



The Binocular Sky

April
2016

Newsletter

Introduction

Welcome to the **Binocular Sky** Newsletter for April 2016. Highlights this month include an [unexpectedly bright comet \(p4\)](#) and a [lunar occultation of Venus](#), which will be a graze for some lucky observers (p5/6). There is also a [mini-review of my new favourite 70mm binocular, the Lunt Magnesium 16x70 \(p7/8\)](#)

The intention of this monthly offering is to highlight some of the binocular targets for the coming month. It is primarily targeted at observers in the UK, but should have some usefulness for observers anywhere north of Latitude 30°N and possibly even further south.

Solar-system charts are usually clickable and will take you to a larger chart that may be more useful as well as being downloadable to your computer or mobile device.

If you would like me to email this newsletter to you 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.)

The [Pleiades \(M45\)](#) and the [Great Orion Nebula \(M42\)](#) culminate before Civil Twilight ends, but are still fine sights in binoculars early in the month, as are the [trio of open clusters in Auriga](#) and [M35 in Gemini](#). 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. Also high are [M44 \(Praesepe\)](#) and [M67](#), two fine open clusters in Cancer. Lower in the southern sky are more open clusters [M46 & M47](#) and, near Sirius, [M41](#).

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.

In April, we are able to look out of the plane of the Galaxy during the evening. This makes more globular clusters and galaxies available for observation. Look out for the two galaxy trios in Leo ([M95/96/105](#) and [M65/66/NGC3628](#)) and [Markarian's Chain](#) in Coma Berenices. 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. You should find [M81 \(Bode's Nebula\)](#) and [M82 \(The Cigar Galaxy\)](#) easy in a 50mm binocular. These can be used as a good demonstration of averted vision: if you have them both in the same field of view, you may see that the core of M81 becomes more apparent if you look at M82. If you have good skies, try [M51 \(The Whirlpool\)](#), [M94](#) and [M63 \(The Sunflower\)](#). M63 really needs a 70mm or larger binocular in anything other than pristine skies.

The globular cluster [M3](#) is a good one to start with during an April evening's observing. Later in the evening, the two Hercules globulars, [M92](#) and the very impressive, and very easy to find, [M13](#) are at a better altitude for observation.

Globular clusters are tightly-bound, and hence approximately spherical, clusters of tens, or even hundreds, of thousands of stars that orbit in a halo around almost all large galaxies that have been observed. They are important for two reasons: Firstly, they contain some of the oldest stars in the galaxy, so studying them helps us understand the evolution of stars. Secondly, they are useful as "standard candles" in establishing a distance scale of the Universe, based on the assumption that the brightest stars in any globular cluster will be approximately the same brightness and that the brightest globulars in a galaxy will be approximately the same brightness.

If you have binoculars of 70mm aperture or (preferably) greater, see if you can find and identify *The Ghost of Jupiter (NGC 3242)*, a planetary nebula in Hydra. It is a difficult object because it is low in the sky, even from southern Britain.

Planetary Nebulae are short-lived (a few tens of thousands of years) masses of gas and plasma that result from the death of some stars. They have nothing to do with planets, but get their name from the fact that, in early telescopes, they had the appearance of giant planets.

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

http://binocularsky.com/map_select.php

Variable Stars

Mira-type stars near predicted maximum (mag < +7.5)		
Star	Mag Range	Period (days)
U Ori	6.3 – 12.0	368
Mira	2.0 – 10.1	332

NB: Mira (o Cet) sets during civil twilight at the beginning of April

Selection of binocular variables (mag < +8.5)			
Star	Mag Range	Period	Type
RU Cam	8.1-9.8	22.06d	Cepheid
AA Cam	7.5-8.8	Irreg	Irregular
Y Lyn	7.2-7.8	110d	Semi-regular
U Cep	6.8-9.2	2.5d (increasing)	Eclipsing binary
EK Cep	8.2-9.5	4.3d	Eclipsing binary
X Cnc	5.6-7.6	165d	Semi-regular
R Cnc	7.1-8.6	90d	Semi-regular
TX UMa	7.0-8.8	3.06d	Eclipsing binary
R Vir	6.9-11.5	145d	Mira
ZZ Boo	6.7-7.4	4.99d	Eclipsing binary

Double Stars

Binocular Double Stars for April			
Star	Magnitudes	Spectral Types	Separation (arcsec)
a 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
ι Cnc	4.0, 6.0	G5, A5	31
ν Boo	5.0, 5.0	K5, A2	628
DN & 65 UMa	6.7, 7.0,	A3, B9	63
π-1 Umi	6.6, 7.2	G5, G5	31
ν Dra	4.9, 4.9	A5, A5	62
39 Dra	5.1, 7.9	A2, F8	89

The Solar System

Planets

The binocular planets, **Uranus** and **Neptune**, are not observable this month.

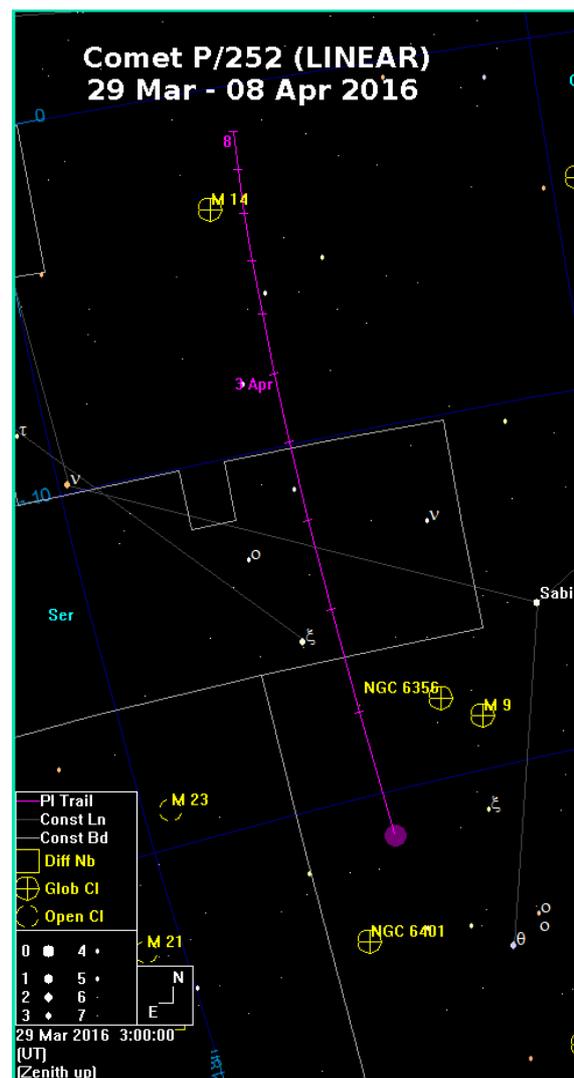
Comets

Comet P/252 (LINEAR)

brightened to about 100 times what was expected and is a binocular object at the beginning of the month. It is fading rapidly, but should be visible for the first week or so of April. Positions on the chart (clicky!) are for midnight.

Meteor Showers

The Moon is unfavourable for the April Lyrids.



Asteroid Occultations

OccultWatcher predicts the following occultations of stars brighter than mag +7.5 with tracks falling on the UK (Path and Details from UKOCL). The times give the approximate start of occultation landfall on the British Isles.

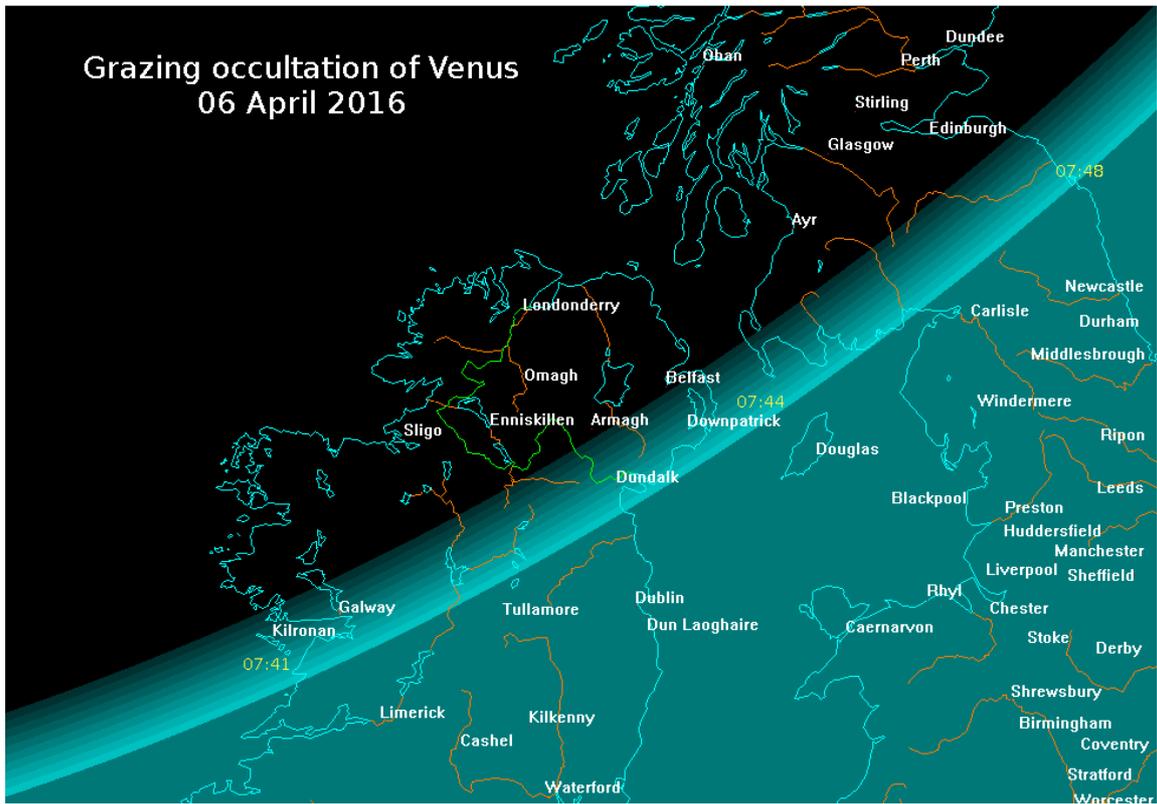
01 Apr 20:18UT Asteroid 4830 (Thomascooley) occults mag +6.3 1UT 568-107390 (Lincolnshire to Ulster): [Path Details](#)

30 Apr 21:35UT Asteroid 8010 (Bohnhardt) occults mag +6.8 1UT 541-114437 (Channel, SW England): [Path Details](#)

Lunar Occultations

There are several occultations of stars brighter than mag +7.5 visible from the UK this month. Times and Position Angles are for my location (approx: 50.9N, 1.8W) and will vary by up to 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 highlight is the occultation of *Venus* (graze in the N of the UK) on the 6th. Although this is a daytime event, it should be observable if the sky is clear.

Lunar Occultations, Apr 2016, 50.9°N, 1.8°W							
Date	Time (UT)	Phase	Star	Spectrum	Magnitude	Cusp Angle	Position Angle
Apr 06	07:28:27	D (B)	Venus		-3.8	34N	5
Apr 06	07:52:09	Gr	Venus		-3.8	8.5N	
Apr 06	07:59:03	R	Venus		-3.8	18N	312
Apr 10	20:03:04	D	θ1 Tau	G7	3.8	82S	95
Apr 10	20:08:07	D	θ2 Tau	A7	3.4	61S	115
Apr 10	20:19:46	D	HIP 20916	F7	6.7	57N	54
Apr 10	20:59:59	D	HIP 21029	A6	4.8	54N	51
Apr 10	21:02:12	D	HIP 21053	F5	6.5	66N	62
Apr 10	21:32:35	D	85 Tau	F4	6	43S	134
Apr 11	19:55:45	D	117 Tau	M1	5.8	53S	127
Apr 12	23:00:36	Gr	20 Gem	F6	6.3	2.2N	
Apr 18	20:11:18	D	HIP 56388	K5	6.5	65N	88
Apr 21	00:06:47	D	θ Vir	A1	4.4	48N	77



The Moon

Apr 07	New Moon
Apr 14	First Quarter
Apr 22	Full Moon
Apr 30	Last Quarter

Equipment Mini-Review

Lunt Magnesium 16x70

Manufacturer's Specification

Weight (g)	1925
Field of View (°)	4.1
Eye Relief (mm)	20
IPD (mm)	56-74
Waterproof	Yes (IPX7)
Prism Type	Porro
UK Guarantee	5 yrs
Origin	China
Body Material	Magnesium Alloy
Armour Type	Thin synthetic "leatherette"
Nitrogen Gas Filled	Yes
Prism Material	BaK4
Prism Coating	Multi-coated
Lens Coating	Fully multi-coated with protective overcoat
Eyecup Type	Fold down



This is a marvellous binocular! It oozes quality, from the superb coatings (see images below) to the smoothness of the hinge and eyepiece focusers to the balance.



It is extremely sharp over most of the field, although there is a little field curvature at the edge. I could split *Delta Cephei* (40 arcsec separation, magnitudes +4.1 and +6.1) to about 90% out from the centre of the field. I could detect very little vignetting towards the edge. Control of false colour is very good on axis, but becomes noticeable on bright objects (e.g. Venus or the lunar limb) once they are off-axis, although it is still well-controlled and not overly obtrusive. I did not notice it at all on first magnitude stars. It is quite sensitive to eye positioning.

The colour rendition is exceptionally good. *Mu Cephei* appeared exactly as William Herschel described it: "...of a very fine deep garnet colour...", so very different from its neighbours, the orange *Zeta*, intensely blue *Lambda*, and yellow *Delta*. The contrast is also excellent. The *Andromeda Galaxy* was bright and showed shape and very good differentiation of the core; I could easily distinguish a sharper cut-off in brightness from the dust lane at the nearer edge. The *Orion Nebula* looked clear and detailed; the more I looked, the more fine detail became apparent. I could easily distinguish two stars of the Trapezium, and three were sometimes fleetingly visible when seeing settled momentarily.

It is well balanced and a delight to use on a monopod with a joystick head. It has rapidly become my "grab-and-go" weapon of choice.

You can read the [full review here](#).

Thanks to [The Binocular Shop](#), who supplied the new binoculars.

Next month's review will be the *Opticron WP Observation 16x80*.

Public Outreach & Talks

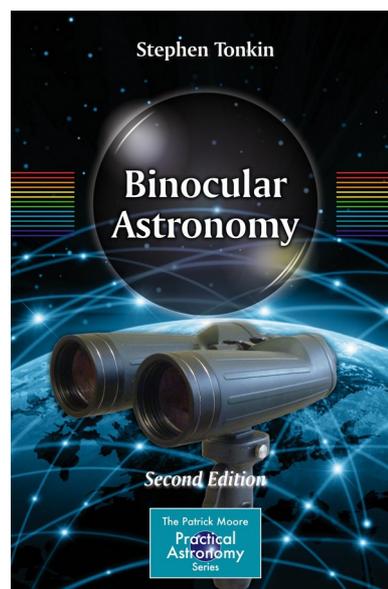
During April I will be giving two talks, where I would be delighted to meet any readers of this newsletter who attend:

7th: *Binocular Astronomy*, 8:00pm at [East Sussex Astronomical Society](#)

14th: *Ten Ways the Universe Tries to Kill You*, 7:30pm at [Starquest Astronomy Club](#)

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 my book, [Binocular Astronomy](#):
Click on the 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



Wishing you Clear Dark Skies,

Steve Tonkin

for

[The Binocular Sky](#)

Acknowledgments:

The charts in this newsletter were prepared with Guide v9.0 from <http://projectpluto.com>

Variable star data based on David Levy's [Observing Variable Stars](#)

Lunar occultation data derived with Dave Herald's [Occult](#)

Asteroid occultation data derived from Hristo Pavlov's [OccultWatcher](#)

Disclosure: Links to *Amazon* or *The Binocular Shop* may be affiliate links

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