

PYGMALION'S LIVING DOLL AND PROMETHEUS'S FIRST HUMANS

THE LIFE AND times of Prometheus, the maverick Titan who deceived Zeus and championed early humans, trace a meandering path in ancient Greek mythology. He is first introduced in Hesiod's poems written in 750–650 BC. Prometheus, enduring his shifting relationship with Zeus, also stars in the fifth-century BC dramatic trilogy *Prometheus Bound*, *Prometheus Unbound*, and *Prometheus the Fire-Bringer*, often attributed to Aeschylus.¹

Retellings and embellishments of the ancient traditions about Prometheus are found in about two dozen ancient Greek and Latin sources. In the earliest versions, Prometheus was the benefactor of humankind, showing them how to use fire. In later myths his gifts expanded to include speech, writing, mathematics, medicine, agriculture, domestication of animals, mining, technology, science—in other words all the arts of civilization. Of interest in this chapter is the persistent thread of myth describing Prometheus as the creator of the human race, either at the beginning of humanity or after the great disaster known as Deucalion's Flood. This tradition would help explain his concern for humans and his theft of fire for them. The earliest surviving mention of this myth comes from a fragment of Sappho. In about 600 BC, she wrote, "After he created men Prometheus is said to have stolen fire."²

The myth of Prometheus making the first people on earth is one of many ancient traditions demonstrating that "human beings were once viewed as artificial creations." Earth and water, combined and brought to life by divine power: this was the earliest human metaphor for life. As in other tales around the world, from *Gilgamesh* to Genesis, the creator

or demiurge uses mundane materials—such as clay, mud, dust, bone, or blood—to form male and female shapes that receive the spark of life from gods, wind, fire, or some other force of nature. This mud metaphor would be eclipsed many centuries later, with new understandings of the human body as a mechanistic entity driven by dynamic, moving fluids, and with the invention of mechanical, hydraulic, and pneumatic engineering in the Hellenistic era.³

In the ancient Greek myth about Prometheus, the Titan mixes earth and water—or tears—and shapes the mud or clay into the first men and women. By some accounts, he makes all the animals too. Athena is involved in some versions, and in others Zeus commands the wind to give the clay figures the breath of life; other interpretations suggest that fire brought Prometheus's creations to life.⁴

Ancient folklore about Prometheus's creation of the first humans was still circulating when the inquisitive traveler Pausanias toured Greece in the second century AD. He had heard the folklore that Prometheus had accomplished his handiwork near the very old town of Panopeus in Phokis, near Chaeronea, central Greece. Pausanias (10.4.4) visited the fabled site near the ancient town's ruins and saw two large clay boulders in a ravine, each big enough to fill a cart. "They say that these are remains of the clay out of which the whole race of man was fashioned by Prometheus." The "scent of human skin still clings to the large lumps of clay," declared Pausanias. One can only imagine the odor that Pausanias and others detected, but rocks and clays can release distinctive odors when heated, breathed upon, or scraped, owing to chemical composition and trapped gas bubbles.⁵



A number of Greek tales, as in other cultures' myths, describe lifeless matter, statues, idols, ships, and stones brought alive by gods or magic. These stories of artificial life differ from the tales about the animated statues we have considered so far, such as the bronze robot Talos manufactured by Hephaestus with internal workings and the animated statues attributed to the inventor Daedalus (chapters 1 and 5). In what we might term "magic-wand" scenarios, life is bestowed on inert objects simply by a god's command. No craft or manufacturing processes, internal structure, or notions

of mechanics are implied. One example of bringing inanimate objects to life by fiat occurs in the myth of the great flood sent by Zeus. Deucalion and his wife, Pyrrha, are the sole survivors. They learn from an oracle how to repopulate the earth. They each toss stones over their heads, and the stones are immediately transformed into men and women.

The most familiar classical example of a statue magically enlivened by divine order is the myth of Pygmalion and his love for a nude ivory statue of his own making. Ovid's version (*Metamorphoses* 10.243–97) is the most vividly detailed account of Pygmalion. The young sculptor is disgusted by vulgar real women, so he sculpts a virginal maiden for himself. In the modern imagination, his statue is often pictured as marble, but in the myth it is ivory, a warmer, organic medium. His ivory maiden looks so real that Pygmalion immediately "burns with passion for her," caressing her perfect body with awe and desire, imagining that were he to press against her forcefully she would actually bruise. He showers the statue with gifts and words of love. In the Temple of Aphrodite he beseeches the goddess to make his "simulacrum of a girl" come alive.

Pygmalion returns home and makes love again to his fantasy woman's ivory form. To his astonishment, the statue warms to his kiss, and in his embrace her body becomes flesh. Unlike cold marble, ivory is a once-living material with a soft, creamy luster. In antiquity, ivory figures were tinted with subtle, naturalistic colors to resemble real skin tones. Ancient audiences would have imagined her as an exquisitely sensuous, flawless female form. Under her maker's caresses, Pygmalion's statue awakens into consciousness and she "blushes with modesty." Aphrodite has answered his prayer.⁶

It is important to emphasize that Pygmalion's artifact was not constructed to be an automaton. Its realism became reality supernaturally, thanks to the goddess of love. This oft-told ancient "romance" of artificial life takes on new relevance today because it presages ethical questions posed by modern critics of lifelike robotic dolls and AI entities specifically designed for physical sex with humans. "Is it possible," one writer asks, "to have consensual sex with a robot, even one that's aware of its own sexuality?"⁷

Although the Pygmalion myth is often presented in modern times as a romantic love story, the tale is an unsettling description of one of the first female android sex partners in Western history. It is not clear

that Pygmalion's passive, nameless living doll possesses consciousness, a voice, or agency, despite her "blushes." Has Aphrodite transformed the perfect female statue into a real live woman, with her own independent mind—or is she now "just a better simulation?" The statue is described as an idealized woman, more perfect than any real female. So Pygmalion's replica "surpasses human limits," much like the sex replicants in the *Blade Runner* films that are advertised as "more human than human."⁸ Ovid, notably, does not describe her skin and body as feeling lifelike. Instead Ovid compares her flesh to wax that becomes warm, soft, and malleable the more it is handled—in his words, her body "becomes useful by being used."

Ovid ends his fairy tale with the marriage of Pygmalion and his nameless living statue. He even adds that they were blessed with a daughter named Paphos, a magical feat of reproduction intended to show that the ideal statue became a real, biological woman. Notably, the plot of the film *Blade Runner 2049* turns on a similar magical reproduction of a replicant, the biological birth of a baby to the replicant Rachael, which is supposed to be impossible for artificial life forms.⁹

In retelling the Pygmalion story, Ovid was drawing on earlier narratives, now lost. One source was Philostephanus of Alexandria, who recounted a full version of the myth in his history of Cyprus, written in 222–206 BC. In a variant by the later Christian writer Arnobius, Pygmalion sculpts and makes love to a statue of the goddess Aphrodite herself. No artistic representations of the Pygmalion myth survive from antiquity. But many medieval illustrations show Pygmalion interacting with his ivory statue; the tale served as a kind of prurient religious warning against worshipping idols. By the eighteenth century, European storytellers had finally given Pygmalion's statue a name, Galatea ("Milk-White"). Variations on the Pygmalion myth have proliferated over millennia, inspiring myriad fairy tales, plays, stories, and other artworks.¹⁰



In the Pygmalion myth, the sculptor's ivory statue is "clearly an artifactual being created for sex."¹¹ But Pygmalion's ivory woman was not the only statue that aroused an erotic response in viewers in antiquity. There is a long ancient history of *agalmatophilia*, statue lust.¹² Lucian (*Amores*

13–16) and Pliny the Elder (36.4.21) told of men who were passionate for the beautiful, undraped statue of Aphrodite at Knidos. It was created by the brilliant sculptor Praxiteles in about 350 BC, the first life-size female nude statue in Greek art. The men surreptitiously visited her shrine at night, and stains discovered on Aphrodite’s marble thighs betrayed their lust. The sage Apollonius of Tyana tried to reason with a man who fell in love with the Aphrodite statue by recounting myths of unhappy trysts between gods and mortals (Philostratus *Life of Apollonius* 6.40). In the second century AD, the Sophist Onomarchos of Andros composed a fictional letter by “The Man Who Fell in Love with a Statue,” in which the thwarted lover “curses the beloved image by wishing upon it old age.”¹³

In yet another infamous case, reported by Athenaeus (second century AD), one Cleisophus of Selymbria locked himself in a temple on the island of Samos and tried to have intercourse with a voluptuous marble statue, reputedly carved by Ctesicles. Discouraged by the frigidity and resistance of the stone, Cleisophus “had sex with a small piece of meat instead” à la Portnoy.

Most “statue lust” stories feature men having sex with female statues, but several ancient sources relate the sad tale of the widow Laodamia (also known as Polydora) whose beloved husband, Protesilaus, died in the legendary Trojan War. The earliest known text was a fifth-century BC tragedy by Euripides, but the play no longer exists. Ovid’s version takes the form of a letter from Laodamia to Protesilaus. They were newlyweds when he departed for Troy (the war lasts a decade). Laodamia aches for her husband’s return. Each night Laodamia erotically embraces a life-size waxen image of her husband, who was “made for love, not war.” The replica is so realistic that it lacks only speech to “be Protesilaus.” Hyginus recounts a variation of the tale. When Protesilaus is killed, the gods take pity on the young couple and allow Protesilaus to spend three precious hours with his wife before he must return to the Underworld forever. Distraught with grief, Laodamia then devotes herself to a likeness—this time in painted bronze—of her husband, showering the statue with gifts and kisses. One night, a servant glimpses the young widow in passionate embrace with the male figure, so lifelike that the servant assumes it is her lover. The servant tells her father, who bursts into the room and sees the bronze statue of the dead husband. Hoping to end her torment, the father burns the statue on a pyre, but Laodamia throws herself on the pyre and dies.¹⁴

One can compile about a dozen accounts of heterosexual and homosexual love for statues in Greek and Latin sources. Historian of medieval robots E. R. Truitt calls these tales and the story of Pygmalion “parables about the power of mimetic creation” and the ways one can “confuse the artificial with the natural.”¹⁵

Alex Scobie, a classicist, and the clinical psychologist A.J.W. Taylor have pointed out that this particular sexual “deviance” arose at a time when Greek and Roman sculptural artistry was achieving a high degree of realism and idealized beauty. Beginning with Praxiteles, there was “an abundance of sculptured human figures with which people could identify,” life-size and very naturalistic in appearance, coloring, and poses. Beautiful, realistically painted statues were not only plentiful but “conveniently accessible” in temples and public places, encouraging “the populace to form personal relationships with them.” Nude cult statues were often treated as though they were alive, given baths, clothing, gifts, and jewelry. Writing in 1975, Scobie and Taylor concluded that *agalmatophilia* for marble (or ivory or wax) statues that replicated life with intimate realism was a pathology made possible by the technical expertise of superbly talented artists in classical antiquity. As they and art historian George Hersey, writing in 2009, speculated, advances in anatomically realistic silicone sex dolls and biomimetic, AI-endowed cyber-sexbot technologies will result in the ancient paraphilia evolving into a modern form of “robotophilia.”¹⁶



Greeks and Romans were not the only ancient cultures to spin tales about sexualized automata. An irresistible female robot appears in a Buddhist tale from the *Mahāvastu* (a collection of oral traditions that were compiled over the period from the second century BC to the fourth century AD). Sanskrit, Tibetan, Chinese, and Tocharian versions of the tradition tell how a celebrated inventor of mechanical devices constructs a lovely, lifelike girl (*yantraputraka*, “mechanical doll”) to show off his mastery.¹⁷ The inventor welcomes a foreign guest, a highly respected painter of lifelike images, to his home, and entertains the artist with all manner of honors. That night, the painter retires to his room and is surprised to find a beautiful girl ready to “do service to him.” Modest and

shy, the girl looks down and does not speak but reaches her arms out to the painter and draws him to her bosom. He notices that a jeweled brooch on her chest rises and falls as though with breath. The painter believes she is a real woman—but who is she? Could she be his host’s relative, his wife, sister, or daughter? Or a serving maid? There follows a long passage as the painter weighs the moral risks of having sex with the willing young woman in his room.

Finally the painter gives in to his aroused feelings and takes the girl in his arms with “violent passion.” Thereupon the mechanical girl breaks apart, “her clothes, limbs, strings, and pegs falling to pieces.” The painter realizes he’s been tricked by a cunning artifice. Mortified, he conceives of a way to get even with his host. Taking out his supplies, the artist spends the rest of the night painting a gruesome trompe l’oeil image of himself hanging dead, suspended from a rope on a hook on the wall.

In the morning, the host, fooled by the painted illusion, summons the king and his ministers and citizenry to see the tragic scene of the broken mechanical woman and the painter’s suicide. He calls for an axe to cut down the body of his guest. The ruse is revealed when the painter suddenly steps out from hiding and everyone has a good laugh.

The Buddhist story reflects the lifelike realism that was achieved by painters and makers of mechanical androids in ancient Asia (see chapters 5 and 9 for other ancient Buddhist tales about robots). The theme of intense rivalry between the two master artists who trick each other with their creations of preternatural realism is similar to anecdotes related by Pliny (35.36.64–66) about trompe l’oeil contests between the classical Greek artists Zeuxis and Parrhasius (chapter 5). But the Buddhist tale is also a philosophical parable about illusions of self-control and the timeless questions of human free will raised by creations of artificial life. In her study of mechanical beings in ancient Indian literature, Signe Cohen points out that the soulless female automaton stands for the soullessness of all beings, embodying the Buddhist teaching that, in essence, “*We are all robots.*”¹⁸



Pygmalion’s statue of Galatea is an example of an inert object instilled with life by transcendent love or a god’s “supernatural power . . . with no reference to mechanical craft.” Accordingly, Minsoo Kang places it in his

first category of ancient nonrobots, along with the “biblical story of the creation of Adam and Eve,” which was not conceived of as “technological.” Indeed, “magic-wand” myths, like the story of Pygmalion, do not involve “mechanical ingenuity” or a “life-imitating machine.” But such technological features do distinguish Talos (chapter 1), and they figure in some interesting artistic illustrations of Prometheus as the maker of the first humans.¹⁹



The tale of Pygmalion’s ivory sex doll and the myth about the rolling stones that magically became people after Deucalion’s Flood are helpful in distinguishing between unambiguous “magic-wand” tales, like those in Kang’s first category, and more complex tales of artificial life and automata that were imagined in mythical accounts that include manufacture using tools and methods, some manner of internal structure, and sometimes even intelligence and agency. In the most familiar versions of Prometheus as an artisan who molds familiar plastic material—clay—into lifelike figures of men and women, a god or goddess bestows the finishing touch that completes the Titan’s work. This vision is depicted in widely known artistic illustrations of Prometheus making the first humans, guided by Athena/Minerva who provides the supernatural life spark, symbolized by a butterfly. It is important to note, however, that all of these well-known images were late Roman artworks, created in the early Christian era.

In the late Roman-Christian period, Prometheus as the creator of humans appears in elaborate reliefs on sarcophagi, mosaics, and wall paintings in the third and fourth centuries AD. The images emphasize the collaboration of Prometheus and Athena (Minerva). Prometheus forms small, realistic mannequins of men and women, who lie or stand about awaiting the divine touch to spring to life, much like Pygmalion’s statue of Galatea. These scenes have obvious features in common with—and are thought to have influenced—later Christian representations of the biblical creation of Adam and Eve. The popularity of the Prometheus scene on so many Roman sarcophagi may also have represented Neoplatonic concepts of creation in contrast to Christian scriptures about Adam, a religious debate that was ongoing when these scenes were being made.²⁰



FIG. 6.1. Prometheus making the first humans, guided by Minerva/Athena, late Roman marble relief, third century AD. Albani Collection MA445, Louvre, photo by Hervé Lewandowski, RMN-Grand Palais / Art Resource, NY.



FIG. 6.2. Prometheus making the first humans, guided by Minerva/Athena. Late Roman marble sarcophagus, third century AD, Capitoline Museum, Rome. Erich Lessing / Art Resource, NY.

Remarkably, however, about a thousand years *before* the Roman-Christian images of Prometheus became so popular on coffins, another group of creative artists in Italy took a very different approach to the fabrication of the first human beings by Prometheus. These Hellenistic-era Etruscan artists illustrated the scene in a way that clearly differentiates the statues magically given life from the creations of Prometheus.²¹ On a fascinating group of carved scarabs and seals, the first humans were not imagined as clay dolls awaiting a life spark. Instead the humans are pictured being crafted with tools and assembled piece by piece on a framework, much as a sculptor would construct a human statue beginning with an internal armature or part by part (see fig. 1.9, plate 3). In other words, the gems refer to *biotechne* rather than simple magic deployed to create life.



Beginning in the fifth century BC intricately carved Etruscan and Etruscan-style gems depicted sculptors and artisans at work, and they illustrated both mythic and real craftsmanship in imaginative ways. Of special interest here are several related miniature scenes, dated to the fourth or third through the second century BC, identified as “powerfully original” depictions of Prometheus creating the first humans. The scenes are engraved on personal rings, seals, talismans, ornaments, and scarabs. Some bear inscriptions (designating the owners) in Latin, Greek, or Etruscan letters. These gems have attracted scant attention despite their extraordinary imagery. The most recent work was by Italian scholar Gabriella Tassinari in 1992; her monograph catalogues sixty-three examples of gems showing Prometheus as the creator, noting differences in style and difficulties of dating. The gems can be divided into two types of scene: in both, Prometheus is shown as a solitary artisan using tools to fabricate the first man (sometimes woman) in a complex, step-by-step process.²² In the first group, Prometheus forms a human figure in sections on a framework of poles, starting with the head and torso. In the second group, even more surprising, Prometheus begins by making the figure’s internal armature—a human skeleton.

How ancient is the idea of Prometheus as the maker of the first humans? Explicit literary references appear in fourth-century BC Greek poems and plays, but the oral tradition appears to be even older.²³ As we

have seen, Etruscan artists often interpreted Greek mythological stories in a unique manner on gems, mirrors, and vases (chapters 1–4). The unusual Etruscan scenes of Prometheus (*Prumathe* in Etruscan) might have been inspired by other local oral traditions and art. As Etruscan scholar Larissa Bonfante remarks, “something about Prometheus evidently struck a special chord for the Etruscan artists and their patrons.”²⁴

In the first type of these engraved vignettes, Prometheus assembles the prototypical human body in sections. Instead of molding clay into human-shaped dolls under the guidance of Minerva, as in the reliefs of the late Roman-Christian era (see figs. 6.1 and 6.2), Prometheus is shown alone, fashioning an unfinished body—usually only the head and torso are complete—supported on a framework of metal or wooden poles. Notably, Prometheus is employing tools and technologies of real craftsmen in antiquity. He uses a hammer or mallet, scraper, scalpel, and “a rod or a rope to measure the proportions of the human figure,” and he gauges his work with a plumb line. In figure 6.3, for example, Prometheus uses a plumb bob (plummet and a plumb line) on the incomplete human model attached to poles.²⁵ In figure 6.4, Prometheus secures a half-formed body to a pole with rope.



FIG. 6.3. Prometheus using a plumb line as he constructs the first human on a framework, carved carnelian gem, third century BC, IX B 755, Kunsthistorisches Museum, Vienna. Erich Lessing / Art Resource, NY.



FIG. 6.4. Prometheus molding the head and torso of the first man on a frame, sardonyx gem, third century BC. Kunsthistorisches Museum, Vienna. Erich Lessing / Art Resource, NY.

A substantial number of Etruscan and Greco-Roman gems in museum collections have variations of the images in figures 6.3 and 6.4. Some have asked whether the scenes might depict *maschalismos*, the ritual dismemberment of enemy warriors practiced by Etruscans. But when that practice is depicted on gems, we see one or two soldiers using swords to decapitate and sever limbs of foes. Those rare scenes differ dramatically from the set of gems considered here, which clearly show an artisan, typically seated, working with tools to form an incomplete human figure.²⁶ The pictures of Prometheus building a man in sections recall classical vase paintings of artisans forging and assembling statues of men and horses (see fig. 1.9, plate 3; fig. 5.4; fig. 7.7, plate 8; 7.8, plate 9).

The second type of gems considered here present another striking vision of the process of constructing the first man. In these highly unusual engravings, Prometheus builds the first human being from *the inside out*. He begins his creation with the natural anatomical structure, the skeleton. Skeletons were extremely rare in classical Greek and Etruscan art. As Tassarini points out, however, the main focus of these particular gems is not the skeleton itself but “the creative activity of Prometheus” as a craftsman.²⁷

Two gems, dated to the second century BC, once in the collection of Giovanni Carafa, Duke of Noia, are arresting for their depictions of both types of intaglio images of Prometheus making the first man. The gem in figure 6.5 shows Prometheus “working on the modelling of the upper part of a bearded man, supported by two poles.” On either side of the scene are the foreparts of a horse and a ram. Their presence reflects ancient versions of the tradition that Prometheus also created the first animals.²⁸

The second gem in the Carafa collection, known only by an engraving of 1778, has a curious scene that depicts a partially molded man’s torso on a human skeleton instead of on a metal or wood frame. In figure 6.6, Prometheus is seated and holding a tool in his right hand. He is working on the partially molded man’s upper back and arms, which are attached to a bare skull and the lower vertebrae, pelvis, and leg bones of the skeleton. The area where the partially fleshed out ribs meet the skeletal vertebrae is similar to the narrow “unfinished” waist in the other gems depicting the upper half of a man. The unfinished man holds a *phiale*, a shallow dish for libations, in each hand.

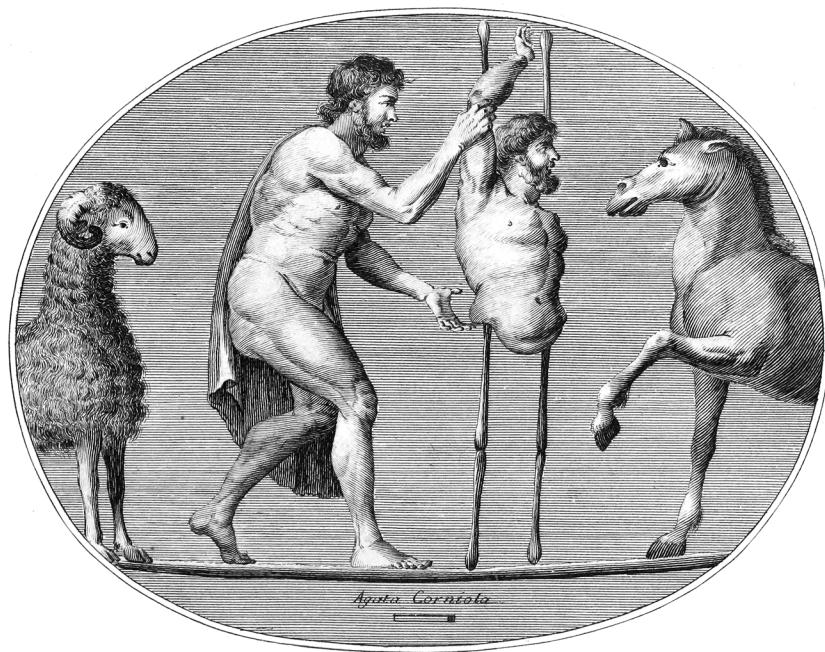


FIG. 6.5. Prometheus making the first man, flanked by the first horse and ram, second to first century BC. Gem and cast © Collection of the Duke of Northumberland and Beazley Archive, Oxford University; photo by C. Wagner. C. Engraving, *Alcuni monumenti del Museo Carrafa* (Naples, 1778), plate 25. Courtesy of Getty Research Institute, Los Angeles (89-B17579).

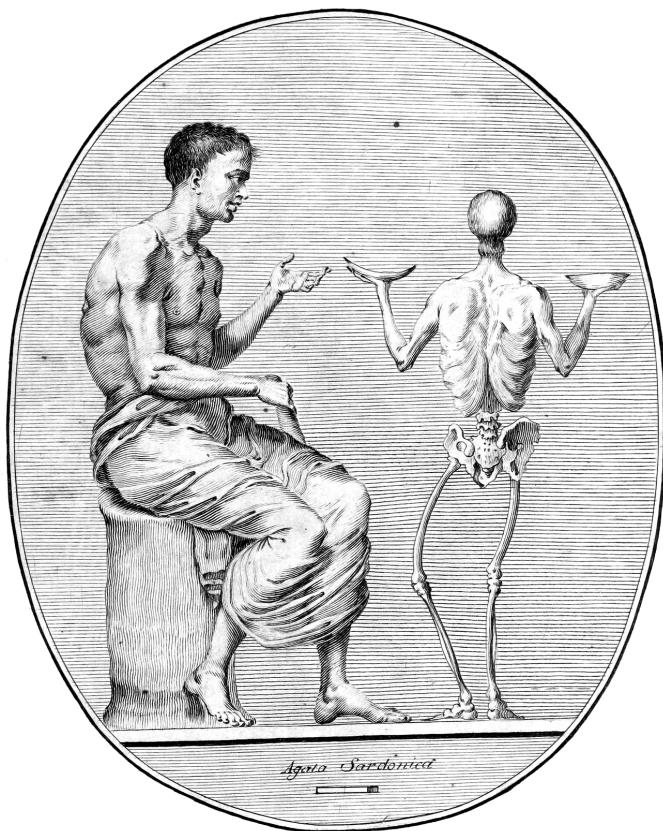


FIG. 6.6. Prometheus making the first man, half-completed with torso molded onto the skeleton. Engraving, *Alcuni monumenti del Museo Carrafa* (Naples, 1778), plate 25. Courtesy of Getty Research Institute, Los Angeles (89-B17579).

In the second gem type, Prometheus typically is shown affixing the arm bones to a human skeleton, as in figures 6.7–6.11. In figures 6.8 and 6.11 (plates 10 and 11), Prometheus uses a mallet or hammer to attach the arm to the skeleton.²⁹ In these images, the supposition is that he will then attach sinews and muscles to the framework of bones, adding internal organs, blood vessels, skin, hair, and so on—working outward from naturalistic interior anatomy to the finished human prototype.

In the context of the construction of a human form from internal anatomy to external features, it is illuminating to compare an ancient Chinese tale of artificial life. In this case a lifelike automaton was created



FIG. 6.7. Prometheus, seated, attaching the arm bone to the skeleton of the first human. Etruscan-style carved scarab (hatched border), inscription PIPITU, and cast, third to second century BC?, Townley Collection, inv. 1814,0704.1312. © The Trustees of the British Museum.



FIG. 6.8 (PLATE 10). Prometheus, seated, constructing the first human skeleton, using a mallet to attach the arm bone to the shoulder. Carnelian intaglio gem, date unknown, perhaps Townley Collection, inv. 1987,0212.250. © The Trustees of the British Museum.



FIG. 6.9. Prometheus sitting on a rock, attaching raised arm to skeleton of first human, cast of carved gem, dark green jasper, first century BC, 82.AN.162.69. Courtesy of the Getty Museum.



FIG. 6.10. Prometheus attaching the arm to a skeleton, carnelian scarab, about 100 BC (modern gold ring setting). Boston Museum of Fine Arts, 62.184, Gift of Mrs. Harry Lyman.



FIG. 6.11 (PLATE 11). Prometheus using a mallet to make a skeleton, chalcedony gem, first century BC, Thorvaldsens Museum, Denmark, acc. no. 185.

from the inside out with realistic and functional internal structure. Set during the reign of King Mu (ca. 976–922 BC) of the Zhou dynasty, the tale describes an android created by a master “artificer” named Yan (Yen Shih). The story appears in the *Book of Liezi*, attributed to the Daoist philosopher Lie Yukou (ca. 400 BC), although fixing the exact date is complex. In the tale, Master Yan introduces King Mu and his concubines to his marvelous man-made man, who walks, dances, sings, and otherwise perfectly mimics the actions of a real human being. The king is entranced—until the man flirts with the royal concubines. The king flies into a rage, then is astounded when Yan opens up the automaton to reveal its biotechnological construction, the “exact replication of human physiology in artificial form (*jiawu*).” Lifelike down to the finest detail, the outer body is made of leather, wood, hair, teeth, glue, and lacquer, and inside are artificial muscles and a jointed skeleton, with organs, liver, heart, lungs, intestines, spleen, kidneys—each of which controls specific bodily functions in Master Yan’s android.

The ancient theme of building hyperrealistic androids from the inside out, beginning with anatomically exact skeletons and internal organs, evident in the Prometheus gems and in this Chinese tale, recurs in modern science fiction. For example, in the film *Blade Runner 2049*, the discovery of the buried skeletal remains of the runaway replicant Rachael reveals that replicants have “human” physiology—and might even be able to give birth to offspring.³⁰



The artistic decision to show Prometheus constructing the first human starting with the bone structure likens the Titan to a sculptor who constructs a statue upon a model skeleton. *Kanaboi*, skeletal forms, usually of wood, were used by ancient sculptors as the internal core around which they attached clay, wax, or plaster in the first stages of creating statues. Wooden cores were also used with cold-hammered sheets of metal and in the lost-wax casting of bronze statues, as described in the writings of Pausanias, Pollux, Hesychius, and Photius. The artistic process is also mentioned by Pliny (34.18.45–47), who admired the excellently wrought small clay models and wooden skeletons used in the first stages of making bronze statues in the studio of the renowned sculptor Zenodorus

in Rome. Wooden armatures would not survive the heat of casting, but modern analyses of famous ancient bronze statues reveal that metal armatures were also used. A *kanabos* served as a kind of three-dimensional diagram of body structure.³¹ The scenes on the unusual gems discussed above show Prometheus designing his project, using technology and tools, and starting by assembling a real *kanabos*, the physical structure of what will become the first man.

In his treatises on biological anatomy and movement, Aristotle refers to *kanaboi*. He compares the way the network of blood vessels “displays the shape of the entire body . . . like the wooden skeleton (*kanabos*) used in artist’s modeling.” Moreover, Aristotle invokes familiar devices of his day, mechanical dolls or some sort of self-moving automata, as analogies to help explain the inner mechanical composition and workings of animals and humans. Referring to the skeleton as the framework that allows movement, Aristotle’s language is mechanistic: he notes that animals have sinews and bones that function much like the cables attached to pegs or iron rods inside automata.³²

The artistic representations of Prometheus working with sections of the human body and assembling a skeleton *kanabos* suggest that artists and viewers would understand his creation as a form of *biotechnē*, analogous to a sculptor beginning with the interior framework to make automata that would then become the original *living* humans. In the first stage, he builds what viewers recognize as their own anatomy, logically assembling the progenitors of the human race from the inside out.



In all the variants of the Prometheus creation myth, the realistic forms of humans become the reality they portray: they become real men and women. This paradoxical perspective taps into the timeless idea that humans are somehow automata of the gods. The almost subconscious fear that we could be soulless machines manipulated by other powers poses a profound philosophical conundrum that has been pondered since ancient times: If we are the creations of the gods or unknown forces, how can we have self-identity, agency, and free will? Plato (*Laws* 644d–e) was one of the first to consider the idea of humans as nonautonomous: “Let us suppose that each of us living creatures is an ingenious puppet

of the gods.” The myth of the artificial woman Pandora, fabricated by the god Hephaestus, calls up similar questions, as we will see in chapter 8. These concerns about autonomy and soul also suffuse traditional Hindu, Buddhist, and Daoist tales about robots (above and chapter 5). In one Hindu story, for example, an entire city is populated by silent but animated townspeople and animals, later revealed to be realistic wooden puppets, all controlled by a solitary man on a throne in the palace.³³

The notion that humans arose as the automata or playthings of an imperfect and/or evil demiurge and the ensuing questions of volition and morality were forcefully articulated in the ancient movement of Gnosticism (first through third century AD). In modern times, questions of human autonomy were debated by T. H. Huxley and William James in the 1800s, and Gnostic concepts are powerfully revived by philosopher John Gray in *Soul of a Marionette* (2015) and novelist Philip Pullman in the epic trilogy *His Dark Materials* (1995–2000). The *Blade Runner* films (1982, 2017) are another example of how science-fiction narratives play on the paranoid suspicion that our world is already full of androids—and that it would be impossible to apply a Turing test to oneself to prove that one is not an android.³⁴

One of the replicants in *Blade Runner* repeats, “I think, therefore I am,” the famous conclusion by the French philosopher René Descartes (1596–1650). Descartes was quite familiar with mechanical automata of his era powered by gears and springs, and he embraced the idea that the body is a machine. Anticipating Turing and similar tests, Descartes predicted that one day we might need a way to determine whether something was a machine or human. “If there were machines in the image of our bodies and capable of imitating our actions,” wrote Descartes, then perhaps tests based on flexibility of behavior and linguistic abilities would expose nonhuman things.³⁵



In the myth of Prometheus and Epimetheus, related by Plato (chapter 4), earth’s creatures are created and then “programmed” with capabilities and defenses so that they will not fall into mutual destruction but will maintain equilibrium in nature. But the limits of biotechnology are revealed when the animals receive all the “apps” and nothing is left over

for the humans, naked and defenseless. Feeling pity, Prometheus gives mortals craft and fire. Ever after, the Greek myths demonstrate how the immortal gods and goddesses play out their own power games, manipulating, withholding, rewarding, and punishing generations of mortals, for eternity. And soon enough, humankind itself would develop the urge to create and control life, like the gods. Many ages ago, the vision of capricious gods or careless, even evil, demiurges haphazardly doling out natural capabilities, and controlling or neglecting their human toys, sketched the outlines of one of the most chilling genres of science fiction still capturing audiences today.³⁶

By the fifth century BC, the Athenians were venerating the rebel Prometheus and the precious gifts of technology he gave to humanity. The Titan was worshipped at an altar in what became the grove of Plato's Academy—alongside Athena and Hephaestus. During the city's most important civic festival, the Panathenaia, the Fire-Bringer Prometheus was honored with a relay torch race. Runners began at the altar in the Academy outside the city walls and wound through the Kerameikos, the district of potters and other craftspeople who revered Prometheus as their patron (along with Daedalus). The torch race culminated with the last runner kindling the sacred fire on Athena's altar on the Acropolis. A relief sculpture of Prometheus (and Hephaestus's creation, Pandora) decorated the base of the majestic statue of Athena in the Parthenon.³⁷



In the Middle Ages and the Renaissance, Prometheus's theft of fire and his subsequent torment were transformed into an allegory for the human soul seeking enlightenment. Ever since, Prometheus has inspired artists, writers, thinkers, and scientists, as a symbol of creativity, inventive genius, humanism, reason, and heroic endurance and resistance against tyranny.³⁸

Two famous literary works show how later authors were inspired by Prometheus's creations. In Shakespeare's *Othello* (1603), Othello says he cannot restore "Promethean heat" to Desdemona's dead body once her "light" is extinguished. The allusion refers to the notion that Prometheus himself bestowed life on his clay figures with the fire he stole from the heavens.

“Promethean heat,” in the form of electricity, animates the monster created from grafted parts of pillaged corpses in the sensational scene in the iconic 1931 film *Frankenstein* starring Boris Karloff, which was based on the celebrated novel *Frankenstein* by Mary Shelley. Written in 1816 and published in 1818, Shelley’s story was strongly shaped by classical mythology. Her father, William Godwin, wrote a commentary on seekers of artificial life in antiquity, including the witches Medea and Erichtho and the artisans Daedalus and Prometheus. Mary’s companions Percy Shelley and Lord Byron were writing poems about Prometheus at the time. In the novel, Mary Shelley conceived of her scientific genius Victor Frankenstein as a Promethean “fire-bringer” for her era. She also drew on exciting scientific and pseudoscientific ideas about alchemy, occult transference of souls, chemistry, electricity, and human physiology current in her day.³⁹

Some scholars suggest that Mary Shelley was influenced by reports of macabre dissection experiments carried out by the notorious alchemist Johann Dippel (b. 1673) of Frankenstein Castle, near the villa on Lake Geneva where she wrote the story. Debates over the electrostimulation work of Luigi Galvani and others were also much in the public eye by the 1790s. Shelley was certainly aware of morbid experiments in which animal and human corpses were grotesquely “reanimated” with electricity. A public demonstration of *galvanism* on the twitching cadaver of an executed criminal, for example, was staged in London in 1803. The life-giving principle was left vague in her 1818 novel, but Shelley does mention galvanism in her revised 1831 edition. She drew her subtitle, *The Modern Prometheus*, from the philosopher Immanuel Kant’s famous essay (1756) warning about the overweening “unbridled curiosity” exemplified by Benjamin Franklin’s “discovery” of electricity.⁴⁰

Shelley tells how the young scientist Victor Frankenstein devotes two years of painstaking work to building an artificial, intelligent android. He assembles the creature part by part using raw materials from slaughterhouses and medical dissections. In light of Shelley’s story of a “modern Prometheus,” the ancient Etruscan illustrations, on gems, of Prometheus putting together human body parts and skeletons seem to take on an eerie prescience. In fact, the engravings of the Carafa gems in figures 6.5 and 6.6 were published in 1778. Several of the intaglios showing Prometheus working on the unfinished torsos and assembling skeletons were included

in the vast collection of ancient and neoclassical gems amassed by the Scottish engraver and antiquarian James Tassie (1735–99). An illustrated two-volume catalogue of Tassie’s collection was published in 1791.⁴¹ Shelley and her circle may well have observed or heard described a number of gems featuring Prometheus making a human with body parts.

Yet another classical influence on Shelley’s *Frankenstein* could have been the horrifying Thessalian necromancer Erichtho. A witch who haunts battlefields and graveyards seeking body parts for her spells, Erichtho most famously appears in Lucan’s writings of the first century AD, a Latin poet well known to Shelley. In his *Civil War*, Lucan describes Erichtho striding grimly across a smoking battleground, seeking serviceable cadavers with intact lungs to resurrect. In a grisly scene, Erichtho uses dead animal parts to reanimate the human corpses. In imagery reminiscent of the witch Medea in Greek myths (chapters 1 and 2), Erichtho mutters incantations and gnashes her teeth as she compels the dead to come alive. The corpses jerk back to life convulsively, then walk about “remarkably quickly but stiff-limbed,” evoking the stereotypical stiff-jointed walk of zombies, animated statues, and robots. Appalled to be unnaturally summoned back to life by the witch, the living dead throw themselves onto burning pyres.⁴²

In Shelley’s story, often hailed as the first modern science-fiction novel, the scientist hopes to create a humanoid of sublime beauty and soul. But the resulting creature is a hideous, sentient monster who wreaks havoc and bitterly resents being brought into existence. Some early modern thinkers saw the ancient myth of Prometheus’s endless torture as a symbol of his gnawing doubts about his creation of humankind. Echoing Kant, some historians of robotics see the Promethean tale as a warning that anyone who “tries to build life artificially is acting outside the legitimate human province, carelessly straying into the divine orbit.”⁴³ As in so many ancient myths and popular legends about artificial life achieved through mysterious supertechnology, Shelley’s horror tale is a gripping meditation on the themes of striving to surpass human limits and the perils of scientific overreaching without full knowledge or understanding of the practical and ethical consequences.



In some accounts, Zeus asked Prometheus to make the first humans. But Zeus also meted out revenge on Prometheus for stealing fire and other tools to give to humans. (Zeus devised a separate eternal penalty for humanity, as well, as we shall see in the next chapter.) Ancient estimates of how long humanity's champion endured the torment of Zeus's Eagle range from thirty to one thousand to thirty thousand years. According to one strand of the myth, illustrated by many ancient artists, at last Zeus gave Heracles permission to kill his huge *Aetos Kaukasios* ("Eagle of the Caucasus"), thus ending Prometheus's anguish.⁴⁴

The divine torture-eagle had various origins, recounted in different versions of the myth. Of particular interest is the summary given by Hyginus, a Roman librarian (b. 64 BC) who compiled a wealth of mythological material from numerous Greek and Latin sources (many now lost) in two treatises, *Fabulae* and *Astronomica*. Reviewing the ancient traditions, Hyginus (*Astronomica* 2.15) reported, "Some have said that this eagle was born from Typhon and Echidna, others from Gaia and Tartarus, but many point out that the eagle was made by the hands of Hephaestus." This tradition mentioned by Hyginus, that the giant Eagle sent to ravage Prometheus was fashioned by the god of the forge, conjures an image of a kind of metallic drone-eagle set to home in on Prometheus's liver at a certain time each day.

Notably, Apollonius (*Argonautica* 2.1242–61) penned an extraordinary description of Zeus's great Eagle as an unnatural, gleaming bird of prey with machinelike movements. Jason and the Argonauts observe the "shining Eagle" returning to the Caucasus crag "each afternoon flying high above the ship with a strident whirr. It was near the clouds, yet it caused all their canvas sails to quiver to the beat of its wings. For its form was not that of an ordinary bird: the long quill-feathers of each wing rose and fell like a bank of polished oars."

There are several pieces of ancient literary evidence for the idea of metallic birds of prey. The man-eating Stymphalian Birds, for example, were destroyed by Heracles in his Sixth Labor. The monster birds were often visualized with bronze feathers and armor-piercing beaks. From central Asian epic comes another image of robotic raptors. In the folk traditions about Gesar of Ling, the evil hermit Ratna makes and dispatches a trio of sinister giant metal birds to kill the hero Gesar. With

rattling feathers that are “thin blades of iron and copper” and “beaks like swords,” the birds swoop down on young Gesar, who fells them with three arrows.⁴⁵

Mechanical birds were actually constructed as early as the fifth and fourth centuries BC in Greece. There was a bronze eagle that flew up to signal the start of the horse races at the Olympic Games (described by Pausanias 6.20.12–14) and a flying dove model was attributed to the scientist Archytas. As noted in chapter 1, Apollonius would have observed numerous automata and self-moving devices in Ptolemaic Alexandria (see chapter 9 for these and other historical inventions).⁴⁶

Zeus’s Eagle, fabricated by the god Hephaestus, would not be the only artificial animal created expressly as a killing or torture device in Greek myth and history, as the following chapters reveal. Throngs of animated devices and creatures “made, not born” fill out Hephaestus’s stellar résumé of ingenious artifices and automated devices. Some are laborsaving, but others are deliberately intended to inflict harm.