

# Reflector

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# Deep-Sky Objects

## Two Globes in Berenice's Hair

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The constellation Coma Berenices (Berenice's Hair) dates back to the third century B.C., when Ptolemy III Euergetes ruled Egypt. His wife, Berenice, queen of Cyrene, was proud of her hair and vowed to sacrifice it if Ptolemy III was successful in battle against the Assyrians. Her cut hair disappeared from Aphrodite's temple, where she had placed it. The Greek astronomer Conon of Samos explained that Aphrodite had placed Berenice's hair among the stars, thus the constellation Coma Berenices came into existence.

Coma Berenices is a small northerly constellation lying between Ursa Major, Boötes, and Leo. Located away from the plane of the Milky Way galaxy, this faint constellation has no stars brighter than 4th magnitude and just a handful brighter than 5th magnitude. The constellation is best known for scores of splendid galaxies, including the likes of M64, M85, M88, M91, M98, M99, M100, and NGC 4565.

Coma Berenices contains two globular clusters brighter than magnitude 10. They are known as M53 and NGC 5053. They are two of the easiest deep-space objects to find in the constellation. M53 is found one degree northeast of the star Alpha Comae Berenices, while NGC 5053 is one and a half degrees due east of the star. Normally Alpha is the brightest star in a constellation, with Beta the second brightest. In Coma Berenices, Alpha and Beta are too close in brightness to visually differentiate them. However, photometry has determined that Beta is slightly brighter.

Johann Elert Bode discovered M53 on February 3, 1775. Charles Messier rediscovered it two years later and added it to his catalog. Both Bode and Messier described it as a nebulous object. William Herschel was the first to resolve it into stars.

M53 is one of the most distant globular clusters in our galaxy. It lies 60,000 light-years from the galactic center and 58,000 light-years away from Earth. It has a total

luminosity equivalent to 200,000 suns. Visually, M53 has fairly even brightness throughout its 13-arcminute diameter. Its brightest star, a red giant, is magnitude 13.8. The integrated magnitude of the cluster is 7.6, easily within the reach of binoculars. However, an 8-inch or larger telescope is required to resolve it into countless stars.

NGC 5053 is a very loose globular star cluster located one degree southeast of M53. The cluster is magnitude 9.5. The

not classify it as a globular cluster. However, spectroscopic studies of the cluster confirmed its true nature. William Herschel discovered NGC 5053 in 1784.

The accompanying image of the two clusters was taken with a 70 mm f/6 apochromatic refractor with a 0.8x focal reducer and field flattener using an SBIG STF-8300C CCD camera. The exposure was 40 minutes. North is up and east is to the left. The image spans three degrees from left to right. The brightest star is Alpha Comae Berenices. Alpha and NGC 5053 nicely form a triangle with M53, which is centered in the image. All three can be spied simultaneously in a rich-field telescope using a low-power, wide-angle eyepiece.

Just north of the trio is a beautiful chain of yellow and orange stars all between 6th and 7th magnitude. The chain is nearly two degrees long, extending from northeast to southwest.

The inset image with the yellow border is a higher-resolution shot of M53 taken with an 8-inch f/6.4 Ritchey-Chrétien telescope using an

SBIG ST-2000XCM CCD camera with a 40-minute exposure. In the image, note a great pair of stars just southeast of M53, one red and the other blue-white. These stars are magnitudes 9 and 10, respectively.

While Coma Berenices is famous for its myriad galaxies, when viewing the constellation this spring, don't pass up its splendid colorful stars and globular star clusters! ☀



M53 and NGC 5053

cluster is oval shaped with its longest dimension in the east-west direction, extending 13.7 arcminutes.

NGC 5053 is located at approximately the same distance as M53, which means these two globular star clusters are actually near each other in the galactic halo. NGC 5053 does not have a densely packed core like M53, so, for a long time, astronomers did

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