

The New moon in March is on the 11th at 0358. The Full moon in March is on the 25<sup>th</sup> at 0983.

Daylight Savings time begins March 10.

A Penumbral lunar eclipse is visible this month from the continental United States, Hawaii and eastern Alaska beginning about 2200 and ending 4 hours later Pacific Daylight Time. Maximum immersion will be at 0013 PDT. The moon will be quite high, it will be interesting to see if we are able to register any appreciable dimming.



March is the Full Worm moon, referring to the larvae emerging from the bark of trees at this time. Native American names include the Crow Comes Back Moon, the Eagle Moon, Goose Moon, Snow Crust Moon, Sore Eyes Moon, Sugar Moon and the Wind Strong Moon.

The Vernal Equinox, i.e. the first day of spring arrives at 2004 PDT on Tuesday March 19. During much of March this year the Christian world celebrates the season of Lent. As a word, lent goes way back to the Old English and the Old German dialects and essentially means spring.

There are a number of lunar/planetary conjunctions this month including an occultation of Antares visible from Florida. Mercury and Neptune are being occulted on the 11<sup>th</sup>, visible from Antarctica, the So. Pacific and Central/So. America. On the 14<sup>th</sup>, the Pleiades will be less than  $\frac{1}{2}^{\circ}$  from the moon and on the 21<sup>st</sup> Venus will be a  $\frac{1}{4}^{\circ}$  from Saturn.

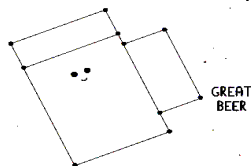
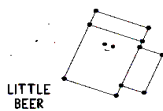
In Spanish its Luna Llena de Marzo, in German Vollmond im März, in French Pleine Lune de Mars, in Italian Marzo Luna Plena, and in Greek Μαρτίου πανσέληνος (Martíou pansélinos)  
In Gaeilge – Leo Mór agus Leo Mion.



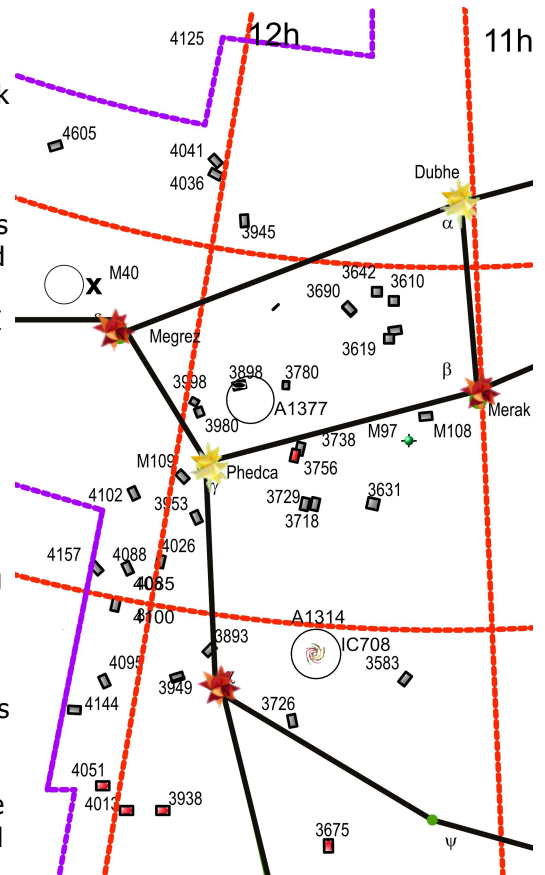
I really wanted to talk this month about the bowl of the Dipper. Years ago I had the opportunity to spend an evening with Rev. Robert Evans of Hazelbrook, New South Wales. I believe he still holds the record for visual discovery of supernovas, over 40. He came to visit Southern California and I had the chance to spend an evening with him at the eyepiece of the 18" reflector at

Ford Observatory near Wrightwood, CA. Robert was consummate at his profession and wanted to spend as much time as he could looking for supernova in the northern skies he couldn't see at home. He passed a year ago. So, I figured another evening galaxy hopping in Ursa Major was a good idea.

*Londlyn Brown*



I was hoping to remember Robert this month by concentrating on the bowl of Ursa and to add to the fun the tail of Leo. It didn't work out. Most of the bowl's galaxies are too dim, you need some mirror and you need decent skies. Still, its hard to resist. So this month and next month in April we will look at several historically famous galaxy clusters, many of them bright galaxies, Messier's and even a Caldwell. We will search for a few of the over 500 NGC and IC objects in Ursa Maj and the over 135 in Leo. To add a dollop of whipped cream to our galaxy pie we will also find two Abell galaxy clusters, one in Ursa and another in Leo.





Dan Schechter <https://ocastronomers.org/wp-content/uploads/2019/01/m081-02.jpg>

Ursa Maj. Has two well know galaxy groups and two Abell clusters. The M81 & M82 group is well placed for viewing this month and the M101 group is rising steadily. Abell 1377 and Abell 1314 are also well placed at 2100 this evening. M81, also know as Bode's galaxy, it a big, bright centerpiece of a family of over 70 galaxies. It is 7<sup>th</sup> magnitude, so easy to see and can be viewed in the same field as M82 and NGC 3077. M82 is 8<sup>th</sup> magnitude and 3077 is 10<sup>th</sup>. We have all seen those <https://apod.nasa.gov/apod/ap230120.html> beautiful images of M82 with red filaments boiling out from the top and bottom of the galaxy disc like a mad explosion.

<https://apod.nasa.gov/apod/ap230802.html> Sadly you won't see anything like that. In your eyepiece you can tell its oddly shaped and you may see a little bit of structure in M81, but count yourself successful if you can identify all three galaxies in your field. Just outside the field is 10<sup>th</sup> magnitude 2787. 10<sup>th</sup> magnitude 2976 is also easily seen. 2892 is dim at 13<sup>th</sup> magnitude and small. 2959 is nearly 13<sup>th</sup> magniude, a tight spiral. Almost touching it is a nearly 15<sup>th</sup> magnitude lenticular (rod shaped) galaxy, 2961. The circle represents one degree.

The M101 galaxy, called the Pinwheel, is the center for a number of group members. 5474 and 5477 are the closest members to 101. They are both dwarfs. 5474 has a big halo gravitationally bound to 101. You will find it at 11<sup>th</sup> magnitude. 5477 is near invisible at 14<sup>th</sup> magnitude. 5473 is 11.5 magnitude. 5475 is quite dim at 13<sup>th</sup> magnitude. 5485 and 5486 are close, but 14<sup>th</sup> magnitude. 5422 will be easier. It is a 12 magnitude lenticular galaxy with a quite bright nucleus and rather long arms. 5368 and 5443 are both near 14<sup>th</sup> magnitude, another tough find. The last galaxy on the chart is UGC 8837, a 13<sup>th</sup> magnitude dwarf that along with 5474 and 5477 are a family of

(Jeff Malmrose from 2008 includes N5473 and 5474) <https://ocastronomers.org/wp-content/uploads/2018/12/M101.jpg>

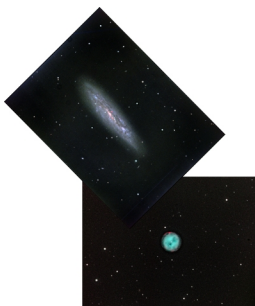
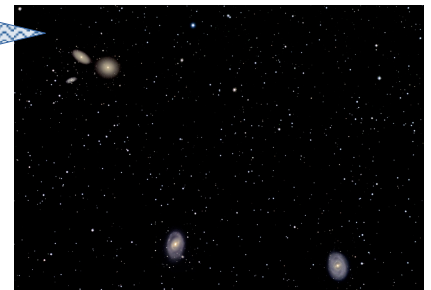
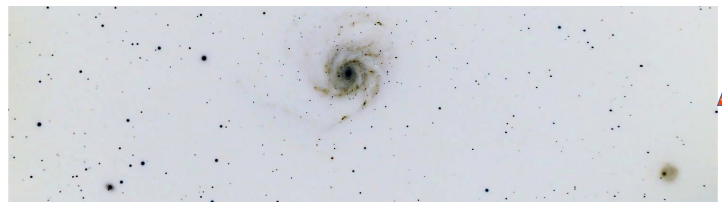
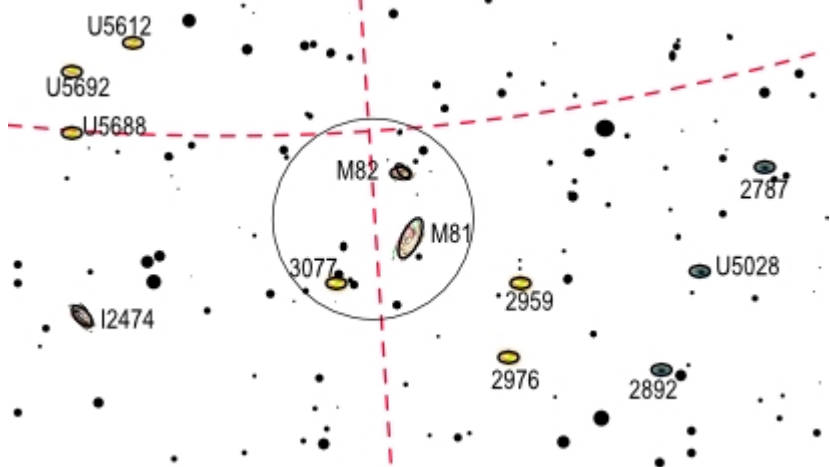
interacting galaxies with M101. U8837 is a small active galaxy, in fact all three galaxies are pretty messed up by the huge gravity of M101.

Donald Lynn 2010 m95-96-105 [https://ocastronomers.org/wp-content/upload/2018/12/10.77112.16\\_06442\\_RGB\\_150secV2POvlysm.jpg](https://ocastronomers.org/wp-content/upload/2018/12/10.77112.16_06442_RGB_150secV2POvlysm.jpg)

Other objects to look for in Ursa Major are M40, M97, M108, M109, Abell 1377 and Abell 1314.

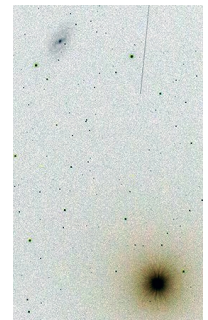
August Winnecke is a German astronomer who published one of the shortest catalogs in our literature. The Winnecke Catalogue of Double Stars has seven items listed, Messier 40 is number 4 on the list. The two stars are magnitude 9 and 10. M108 and M97 are less than a degree apart and can be seen in the same field of view.

<https://www.raysuniverse.space/>



M97 is the famous Owl planetary and M108 is much larger but about the same brightness, around 9<sup>th</sup> magnitude. M108 is a flat spiral showing us about a 30° face. The more mirror you have the more blue M97 will appear.

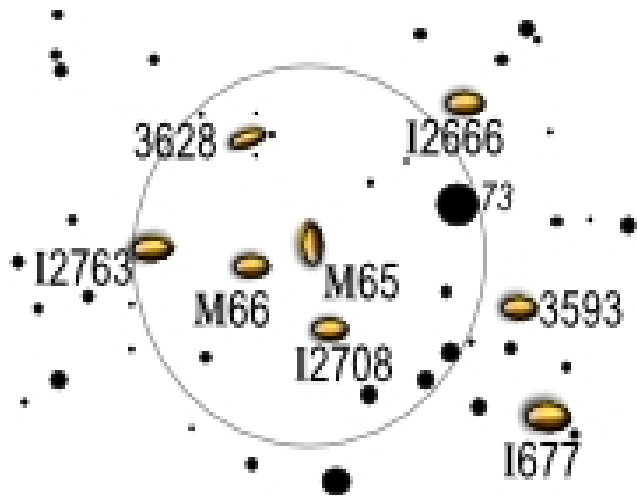
M109 is a spiral with about a 60° tilt. It is the same apparent size as M108 and about the same brightness. With a little bit of glass you should be able to see the rather apparent bar and stringy spiral arms. This rather over processed image I cropped from jgscience.org (a good one, check it out), shows M 109 and Phecda, γ Ursae Majoris.



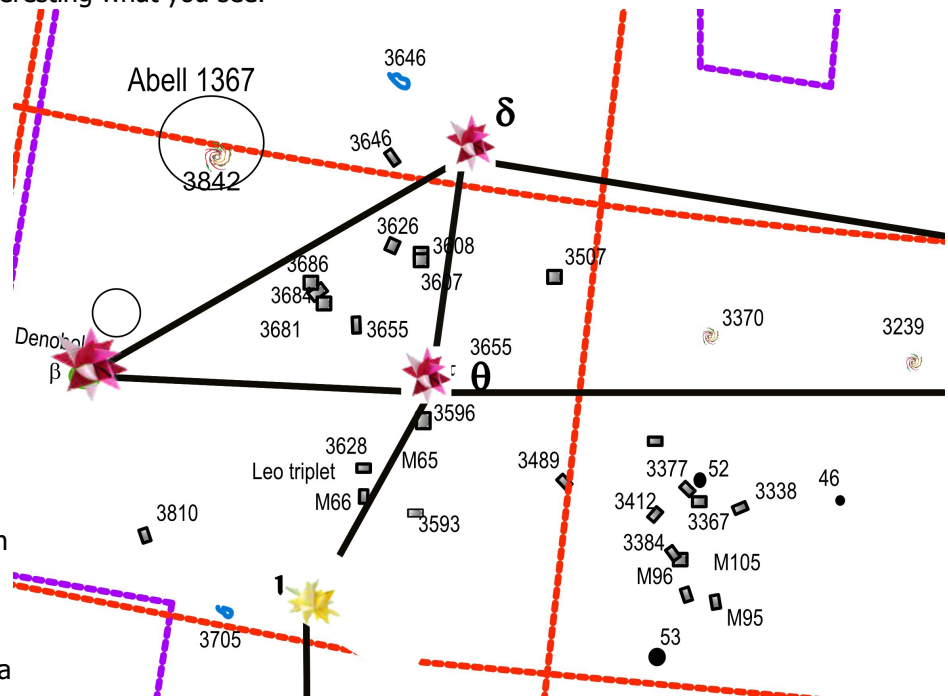
Abell'1314 and 1377 are not among the popular Abells. A1377 is 13<sup>th</sup> and A1314 is 15<sup>th</sup> magnitudes. A1377 does have a 3<sup>rd</sup> magnitude star near the brighter galaxies that can be used as a finder. In A1314 is the famous 14<sup>th</sup> magnitude "Papillon" galaxy, IC708.

Between Theta and Iota Leonis lie the Leo Triplet. The principle components are M65, M66 and NGC 3628. The three are all about 9<sup>th</sup> magnitude and will be visible as a group in your wide angle eyepiece. They are an interesting study in galaxy formation. In the one field of view you have a 30<sup>o</sup> galaxy, M66, a 60<sup>o</sup> galaxy, M65 and an edge-on galaxy, 3628. Only a degree away from M66 is a smallish, 12<sup>th</sup> magnitude, nearly lenticular galaxy, N3593. Close by are four 14<sup>th</sup> magnitude galaxies that will reward careful search: IC's 677, 2666, 2708 and 2763. 2666 is brighter by half a magnitude. 2763, 2666 and 2708 are awarded only a couple of lines and no images in the NGC catalog.

IC 677, however, is interesting since it has an even smaller, close companion galaxy, IC688. 677 is lenticular and active, it will be interesting what you see.



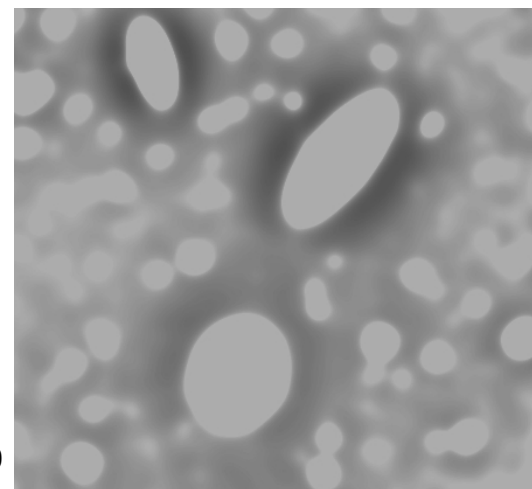
Perhaps a little more satisfying is the Leo II group, located in the triangle of the tail made by Beta, Delta and Theta. The main four galaxies are NGC's 3655, 3681, 3684 and 3686, all 11<sup>th</sup> and a fraction magnitude and all spiral of one form or another. Leo II could have two dozen or more members, but probably only a dozen or so visible in our larger amateur telescopes. One of the Patrick Stewart Caldwell objects, number 40, NGC 3626 is also right there. 3626 and 3632 are the same galaxy confused back in the day until reconciled by Caroline Herschel. 3626 is between 11 and 12 mag.. Perhaps Sir Pat was stretching it a little when he chose this galaxy as number 40. Gary Imm <https://www.astrobin.com/337342/?q=ngc 3626>



In the immediate vicinity of NGC 3842, and part of the Abell 1367 cluster are seven galaxies, all 14<sup>th</sup> or so, and all looking like what we think a galaxy cluster should look like. It will be great fun when you point your cannon to the tail of Leo.



It can be argued that the most popular galaxy group in Leo is near his midsection. There are over half a dozen galaxies 10<sup>th</sup> magnitude and brighter anchored by M95, M96 and M105. All the galaxies I have plotted are 10<sup>th</sup> and 11<sup>th</sup> magnitude or brighter, so galaxy hopping in your big Dob is right up your alley. Leo I is surrounded by a gigantic cloud of Hydrogen and Helium called the Leo ring. It was only discovered in the last 50 years or so and is not observable in our visual wavelengths. Messier 105 and its companion NGC 3384 are surrounded by a vast ring of neutral hydrogen gas. I took a Wikisky image and reduced it to the point where we can see the bridge of hydrogen gas between the two. You have to figure that that whole region of space is lying in a vast cloud of hydrogen and helium. We see the Leo ring as a ring but it is actually a sphere, the greater density of the gas on the sides being more visible and the center of the sphere blown out by the activity of M105, N3384 and N3389.





The Lion flames. There the sun's course runs hottest  
Empty of grain the arid fields appear  
When first the sun into the Lion enters. Aratos.

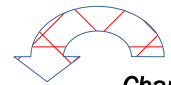
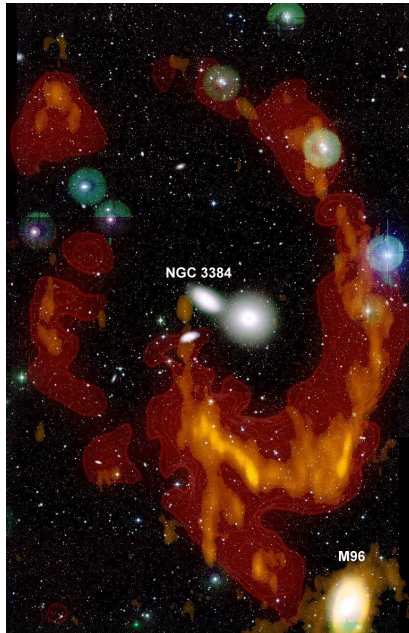
From late Bronze and Early Iron Periods, to roughly the 1600's, at least in parts of the world, Regulus, the diminutive of Rex, was considered the "Ruler" of the heavens. This was true in Persia, Babylonia, India, and Arkkadia-ancient Greece. He was king because for much of this time the summer solstice was in Leo which coincided with rivers rising, and the summer sun heating the earth and ripening the crops.

Thank You <http://www.rhysy.net/>

<http://www.quickmeme.com/>

The image of a lion up at the top can be found in early Egypt, inscribed on fountains and gates, on Paleolithic cave walls in Chauvet to Druid, Scots, Central American and Asian civilizations. Leo has been identified world wide for thousands of years.

Dark Skys, Dave Phelps



Chauvet

