



# The Binocular Sky

No. 99  
February 2020

# 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, with binoculars or small telescopes, in the UK, but it should have some utility for observers anywhere north of Latitude 30°S and possibly even further south.



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

This month, in addition to the usual Deep Sky content, I concentrate on the useful technique of **tapping** (page 3).

If you are interested in lunar occultations, there is a **graze** for the deep south of the UK on the evening of the 4<sup>th</sup> (page 9). For those further north, we have **Vesta** occulting an 6<sup>th</sup> mag star on the 11<sup>th</sup>.

The ice-giant **Uranus** is still available in the evening.

The "extra star" in Cygnus, **χ Cyg**, is still brightening (page 6). You'll need to nab it in the evening.

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.

Return to [M35](#), and use averted vision to 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!

*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 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](#). At the time of writing, [Betelgeuse \( \$\alpha\$  Ori\)](#) is continuing to dim; on the evening of Jan 29 it was only very slightly brighter than [Bellatrix \( \$\gamma\$  Ori\)](#) at about mag +1.5. This faintness makes its colour less distinct to the naked eye, but binoculars restore it – it



and bright enough to be able to withstand quite a lot of light pollution (making it available to urban observers), and is at a comfortable elevation for straight-through binoculars. We can use it to experiment with another observing technique: **tapping**. You'll need a reasonably good sky and mounted binoculars for this. Start by putting M31 in the centre of the field of view. Once it is steady, direct your gaze left or right so that you are using peripheral averted vision on the galaxy. Relax (this really helps!) and give the binocular a sharp tap on the side, not strong enough to shift it off target, but enough to make it "shiver" for a second or so. Notice how the vibration makes the extent of the galaxy increase, with the faint streak of the spiral arms becoming more visible. This happens because we have evolved to detect motion, especially that at the periphery of our vision, where we also have the help of the averted vision effect that I discussed in [last month's newsletter](#).

*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 technology consisted of rocks, sticks and bones.*

Once we are aware of the extent of the galaxy, it becomes easier to see it without tapping. It should also enable you to detect which side of the galaxy has the more abrupt light cut-off: this is due to the dust lane on the nearer side. On the farther side, it merges into the background more gradually.

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. If you find it difficult to see, make sure you have the correct region of sky, mid-way between *Metallah (a Tri)* and *82 Psc*, approximately central in your field of view, and try the tapping technique – it may well make it visible, if only as a very slightly brighter patch of sky. Once you have found the best part of the field of view is best to direct your gaze at, you will be able to use this technique to bring some previously-invisible objects to visibility.

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.

Lastly, please do 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.

For interactive maps of Deep Sky Objects visible from 51°N, you can visit: [http://binocularsky.com/map\\_select.php](http://binocularsky.com/map_select.php)

### 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

## Variable Stars

<b>Mira-type stars near predicted maximum (mag &lt; +7.5)</b>		
<b>Star</b>	<b>Mag Range</b>	<b>Period (days)</b>
R Aql	5.5-12	270.5
χ Cyg	3.3-10.2	408.5

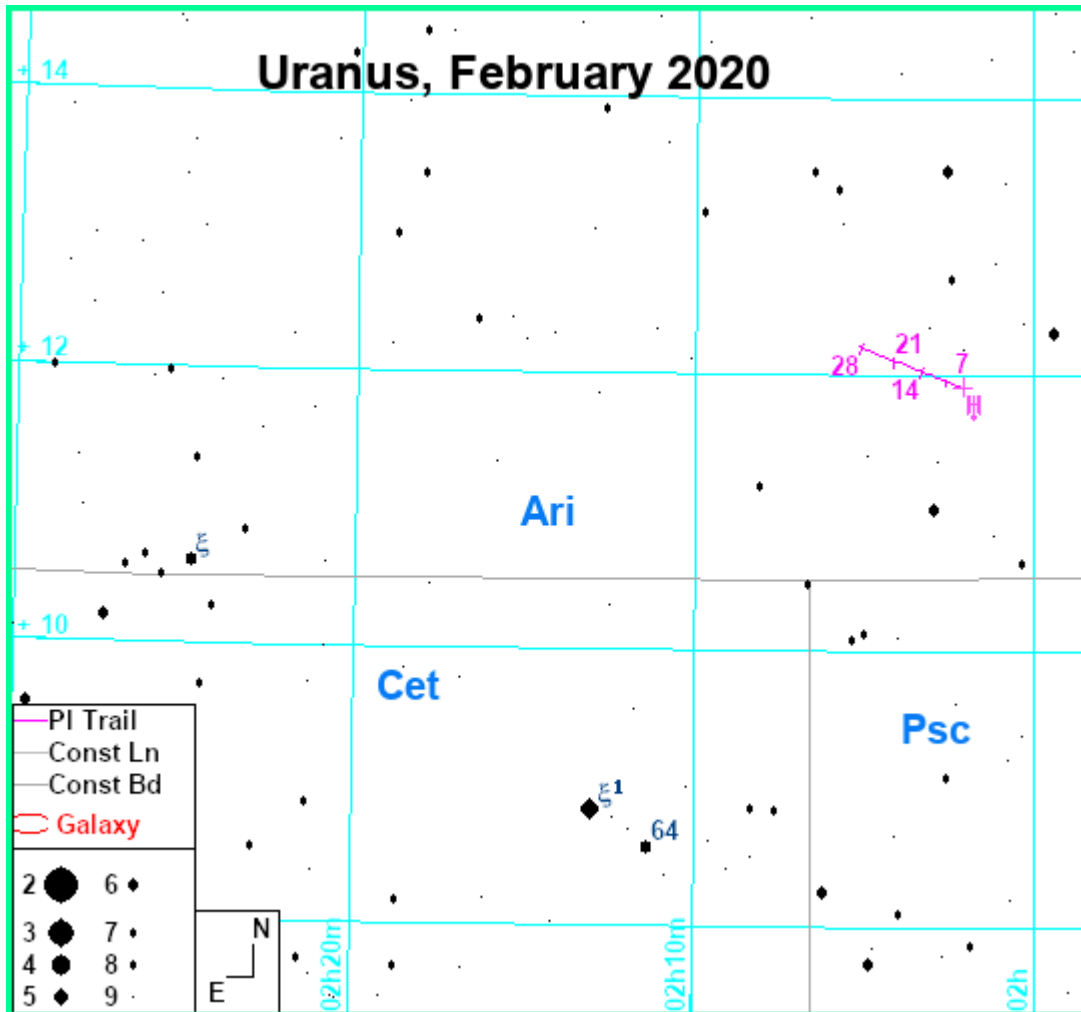
<b>Selection of binocular variables (mag &lt; +7.5)</b>			
<b>Star</b>	<b>Mag Range</b>	<b>Period</b>	<b>Type</b>
AA Cam	7.5-8.8	Irreg	Irregular
RX Lep	5.4-7.4	Irreg	Irregular
TW Peg	7.0-9.2	ca. 90d	Semi-regular
U Cep	6.8-9.2	2.5d (increasing)	Eclipsing binary
T Cep	6.0-10.3	388d	Mira
SS Cep	6.7-7.8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

## Double Stars

<b>Binocular Double Stars for February</b>			
<b>Star</b>	<b>Magnitudes</b>	<b>Spectral Types</b>	<b>Separation (arcsec)</b>
α Leo	1.4, 8.1	B8, G	176
7 Leo	6.3, 9.3	A0, F8	41
τ Leo	5.0, 7.4	K0, G5	89
δ Cep	4.1, 6.1	F5, A0	41
56 And	5.7, 5.9	K0, K2	128
Σ I 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
τ Tau	4.3, 7.0	B5, A0	63
ν Gem	4.1, 8.0	B5, A0	113
ζ Gem	4.0, 7.6	G0, G	101
ι Cnc	4.0, 6.0	G5, A5	31
π-1 Umi	6.6, 7.2	G5, G5	31

## The Solar System

(Clicking on the chart below will take you to a higher resolution one)



The ice giants, **Uranus** and **Neptune**, set in the evening but Neptune is becoming extremely difficult and is getting lost in evening twilight.

At the beginning of February, Uranus transits at about 17:30 UT. It starts the month  $4^\circ$  NW of  $\xi^1$  Cet and is shining at mag. +5.8, nominally naked-eye brightness, so easy in even small binoculars, even some of the toy ones with 20mm plastic singlet lenses!

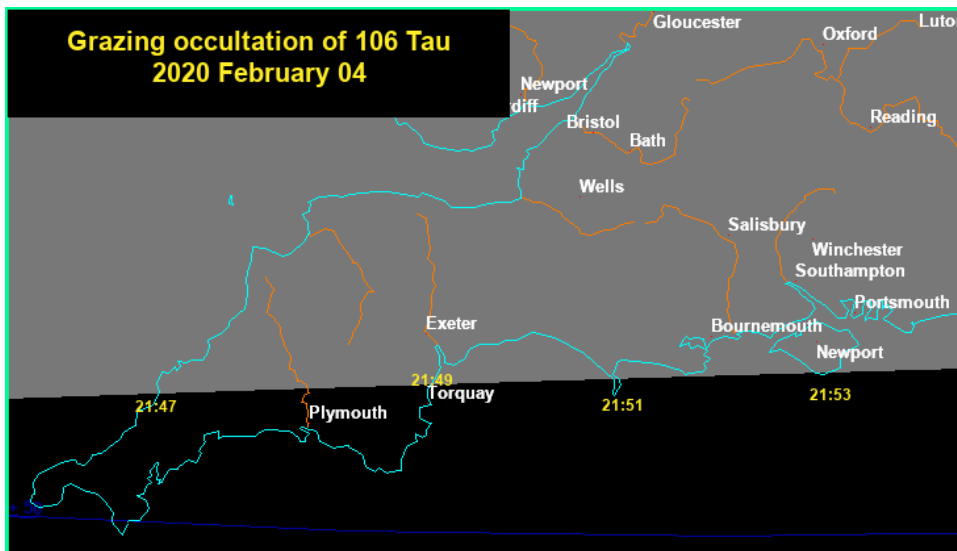
## The Moon

February 02	First Quarter
February 09	Full Moon
February 15	Last Quarter
February 23	New Moon

## Lunar Occultations

Data are for my location and may vary by several minutes for other UK locations. The phases are **(D)**isappearance, **(R)**eappearance and **(Gr)**aze; they are dark-limb events unless there is a **(B)**. The highlight is the graze of *106 Tau* on the 4<sup>th</sup> (chart on p10).

Lunar Occultations 2020 50.9°N 1.8°W								
Date	Time (UT)	Phase	Star	Spectral Type	Magnitude	Position Angle	Cusp Angle	Distance to Graze Track
Feb 01	17:07:06	D	HIP 11603	K2	6.2	163	47N	
Feb 03	17:32:37	D	HIP 26038	K5	6.1	137	87S	
Feb 04	21:44:36	D	106 Tau	A5	5.3	217	16S	
Feb 04	21:52:45	Gr	106 Tau	A5	5.3		3.9S	40km in Az 179°
Feb 05	19:21:41	D	HIP 28561	B8	6.4	134	59N	
Feb 05	23:58:43	D	HIP 29196	K4	5.9	243	23S	
Feb 06	02:13:39	D	Eta Gem	M3	3.5	272	68N	
Feb 06	03:07:18	R(B)	Eta Gem	M3	3.5	282	-64N	
Feb 06	21:07:42	D	44 Gem	B8	6.0	152	60S	
Feb 07	21:15:46	D	Mu Cnc	G2	5.3	133	76S	
Feb 14	05:21:07	R	94 Vir	A0	6.5	192	63S	
Feb 29	20:45:49	D	HIP 14439	K3	5.6	256	76N	





## Asteroid Occultation

11<sup>th</sup> : HIP 14439 (mag. +5.7) occulted by Asteroid 4 (Vesta) for northern UK: [Details](#).

## Public Outreach & Talks

This month I will be at the following events. I do like to meet the “real people” behind the names on a subscription list, so please do come and introduce yourself if you are there.

19<sup>th</sup>: [Cranborne Chase AONB IDR](#)                      **Public Stargazing** (Assisting)

28<sup>th</sup>: [Avon Heath Country Park](#)                      **Public Stargazing** (Leading)

I regularly give talks, on *Binocular Astronomy* and numerous other astronomical topics, to astronomical (and other) groups (see [here](#)). For astronomy societies (and some other groups), I do this on an “expenses only” basis (although I have never knowingly refused a bottle of decent Rioja or a donation made on my behalf to the [BAA Commission for Dark Skies](#)).

If you would like a talk for your society/group,

[Click here for current talks](#).

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](#)**.
- 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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