By Peter Stark

HORSES

GALLOPING THROUGH TIME
The horse, once hunted and later domesticated, helped advance human communication and transportation, accelerating global change.
The speed of things

Thanks to modern technology, our messages can now travel close to the speed of light, nearly 186,000 miles (about 300,000 kilometers) per second. But, for early humans, most long-distance messages traveled no faster than a person could walk, or maybe run. The fastest marathoners (whose event is named for the legend of the messenger who ran from Marathon to Athens in 490 BCE to announce a Greek military victory over the Persians) cover 26 miles (or 42 kilometers) in just over two hours. After such an effort, even the best human runner is utterly exhausted.

The domestication of the horse signaled a major innovation in transport and communication. Humans could travel farther and could carry much more with them. Horseback riders also carried messages, increasing collective learning as information changed hands. The speed at which humans could travel increased to that of a horse’s walk, trot, or gallop, a range of about 4 miles per hour to 55 miles per hour (the record gallop speed over short distances).

What made horses so fast? How did their speed give humans an energy boost? And how did humans come to choose the horse as a method of transport? To answer these questions, we must begin by looking at how the horse evolved.
The evolution of the horse

The history of the horse goes back some 55 million years, to a very small animal — about the size of a dog or a baby lamb — named *Hyracotherium* (or sometimes *Eohippus*) that evolved as part of the mammalian radiation that followed the extinction of the dinosaurs. This distant ancestor of the horse lived in tropical rain forests in North America and ate leaves.

Some ancestors of the horse went extinct but certain lines of these early horses continued to develop in response to predators, competitors, and changing environmental conditions. They gradually grew in size. Legs grew longer and developed powerful ligaments, and feet with a large center toe evolved into a single hoof — physiological changes equipping the proto-horse for speed across open spaces and hard ground.

Over millions of years, the rain forests of what is now North America dried up and the Rocky Mountains arose. Enormous grassy plains appeared on either side of the peaks. The horse’s ancestor adapted to better consume the tough but increasingly abundant prairie grass. The animal needed stronger jaws and bigger teeth that wouldn’t wear down from all that grinding.

Moving to distant lands

This proto-horse line crossed over the Bering Land Bridge from the Americas to Asia, and eventually spread to Europe. Curiously, it suddenly vanished from the Americas about 10,000 years ago. Its disappearance could have been caused by the changing climate at the end of the last ice-age glaciation, or perhaps by the arrival of human hunters from Asia, who threw spears to great effect. Humans hunted the animal for meat long before looking to it for transportation needs.

Whatever happened in America to cause the disappearance of the horse, foragers in Europe and Asia continued to hunt horses and, in some ways, revere them. Cave paintings by early humans from Lascaux, France, that date to over 17,000 years ago display beautiful renderings of horses, and later human societies named constellations after the horse.

Hunters began to follow the horse herds. While the horse still remained a “wild animal,” humans and horses, in a manner of speaking, grew closer together. Humans could attract the horse by providing ready fodder. They found that they could milk the lactating mare and serve the milk to their own
families. The first known evidence of domesticated horses comes from horse dung found inside postholes of what appears to have been a stable in today’s Kazakhstan, dating to 5000 BCE. Ancient knife marks on thousands of horse bones indicate these horses were raised for meat, and perhaps milk.

Horses and riders

At some point — no one is sure exactly when — humans began to eye horses as more than simply food. One can imagine some adventurous herder youth climbing atop a docile-looking horse for amusement. But whether humans used horses to pull wheeled vehicles such as chariots before they learned to ride them is not certain. Because most of these developments occurred before writing was invented, we depend on archaeological evidence to help us understand what happened.

Horses pulling chariots are depicted in drawings from the Middle East about 4,000 years ago. The earliest evidence of humans riding horses is 5,000-year-old fossils of worn-down horse teeth that indicate a riding bit was placed in the animal’s mouth. It is certainly possible that humans rode horses without bits long before that, but no physical evidence remains.

With the ability to ride the horse, and to domesticate it for food, horse-centered human cultures emerged in places like the steppes of Central Asia. Horses and riders or horse-drawn carts or chariots could cover huge distances at great speed. As trade routes developed, roads were built to move horses and chariots more quickly. Horse-mounted messengers on the Persian Empire’s Royal Road in the fifth century BCE could carry a message 1,700 miles in seven days, compared with 90 days by foot.

“There is nothing in the world that travels faster than these Persian couriers,” wrote the Greek historian Herodotus.

The domestication of horses transformed communication, transportation, and warfare
Humans also figured out how to use horses in warfare. The chariot was a fearsome weapon and the invention of the saddle, and then the stirrup, which first appears in China about 2,000 years ago, brought a leap forward in the effectiveness of horse-mounted warfare. Now warriors could use their hands more readily to fling spears, slash with swords, or fire arrows while secured on horseback with a saddle, feet planted in stirrups. The Mongols, who used lightning-fast raids to conquer much of Asia in the thirteenth century, were famous for their horse-mounted archers. When the stirrup arrived in Europe, it allowed European warriors to ride while armored with metal plates forged by medieval blacksmiths — making them a kind of proto-tank. Thus was born the European knight in armor, fighting for a feudal lord to whom he swore loyalty.

The horse-loving Spaniards (the word for gentleman in Spanish is caballero, or “he who rides a horse”) re-introduced the horse to North America, with the first expeditions to Mexico after Christopher Columbus’s voyages. Some horses quickly escaped from the Spanish conquistadors, or were stolen, and bred in the wild. Native Americans quickly saw the utility of the horse, and the Plains Indians became expert at horse riding. Early European explorers in North America gave reports of Plains Indian children too young to talk but comfortable riding their own small mounts. Human oceanic travel had brought the horse back to its ancestral home, further adding to the animal’s importance within both foraging and agrarian societies.

All the while, humans bred horses selectively for characteristics like maneuverability, speed, gentleness, and strength. A vast number of breeds, somewhere over 300, exist today, reflecting the spectrum of uses in which horses have served humans.

In other parts of the world, humans domesticated other animals to carry themselves or their loads: elephants in what’s now India and Thailand, camels in North Africa and parts of Asia. In North America, before the reintroduction of the horse by the Spaniards, Native Americans on the Great Plains relied on dogs pulling small travois (simple sleds) to carry their tepees, cooking ware, and other goods when they moved from camp to camp. But the horse proved able to carry far heavier loads than a dog could.
An unburdened future

The dominance of the horse changed dramatically with the invention of the steam engine, which, not surprisingly, was measured in “horsepower.” With this new energy source in steamboats and railroads, followed by the invention of the automobile, the number of workhorses dropped significantly. Electronic communication and new forms of transportation made the horse obsolete for carrying messages. Telegraphs and railroads replaced the Pony Express, which once carried letters across the American West. Advances in the transport of information continued with the radio, telephones, television, and the Internet.

While the horse continues to be used for transport and farming in some regions, in the industrialized world, it is mostly ridden for recreation or kept as a pet. Humans and horses have had a relationship for millennia, and horses perhaps understand humans in ways we don’t even know. Recent scientific studies have indicated that autistic children are soothed by riding and grooming horses.

The horse in the future might carry on a more subtle, more complex, and ultimately more important kind of relationship with humans than carrying heavy loads or transporting messages over long distances.
A LITTLE BIG HISTORY OF HORSES

COLLISION
The K-T impact near the Yucatán Peninsula of Mexico 65 MYA wipes out the dinosaurs, triggering the rise of mammals.

EVOLUTION
A leaf-eating, dog-size mammal named *Hyracotherium* lives in North America 55 MYA and eventually evolves into the horse.

CONTEMPLATION
Human foragers hunt the horse for meat and revere it, depicting the animal in cave paintings.

DOMESTICATION
Agriculture recasts the horse as a versatile work animal, providing a major energy boost to human societies.

CONNECTION
The horse, now a major player in communication, transportation, and warfare, is reintroduced to the Americas by Spanish conquistadors.

ACCELERATION
Inventions like the steam engine and the telegraph make the horse nearly obsolete for transportation and communication, but mechanical power is measured in "horsepower."
Image credits

An engraving of the constellation Pegasus, 1603
© Royal Astronomical Society / Science Source

A herd of horses
© David Stoecklein/CORBIS

An illustration of *Hyracotherium*, an ancestor of the horse
© Tierbild Okapia/Photo Researchers, Inc.

Cave paintings near Lascaux, France
© Serge de Sazo/Photo Researchers, Inc.

A 19th-century Persian painting
© Burstein Collection/CORBIS

Two Sioux warriors in full dress, c. 1899
© CORBIS

The Royal Hudson steam train
© Chris Harris/All Canada Photos/CORBIS

The Chicxulub impact crater
© Detlev van Ravenswaay / Science Source

NEWSELA

Articles leveled by Newsela have been adjusted along several dimensions of text complexity including sentence structure, vocabulary and organization. The number followed by L indicates the Lexile measure of the article. For more information on Lexile measures and how they correspond to grade levels: http://www.lexile.com/about-lexile/lexile-overview/

To learn more about Newsela, visit www.newsela.com/about.

*Lexile*® Framework for Reading

The Lexile® Framework for Reading evaluates reading ability and text complexity on the same developmental scale. Unlike other measurement systems, the Lexile Framework determines reading ability based on actual assessments, rather than generalized age or grade levels. Recognized as the standard for matching readers with texts, tens of millions of students worldwide receive a Lexile measure that helps them find targeted readings from the more than 100 million articles, books and websites that have been measured. Lexile measures connect learners of all ages with resources at the right level of challenge and monitors their progress toward state and national proficiency standards. More information about the Lexile® Framework can be found at www.Lexile.com.