GLOBULAR CLUSTER MESSIER 2

Messier 2 or M2 (also designated NGC 7089) is a globular cluster in the constellation Aquarius, five degrees north of the star Beta Aquarii. It is one of the largest known globular clusters.

M2 was discovered by the French astronomer **Jean-Dominique Maraldi** in 1746 while observing a comet with **Jacques Cassini. Charles Messier** rediscovered it in 1760, but thought it a nebula without any stars associated with it. **William Herschel**, in 1783, was the first to resolve individual stars in the cluster.

M2 is, under extremely good conditions, just visible to the naked eye. Binoculars or a small telescope will identify this cluster as non-stellar, while larger telescopes will resolve individual stars, of which the brightest are of apparent magnitude 13.1.

M2 is about 37,500 light-years distant from Earth. At 175 light-years in diameter, it is one of the larger globular clusters known. The cluster is rich, compact, and significantly elliptical. It is 13 billion years old and one of the older globulars associated with the Milky Way Galaxy. M2 contains about 150,000 stars, including 21 known variable stars. Its brightest stars are red and yellow giant stars. The overall spectral type is F4.

ABOUT MESSIER

Charles Messier (French: [me.sje]; 26 June 1730 – 12 April 1817) was a French astronomer most notable for publishing an astronomical catalogue consisting of nebulae and star clusters that came to be known as the 110 "Messier objects". The purpose of the catalogue was to help astronomical observers, in particular comet hunters such as himself, distinguish between permanent and transient visually diffuse objects in the sky. Charles' interest in astronomy was stimulated by the appearance of the spectacular, great six-tailed comet in 1744 and by an annular solar eclipse visible from his hometown on 25 July 1748. From 1760 to 1795 Messier discovered some 13 comets. In 1764, he was made a fellow of the Royal Society, in 1769, he was elected a foreign member of the Royal Swedish Academy of Sciences, and on 30 June 1770, he was elected to the French Academy of Sciences

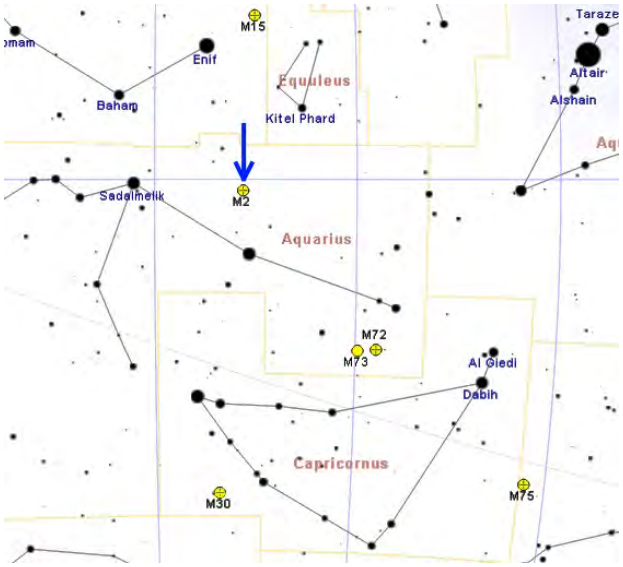
Messier is buried in Père Lachaise Cemetery, Paris, in Section 11. The grave is fairly plain and faintly inscribed, and while it is not on most maps of the cemetery, it can be found near the grave of **Frédéric Chopin**.

Messier did his observing with a 100 mm refracting telescope from Hôtel de Cluny (now the Musée national du Moyen Âge), in downtown Paris, France. The list he compiled is not organized scientifically by object type, or even by location. The first version of Messier's catalogue contained 45 objects and was published in 1774 in the journal of the French Academy of Sciences in Paris. By 1780 the catalogue had increased to 80 objects and the final version in 1784 contained 103 objects. Later, astronomers and historians discovered evidence of another seven objects that must have been noted by either by Messier or by Méchain. These seven objects, M104 through M110, are today accepted by astronomers as "official" Messier objects.

The objects' Messier designations from M1 to M110 are still used by professional and amateur astronomers today and their relative brightness makes them popular objects in the amateur astronomical community. The crater Messier on the Moon and the asteroid 7359 Messier were named in his honour.

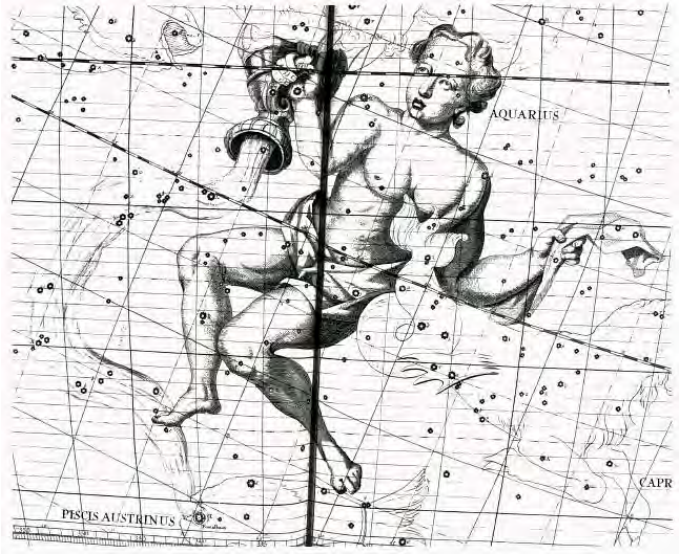
Charles Messier, at the age of 40

So, back to M2, the Globular Cluster and its environment in the constellation Aquarius. Aquarius is one of the oldest of the recognized constellations along the zodiac (the sun's apparent path). It was one of the 48 constellations listed by the 2nd century AD astronomer **Ptolemy**, and it remains one of the 88 modern constellations. It is found in a region often called the Sea due to its profusion of constellations with watery associations such as Cetus the whale, Pisces the fish, and Eridanus the river.



Because of its position away from the galactic plane, the majority of deep-sky objects in Aquarius are galaxies, globular clusters, and planetary nebulae. It contains three deep sky objects that are in the Messier catalogue: the globular clusters Messier 2, Messier 72, and the open cluster Messier 73. Two well-known planetary nebulae are also located in Aquarius: the Saturn Nebula (NGC 7009), to the southeast of μ Aquarii; and the famous Helix Nebula (NGC 7293), southwest of d Aquarii.

IN GREEK MYTHOLOGY Aquarius is sometimes identified with Ganymede, the shepherd son of King Tros of Troy He is said to have been the most beautiful boy alive. Zeus became infatuated with the shepherd boy and swooped down on the Trojan plain in the form of an eagle, carrying Ganymede up to Olympus, where Ganymede became waiter to the gods of Olympus, dispensing nectar from his bowl,



Aquarius and his water jar, from the Atlas Coelestis of John Flamsteed (1729). The flow of water from the jar extends into the mouth of the southern fish, Piscis Austrinus.

HISTORY OF M 2 OBSERVATION:

Charles Messier described M 2 first as follows:

"On September 11, 1760, I discovered in the head of Aquarius a beautiful nebula which doesn't contain any star; I examined it with a good Gregorian telescope of 30 pouces focal length, which magnified hundred four times; the centre is brilliant, and the nebulosity which surrounds it is round; it resembles quite well the beautiful nebula which is located between the head and the bow of Sagittarius: It extends 4 minutes of arc in diameter. I compared its passage of the meridian with that of Alpha Aquarii which is situated on the same parallel. In the night of June 26 and 27, 1764, I reviewed this nebula for a second time; it was the same, with the same appearances. This nebula can be found placed in the chart of the famous Comet of Halley, which I observed at its return in 1759"

Ultimately, it was William Herschel who finally resolved Messier 2 into the object we recognize today. According to his notes in 1783 he was able to resolve individual stars:

"The scattered stars were brought to a good, well determined focus, from which it appears that the central condensed light is owing to a multitude of stars that appeared at various distances behind and near each other. I could actually see and distinguish the stars even in the central mass. The Rev. Mr. Vince, Plumian Professor of Astronomy at Cambridge, saw it in the same telescope."

LOCATING MESSIER 2:

Messier 2 is located approximately 5 degrees (about 3 finger widths) north of Beta Aquarii, on the same declination as Alpha Aquarii. M2 is sufficiently bright enough to be seen in urban settings where light pollution is a factor, and can alternately be found by looking about 10 degrees (a fist width) south/southwest of Epsilon Pegasi. Using binoculars, it will appear as a large, fuzzy ball with little or no resolution. To amateur astronomers using small telescopes, individual stars will be visible around the outer edges, with resolution improving significantly with aperture size of 6" or more. Those with large telescopes, and who are looking for a challenge, should look for a dark dust lane which crosses the north-east edge of this globular cluster. AK, with Wikipedia and Ridpath Notes