



Ancient Automaton in Myth and History

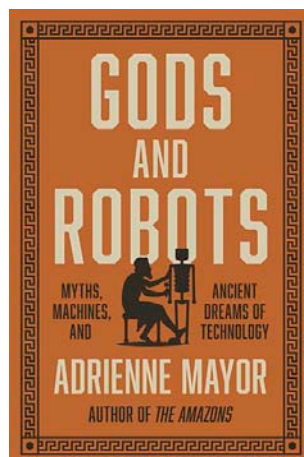
By Adrienne Mayor

Who first imagined robots? Most historians believe that automatons were first developed in the Middle Ages. Some philosophers of science claim that it was impossible for anyone in ancient times to imagine technologies beyond what already existed.

Other scholars assume that all animated beings in mythology were inert matter brought to life by gods or magic, like Adam and Eve or Pygmalion's ivory statue. But I wondered, was it possible that the *concepts* of robots could have been imagined in classical antiquity, long before technology made them possible?

I found descriptions of imaginary automatons as early as Homer, more than 2,500 years ago, in a remarkable group of Greek myths. Robots, synthetic beings, and self-moving devices appear in myths about Odysseus, Jason and the Argonauts, the sorceress Medea, the bronze automaton Talos, and Pandora. The stories envisioned ways of replicating nature by a process of *bio-techne*, "life through craft." These beings were not simply inert matter brought to life by magic or a god's command. Ancient poets describe the artificial entities as "made, not born," to emphasize their technological, non-biological origins.

So, thousands of years before medieval and early modern machines and centuries before innovations of the Hellenistic era (fourth century to first century BCE) produced real self-moving devices—ideas about creating artificial life were being explored in imaginative thought experiments, set in an alternate world where technology was marvelously advanced. My book, [Gods and Robots: Myths, Machines, and Ancient Dreams of Technology](#), delves into the earliest expressions of the desire to create artificial life, from the age of mythology to proliferation of real automatons in Alexandria, Egypt.



According to Homer's *Iliad*, Hephaestus, the god of invention and technology, made a host of automated devices. Examples include gates that automatically opened and closed for the gods' chariots, "smart" bellows for his forge, a choir of singing statues, gold and silver animated watchdogs, driverless delivery carts to serve ambrosia at celestial banquets, and a staff of Golden Maidens as his assistants. These female androids, says Homer, "looked just like real women" and moved on their own, with "reason and mind." Moreover, they were endowed with "all the knowledge of the gods," essentially an ancient version of Artificial Intelligence.

The bronze guardian Talos was charged with defending King Minos's kingdom of Crete. "Programmed" to spot strangers and hurl boulders to sink ships, the killer robot could also heat his body and roast people by hugging them to his chest. We even have the details of his inner workings: an artery ran from his head to his foot and in this conduit pulsated his power source, *ichor*, the life force of the immortal gods. The "vivisystem" was sealed with a bronze bolt on his ankle.



**Talos hurling a rock and the Golden Hound, automatons made by Hephaestus for King Minos.
Bronze coin of Phaistos, Crete, ca .350 BCE, Boston, MFA.**



Talos crushing victims. Etruscan bronze mirror, ca. 460 BCE, Berlin.

The story of Talos is best known from the *Argonautica*, the epic saga of Jason and the Argonauts, who almost became the robot's victims. Luckily, the sorceress Medea figured out how to destroy Talos with a combination of persuasion and technology. She convinced Talos that she could make him immortal, but only if he allowed Jason to remove the bolt on his ankle. Talos agreed. When Jason removed the bolt, *ichor* flowed out like "molten lead" and Talos's "life" ebbed away. Scenes of Jason using a tool to remove the bolt appear on fifth century BCE vase paintings and vase painters humanized the bronze giant in their illustrations of his demise.



Talos dying. Ruvo Vase, ca 450 BCE, Art Resource.

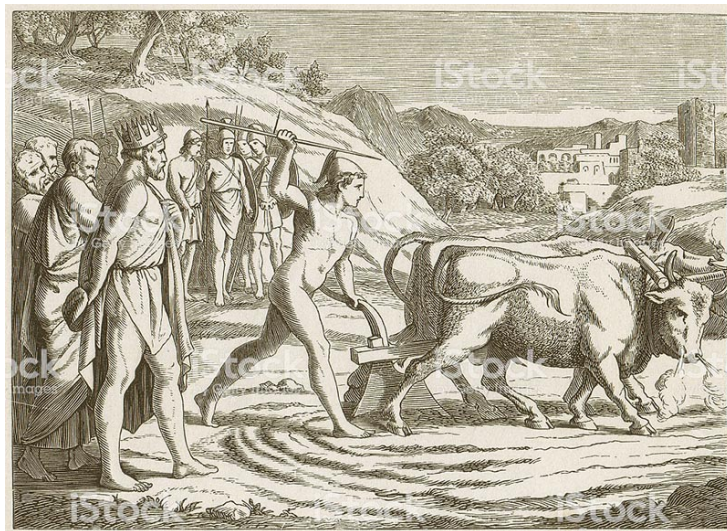
Drawing on metallurgy technology of the Bronze Age, classicist A. B. Cook proposed an intriguing theory for the distinctive physiology of Talos. In lost-wax casting, bronze statues were made with interior tubes of wax from head to toe. During casting at great heat, the melted wax flowed out at the feet. Notably, the myth described the tube in Talos with the ancient medical term for "vein." In antiquity, the vein on the ankle was used for bloodletting.



Jason using a tool to remove the bolt on Talos's ankle. After the 5th century BC Montesarchio Vase, drawing by Michele Angel.

The imaginary integration of living and non-living components, melding biology with metallurgical "mechanics," makes Talos into a kind of cyborg. The myth also asks whether automatons could have emotions or agency, questions we ponder today about AI robotics.

Medea was portrayed as a kind of techno-wizard in myths. She also helped Jason overcome the deadly pair of fire-breathing bronze bulls, owned by King Aeetes, who tried to thwart Jason's Quest for the Golden Fleece. Like Talos, the brazen bulls were forged by Hephaestus.



Jason and the fire-breathing bronze bulls of King Aeetes. 1883 print.

Hephaestus's hallmark automaton was fabricated for Zeus. To take revenge on humankind for accepting the gift of fire stolen by Prometheus, Zeus commanded Hephaestus to make a trap, "evil disguised as beauty," in the form of a seductive young woman called Pandora. She was to be sent to earth on a mission: to open a sealed jar filled with suffering to plague humans for eternity. In the original myth, written down by Hesiod (ca. 750-650 BCE), Pandora was a product of technology designed to Zeus's specifications. On vase paintings of Pandora being prepared for her assignment on earth, she is shown standing stiffly like a statue with an uncanny smile.

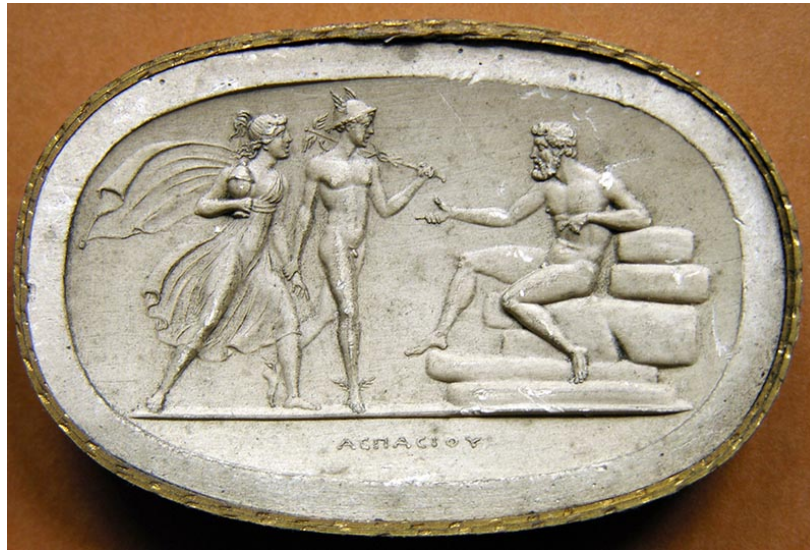


Zeus admiring Pandora, before sending her to earth with the jar of evils. Diosphos Painter, ca. 525-475 BCE, Berlin, Art Resource.



Pandora being prepared for her mission. Niobid Painter vase, ca. 460 BCE, British Museum.

Hermes, Zeus's messenger, presented Pandora as a bride to Epimetheus. Dazzled by her beauty, he ignored the warnings of Prometheus, not to accept Zeus's "gift." Only later did Epimetheus realize his error. Today many compare Artificial Intelligence to "Pandora's box," but the myth turns out to be even more relevant than anyone realizes. In ancient Greek, the name Prometheus means "foresight" while Epimetheus means "hindsight." In the face of advancing "black box" technology, we need more Prometheans to look ahead and restrain over-optimistic Epimetheans enchanted by short-term gains.



Hermes presents Pandora as a bride to Epimetheus. Neo-classical gem, cast.

In the Greek myths, automatons are typically deployed by those in power, either Zeus or kings. Such things are benign and labor-saving when used by the gods in the heavens, but they can be dangerous and destructive on the human plane. In this, the myths presage modern concerns that technology might favor tyranny.

There is, however, one mythic example of a benevolent self-moving AI device, in Homer's *Odyssey*. Odysseus has been away from his native island for twenty years. Visiting the Phaeacians, a mysteriously advanced society ruled by King Alcinous, Odysseus expresses his longing to return home. The king describes his miraculous fleet of ships that need no human pilots or rowers—they are navigated by thought alone. "Just give the name of your destination," he tells Odysseus, "and the ship will deliver you there." The ships themselves "understand what we are thinking about and want," explains Alcinous, "They know all the cities and countries in the world and traverse the sea unaffected by storms or fog." Odysseus accepts the king's offer and marvels at the speed of the autonomous ship. With access to vast archives of maps and navigational charts, the Phaeacian ships bring to mind modern GPS and automatic navigation systems.

The ancient myths resemble science fiction tales, envisioning what wonders of technology one might achieve if only one possessed the powers and ingenuity of the gods. In historical times, animated devices were actually built beginning in the fourth century BCE, in the great center of imagination and invention, Alexandria. Ctesibius, Philo, Heron, and other brilliant engineers designed lifelike servants that poured wine, singing birds, moving figures of dragons and serpents, autonomous theaters, and colossal animated statues.

Gods and Robots focuses on mythology and historical inventions in the Greek-influenced world. But the Greeks were not unique in imagining and constructing self-moving devices and animated machines. Stories about artificial life from other ancient cultures show similar ingenuity and innovations. For example, ships powered by automaton rowers appear in Egyptian texts; android and animal automatons are described in Chinese chronicles; and flying chariots and synthetic swans, animated servants, giant robots, and machines appear in the Indian epics *Mahabharata* and *Ramayana*. Taken together, all these ancient dreams of technology reveal the timeless links between imagination and science.

Adrienne Mayor is Research scholar in the Department of Classics and History and Philosophy of Science Program at Stanford University.