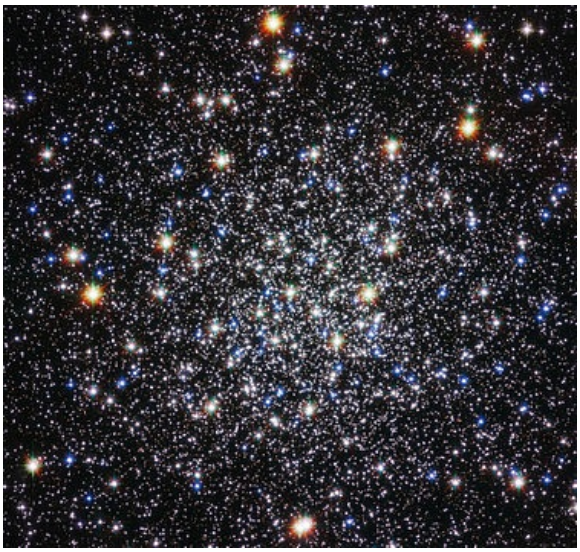
MESSIER 12 - NGC 6218 Globular Cluster

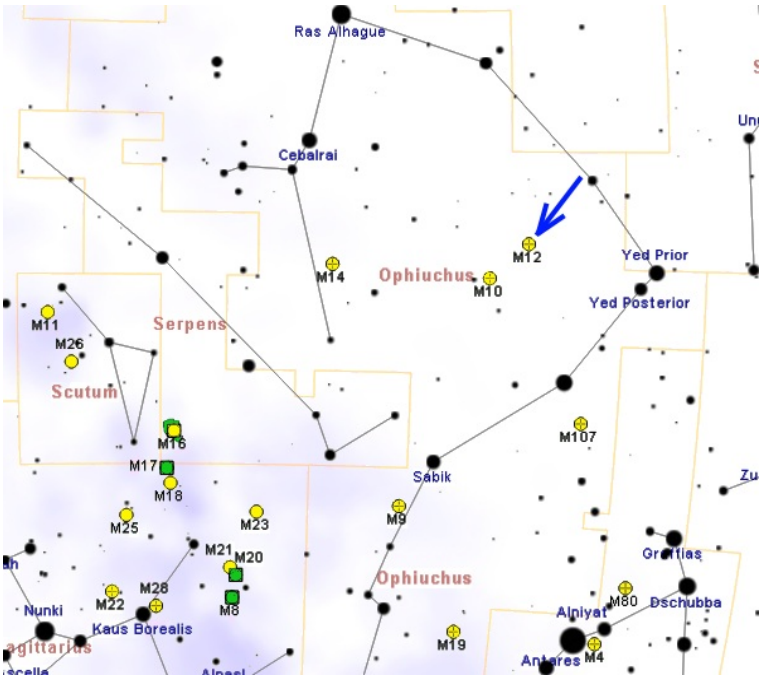
Constellation Ophiuchus
Right ascension 16h 47m 14.18s
Declination –01° 56' 54.7
Distance 15.7 kly
Apparent magnitude +7.68
Apparent dimensions 16'.0
Mass 8.7×10^4 $M_\odot$
Radius 37.2 ly
Metallicity [Fe / H] = –1.14
Estimated age 12.67 Gyr

Messier 12 or M 12 (also designated NGC 6218) is a globular cluster in the constellation of Ophiuchus. It was discovered by the French astronomer **Charles Messier** on May 30, 1764, who described it as a "nebula without stars". In dark conditions this cluster can be faintly seen with a pair of binoculars. Resolving the stellar components requires a telescope with an aperture of 20 cm or greater. In a 25 cm scope, the granular core shows a diameter of 3' (arcminutes) surrounded by a 10' halo of stars.



Located roughly 3° in the sky from the cluster M10 and 5.6° from the star *Lambda Ophiuchi* (see map below), M12 is about 15,700 light-years (4,800 parsecs) from Earth and has a spatial diameter of about 75 light-years. The brightest stars of M12 are of 12th magnitude. With a **Shapley - Sawyer** rating of IX, it is rather loosely packed for a globular and was once thought to be a tightly concentrated open cluster. Thirteen variable stars have been recorded in this cluster. M12 is approaching us at a velocity of 16 km/s. A study published in 2006 concluded that this cluster has an unusually low number of low mass stars. The authors surmise that they were stripped from the cluster by the gravitational influence of the Milky Way.

The high concentration of stars within globular clusters, like Messier 12, shown here in an image from the NASA/ESA Hubble Space Telescope, makes them beautiful photographic targets. But the cramped living quarters in these clusters also makes them home to exotic binary star systems where two stars are locked in tight orbits around each other and matter from one is gobbled up by its companion, releasing X-rays. It is thought that such X-ray binaries form from very close encounters between stars in crowded regions, such as globular clusters, and even though Messier 12 is fairly diffuse by globular cluster standards, such X-ray sources have been spotted there. In a recent study, astronomers used the European Southern Observatory's Very Large Telescope at Cerro Paranal, Chile, to measure the brightness and colours of more than 16 000 of the globular's 200 000 stars. **They speculate that nearly one million low-mass stars have been ripped away from Messier 12 as the globular has passed through the densest regions of the Milky Way during its orbit around the galactic centre**. It seems that the serenity of this view of Messier 12 is misleading and the object has had a violent and disturbed past.



AK, with Wikipedia Notes