

THE CONSTELLATION HERCULES

Hercules is a constellation named after the Roman mythological hero Hercules adapted from the Greek hero Heracles. Hercules was one of the 48 constellations listed by the 2nd century astronomer **Ptolemy**, and it remains one of the 88 modern constellations today. It is the fifth largest of the modern constellations.

The origin of this constellation is so ancient that its true identity was lost even to the Greeks, who knew the figure simply as Engonasi, literally meaning 'the kneeling one'. The Greek poet **Aratus** described him as being worn out with toil, his hands upraised, with one knee bent and a foot on the head of the dragon. It was **Eratosthenes**, a century after Aratus, who identified the figure as Heracles triumphing over the dragon that guarded the golden apples of Hera's Hesperides.

Heracles is the greatest of Greek and Roman heroes, the equivalent of the Sumerian hero Gilgamesh. So it is surprising that the Greeks allotted him a constellation only as an afterthought. One reason may be that he was already sometimes personified as one of the heavenly twins in the constellation Gemini, the other twin being Apollo.

MYTHOLOGY

The full saga of Heracles is long and complex, as befits a legend that has grown in the telling. Heracles was the illicit son of the god Zeus and Alcmene, most beautiful and wise of mortal women, whom Zeus visited in the form of her husband, **Amphitryon**. The infant was christened Alcides, Alcaeus or even Palaemon, according to different accounts; the name Heracles came later. Zeus's wife, Hera, was furious at her husband's infidelity. Worse still, Zeus laid the infant Heracles at Hera's breast while she slept, so that he suckled her milk. **He suckled so powerful that when she woke up and angrily ripped him off, the milk continued to spray all over the heaven, where it can still be seen as the Milky Way. But having drunk the milk of a goddess, Heracles became immortal.**

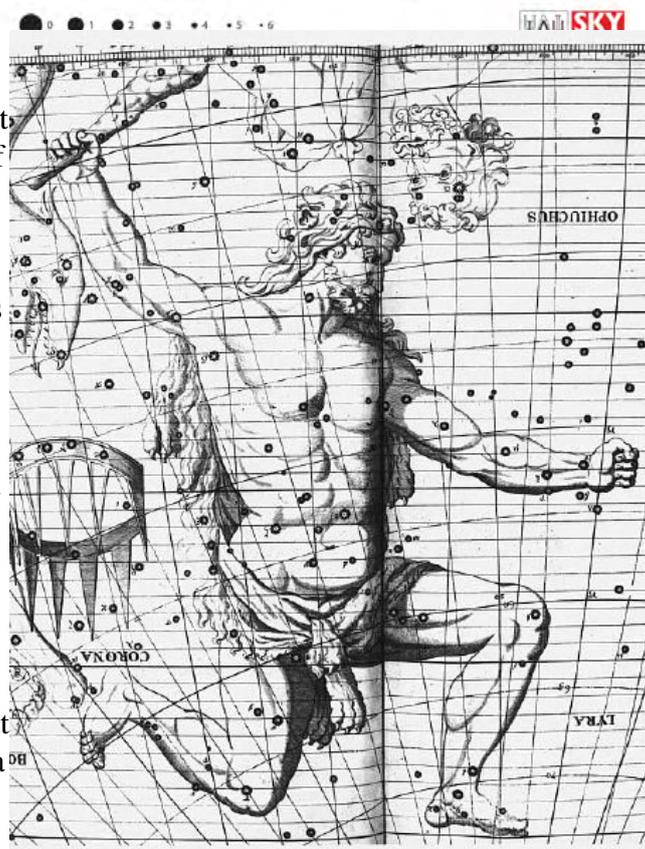
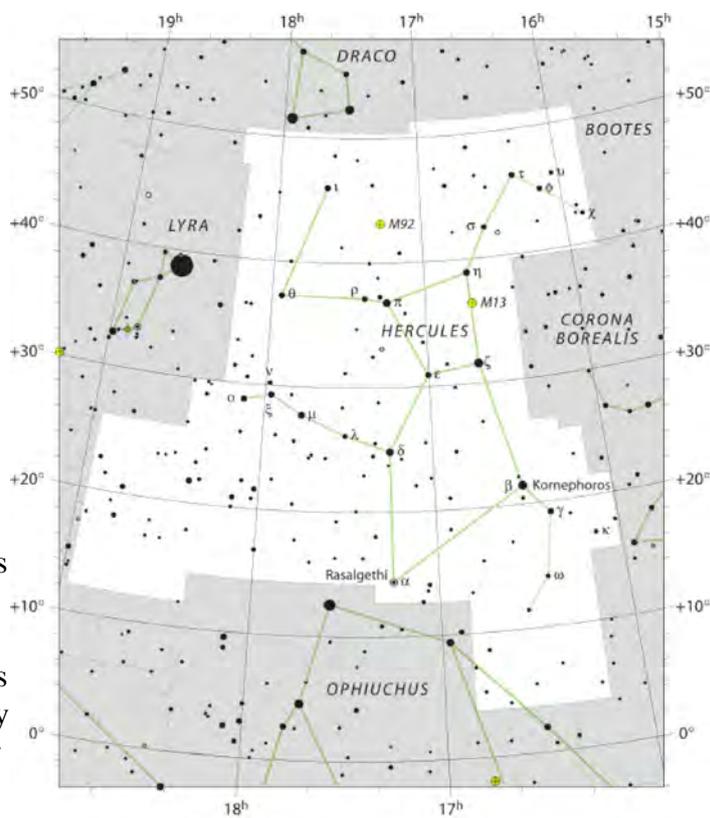
As Heracles grew up he surpassed all other men in size, strength and skills with weapons, but he was forever dogged by the jealousy of Hera. She could not kill him, since he was immortal, so instead she vowed to make his life as unpleasant as possible. Under Hera's evil spell he killed his children in a fit of madness. When sanity returned, he went remorsefully to the Oracle at Delphi to ask how he might atone for his dreadful deed. The Oracle ordered him to serve **Eurystheus**, king of Mycenae, for 12 years. **It was then that the Oracle gave him the name Heracles, meaning 'glory of Hera'.**

THE LABOURS OF HERACLES

Eurystheus set him a series of ten tasks that are called the Labours of Heracles.

(1) The first was to kill a lion that was terrorizing the land around the city of Nemea. This lion had a hide that was impervious to any weapon – so Heracles strangled it to death. He used its own claws to cut off the skin. Thereafter he wore the pelt of the lion as a cloak, with its gaping mouth as a helmet, which made him look even more formidable. **The Nemean lion is identified with the constellation Leo.**

(2) The second labour was to destroy the multi-headed monster called the Hydra which lurked in the swamp near the town of Lerna, devouring incautious passers-by. Heracles grappled with the monster, but as



Heracles is depicted in the sky holding a club, his favourite weapon. Some people think that his 12 labours are represented by the 12 signs of the zodiac, but it is difficult to see the connection in some cases.

soon as he cut off one of its heads, two grew to replace it. To make matters worse, a large crab came scuttling out of the swamp and nipped at the feet of Heracles. Angrily he stamped on the crab and called for help to **Iolaus**, his charioteer, who burned the stumps as each head was lopped to prevent more heads growing. Heracles gutted the Hydra and dipped his arrows in its poisonous blood – an action that would eventually be his undoing. **Both the crab (Cancer) and the Hydra are commemorated as constellations.**

For his next two labours, Heracles was ordered to catch elusive animals: (3) a deer with golden horns, (4) and a ferocious boar.

Perhaps the most famous labour is his fifth, **(5) the cleaning of the dung-filled stables of King Augeias of Elis.** Heracles struck a bargain with the king that he would clean out the stables in a single day in return for one-tenth of the king's cattle. Heracles accomplished the task by diverting two rivers. But Augeias, claiming he had been tricked, renounced the bargain and banished Heracles from Elis.

(6) The next task took him to the town of Stymphalus where he dispersed a flock of marauding birds with arrow-like feathers. The survivors flew to the Black Sea, where they subsequently attacked **Jason and the Argonauts.**

(7) Next, Heracles sailed to Crete to capture a fire-breathing bull that was ravaging the land. Some equate this bull with the constellation Taurus. **For his eighth and ninth labours, Heracles (8) brought to Eurystheus the flesh-eating horses of King Diomedes of Thrace and the (9) belt of Hippolyte, queen of the Amazons.**

(10) Finally, Heracles was sent to steal the cattle of Geryon, a triple-bodied monster who ruled the island of Erytheia, far to the west. While sailing there, Heracles set up the columns at the straits of Gibraltar, called the Pillars of Heracles. He killed Geryon with a single arrow that pierced all three bodies from the side, then drove the cattle back to Greece. On route through Liguria, in southern France, he was set upon by local forces who so outnumbered him that he ran out of arrows. **Sinking to his knees, he prayed to his father, Zeus, who rained down rocks on the plain.** Heracles hurled these rocks at his attackers and routed them.

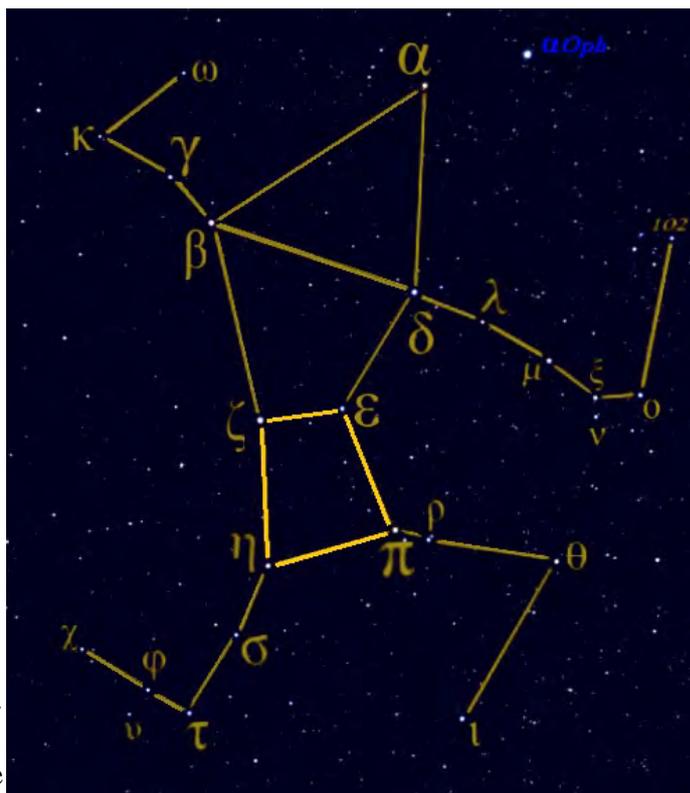
When Heracles returned from the last of these exploits, the cowardly and deceitful Eurystheus refused to release him from his service because Heracles had received help in slaying the Hydra and had attempted to profit from the stable-cleaning. Hence Eurystheus set two additional tasks, more difficult than those before:

(11) The first was to steal the golden apples from the garden of Hera on the slopes of Mount Atlas. The tree with the golden fruit had been a wedding present from Mother Earth (Gaia) when Hera married Zeus. Hera set the Hesperides, daughters of Atlas, to guard the tree, but they stole some of the precious produce themselves. So Hera laid the dragon Ladon coiled around the tree to prevent any further pilfering. After a heroic journey, during which he released Prometheus from his bonds, Heracles came to the garden where the golden apples grew. Nearby stood Atlas, supporting the heavens on his shoulders. Heracles dispatched Ladon with a well-aimed arrow – Hera later set the dragon in the sky as the constellation Draco.

Heracles had been advised by Prometheus not to pick the apples himself, so he invited Atlas to fetch them for him while he temporarily supported the skies. Heracles hastily returned the burden of the skies to the shoulders of Atlas before making off with the golden treasure.

(12) The twelfth labour, the most daunting of all, took him down to the gates of the Underworld to fetch Cerberus, the three-headed watchdog. Cerberus had the tail of a dragon and his back was covered with snakes. A more loathsome creature would be difficult to imagine but Heracles, protected from the tail and the snakes by the skin of the Nemean lion, wrestled Cerberus with his bare hands and dragged the slavering dog to Eurystheus. The startled king had never expected to see Heracles alive again.

Now, with all the labours completed, Eurystheus had no option but to make Heracles a free man again.



Traditional view of the Hercules constellation highlighting the quadrangle which forms the Keystone asterism. The traditional visualization imagines *alpha Herculis* as Hercules's head; its name, Ras Algethi, literally means "head of the kneeling one". Hercules's left hand then points toward Lyra from his shoulders *alpha Herculis* and *beta Herculis*. His left leg with *theta Herculis* as the knee is stepping on Draco's head, who Hercules has vanquished.

THE DEATH OF HERACLES

The death of Heracles is a piece of true Greek tragedy. After his labours, Heracles married **Deianeira**, the young and beautiful daughter of **King Oeneus**. While travelling together, Heracles and Deianeira came to the swollen river Evenus where the centaur Nessus ferried passengers across. Heracles swam across himself, leaving Deianeira to be carried by Nessus. The centaur, aroused by her beauty, tried to ravish her, and Heracles shot him with one of his arrows tipped with the Hydra's poison. The dying centaur offered Deianeira some of his blood, deceitfully claiming that it would act as a love charm. Innocently, Deianeira accepted the poisoned blood and kept it safely until, much later, she began to suspect that Heracles had his eye on another woman. In the hope of rekindling his affection, Deianeira gave Heracles a shirt on which she had smeared the blood of the dying Nessus. Heracles put it on – and as the blood warmed up, the Hydra's poison began to burn his flesh to the bone. In agony, Heracles raged over the countryside, tearing up trees and mountains. **Realizing there was no release from the pain, he built himself a funeral pyre on Mount Oeta, spread out his lion's skin and lay down on it, peaceful at last. The flames burned up the mortal part of him, while the immortal part ascended to join the gods on Mount Olympus. His father, Zeus, turned him into a constellation, which we know by the Roman name Hercules.**

THE STARS OF HERCULES

Hercules is the fifth-largest constellation but is not particularly prominent. *Alpha Herculis*, a red giant star that varies from third to fourth magnitude, is called Rasalgethi, from the Arabic meaning 'the kneeler's head', which is where Ptolemy said it lay. *Beta* and *Delta Herculis* are his right and left shoulders respectively and his left arm extends towards Lyra. In some depictions, such as by **Johann Bayer**, Hercules was imagined holding a branch from the apple tree of the Hesperides in his left hand. **The four stars *Epsilon*, *Zeta*, *Eta* and *Pi Herculis* form a distinctive quadrilateral known as the Keystone that outlines the pelvis of Hercules.** His left leg, with *Theta Herculis* as the knee and *Iota Herculis* as the lower shin, presses on the head of the vanquished Draco, the dragon. Hercules rests on his right knee *Tau Herculis*.

FACTS, LOCATION & MAP

Hercules is the fifth largest constellation. It occupies an area of 1225 square degrees in the sky. The neighbouring constellations are Aquila, Boötes, Corona Borealis, Draco, Lyra, Ophiuchus, Sagitta, Serpens Caput and Vulpecula. Fifteen stars in Hercules are known to be orbited by extrasolar planets.

Hercules contains two Messier objects – M13 and M92 – and has 12 stars with known planets.

The brightest star in the constellation is Kornephoros, *Beta Herculis*, with an apparent visual magnitude of 2.81. The *Tau Herculis* are the only meteor shower associated with the constellation.

Hercules belongs to the Hercules family of constellations, along with Aquila, Ara, Centaurus, Corona Australis, Corvus, Crater, Crux, Cygnus, Hydra, Lupus, Lyra, Ophiuchus, Sagitta, Scutum, Sextans, Serpens, Triangulum Australe and Vulpecula.

DEEP SKY OBJECTS

Astronomically speaking, the most celebrated object in the constellation is a globular cluster of stars, M13, the best example of such a cluster in the northern skies. Abell 39 is a planetary nebula about 6,800 light years away. The nebula is almost perfectly spherical in shape and has a radius of about 2.5 light years, which makes it one of the largest known spherical nebulae.

Arp 272 is a remarkable collision between two spiral galaxies 450 million light-years away, NGC 6050 and IC 1179, and is part of the **Hercules Galaxy Cluster, which itself is part of the Great Wall of clusters and superclusters, the largest known structure in the universe.** The two spiral galaxies are linked by their swirling arms.

Hercules A is 2,100 million light years distant from Earth. – It appears to be a regular elliptical galaxy, but when imaged in radio waves, there are plasma jets spanning over a million light years around the galaxy. The galaxy at the centre, 3C 348, has 1,000 times the mass of the Milky Way Galaxy, and the black hole at its centre is almost 1,000 times more massive than the one at the centre of the Milky Way.

NGC 6210 is planetary nebula approximately 6,500 light years distant from Earth. It was discovered by the German astronomer **Friedrich Georg Wilhelm Struve** in 1825.

The nebula formed when a star similar to the Sun but slightly less massive approached the end of its life and ejected multiple shells of material into space, leaving a hot white dwarf at the core of the newly formed nebula. Our Sun will likely experience the same fate when it approaches the end of its cycle in about five billion years. AK / Wikipedia

