their own men towards the left, and to bring their light infantry and cavalry into action before the two centers had had time to engage. Thus with extended wings and three cohorts of infantry and three troops of cavalry on each, supported by light skirmishers, they advanced at a smart pace against the enemy, the rest following to complete the outflanking movement.'[534]

THE PURSUIT

Horses were an essential part of the pursuit; if they were lacking on either side, the pursuit would be a short, simple affair. Even a victory could be snatched away if the opposing side were able to flee the battlefield on horseback. The Greek mercenaries of Xenophon's *Anabasis* quickly learnt the importance of mounting at least a portion of their troops when

> … the Greeks had no cavalry and their foot soldiers could not catch up with the enemy soldiers, who had a good head-start in their flight, within the short distance allowed them by the fact that they could not afford to chase their opponents so far that they became separated from the rest of the army. Also, even in flight the barbarian horsemen were inflicting wounds, by turning and shooting arrows from the backs of their horses, and every foot the Greeks covered in pursuit had to be fought for as they fell back again.[535]

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[534] Livy, *Histories,* 28.14
[535] Xenophon, *Anabasis,* 3.3

One of the primary functions of Mediterranean cavalry in the pre-Alexander period was to enable an effective pursuit of a defeated enemy. As seen in the above passage from the *Anabasis*, an attempt at a pursuit or an escape was pointless if one lacked cavalry. On the other hand, the cavalry of a defeated side were known to flee the battlefield and leave the infantry to their fate, sometimes even while the battle was still in progress.

> Having rested his horsemen until midnight, Alexander hastened toward Arbela, intending to capture Darius there with all his treasure and all the royal accoutrements. He reached Arbela the next day, having covered more than seventy miles since the battle… nearly a hundred of Alexander's men perished, and more than a thousand horses died from wounds and the stress of the pursuit. Almost half of these horses belonged to the Companion cavalry.[536]
>
> Taking the Companion cavalry, the Scouts, the mercenary cavalry under Eriguios' command, the Macedonian phalanx (except the men assigned to guard the treasure), the archers, and the Agrianians, Alexander went after Darius. Owing to the urgent pace of the march, many of his soldiers were left behind exhausted, and the horses were dying…'[537]

CONCLUSION

The Mediterranean horse was a very versatile animal. As we have seen, his limitations or restrictions on the battlefield came not so much from his conformation as from his cost. Thus prior to the campaigns of Alexander, Mediterranean cavalry was rarely used for hand-to-hand combat. For the most part this strategy worked. Even during the carnage of the Peloponnesian war, cavalry rarely engaged in fierce combat on the battlefield. The conformation and overall physical adaptations of the Mediterranean horse made it well suited to the various roles it fulfilled in Mediterranean armies. The close-coupled body

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[536] Arrian, *Campaigns of Alexander,* 3.15.5-6
[537] Arrian, *Campaigns of Alexander,* 3.20.1

made them easy to collect and balance, while their long legs (comparative to height) provided a turn of speed when necessary. These were mountain horses, agile and surefooted with hooves strong enough to hold up in dry, rocky terrain. Thus, the Mediterranean horse was ideal for the light skirmishing, scouting and rapid attacks and retreats used by the Greek and Italian armies. Nor was this horse unsuitable for close combat; the sources make it clear this did occur on occasion. They were not so small or light that they could easily be overpowered. They were sizable enough to present an imposing threat to any man on foot. The only downside to this type was their ability to bear weight. While a fit Mediterranean horse could carry a moderately armoured man with little trouble, they were not match with the Near Eastern type of horse when it came to overall weight bearing ability. The native Mediterranean type was not a cataphract and would have buckled under the weight of that much armour. Likewise, they paled in comparison to the Steppe type when it came to endurance and the ability to withstand extremes of climate. Only when Greek armies began to campaign further afield into Asia Minor did it become necessary to use the horse as a weapon in and of itself on the battlefield.

CHAPTER SEVEN: CONCLUSION

The importance of the horse in human history is an undisputed fact. Without the domesticated horse, progress and the evolution of cultures/civilizations would have been a very different process. The utility of equines to society is clear by the way in which the horse managed to entrench himself into the daily life of any new culture he was introduced to. Moreover, the horse proved his value by making himself indispensable to warfare, transportation, and entertainment. Even in the modern world the now non-practical horse has firmly established himself as an elite athlete, companion and pet.

Thanks to the importance of the horse to the cultures of the ancient world, we are able to access a wide variety of source material that relates directly or indirectly to the equines of antiquity. These sources can be something as equine-specific as Xenophon's *Art of Horsemanship* or a tongue-in-cheek description of horse-mad youth in Aristophane's *Clouds*. The role of the horse as a status symbol is made clear by its frequent appearance in the art of the ancient world. The most unique source available to us is the horse itself. *Equus caballus*, our domestic horse, has changed very little since domestication. By this I mean that the basic conformation, nutritional requirements and behaviour of a twenty-first century horse are similar to that of his ancient ancestors. This is particularly true in the regions studied in this dissertation: Central Asia, the Near East and the Mediterranean. In these places there has been little to no 'foreign' breeding influences; no attempts to 'improve' local equines. These native horses are an excellent living source for understanding their ancient counterparts. This also allows us to use experimental archaeology to gain as much hands-on knowledge as possible.

The purpose of this dissertation was not only to establish a firm typology for the horses of antiquity, but also to further determine why these types developed by looking at

environmental and human conditions. It is clear that during the period covered in this research environmental factors had a much greater impact on type development than human influences. The natural adaptation of *Equus* is apparent from the earliest stages of equine evolution. The tiny, solitary, forest-dwelling *Hyracotherium* continually evolved to thrive in changing ecosystems before finally emerging as a herd-based, plains-dwelling *Equus*. *Equus* existed in a wild state across much of Eurasia, but his physical appearance varied based on where in the Eurasian world he lived. These prehistoric wild equines are called the Ancestral horses and physically were the result of environmental natural conditions. Existing native horse and pony types are considered to be direct descendents of these Ancestral horses. This does not mean that they are identical to their prehistoric relatives, rather that they follow the same strain and appearance as the Ancestral types. This can be seen in the five case studies used in Chapter Two: the Exmoor Pony, the Przewalski Horse, the Akhal Teke, The Sorraia and Asturian, and the Caspian Horse.

Even after equines were domesticated environmental factors continued to strongly influence equine type. Humans exerted little control over the size and shape of their horses. Overspecialization did not exist. Rather than attempting to manipulate equine breeding and genetics to create a new 'breed' or a specific 'line' capable of excelling at one particular task, the horsemen of antiquity took the opposite approach; they allowed form to dictate function. In other words, they took the horse created by non-human factors such as environmental conditions and suited use to that. The only authority ancient horsemen applied to type development was the castration of male horses deemed unsuitable for breeding stock or the placing of a particular stallion with a group of in season mares. It is important to note, however, that these forms of selective breeding

were used to bring out the best physical and temperamental qualities within the native type. They were not cross-breeding between types or importing foreign blood. Thus, these horse breeders were concerned with producing the ideal native horse, not trying to create something completely new.

This is very different from modern horse breeding practices. The main different between horse husbandry in the ancient world and today is the way in which we approach the horse and his uses. In the modern world horse breeding has become increasingly specialized. This is because the horse no longer has to perform a variety of jobs, but instead is intended for a specific 'career.' On account of this breeders tend to focus more and more on trying to breed for very particular traits. This is a hit and miss notion: breeding two top class show jumpers does not necessarily produce an offspring with any talent over fences; likewise, a Triple Crown winter like Secretariat is not guaranteed to pass on his extraordinary abilities to his progeny. This over-specialized approach to breeding is expensive and risky, while the potential of producing a truly top-class animal is slim.

Thus, equine use in antiquity was dictated by natural form: conformation. Conformation is the basis for everything we do with a horse. It dictates the animal's capabilities and limitations. Any attempt to force the equine body to do something for which it is not designed is to court disaster. As we saw in Chapter Three of this dissertation, the equine body is a complex structure: when everything is balanced and in alignment, the horse can withstand endless hours of wear and tear on his body; but as soon as something is out of place, the entire system can collapse. The longevity of a horse's working career depends on his basic conformation, suiting task to form as well as

proper care and management. If the animal is made to do something his body cannot handle, or placed in a management program for which he is not designed, he will fall apart. On account of all this, the horses of antiquity were not manipulated by a human need to create something new. Instead, the horsemen of the ancient world made do with the horses created by the environment they lived in. They developed their use of the horse to suit horse type. This is especially apparent with regards to the ancient military horse.

When we approach the topic of ancient cavalries or chariotries from this viewpoint it becomes clear that particular tactics or styles of armament were developed because of the horses that were available. To further explore this, however, we must determine what the horses of the ancient world looked like and why. This is explored in Chapters Four – Six with detailed examinations of the Central Asian horse, the Near Eastern horses (Nesaean and Southern Steppe) and the Mediterranean horse. Each of these chapters examines the particular type by looking at environmental conditions, husbandry and lifestyle practices and conformation before finally dissecting military uses based on these pre-existing factors.

What comes out of all this is the following: in the ancient world, direct human impact on the development of horse types was minimal. Environmental factors played a much greater role in the 'evolution' of domestic horse types. The most significant reasons for this are thus.

1. Humans had no need to change what the environment had created in native horse types. Why would a Greek cavalryman want to muddle with his native Greek horses- prior to Alexander the Great, most battles involving Greek cavalrymen were fought in

Greek peninsula. When Athens sent cavalrymen to Sicily during the Peloponnesian war, they were expected to procure horses once they had arrived on the island, not to bring mounts from home.

2. Nutrition: horses only had access to their native fodder, and the Nesaean horse aside, this was not sufficient to produce a bigger horse.

3. Husbandry: the way a horse is kept - in a stable, field, out on the steppe- has a big impact on its type. A horse left to fend for itself out of necessity remains small and hardy; a horse spoilt by human care may become larger but also more delicate.

For these reasons I think we must continue to re-evaluate our ideas about the horses of the ancient world. It is necessary to view each type as a product of its native environment, and further, to recognize that it was the physical form of a type that dictated its function, not the other way around.

APPENDIX A: THE IDEAL HORSE

XENOPHON

For judging an unbroken colt, the only criterion, obviously, is the body, for no clear signs of temper are to be detected in an animal that has not yet had a man on its back.

In examining his body, we say you must first look at his feet. For, just as a house is bound to be worthless if the foundations are unsound, however well the upper parts may look, so a war-horse will be quite useless, even though all his other points are good, if he has bad feet; for in that case he will be unable to use any of his good points.

When testing the feet first look to the hoofs. For it makes a great difference in the quality of the feet if they are thick rather than thin. Next you must not fail to notice whether the hoofs are high both in front and behind, or low. For high hoofs have the frog, as it is called, well off the ground; but flat hoofs tread with the strongest and weakest part of the foot simultaneously, like a bow-legged man. Moreover, Simon says that the ring, too, is a clear test of good feet; and he is right; for a hollow hoof rings like a cymbal in striking the ground.

Having begun here, we will proceed upwards by successive steps to the rest of the body.

The bones (of the pastern) above the hoofs and below the fetlocks should not be too upright, like a goat's: such legs give too hard a tread, jar the rider, and are more liable to inflammation. Nor yet should the bones be too low, else the fetlocks are likely to become bare and sore when the horse is ridden over clods or stones.

The bones of the shanks should be thick, since these are the pillars of the body; but not thick with veins nor with flesh, else when the horse is ridden over hard ground, these parts are bound to become charged with blood and varicose; the legs will swell, and the skin will fall away, and when this gets loose the pin too, is apt to give way and lame the horse.

If the colt's knees are supple when bending as he walks, you may guess that his legs will be supple when he is ridden too, for all horses acquire greater suppleness at the knee as time goes on. Supple knees are rightly approved, since they render the horse less likely to stumble and tire than stiff legs.

The arms below the shoulders, as in man, are stronger and better looking if they are thick.

A chest of some width is better formed both for appearance and for strength, and for carrying the legs well apart without crossing.
His neck should not hang downwards from the chest like a boar's, but stand straight up to the crest, like a cock's; but it should be flexible at the bend; and the head should be bony, with a small cheek. Thus the neck will protect the rider, and the eye see what lies before the feet. Besides, a horse of such a mould will have least power of running away, be he never so high-spirited, for horses do not arch the neck and head, but stretch them out when they try to run away.
You should notice too, whether both jaws are soft or hard, or only one; for horses with unequal jaws are generally unequally sensitive in the mouth.
A prominent eye looks more alert than one that is hollow, and, apart from that, it gives the horse a greater range of vision. And wide open nostrils afford room for freer breathing than close ones, and at the same time make the horse look fiercer, for whenever a horse in angry with another or gets excited under his rider, he dilates his nostrils.
A fair large crest, and fairly small ears give the more characteristic shape to a horse's head.
High wither offer the rider a safer seat and a stronger grip on the shoulders.
The double back is both softer to sit than the single and more pleasing to the eye.
The deeper the flanks and the more swelling toward the belly, the firmer is the seat and the stronger, and as a rule, the better feeder is the horse.
The broader and shorter the loins, the more easily the horse lifts his fore quarters and the more easily he brings up his hind quarters. And, apart from that, the belly look smallest so, and if it is big it disfigures the horse to some extent, and also makes him to some extent both weaker and thinner.
The haunches must be broad and fleshy, that they may be in right proportion to the flanks and chest, and if they are firm all over, they will be lighter for running and will make the horse speedier.
If the gap the separates the hams under the tail is broad, he will also extend his hind legs well apart under his belly; and by doing that he will be more fiery and stronger when the throws himself on his haunches and when he is ridden, and will make the best of himself in all ways. One can infer this from the action of a man: for when he wants to

lift anything from the ground, a man invariable tries to lift it with his legs apart rather than close together.
A horse's stones should not be big: but it is impossible to observe this in a colt.
As for the parts below, the hocks, shin bones, fetlocks and hoofs, what we have said about the corresponding parts in the forelegs applies to these also.
I want also to explain how one is least likely to be disappointed in the matter of size. The colt that is longest in the shanks at the time he is foaled makes the biggest horse. For in all quadrupeds the shanks increase but little in size as time goes on, whereas the rest of the body grows to them, so as to be in the right proportion.
He who applies these tests to a colt's shape is sure, in my opinion, to get a beast with good feet, strong, muscular, of the right look and the right size. If some change as they grow, still we may confidently rely on these tests, for it is commoner for an ugly colt to make a useful horse than for a colt like this to turn out ugly.[538]

VARRO

As to conformation, they should be of moderate size, neither over nor under size, and the mares should have broad quarters and bellies. Stallions kept for breeding should be chosen of broad body, handsome, with no part of the body breaking the harmony. What sort of horse is going to turn out can be determined from the colt: if it has a head not over size and well-proportioned limbs, dark eyes, full nostrils, close-lying ears; mane abundant , dark, slightly curling, with very fine hair falling on the right side of the neck; broad, full chest, broad shoulders, fair-sized barrel, flanks converging downward, broad shoulder-blades, preferable with a double spine or at least with the backbone not prominent, full, somewhat curly tail, legs straight and sloping symmetrically rather inward that outward, the knees round but not large, and hard hoofs. The veins should be visible over the whole body, as a horse of this kind is capable of easy treatment when it is sick.[539]

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[538] Xenophon, *Art of Horsemanship*, 1.1-17
[539] Varro, *On Agriculture*, 2.7.4-5

VIRGIL

From the first, the foal of a noble breed steps higher in the fields and brings down his feet lightly. Boldly he leads the way, braves threatening rivers, entrusts himself to an untried bridge, and starts not at idle sounds. His neck is high, his head clean-cut, his belly short, his back plump, and his gallant chest in rich in muscles. Good colours are bay and grey; the worst, white and dun. Again should he but hear afar the clash of arms, he cannot keep his place; he pricks up his ears, quivers in his limbs, and snorting rolls beneath his nostrils the gathered fire. His mane is thick and, as he tosses it, falls back in his right shoulder. A double-ridge runs along his loins; his hoof scoops out the ground, and the solid horn gives it a deep ring.[540]

COLUMELLA

Its physical form will consist of a small head, dark eyes, wide-open nostrils, short, upstanding ears, a neck which is soft and broad without being long, a thick mane which hangs down on the right side, a broad chest covered with well-proportioned muscles, the shoulders big and straight, the flanks arched, the back-bone double, the belly drawn in, the testicles well matched and small, the loins broad and sunken, the tail long and covered with bristling, curly hair, the legs soft and tall and straight, the knee tapering and small and not turned inwards, the buttocks round, the haunches brawny and well-proportioned, the hoofs hard, high, hollow and round with moderately large crowns above them; the whole body much be so formed as to be large, tall and erect, and also active in appearance and, in spite of its length, rounded as far as shape allows. As regards character, those horses are esteemed which are roused to activity after being quiet and become very mild again after being roused; for such animals are found to be both amenable to discipline and very ready to take part in public contests and the effort which they require.[541]

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[540] Virgil, *Georgics*, 3.75-98
[541]Columella, *On Agriculture*, 6.29.2-4

OPPIAN

As the best horse of all men skilled in horse-rearing and overseers of herds have remarked the horse whose whole body is crowned with these features. He should have a small head rising high above his neck, himself being big and round of limb; the head should be high the nether jaw curving toward the neck; the brow should be high and broad and bright; from the temples the hair should wave in dense curls about the forehead; the eye should be clear and fiery under beetling brows; the nostrils should be wide, the mouth adequate, the ears small; the neck of the shaggy-maned horse should be curved, even as the arched crest of a plumed helmet; the breast should be large, the body long, the back broad, with a double-chine running between fat hips; behind should flow an abundant hairy tail; the thighs should be well compact and muscular; the rounded cannons beneath should be straight and long and very thin, and the limbs should be unfleshy, even as in the horned windswift stag; the pastern should be sloping; the rounded-hoof should run high above the ground, horny, strong.[542]

[542] Oppian, *On Hunting*, 1.173-193

APPENDIX B: DESCRIPTIONS OF ANCIENT HORSE TYPES

GRATIUS

It remains to define by their characteristics the horses which Diana's equipment can accept as useful.
Not every breed has the courage needed for my profession. Some show deficiency on the score of spirit; some have feeble bodies to play them false; at times excessive mettle in unsuitable. Bethink you – what sort of Thessalian horse bathes in Peneus' stream, or what is the grey sort on which its native Mycenae fixes its gaze? Assuredly it is huge, assuredly it will throw its legs high in air. What better steed ever traversed the race-course in Elis? Yet let it not touch our hunting-work: its vigour is too impetuous for an attack on the hard fighting of the forests. Doubtless Syene on the level plain has horses to admire which are not wild, and those of Parthia have kept their reputation in their own flat country: if such a horse comes to the crags of Taburnus near the Caudine Forks or to rugged Garganus or over the Ligurian Alps, he will collapse before his task with hoofs battered. And yet he has spirit and will mould himself to my methods if ordered: but heaven alongside of merit imposes defects. On the other hand, you find the horses of the Callaeci can traverse the jagged Pyrenees. I should not, however venture to try the conflict with a Spanish steed to serve me: amid sharp stones they scarce yield their stubborn mouths to the steel; but all Nasamonia controls her horses with light switches. The bold and hard-toiling Numidian folk free theirs even from halters: the horse will show his vigour careering in a hundred race-courses and will work off his temper in the contest. Nor does his keep cost much: whatsoever of its own the barren earth of the small rivulet doth yield, is enough to support him. So too maintenance is easy for horses of the Bisaltae near the Strymon: oh, that they should career along the highlands of Aetna, the sport which Sicilians make their own! What then, though their necks are ugly or though they have a thin spine curving along their back? Thanks to such steeds Acragas was praised in song by the Greeks, thanks to such, the vanquished creatures of the wild quitted craggy Nebrodes. Oh how stalwart will he be in hunting whose herds shall yield colts that can be trained! Who could dare pit again them the horses of Epirus, which are distinguished by Greece with honour scarce deserved? The chestnut-brown horses of Macedonian Ceraunus have scanty worth as hunters: but the herds of Cyrrha, sacred to thee, O

Apollo, have won high honour, whether the need be to yoke light vehicles or pull our (image-laden) cars in the procession to the shrines. For the hunter the horse's colour is a better ally (than its origin). His legs had best be black: let brown steeds be chosen… and those whose backs resemble spent embers. Oh, how much do the mares of Italy (such s heaven's will) excel in their foals; how much have we outstripped the world in every practice of life; and how active the young breed which brightens our meadows! …[543]

NEMESIAN

So then let Greece send us choice horny-hoofed coursers, and let a high-mettled breed recall the traits of the Cappadocians, and let the whole stud be soundly equipped and surpass the victorious racing-palms of their ancestors. Theirs is surface wide enough on Their smooth back, an enormous extent of side, and neat belly for their huge size, a forehead uplifted, quick ears, high pride of comely head, and eyes sparkling with restless gleam; an ample neck falls back on powerful shoulders; moist breath steams from hot nostrils, and, while the foot does not maintain its duty to stand still, the hoof repeatedly strikes the heart and the horse's spirited mettle tires its limbs. Moreover, beyond the soaring peaks of Calpe lies a vast country, productive far and wide of fine coursers. For they have the strength to make long runs across the prairies, and their beauty is no less than that in a Grecian body; panting they roll forth terrifying snorts, a flood of breath; they shoot out spirited glances; all a-quiver they raise their whinnyings and flight against the bridle, never giving their ears smooth rest nor their legs repose. Besides, you may select the courser sent by Mauretania (if he be a stout descendant of good stock), or the horse which the dusky Mazax tribesman has reared in desert fields and taught to undergo ceaseless toil. No need to repine at their ugly head and ill-shapen belly, or at their lack of bridles, or because both breeds have the temper of freedom, or because the neck lashes the sloping shoulders with its mane. For he is an easy horse to guide, and, following the turn of an unconfined neck, complies obediently under the control of a limber switch: its strokes are the orders fro speed, its strokes are as bridles too. Nay, once launched across the spacious levels of the plain, with

[543] Grattius, *On Hunting,* 496-541

blood stirred, the steeds win fresh strength in the race, leaving by degrees their eager comrades behind. …

OPPIAN

Now of all the breeds of horses that the infinite earth nourishes most swift are the Sicilian, which dwell in Lilybaeum and where the three-peaked hill that covers Enceladus, as the thunderbolt belches forth in beams reaching to the sky, discharges the eternal fire of Sicilian Aetna. Fleeter than the Sicilian are by the streams of Euphrates the Armenian and Parthian horses of flowing mane. Yet the Parthian horses are greatly excelled by the Iberian, which gallop over the plains with swifter feet. With them might vie only the eagle speeding over the vales of air, or the hawk hasting with long pinions spread, or the dolphin gliding over the grey waves. So fleet are the Iberian horses of wind-swift feet; but they are small and weak of spirit and unvaliant of heart and in a few furlongs are found wanting in speed; and though clothed in fair form and glorious shape, yet the hoof is lacking in strength, bred to soft ground and broad. The dappled breed of Moorish horses are far the best of all for extended courses and laborious toil. And next to these for accomplishing a long course come the Libyan horses, even those which dwell in many-pebbled Cyrene. Both are of similar type, save only that the strong Libyan horses are larger to look at; but these latter are long of body, having in their sides more space of broad rib than others, and hence are stouter to look at and superior in a charge and good at enduring the fiery force of the sun and the keen assault of noontide thirst. The Tuscan horses and the immense Cretan tribe are both swift in running and long of body. The Sicilian are swifter than the Moorish horses, while the Parthian are swifter than the Sicilian, grey-eyed also and eminently handsome, for they alone abide the loud roar of the lion. For verily against different wild beasts different races of horses are fitting in many cases as the eyes declare. Against the deer of spotted feet thou shouldst array dark-eyed horses; blue-eyed against bears; tawny-eyed against leopards; fiery and flaming against swine; brilliant and grey of eye against the grey-eyed lion. In beauty the most excellent of all horses is the Nesaean which wealthy kings drive; beautiful to behold, gentle to ride and obedient to the bit, small of head but shaggy-maned, glorying in the yellow locks on either side of his neck.

Yet another lovely breed thou mayst see, the dappled conspicuous breed which men call the Orynx, either because they flourish on the grassy hills or because they are very eager to mate with their females. In the case of the Orynxes there are two species of many-patterned beauty. One species are inscribed on neck and broad hairy back with a series of long stripes, even as the swift tigers, the offspring of rapid Zephyrus. The others are adorned all about the densely set round spots, like those of leopards; this species while they are still but baby foals, are tattooed by skilful men, who brand their long hair with the flaming bronze.[544]

GREECE

But there are ample pastures for cattle, particularly for horses and asses that are used as stallions. And the Arcadian breed of horses, like the Argolic and the Epidaurian, is most excellent. And the deserted lands of the Aetolians and Acarnanaians are also well adapted to horse-racing- no less so than Thessaly.[545]

And we got and drove off together much spoil from this pastureland:
Fifty herds of oxen, as many sheepflocks, as many
Droves of pigs, and against as many wide-ranging goatflocks,
And a hundred and fifty brown horses, mares all of them
And many with foals following underneath.[546]

So, in return for this treatment, Nestor gathered together all he could of the people of his home-land, made an attack, he says, upon Eleia, and herded together very much booty, "fifty herds of cattle, and as many flocks of sheep , and as many droves of swine," and also as many herds of goats, and one hundred and fifty sorrel mares, most of them with foals beneath them.[547]

About wild horses the Greeks have not written, because Greek lands did not breed them, but it must be inferred that

[544] Oppian, *On Hunting*, 1.271-327.
[545] Strabo, *Geography*, 8.8.1
[546] Homer, *Iliad*, 11.676-680
[547] Strabo, *Geography*, 8.3.28

all remedies from them are more potent that from the tame animal.[548]

…he drives his wife to the Mysteries, or anywhere else that he wishes, with a pair of greys from Sicyon.[549]

Aeolian and Dolopian farmers broke the soil,
And Magnetes well known for their horses…[550]

First from the rocks struck by the trident of the sea
leapt forth the Thessalian steed, the portent
of fatal wars; first he champed the steel bit
and foamed at the unfamiliar reins of his Lapith tamer.[551]

There is current, also, an oracle which was given out to the people of Aegium, "Thessalian horse, Lacedaemonian women, and men who drink the water of Sacred Arethusa," meaning that the Chalcidians are the best of all, for Arethusa is in their territory.[552]

ITALY

Those who wish to establish a herd of horses and mares, as some do in the Peloponnesus and in Apulia, should first have an eye for age…[553]

When he reached Salapia, he had the grain brought in from the country around Metapontum and Heraclea, for summer was over the place seemed to him a good one for wintering in. With that as his base he sent raiding parties of Numidians and Moors over Sallentine territory and into the nearest woodlands of Apulia; the raids produced little except horses: herds of them were rounded up, and some 4,000 were distributed amongst the mounted troops to be broken in.[554]

…adduce their devotion to the breeding of horses- a devotion which now, indeed, has wholly disappeared,

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[548] Pliny the Elder, *Natural History*, 28.45.
[549] Demosthenes, *Against Meidias,* 158.
[550] Lucan, *Civil War*, 6.385.
[551] Lucan, *Civil War*, 6.396-399.
[552] Strabo, *Geography*, 10.1.13.
[553] Varro, *On Agriculture*, 2.7.1.
[554] Livy, *History*, 24.20.

although formerly it was prized among them, from the fact of their ancient rivalry in the matter of producing mares for mule-breeding. Homer, too, recalls this fact: "From the land of the Heneti, whence the breed of the wild mules." Again, Dionysius, the tyrant of Sicily, collected his stud of prize-horses from here, and consequently not only did the fame of the Henetian foal-breeding reach the Greeks but the breed itself was held in high esteem by them for a long time.[555]

And it is said that one of the prominent men, who was known from his fondness for giving bail for people and was twitted for this, fell in with some hunters who had a wolf in their nets, and, upon saying in jest that if he would give bail for the wolf, and agree to settle al the damage the wolf should do, they would set the wolf free from the toils, he agreed to the proposal; and the wolf, when set free, drove off a considerable herd of unbranded horses and brought them to the steading of the man who was fond of giving bail; and the man who received the favour not only branded all the mares with a wolf, but also called them the "wolf-breed"- mares exceptional for speed rather than beauty; and his successors kept not only the brand but also the name for the breed of the horses, and made it a custom not to sell a mare to outsiders, in order that the genuine breed might remain in their family alone, since horses of that breed had become famous. But, at the present time, as I was saying, the practice of horse-breeding has wholly disappeared.[556]

Artemis, mistress of the Salty Lake,
Mistress of the ring echoing to the racers' hoofs,
If only I could gallop your level stretches,
And break Venetian colts.[557]

This whole country [between Salapia and Sinus] produces everything in great quantity, and is excellent for horses and sheep.[558]

Such would I have the horse to be who goes to the fierce warfare with wild beasts, a spirited helper, warlike and strong. Such are the Tuscan horses and the Armenian and

[555] Strabo, *Geography*, 5.1.4
[556] Strabo, *Geography*, 5.1.9.
[557] Euripides, *Hippolytus*, 228-231.
[558] Strabo, *Geography*, 6.3.9.

the Achaean and the famous Cappadocian horses which dwell in front of Taurus.[559]

CENTRAL ASIA

But where the plains offer scope for horsemen, among the Mysians and the Getae, and in Scythia and throughout Illyria, they ride after the deer on Scythian and Illyrian horses; these are at first sight not good for riding, but even if you have a very low opinion when you see them running beside a Thessalian or Sicilian or Peloponnesian horse, they have exceptional stamina. And then you may see that the fast, large and proud horse giving up, but the thin and mangy one first passing it, then leaving it behind, and then pursuing the wild animal into the distance.[560]

The Scythians prefer mares as chargers, because they can make water without checking their gallop.[561]

The coldness of these regions, albeit the people live in plains, is evident, for they do not breed asses, an animal that is very sensitive to cold; and as for their cattle, some are born without horns, while the horns of others are filed off, for this part of the animal is sensitive to cold; and the horses are small, whereas the sheep are large…[562]

It is a peculiarity of the whole Scythian and Sarmatian race that they castrate their horses to make them easy to manage; for although the horses are small, they are exceedingly quick and hard to manage.[563]

The third river, the Hypanis, has its source in Scythia, in another great lake, round the borders of which wild white horses graze.[564]

They cover their heads with round caps and protect their hairy legs with goatskins; their shoes are formed upon no lasts, and so prevent their walking with free step. For this reason they are not at all adapted to battles on foot, but they

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[559] Oppian, *On Hunting*, 194-197
[560] Arrian, *On Hunting*, 23.2-3
[561] Pliny the Elder, *Natural History*, 8.62.65
[562] Strabo, *Geography,* 7.3.18.
[563] Strabo, *Geography*, 7.4.8
[564] Herodotus, *Histories*, 4.52

are almost glued to their horses, which are hardy, it is true, but ugly, and sometimes they sit them woman-fashion and thus perform their ordinary tasks. From their horses by night or day everyone of that nation buys and sells, eats and drinks, and bowed over the narrow neck of the animal relaxes into a sleep so deep as to be accompanied by many dreams.[565]

NEAR EAST

Apameia also has a city that is in general well fortified; for it is a beautifully fortified hill in a hollow plain, and this hill is formed onto a peninsula by the Orontes and by a large lake which lies near by and spreads into broad marshes and exceedingly large cattle-pasturing and horse-pasturing meadows….
Here, too, were the war-office and the royal stud. The royal stud consisted of more than thirty thousand mares and three hundred stallions.[566]

They asked him what country they were in, and he said 'Armenia'. Next, they asked him who the horses were being kept for, and he said they were tribute for the king. He also informed them that across the border lived the Chalybians, and he told them how to get to the road that would take them there. When Xenophon left, he took the headman back for the time being to his family and, because he had been told that the horse was the animal they sacrificed to the Sun God, he gave him a horse he had which was rather old, so that the headman could fatten it up and sacrifice it. Xenophon had taken the horse as booty, but he was afraid it would die from the ill effects of the journey. He took for himself some of the colts, and he gave one to each of his fellow generals and company commanders. The horses in that part of the world were smaller than the Persian breed, but much more lively. Also at this time the headman taught Xenophon to wrap the feet of the horses and the yoke-animals in small bags for any journeys through snow, because without the bags they used to sink up to the bellies.[567]

…for Cappadocia paid the Persians yearly, in addition to the silver tax, fifteen hundred horses, two thousand mules,

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[565] Ammianus Marcellinus, *Histories*, 31.2.6
[566] Strabo, *Geography*, 16.2.10
[567] Xenophon, *Anabasis*, 4.5

and fifty thousand sheep, whereas Media paid almost twice as much as this.[568]

A marvel have I seen among the Cappadocian horses; so long as they have their foal teeth in their mouth and are milk-fed, they are weakling, but as they grow older, they become swifter. These are those which thou shouldst array for manly war and against fierce wild beasts; for they are very brave to face arms and break the serried phalanx and contend against warlike wild beasts.[569]

The most easterly country in the inhabited world is, as I said just now, India; and here both animals and birds are much larger than elsewhere- if we except the Indian horse, which is inferior in size to the Median breed known as the Nisaean.[570]

Then came the 10 sacred horses, known as Nisaean, in magnificent harness. (The horses are so called because they from the great Nisaean plain in Media, where horses of unusual size are bred.)[571]

It was on this journey that Alexander is said to have also seen the plain in which the royal mares were pastured; the plain itself was called the Nesaean and the horses Nesaean, as Herodotus tells us; and there were originally about one hundred and fifty thousand mares, but at that time Alexander found no more than fifty thousand, as most of them had been driven off by robbers.[572]

Their green meadows produce a noble breed of horses, on which their chiefs (as the writers of old say, and as I myself have seen) when entering battle are wont to ride full of courage. These horses they call Nesaean.[573]

This, as well as Armenia, is an exceptionally good "horse-pasturing" country; and a certain meadow there is called "Horse-pasturing," and those who travel from Persis and Babylon to Caspian Gates pass through it; and in the time

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[568] Strabo, *Geography*, 11.13.8
[569] Oppian, *On Hunting*, 1.198-205.
[570] Herodotus, *Histories*, 3.106.
[571] Herodotus, *Histories,* 7.40
[572] Arrian, *Campaigns of Alexander*, 7.13.1
[573] Ammianus Marcellinus, *Histories*, 23.6.30

of the Persians it is said that fifty thousand mares were pastured in it and that these herds belonged to the kings. As for the Nesaean horses, which the king used because they were the best and the largest, some writers say that the breed came from here, while others say from Armenia. They are characteristically different in from, as are also the Parthian horses, as they are now called, as compared with the Helladic and the other horses in our country. Further, we call the grass that makes the best food for horses by the special name "Medic," from the fact that it abounds there.[574]
The country is so very good for "horse-pasturing," not even inferior to Media, that the Nesaean horses, which were used by the Persian kings, are also bred there. The satrap of Armenia used to send to the Persian king twenty thousand foals every year at the time of the Mitrhacina. Artavasdes, at the time when he invaded Media with Antony, showed him, apart from the rest of the cavalry, six thousand horses drawn up in battle array in full armour. Not only the Medes and the Armenians pride themselves upon this type of cavalry, but also the Albanians, for they too use horses in full armour.[575]

And it is peculiar to Iberia, according to Poseidonius, that the crows are black there and also that the slightly dappled horses of Celtiberia change their colour when they are brought over to Farther Iberia. The Celtiberian horses are like those of Parthia, he says, for not only are they faster but they are also smoother runners than the other horses.[576]

Third and last, and handsomest of all,
Came Iulus, riding a Sidonian mounts
Given him by the glowing beauty, Dido
To be a keepsake and a pledge of love.[577]

One people only have I been able to hear of on the other side of the Danube: these are the Sigynnae, who dress, it is said, in the Median fashion, and have little, snub-nosed, shaggy horses, with hair about four inches long all over their bodies. These horses cannot carry a man, but are very

[574] Strabo, *Geography*, 11.13.7.
[575] Strabo, *Geography*, 11.14.9.
[576] Strabo, *Geography*, 3.4.15
[577] Virgil, *Aeneid*, 572-575.

fast in harness, with the result that driving is here the rule.[578]

THRACE

First to question them was the Gerenian horseman, Nestor:
'Come, tell me, honoured Odysses, great glory of the Achaians,
how did you win these horses? Did you go into the great company
of the Trojans, or did some god meet you and give them to you?
They shine, like the rays of the sun, terribly. Yet over and over
I encounter the Trojans, I say that I am not at all one
to hang back beside the ships, though I am an aged fighter.
Yet I have never seen horses like these, nor laid eyes upon them…
These horses, aged sir, that you ask about are newcomers from Thrace…[579]

Your noble son, Polites, and a destined
Sire of Italians- riding a Thracian mount
With dappling of white, white pasterns and
Upon his haughty brow a snow-white blaze.[580]
The latter river the Magi tried to propitiate by a sacrifice of white horses, and after performing many other magical tricks in the hope of winning the river's favour, they crossed it by the bridges they found at Nine Ways, a place in the territory of the Edoni.[581]

NORTH AFRICA

….while I proclaim Telesicrates, the victor in the Pythian contest with the brazen shield, a happy man and the crowning glory of chariot-driving Cyrene.[582]

Cyrene grew strong because of the fertility of its territory, for it is excellent for the breeding of horses and produces beautiful fruit…[583]

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[578] Herodotus, *Histories*, 5.9
[579] Homer, *Iliad*, 10.543-559
[580] Virgil, *Aeneid*, 5.565-568
[581] Herodotus, *Histories*, 7.113.
[582] Pindar, *Pythian Odes*, 9.14
[583] Strabo, *Geography*, 17.3.21

The great area is matched by its peoples, so many follow his camp:
The Autolotes, wandering Numidians, Gaetulians always
Ready for action on undecorated horse; next Moors as dark as Indians, poor Nasamonians, swift Marmaridae
with sun-scorched Garamantes, the Mazaces rivaling the Medes'
arrows when they shoot their quivering missiles,
and the Massylian race who ride bare-back
and with light stick guide mouths unacquainted with the bit…[584]

…and both horses and cattle have longer necks than those of other countries. Horse-breeding is followed with such exceptional interest by the kings that the number of colts every year amounts to one hundred thousand.[585]

In Libya, on Libyan horses- both the men themselves and the horses are called Numidians- on these horses they catch, not only deer or gazelle, for these are caught without much effort, and the horses that have caught a creature like that do not seem anything special, but wild asses also, which are exceptional in speed and in being able to keep running for the longest distance. When the Greeks with Cyrus the son of Darius were marching against the Great King, on the expedition in which Xenophon took part, he says that where they were passing through the Arabian desert, herds of wild asses appeared, and a wild ass was never caught by a singe horseman, but that they took different stations and drove them one after another, and the asses, holding out against many hunters, finally collapsed from exhaustion; thus it is clear that even round Cyrus the son of the Great King, and brother of the Great King, there were not horses good at the chase. But Libyan boys, some of them eight years old, others not much older, riding bare back horses, using a stick on them as Greeks use a bridle, keep up with the wild asses so close that finally they throw a noose over the beast's head and make it go with them; and it accepts defeat and follows.[586]
The consul had approximately 800 Numidian cavalry amongst his auxiliary troops. The commander of these promised him that he would break through with his men at

[584] Lucan, *Civil War*, 4.677-683
[585] Strabo, *Geography*, 17.3.19
[586] Arrian, *On Hunting*, 24.1-3

whichever end the consul wished – he merely had to indicate which end had the more villages. For the Numidians would attack these, and before anything else would set light to their buildings. The panic generates by this would force the Ligurians to quit the pass which they were blockading, and run off to bring help to their respective peoples. The consul applauded the man and showered him with promises of reward.
The Numidians mounted their horses and rode towards the enemy outposts, but without attacking anyone. At first there could not have been a more sorry sight. Horses and men were puny and scrawny; the riders had no body-armour or weapons apart from the javelins which they carried; the horses had no bridles, and their very gallop was unsightly, racing along as they did with neck stiff and head outstretched. The Numidians purposely enhanced the derision of the enemy by falling from their mounts and making themselves look ridiculous.[587]

Their horsemen fight mostly with a javelin, using bridles made of rush, and riding bareback; but they also carry daggers…
…using horses that are small but swift, and so ready to obey that they are governed with a small rod. The horses wear collars made of wood or of hair, to which the rein is fastened, though some follow even without being led, like dogs.[588]

IBERIA

There are even now many quite wild cattle in Dardania, Maedica, and Thrace; wild asses in Phrygia and Lycaonia, and wild horses at several points in Hither Spain.[589]

You, a man worthy to be acclaimed by Celtiberian tribes, and the glory of our Spain, you, Licinianys, will see high-set Bilbilis, renowned for steeds and armour…
There will you slay does enmeshed in yielding toils, and home-bred boars, and with your stout steed ride down the cunning hare…[590]

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[587] Livy, *Histories,* 35.11
[588] Strabo, *Geography*, 17.3.7
[589] Varro, *On Agriculture*, 2.1.5
[590] Marital, *Epigrams,* 1.39

> This little Asturian horse that picks up its fleet hooves in rhythm came from gold-bearing peoples.[591]
>
> Also in Spain the Gallaic and Asturian tribes breed those of the horse kind that we call 'theldones,' though when more of a pony type they are designated 'cobs', which have not the usual paces in running but a smooth trot, straightening the near and off-side legs alternately, from which the horses are taught by training to adopt an ambling pace.[592]
>
> And intermingled with their forces of infantry was a force of cavalry, for their horses were trained to climb mountains, and, whenever there was a need for it, to kneel down promptly at the word of command. Iberia produces many deer and wild horses.[593]
>
> Would you not therefore, prefer Cato's steed, that single steed, saddle worn by Cato himself, to the coxcomb's whole retinue of plump ponies, Spanish cobs, and trotters?[594]

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[591] Martial, *Epigrams*, 14.199
[592] Pliny the Elder, *Natural History*, 8.67.166
[593] Strabo, *Geography*, 3.4.15
[594] Seneca, *Epistles* 87.11

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