



# The Binocular Sky

No. 87  
February 2019

# Newsletter

## Introduction

Welcome to February's **Binocular Sky** Newsletter.



As regular readers will know, my intention is to highlight some of the binocular targets for the coming month. This is primarily intended for visual astronomers in the UK, but should have some usefulness for observers anywhere north of Latitude 30°N and possibly even further south. It is also useful for small telescopes.

February nights are nearly as long as those of January in the northern hemisphere, so there is a lot of sky that is observable.

The highlights this month are the lunar occultation of  $\delta$  Cnc just before dawn on the 18<sup>th</sup>, and two very localised events. For those in the southeast, there is the emergence of Saturn from behind a rising Moon on the 2<sup>nd</sup> (this will be an extremely difficult observation; those further south and east in Europe will have it somewhat easier). Then, on the night of the 13<sup>th</sup>, there will be a grazing occultation of  $\epsilon$  Tau, visible from Devon.

We are losing Neptune into the evening twilight, but we still have Uranus available for those who like to spot the binocular planets.

Next month I expect to include a review of Bill Cook's new book on collimating binoculars. At a first glance, it is excellent.

If you would like to receive the newsletter automatically each month, please complete and submit the [subscription form](#). You can get "between the newsletters" alerts, etc. via  and  .

## The Deep Sky

*([Hyperlinks](#) will take you to finder charts and more information about the object.)*

February skies are not markedly different from those of January with respect to what is observable in the evening. We are losing the “summer triangle” constellations (Cygnus, Aquila and Lyra) and the [Pleiades \(M45\)](#) culminates before the end of twilight, followed an hour later by the [Hyades](#), the [Great Orion Nebula \(M42\)](#) and the [trio of open clusters](#) in Auriga. [M35](#) in Gemini is close behind. If you take the northern tip of the Hyades “vee”, Oculus Boreas and pan half a 10x50 field of view towards Perseus, you will find an asterism called [Davis’s Dog](#). That spans about 3.5° of sky. The stars 51, 56 and 53 Tau form its head, and  $\kappa^1$ ,  $\kappa^2$ ,  $\upsilon$  and 71 form its tail.

*Open (also called 'Galactic') Clusters are loosely packed groups of stars that are gravitationally bound together; they may contain from a few dozen to a few thousand stars which recently formed in the galactic disk.*

While you are looking at [M35](#), also see if you can identify two smaller open clusters, [NGC 2158](#), which is half a degree to the SE, and the slightly more difficult [IC 2157](#), which is a degree to the ESE. [M44 \(Praesepe\)](#) and [M67](#), two fine open clusters in Cancer, are very well placed for evening observation. Lower in the southern sky are more well-placed open clusters [M46](#), [M47](#) and, near Sirius, [M41](#).

In the north rather indistinct open cluster [NGC1502](#), is brought to prominence by a favourite binocular asterism named [Kemble's Cascade](#). although the imagination of it being a ribbon waterfall plunging into a splash-pool ([NGC 1502](#)) needs some gravity-defying modification because, in late winter evenings, the waterfall flows upwards!

While you are observing in the region of the Orion Nebula, take the time to study [R Leporis \(Hind's Crimson Star\)](#), which is near maximum and is a candidate for the reddest star in the heavens. To the north of that, just to the SE of [Alnitak \( \$\zeta\$  Ori\)](#) is the multiple star  [\$\sigma\$  Orionis](#).

Although [The Great Andromeda Galaxy, M31](#) and [M33 \(The Pinwheel\)](#), are sinking lower into the evening twilight, they are still observable this month. [M31](#) is still a naked eye object in moderately dark skies. It is large and bright enough to be able to withstand quite a lot of light pollution

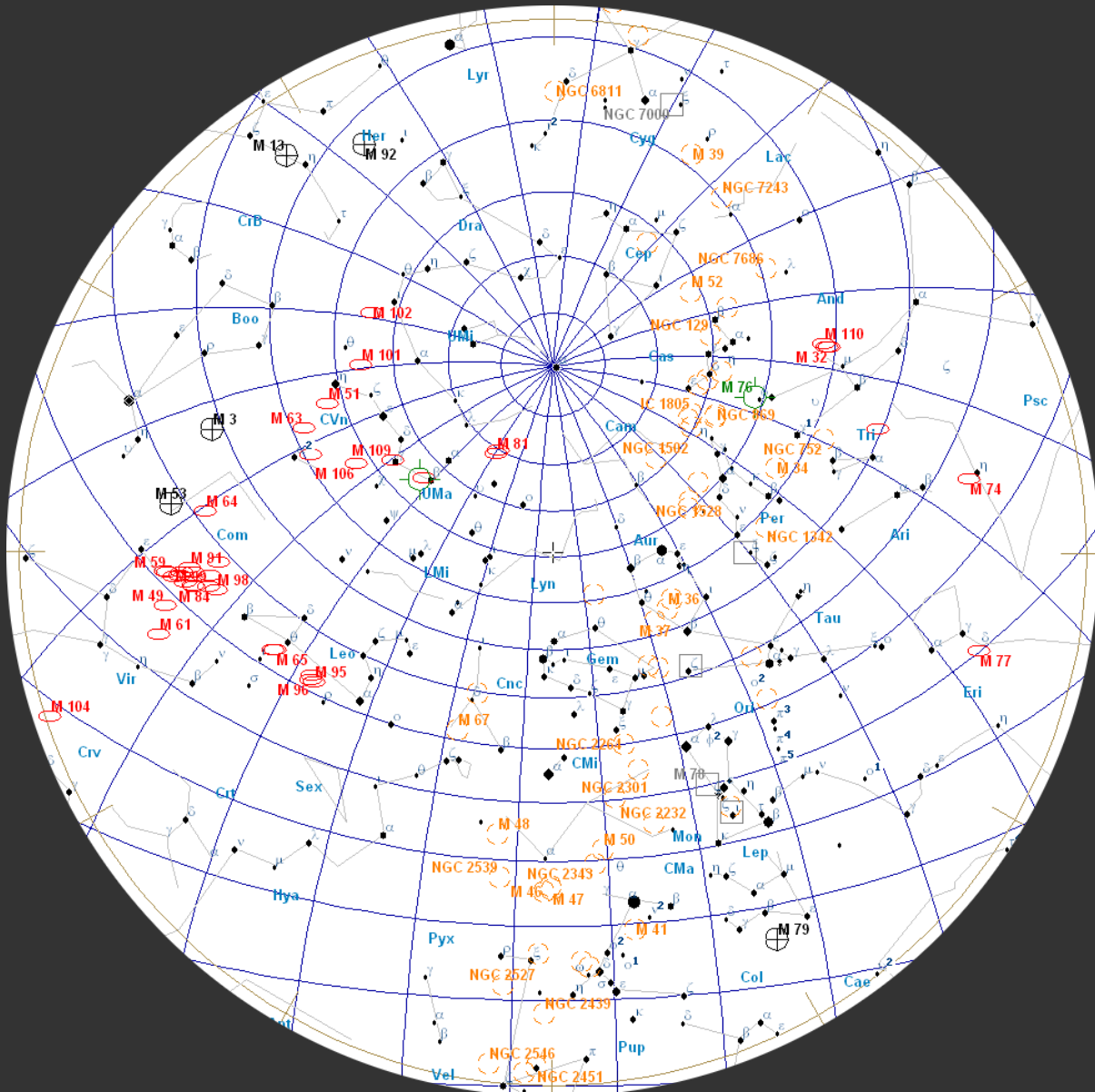
51°N

February 01, 23:00 UT

February 15, 22:00 UT

February 31, 21:00 UT

(chart is "clicky")



(making it available to urban observers). M33 has a low surface-brightness and benefits from lower magnification. This generally makes it easier to see in, say, a 10x50 binocular than in many "starter" telescopes. High in the northern sky, the Ursa Major pair of Bode's Nebula (M81) and the Cigar Galaxy (M82) are conveniently placed for most of the night. Later in the

evening, look out for the galaxy trios in Leo (M95/96/105 and M65/66/NGC3628) and Markarian's Chain in Coma Berenices rising in the west, although they are not at their best until after midnight. If you have a big binocular, also observe the edge-on NGC4565 (Berenice's Hair Clip), which is next to Melotte 111, the cluster that gives Coma its name.

*Galaxies are gravitationally bound "island universes" of hundreds of billions of stars at enormous distances. The light that we see from M31, for example, left that galaxy around the time our ancestors of the genus Homo were just evolving!*

Lastly, take this opportunity to appreciate *Herschel's Garnet Star,  $\mu$  Cep*, which is at a comfortable elevation early in the evening. William Herschel described it as *"a very fine deep garnet colour ... a most beautiful object, especially if we look for some time at a white star before we turn ... to it, such as Alpha Cephei, which is near at hand."* The wide field of medium-sized binoculars enables you to hold it in the same field as *Alderamin (a Cep)*, so you can appreciate Herschel's comparison.

**February Deep Sky Objects by Right Ascension**

Object	Con	Type	Mag	RA (hhmmss)	Dec (ddmmss)
M45 (the Pleiades)	Tau	oc	1.6	034729	240619
Kemble's Cascade	Cam	ast	9.0	035752	630711
Davis's Dog	Tau	ast	5.0	042109	214809
R Leporis (Hind's Crimson Star)	Lep	vs	8.2	045936	-144821
M38 (NGC 1912)	Aur	oc	6.4	052842	355117
M42 (NGC 1976, The Great Orion Nebula)	Ori	en	4.0	053517	-052325
M36 (NGC 1960)	Aur	oc	6.0	053617	340826
$\sigma$ Orionis	Ori	ms	3.8	053845	-023553
M37 (NGC 2099)	Aur	oc	5.6	055218	323310
M35 (NGC 2168)	Gem	oc	5.1	060900	242100
M41 (NGC 2287)	CMa	oc	4.5	064559	-204515
M47 (NGC 2422)	Pup	oc	4.4	073634	-142846
M46 (NGC 2437)	Pup	oc	6.1	074146	-144836
M44 (NGC 2632, Praesepe, the Beehive Cluster)	Cnc	oc	3.1	083957	194020
M67 (NGC 2682)	Cnc	oc	6.9	085124	114900
M81 (NGC 3031)	UMa	gal	7.8	095533	690401
M82 (NGC 3034)	UMa	gal	9.2	095554	694059
M95 (NGC 3351)	Leo	gal	10.6	104357	114211
M96 (NGC 3368)	Leo	gal	10.1	104645	114912
M105 (NGC 3379)	Leo	gal	10.5	104749	123449
M65 (NGC 3623)	Leo	gal	10.1	111855	130526
M66 (NGC 3627)	Leo	gal	9.7	112015	125924
Melotte 111	Com	oc	1.8	122430	260122
NGC 4565 (Berenice's Hair Clip)	Com	gal	9.9	123620	255914
$\mu$ Cep (Herschel's Garnet Star)	Cep	vs	4.0	214330	584648

For interactive maps of Deep Sky Objects visible from 51°N, please visit:

[http://binocularsky.com/map\\_select.php](http://binocularsky.com/map_select.php)

### Double Stars

<b>Binocular Double Stars for February</b>			
<b>Star</b>	<b>Magnitudes</b>	<b>Spectral Types</b>	<b>Separation (arcsec)</b>
$\alpha$ Leo	1.4, 8.1	B8, G	176
7 Leo	6.3, 9.3	A0, F8	41
$\tau$ Leo	5.0, 7.4	K0, G5	89
$\delta$ Cep	4.1, 6.1	F5, A0	41
56 And	5.7, 5.9	K0, K2	128
$\Sigma$ 1 And	7.1, 7.3	G5, G5	47
14 Ari	5.0, 7.9	F0, F2	106
62 Eri	5.4, 8.9	B9, B8	67
$\tau$ Tau	4.3, 7.0	B5, A0	63
$\nu$ Gem	4.1, 8.0	B5, A0	113
$\zeta$ Gem	4.0, 7.6	G0, G	101
$\iota$ Cnc	4.0, 6.0	G5, A5	31
$\pi$ -1 Umi	6.6, 7.2	G5, G5	31

### Variable Stars

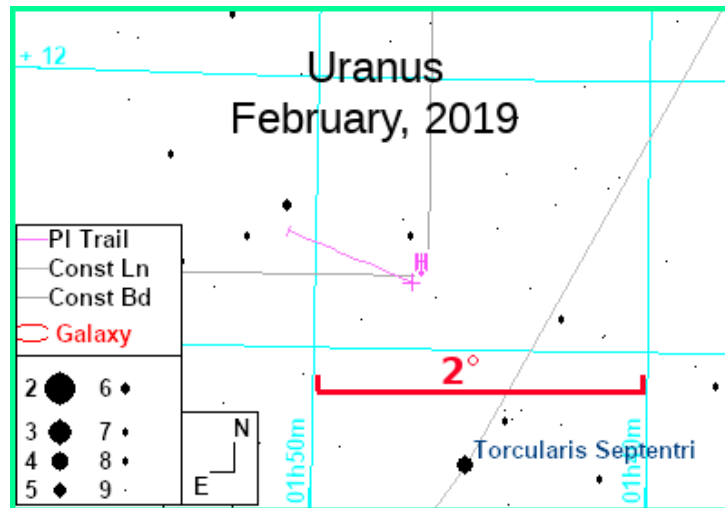
<b>Selection of binocular variables (mag &lt; +7.5)</b>			
<b>Star</b>	<b>Mag Range</b>	<b>Period</b>	<b>Type</b>
AA Cam	7.5-8.8	Irreg	Irregular
RX Lep	5.4-7.4	Irreg	Irregular
TW Peg	7.0-9.2	ca. 90d	Semi-regular
U Cep	6.8-9.2	2.5d (increasing)	Eclipsing binary
T Cep	6.0-10.3	388d	Mira
SS Cep	6.7-7.8	ca. 190d	Semi-regular
RZ Cas	6.2-7.7	1.195d	Eclipsing binary

<b>Mira-type stars near predicted maximum (mag &lt; +7.5)</b>		
<b>Star</b>	<b>Mag Range</b>	<b>Period (days)</b>
X Oph	5.9-8.6	338

NB: *X Oph* will be too low to observe satisfactorily at the beginning of the month.

## The Solar System

**Uranus** is available from the onset of twilight, and sets before midnight. It starts the month about 1.4° north of *o Psc*, and moves a degree eastward (prograde) during the month.



## Asteroid Occultations

There are no predicted asteroid occultations of stars mag +7.5 or brighter, observable from the UK, this month (but, for readers in Central Europe and France, there is an occultation of  $\mu$  Leo on the 5<sup>th</sup> – see [http://www.asteroidoccultation.com/2019\\_02/0205\\_34339\\_62620.htm](http://www.asteroidoccultation.com/2019_02/0205_34339_62620.htm) for details).

## The Moon

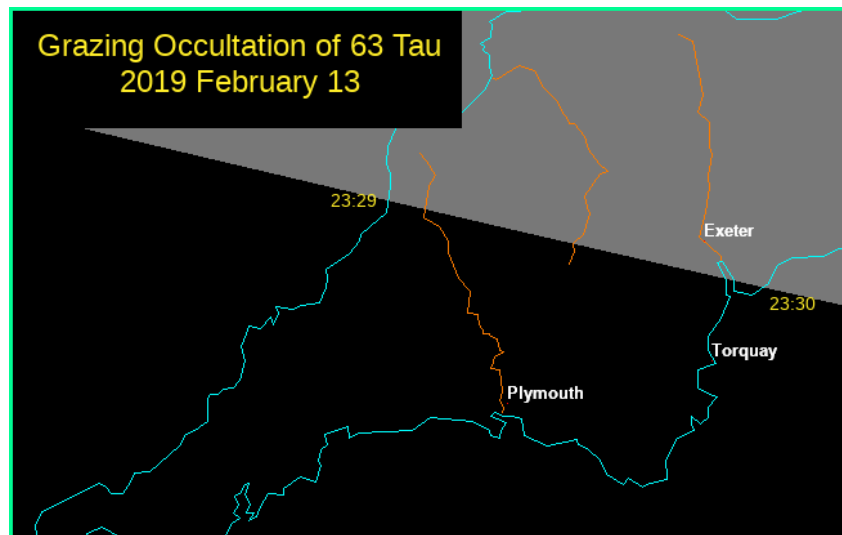
February 04	New Moon
February 12	First Quarter
February 19	Full Moon
February 26	Last Quarter

## Lunar Occultations

Data are for my location and may vary by several minutes for other UK locations. The types are **(D)**isappearance, **(R)**eappearance and **(Gr)**aze; they are all dark-limb events unless there is a **(B)**. The highlights are the graze of 63 Tau for those in Devon, and the very difficult emergence of a rising Saturn for those in the extreme southeast of the UK – but you'll need a very good eastern horizon, and co-operation from the weather, for that. For the rest of

us, there is the pre-dawn occultation of  $\delta$  Cnc on the 18<sup>th</sup>.

Date	Time	Phase	Star	Spectral Type	Magnitude	Cusp Angle	Position Angle
Feb 02	06:30:28	R	Saturn		0.6	48N	307
Feb 13	23:31:36	Gr	63 Tau	A1	5.6	1.0S	
Feb 13	23:31:54	D	HIP 20567	F6	7	90S	80
Feb 14	22:51:56	D	HIP 24906	A0	6.7	84N	79
Feb 14	23:35:11	D	HIP 24977	K0	6.2	21N	15
Feb 16	01:55:17	D	HIP 30857	K0	6.7	76S	104
Feb 18	00:24:06	D	HIP 41833	K0	6.5	63S	132
Feb 18	05:55:15	D	Del Cnc	K0	3.9	62S	134
Feb 18	19:31:43	D	HIP 46232	G9	6.3	84S	121
Feb 27	06:14:43	R	HIP 83567	B7	6.3	78S	263
Feb 28	05:33:51	R	HIP 87819	A1	6.9	88S	268



## Public Outreach & Talks

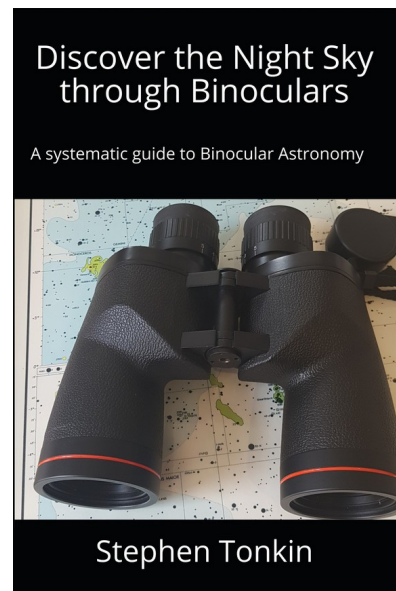
This month I will be assisting with the observing at the following public event; please do come and introduce yourself if you are at any of them.

22<sup>nd</sup> - 24<sup>th</sup>: [Cranborne Chase AONB StarFest](#)

**Public Astronomy Event**

The **Binocular Sky Newsletter** will always be free to anyone who wants it, but if you would like to support it, there are a number of options:

- Purchase one of my books, **Binocular Astronomy** or **Discover the Night Sky through Binoculars**. Click on the cover image for more information.
- Make a purchase via the affiliate links in the [Binocular Sky shopfront](#)
- Make a small [PayPal](#) donation to [newsletter@binocularsky.com](mailto:newsletter@binocularsky.com)



Wishing you Clear Dark Skies,

**Steve Tonkin**

for

**The Binocular Sky**

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#### **Acknowledgements:**

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Variable star data based on *The International Variable Star Index*  
Occultation data derived with Dave Herald's *Occult*

**Disclosure:** Links to *Amazon* or *First Light Optics* may be affiliate links

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