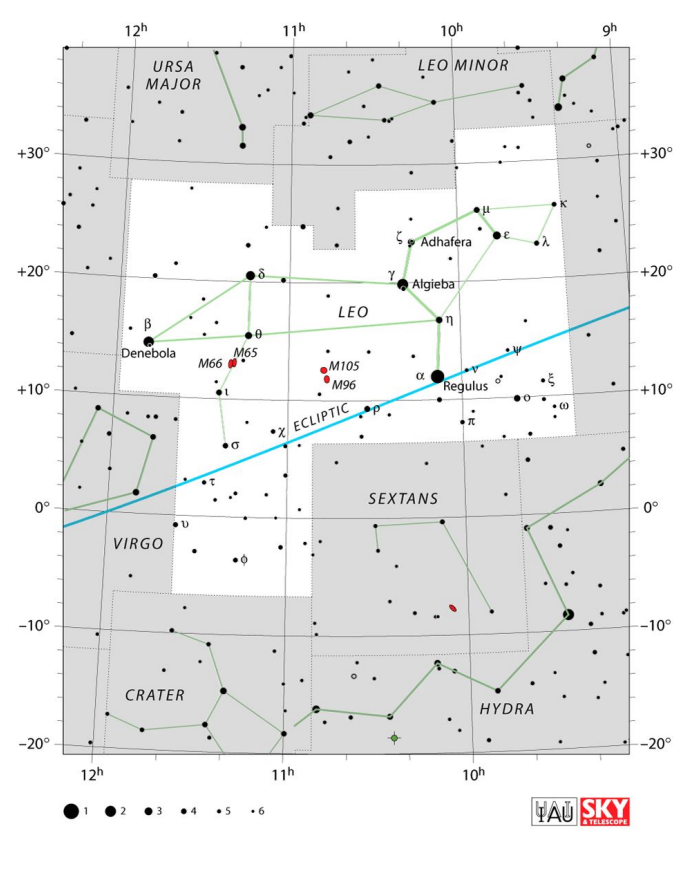
AAP Episode 111

Welcome to Episode 111 of the Actual Astronomy Podcast, Deep Sky Observing in Leo, Virgo and Coma Berenices. I’m Chris and joining me is Shane. We are amateur astronomers who love looking up at the night sky and this podcast is for anyone who likes going out under the stars.

Leo the Lion


12h
11h
10h
9h
URSA MAJOR
LEO MINOR
+30°
+20°
+10°
0°
−10°
−20°
Adhafera
Algieba
LEO
Denebola
M66
M65
M105
M96
Regulus
ECLIPTIC
SEXTANS
VIRGO
CRATER
HYDRA
1
2
3
4
5
6
SKY
A TELESCOPE


Leo

In Babylonian astronomy, the constellation was called UR.GU.LA, the "Great Lion"; the bright star Regulus was known as "the star that stands at the Lion's breast." Regulus also had distinctly regal associations, as it was known as the King Star.

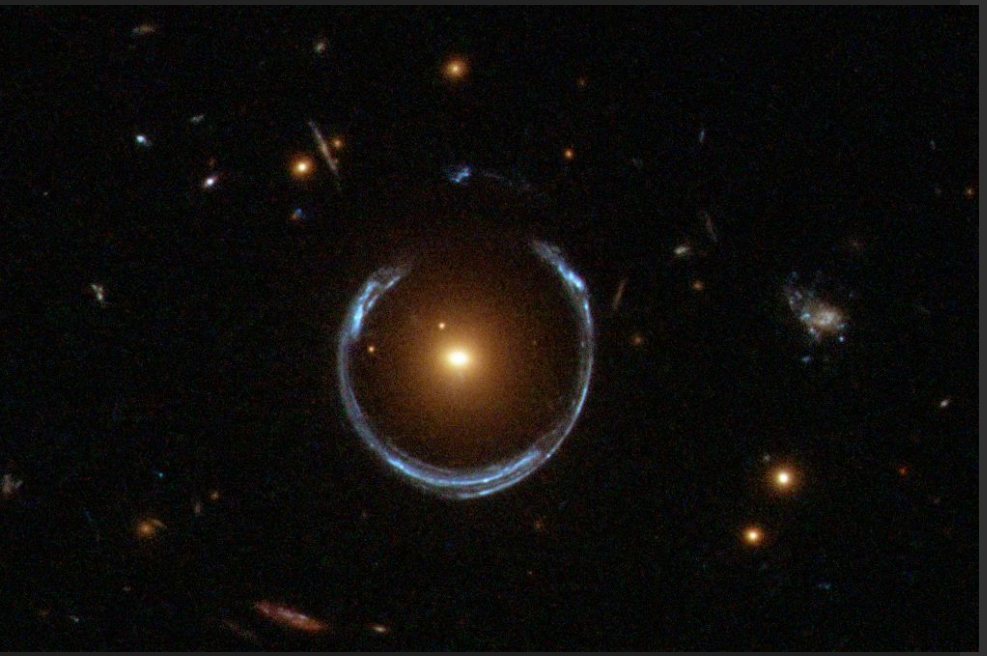
Some mythologists believe that in Sumeria, Leo represented the monster Humbaba, who was killed by Gilgamesh.

Regulus

Magnitude 1.34

Distance 78 light years

Shares views with Dwarf Galaxy Leo 1



Leo Triplet

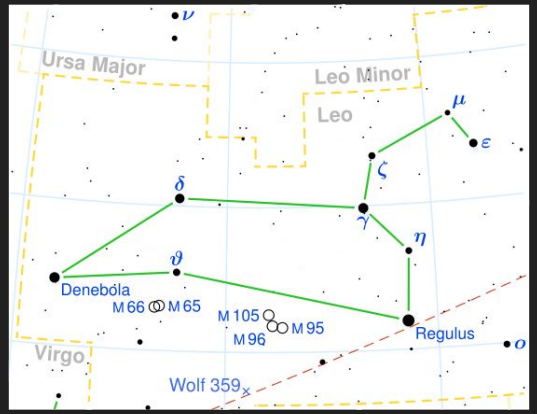
a small group of galaxies about 35 million light-years away[5] in the constellation Leo. This galaxy group consists of the spiral galaxies M65, M66, and NGC 3628.

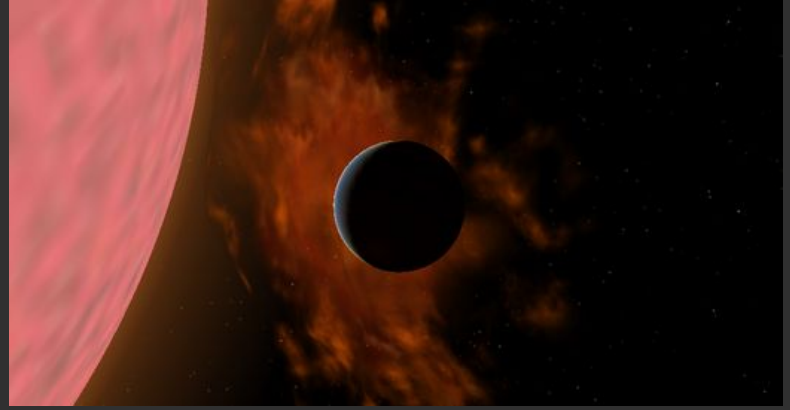
Leo is also home to one bright variable star, the red giant R Leonis. It is a Mira variable with a minimum magnitude of 11 and normal maximum magnitude of 6; it periodically brightens to magnitude 4.3. R Leonis, 330 light-years from Earth, has a period of 310 days and a diameter of 450 solar diameters.

Also possible Jupiter like exoplanet in orbit

riable of the month is R Leonis

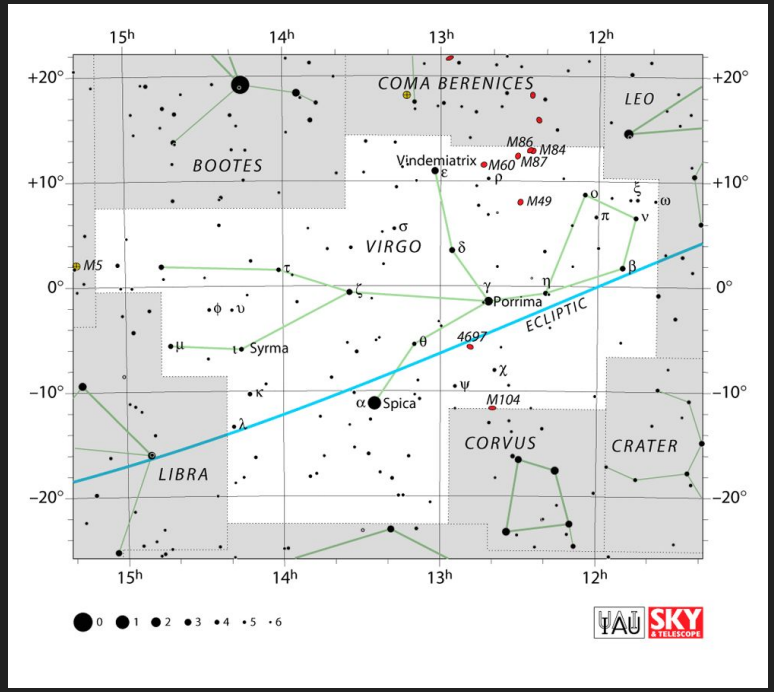
It was the first variable star to be identified in the constellation Leo the Lion. When discovered by J.A. Koch of Danzig in 1782, it was only the fourth long period variable known.





Make your own discovery of this star by looking 5 degrees (about one binocular field) west of the bright star Regulus (Alpha Leonis), the heart of this lion constellation. Here, you'll see R Leonis as a scarlet- colored star, forming a small triangle with two nearby yellow stars. At its dimmest, it may even be difficult to see in binoculars: then, just "look for the star that isn't there!" That is to say, look for the star that is "missing" from the typical star pattern. Of course the star is still there, we just can't see it!

Virgo


15h
14h
13h
12h
+20°
+10°
0°
−10°
−20°
COMA BERENICES
LEO
BOOTES
VIRGO
LIBRA
CORVUS
CRATER
Vindemiatrix
M86
M84
M60
M87
M49
M5
Porrima
Syrma
4697
Spica
M104
ECLIPTIC
0 1 2 3 4 5 6
IAU
SKY & TELESCOPE


Virgo

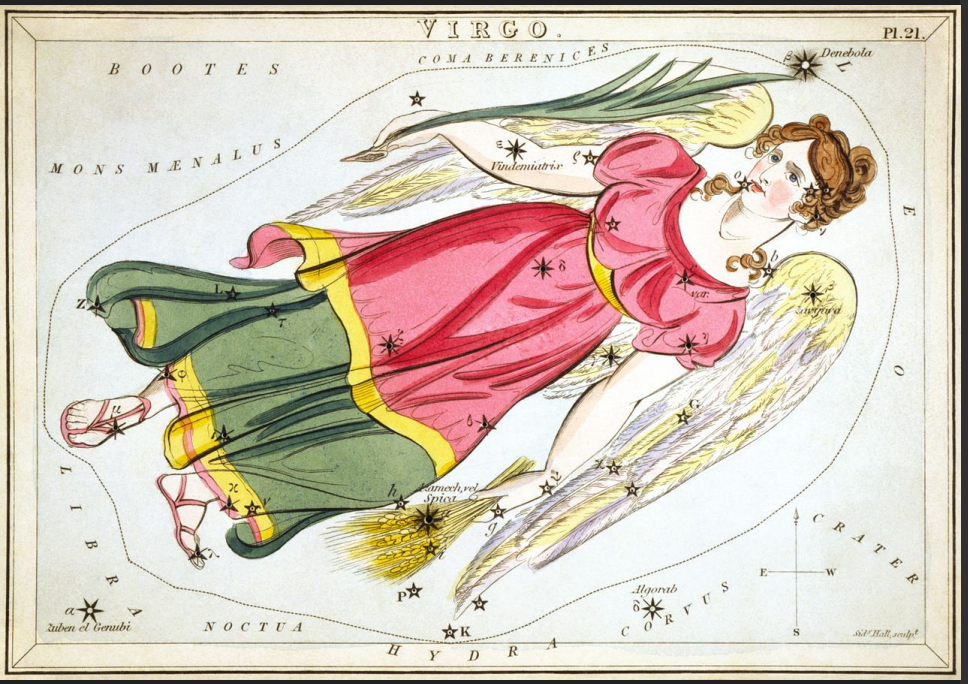
Meteor showers

The Leonids occur in November, peaking on November 14–15, and have a radiant close to Gamma Leonis. Its parent body is Comet Tempel-Tuttle, which causes significant outbursts every 35 years. The normal peak rate is approximately 10 meteors per hour.

The January Leonids are a minor shower that peaks between January 1 and 7.

A famous depiction of the 1833 meteor storm, produced in 1889 for the Seventh-day Adventist book *Bible Readings for the Home Circle*.

Woodcut print depicts the shower as seen at Niagara Falls, New York. *Mechanics' Magazine* said this illustration was made by an editor named Pickering "who witnessed the scene."



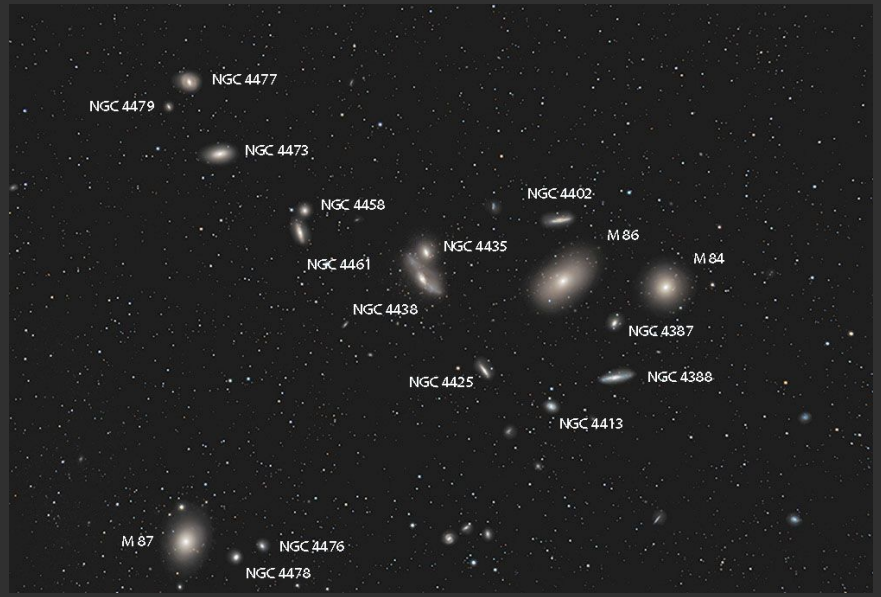
According to the Babylonian Mul.Apin, which dates from 1000 BC, the constellation, or perhaps just Spica, was known as "The Furrow", representing the goddess Shala's ear of grain.

Virgo Cluster / Markarians Chain

Because of the presence of a galaxy cluster (consequently called the Virgo Cluster) within its borders 5° to 12° west of ε Vir (Vindemiatrix), this constellation is especially rich in galaxies.

Some examples are Messier 49 (elliptical), Messier 58 (spiral), Messier 59 (elliptical), Messier 60 (elliptical), Messier 61 (spiral), Messier 84 (lenticular), Messier 86 (lenticular), Messier 87 (elliptical and a famous radio source), Messier 89 (elliptical) and Messier 90 (spiral). A noted galaxy that is not part of the cluster is the Sombrero Galaxy (M104), an unusual spiral galaxy. It is located about 10° due west of Spica.

Can it be seen naked eye????



Spica

250 Light Years away

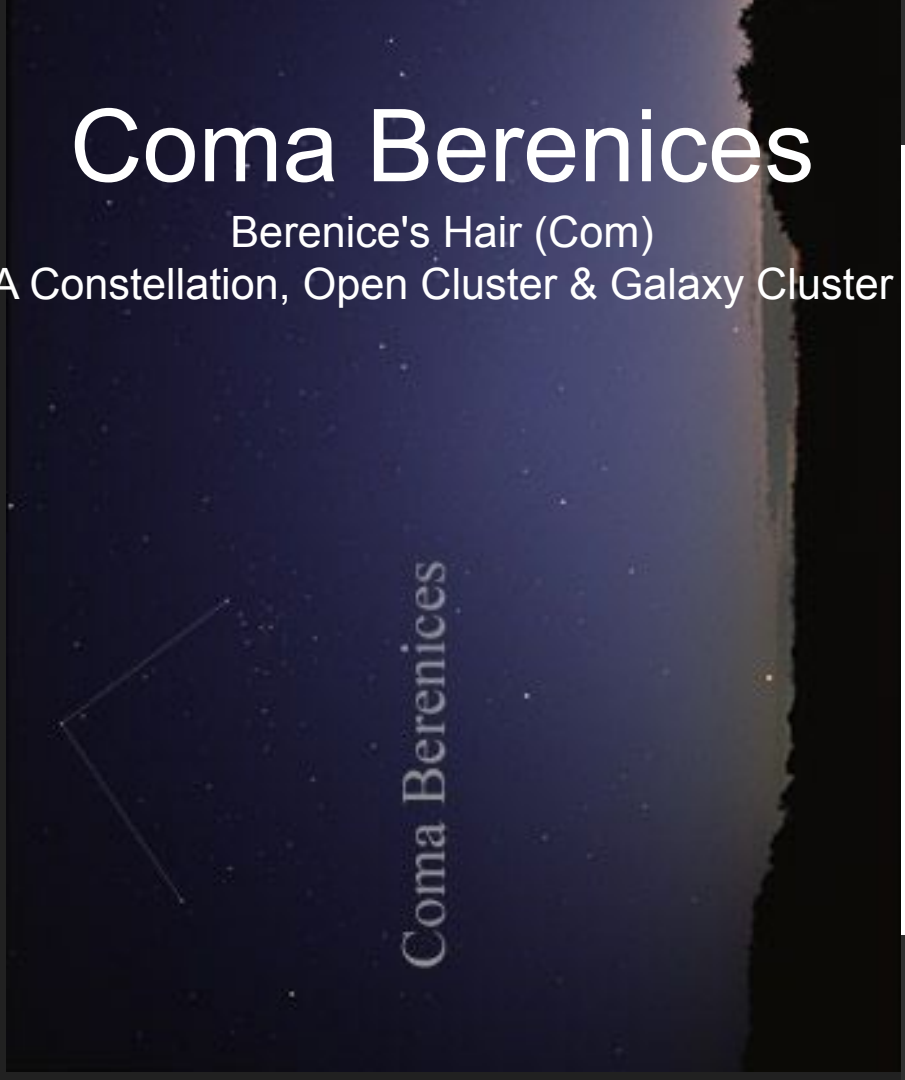
Magnitude +1

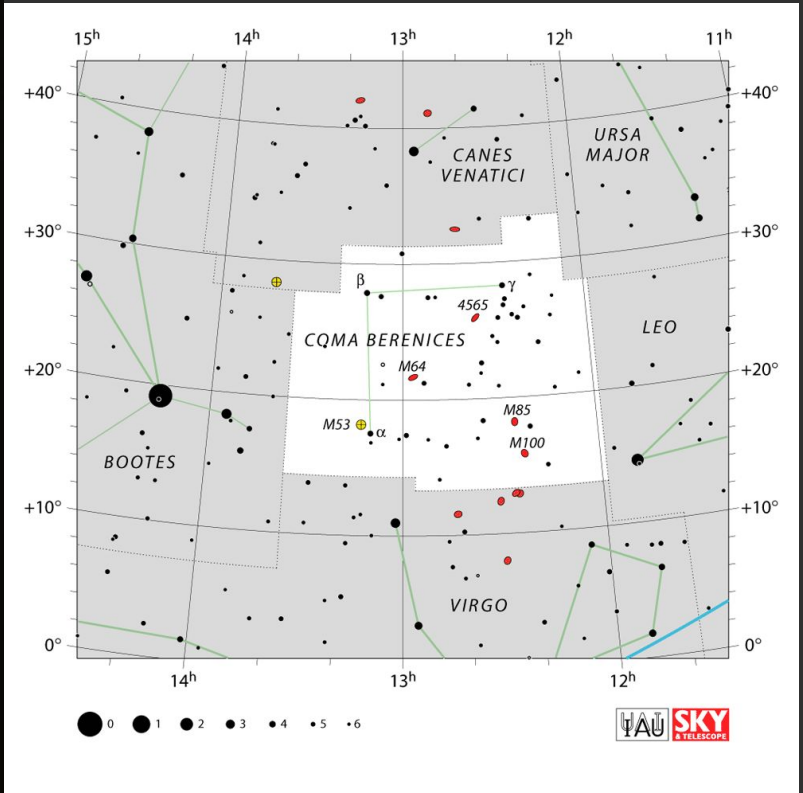
SS Virginis is a variable star with a noticeable red color. It varies in magnitude from a minimum of 9.6 to a maximum of 6.0 over a period of approximately one year

Coma Berenices

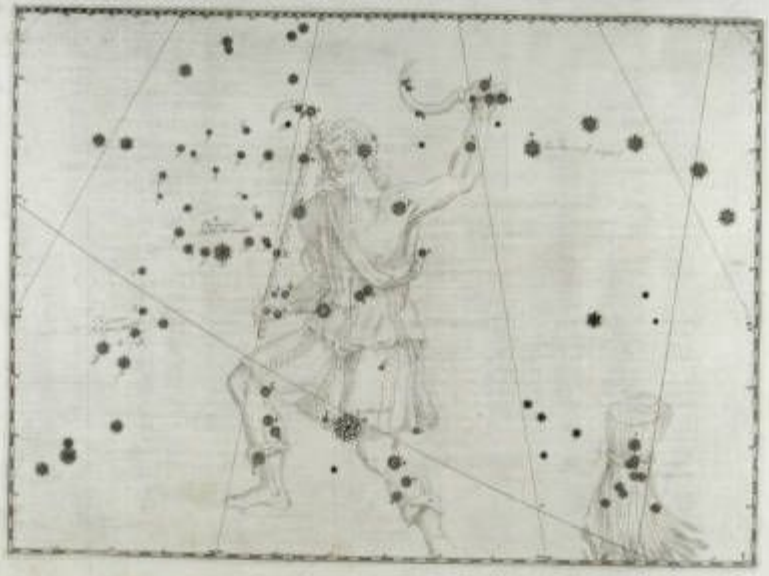
Berenice's Hair (Com)

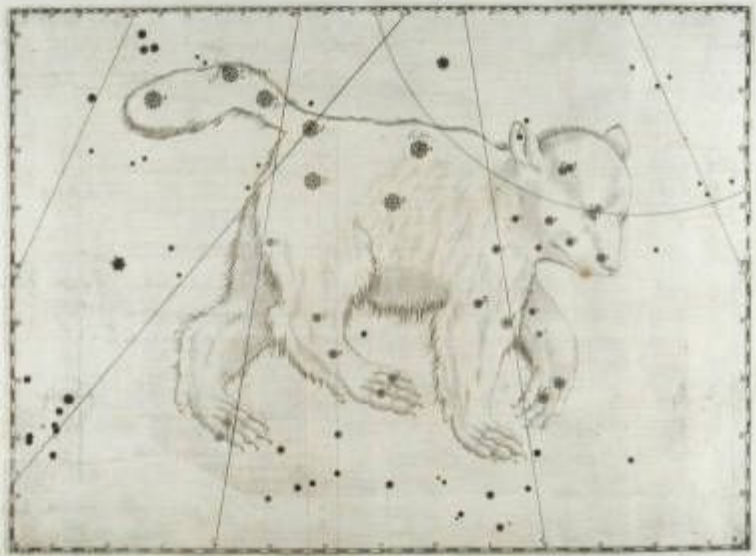
A Constellation, Open Cluster & Galaxy Cluster






Cincinnus
Berenicis crinis, Trica
Tropicus Cancri
Bubulcus
Arcturus
VIRGO
Erigone
Spica
LIBRA





COMA BERENICES

BY CHRIS BECKETT & RANDALL ROSENFELD

> …the beauteous hair, that lately shed
> Refulgent beams from Berenice's head;
> The lock she fondly vow'd with lifted arms,
> Imploring all the powers to save from harms.…
> —From The Hair of Berenice, Catullus 1st c. BC
> (trans. Tytler 1793)

Reigning high overhead on clear spring evenings a grouping of stars catches the attention of even casual night-sky observers. This is Coma Berenices, one of the brightest star clusters and a constellation named after an ancient queen. The main star pattern consists only of three 4th-mag. stars, which appear as an upside-down right angle, but despite the dim setting, the region includes three globular clusters and objects from all Deep-Sky Observing Certificates.

The story of Coma Berenices is rare in constellation lore, based not on myth but a real person, Queen Berenice II of Egypt, who, according to Hyginus, is said to have promised a lock of her long amber-coloured hair to Aphrodite if the king returned safe from war. Upon his return, she placed a lock in the temple; however, in the morning it was gone, making the king anxious. The quick-thinking court astrologer, Conon, to advance his career, declared that Aphrodite was so impressed with the gesture she placed the hair among the stars.

Now catalogued as the open cluster Melotte 111, from the Explore the Universe program, the cluster is still most popularly known as Coma Berenices. Ptolemy described it as a "nebulous convolution which is called Coma Berenice" located "between the outermost parts of Leo and Ursa Major," including the stars Gamma, 7, and 23 Comae Berenices, which he suggested was "shaped like a leaf."

Before Coma Berenices, the region was seen as a sheaf of wheat held aloft by Virgo. We see the transition in Bayer's 1603 Uranometria where a Wheat Sheaf is depicted on chart 5 and Berenice's Hair on chart 2, and all major astronomical charts thereafter. Spanning over 5° of sky and shining at mag. +1.8, Melotte 111 is perfect for 7× binoculars, and with many orange, or yellow-white stars, it may appear faintly golden, perhaps even amber, to the naked eye.

Coma Berenices is also home to the North Galactic Pole (NGP), an invisible location less than 0.5 degrees south of the star 31 Comae. On the way from Mel 111 be sure to stop by NGC 4565, Herschel's aptly named "Needle Galaxy." Moving 2° south from the NGP, we find NGC 4725, a spiral galaxy, unique for its solitary spiral arm. From here, M64 lies about 1/3 of the way to Alpha Comae, even though in small telescopes a dark lane is easily observed, leading to its proper name "The Black Eye Galaxy." Sharing a 2° field with Alpha Comae (Diadem), we find two globular clusters. To observe both in a small telescope, first locate 8th mag. M53, and while staring directly at this object, use averted vision to see the Challenge Object NGC 5053. Six degrees north of Alpha is a galaxy chain of Deep-Sky Gems running from NGC 5016 to the west through NGC 4685, M85, NGC 4450, finally to NGC 4340. The third globular cluster is located at the far western edge of the constellation—the easily detected but difficult to resolve NGC 4147, a masquerader in this Realm of the Galaxies.

The Virgo Galaxy Cluster spans both Virgo and Coma Berenices, including the northern reaches of "Markarian's Chain" of galaxies and beyond, NGC 4473, 4477, and 4459. Low-power fields of 3.5° capture M88 and M91 to the northeast, then scanning west will bring M100, M99, and M98 into view. Now try for the Challenge Object Abell 1656, the Coma Berenices Galaxy Cluster. Centred around NGC 4889 and NGC 4874 exist many tiny fuzzy specs of remote galaxies.

It is fortunate that Queen Berenice was immortalized in the sky, because soon after this event, the king died and she was murdered. Coincidentally, the philosopher Aristotle wrote about hairy stars 100 years before Berenice was queen. He used the Greek word komē, "hair of the head," to illustrate the "luminous tail of a comet," objects long thought of as portenders of doom for powerful heads of state.

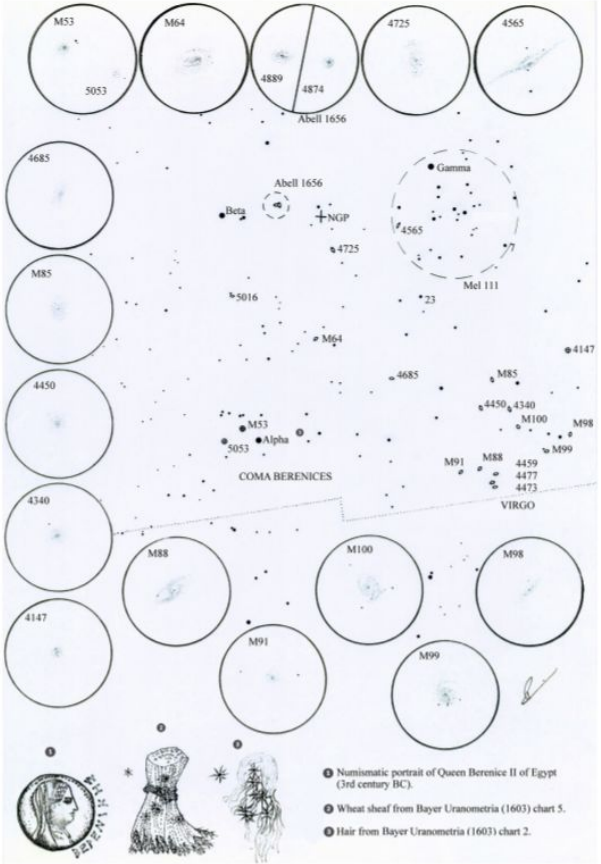
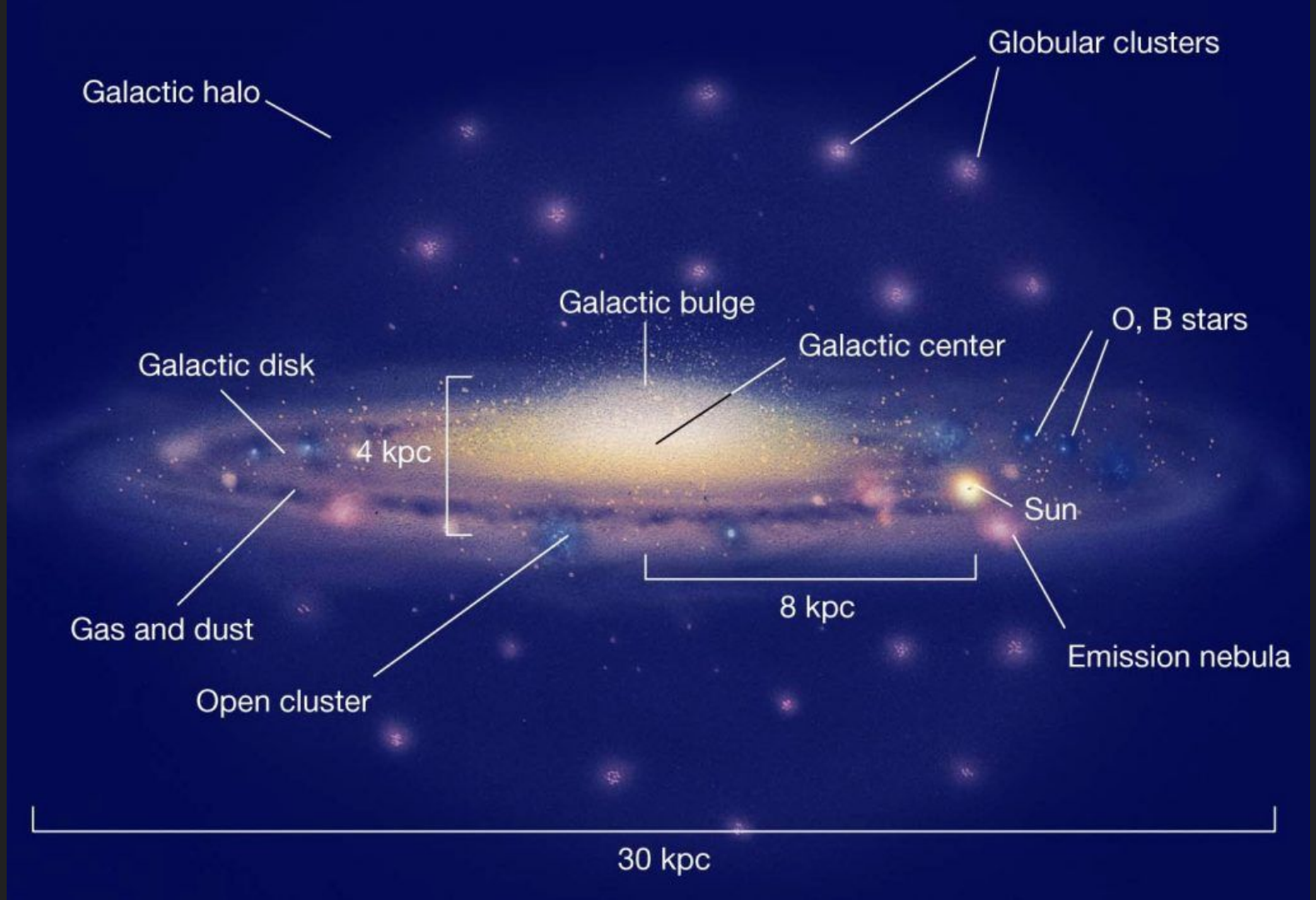
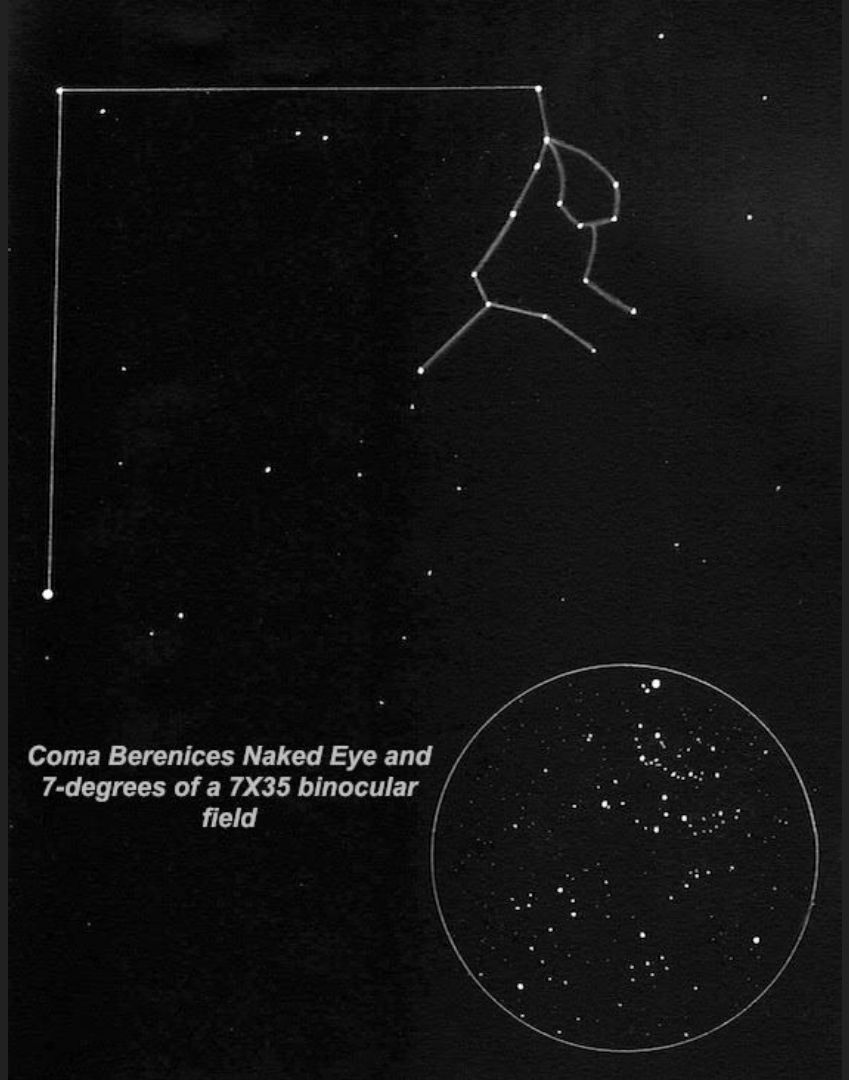


Diagram by Randall Rosenfeld


Globular clusters
Galactic halo
Galactic bulge
O, B stars
Galactic center
Galactic disk
4 kpc
Sun
8 kpc
Gas and dust
Emission nebula
Open cluster
30 kpc


JUSTINNG
PHOTOGRAPHY



Coma Berenices Naked Eye and 7-degrees of a 7X35 binocular field