

## The Constellation Microscopium, the Microscope

Microscopium is a small constellation in the southern sky, defined in the 18th century by **Nicolas Louis de Lacaille** in 1751–52. Its name is Latin for microscope; it was invented by Lacaille to commemorate the compound microscope, i.e. one that uses more than one lens. **The first microscope was invented by the two brothers, Hans and Zacharius Jensen, Dutch spectacle makers of Holland in 1590**, who were also involved in the invention of the telescope (see below).

Lacaille first showed it on his map of 1756 under the name *le Microscope* but Latinized this to *Microscopium* on the second edition published in 1763. He described it as consisting of "a tube above a square box". It contains sixty-nine stars, varying in magnitude from 4.8 to 7, the lucida being *Gamma Microscopii* of apparent magnitude 4.68. Two star systems have been found to have planets, while another has a debris disk.

The stars that now comprise *Microscopium* may formerly have belonged to the hind feet of *Sagittarius*. However, this is uncertain as, while its stars seem to be referred to by **Al-Sufi** as having been seen by **Ptolemy**, Al-Sufi does not specify their exact positions.

**Microscopium is bordered Capricornus to the north, Piscis Austrinus and Grus to the west, Sagittarius to the east, Indus to the south, and touching on Telescopium to the southeast.** The recommended three-letter abbreviation for the constellation, as adopted by the International Astronomical Union in 1922, is 'Mic'.

The official constellation boundaries, as set by **Eugène Delporte** in 1930, are defined by a polygon of 4 segments. Given that its brightest stars are of fifth magnitude, the constellation is invisible to the naked eye in areas with polluted skies.

**The constellation is not associated with any myths.** *Microscopium* is the 66th constellation in size, occupying an area of 210 square degrees. There are no meteor showers associated with the constellation.

**Microscopium belongs to the Lacaille family of constellations, along with Antlia, Caelum, Circinus, Fornax, Horologium, Mensa, Norma, Octans, Pictor, Reticulum, Sculptor and Telescopium.**

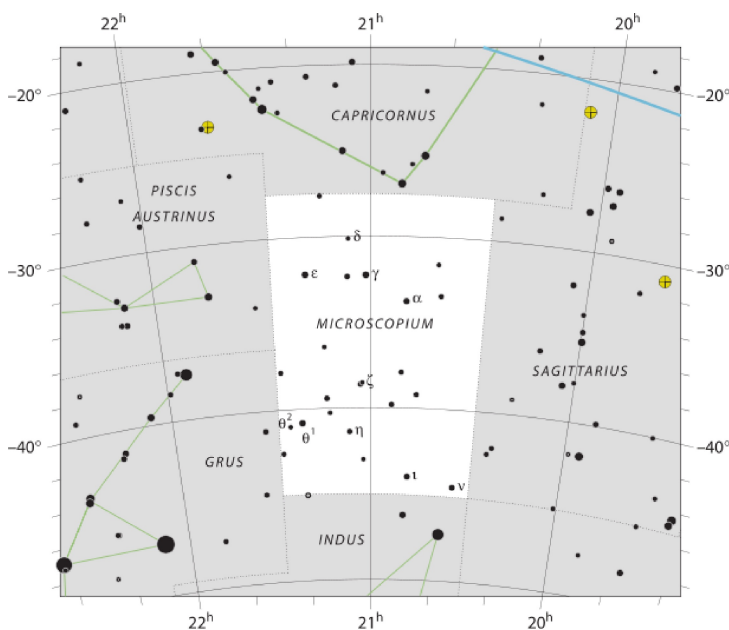
Lacaille charted and designated ten stars with the Bayer designations *Alpha* through to *Iota* in 1756. A star in neighbouring *Indus* that Lacaille had labelled *Nu Indi* turned out to be in *Microscopium*, so **Gould** renamed it *Nu Microscopii*.

*Gamma Microscopii* which has an apparent magnitude of 4.68 is the brightest star. It is a yellow giant of spectral type G6III. Lying 381 light years away, It depicts the eyepiece of the microscope.

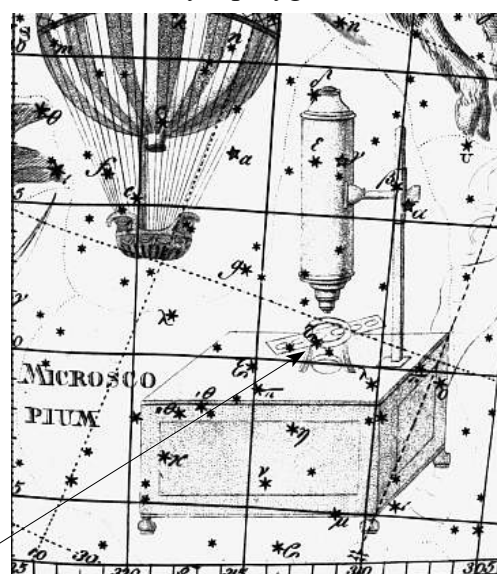
*Alpha Microscopii* is also a yellow giant, though in this case a variable star, which ranges between apparent magnitudes 4.88 and 4.94. It is of spectral type G7III.

*Epsilon Microscopii* lies 165 light years away, and is a blue-white main sequence star of apparent magnitude 4.7, and spectral type A1V.

*Theta1* and *Theta2 Microscopii* make up a wide double whose components are splittable to the naked eye. Both are white A-class magnetic spectrum variable stars with strong metallic lines, similar to *Cor Caroli*. They mark the constellation's specimen slide.



Seen in the 1824 star chart set *Urania's Mirror* (lower left)

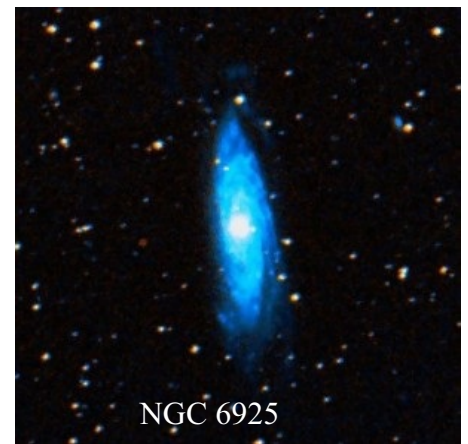


Johann Bode in his *Uranographia* atlas of 1801 added a slide carrier containing specimens when he depicted it

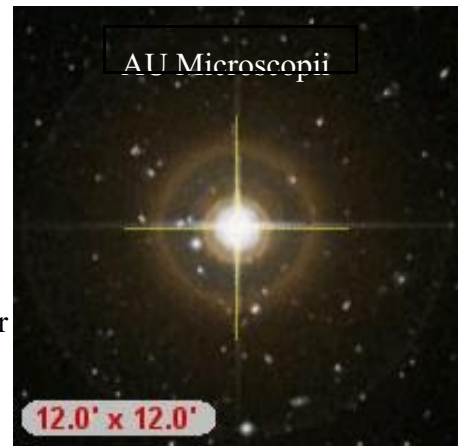
Many notable objects in the constellation are too faint to be seen with the naked eye. *AX Microscopii*, better known as Lacaille 8760, is a red dwarf which lies only 12.9 light years from our solar system. HD 205739 has a jupiter-sized planet. WASP-7 is a star of magnitude 9.54 which has been discovered to have an exoplanet WASP-7b, while *AU Microscopii* is fainter still. It is a young star which appears to be a solar system in the making with a debris disk. *BO Microscopii* is a rapidly rotating star, and PSR J2144-3933 is an unusual pulsar with an unusually long rotation period.

**NGC 6925** is a barred spiral galaxy of apparent magnitude 11.3 which is lens-shaped as it lies almost edge on to us. It lies 3.7 degrees westnorthwest of *Alpha Microscopii*. It was discovered by **Herschel** in July 1834.

**NGC 6923** lies nearby and is a magnitude fainter. It lies approximately 36.437 million parsecs from Earth. Like NGC 6925, the galaxy was discovered by John Herschel in the summer of 1834. A Type IIb supernova, SN 2011ei, was observed in the galaxy in 2011.

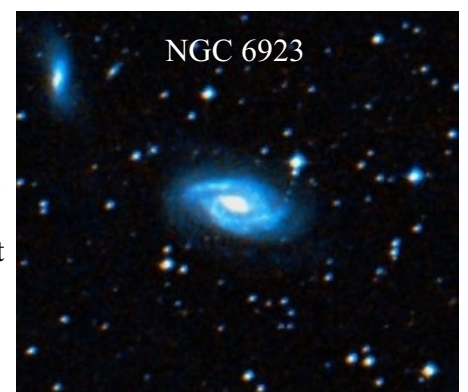


NGC 6925



AU Microscopii

12.0' x 12.0'



NGC 6923

### MYTHOLOGY AND ROOT OF THE WORD MICRO

The -mica of Latin formica is related to Greek myrmex, ant, from the Indo-European root \*morwi-, 'ant'. Ovid tells how after a plague had wiped out the population of Aegina, its king, Aeacus, prayed to Zeus to restore his people as he watched a line of ants crawling up a tree, carrying grains in their mouths. He asked Zeus for as many subjects as the number of ants he saw. That night he dreamed that the ants changed into human beings. Next morning, he found that the vision in his dream had come true. He named the new people Myrmidons from the Greek name of the ant from which they came, myrmex.

**According to Greek legend, the Myrmidons were a troop of fierce warriors (military) who fought tirelessly under the leadership of the hero Achilles in the Trojan War. Today the term myrmidon refers to an individual who carries out a command faithfully, regardless of how cruel or inhuman it might be.** 'Myrmex' means 'ant' in Greek, an image that evokes small and insignificant workers mindlessly fulfilling their duty. Ovid specifies their talents as 'industry, thrift, endurance; they are eager for gain, and never easily relinquish what they have won' (miserly?).

The prophet Micah's name is short for Mikâ'l, Michael, the suffix -el meaning God, translated to mean 'who is like god'. St. Michael the Archangel, Leader of the army (military) of God during the Lucifer uprising. **He is considered in many Christian circles as the patron saint of the warrior. Police officers and soldiers, particularly paratroopers, regard him as their patron saint**

### THE TELESCOPE

The earliest known working telescopes appeared in 1608 (almost 20 years after the microscope was invented) and are credited to **Hans Lippershey**. Among many others who claimed to have made the discovery were **Zacharias Janssen**, a spectacle-maker in Middelburg, and **Jacob Metius** of Alkmaar.

The design of these early refracting telescopes consisted of a convex objective lens and a concave eyepiece. **Galileo** used this design the following year. In 1611, **Johannes Kepler** described how a telescope could be made with a convex objective lens and a convex eyepiece lens and by 1655 astronomers such as **Christiaan Huygens** were building powerful but unwieldy Keplerian telescopes with compound eyepieces. Hans Lippershey is the earliest person documented to have applied for a patent for the device.



Early depiction of a "Dutch telescope" from 1624