Introduction

Welcome to the **Binocular Sky** Newsletter for March 2016.

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, as do 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.

The rather indistinct open cluster, NGC1502, is brought to prominence by an asterism, that is named Kemble's Cascade, in honour of Fr. Lucian Kemble, a Canadian amateur astronomer and Franciscan friar, who discovered it with a 7x35 binocular. He described as "*a beautiful cascade of faint stars tumbling from the northwest down to the open cluster NGC 1502*." It is one of the most pleasing objects in small and medium binoculars.

One of the best objects in small binoculars is Melotte 111, the cluster that gives *Coma Berenices* its name. In mythology, it is the hair of Queen Berenice. In early March it is suitably placed from about midnight.

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.

If you are up around midnight (or later) it is worth looking out for the 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. A galaxy in this region that is often ignored, owing to the lack of nearby bright stars, is NGC 3521, which is bright enough to be sometimes visible with averted vision in a 10x50, although I suggest a minimum of 70mm for ease of observation. It is considerably larger than any of the M95/96/105 trio and is as bright as M96.

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 nebulous 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)**
R And	6.9-14.3	409
U Ori	6.3-12.0	368

Selection of binocular variables (mag < +7.5)			
Star	**Mag Range**	**Period**	**Type**
AA Cam	7.5-8.8	Irreg	Irregular
RX Lep	5.4-7.4	Irreg	Irregular
U Cep	6.8-9.2	2.5d (increasing)	Eclipsing binary
EK Cep	8.2-9.5	4.3d	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

Binocular Double Stars for March			
Star	**Magnitudes**	**Spectral Types**	**Separation (arcsec)**
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
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
65 Uma	6.7, 7.0	A3, B9	63
α Cvn	2.9, 5.5	A0, F0	17.5
π-1 Umi	6.6, 7.2	G5, G5	31

The Solar System

Planets

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

Comets

Comet 2013 US10 (Catalina) is now a difficult magnitude +8.5 circumpolar object in Perseus and is fading rapidly.

Meteor Showers

There are no major meteor showers this month.

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 start of occultation landfall on the British Isles.

02 Mar 22:17UT Asteroid 195823 occults mag +7.2 1UT 480-148084 (East Anglia to SW Scotland): Path Details

02 Mar 23:15UT Asteroid 84200 (Robertmoore) occults mag +7.5 1UT 585-152526 (SW England, SW Wales, Eire): Path Details

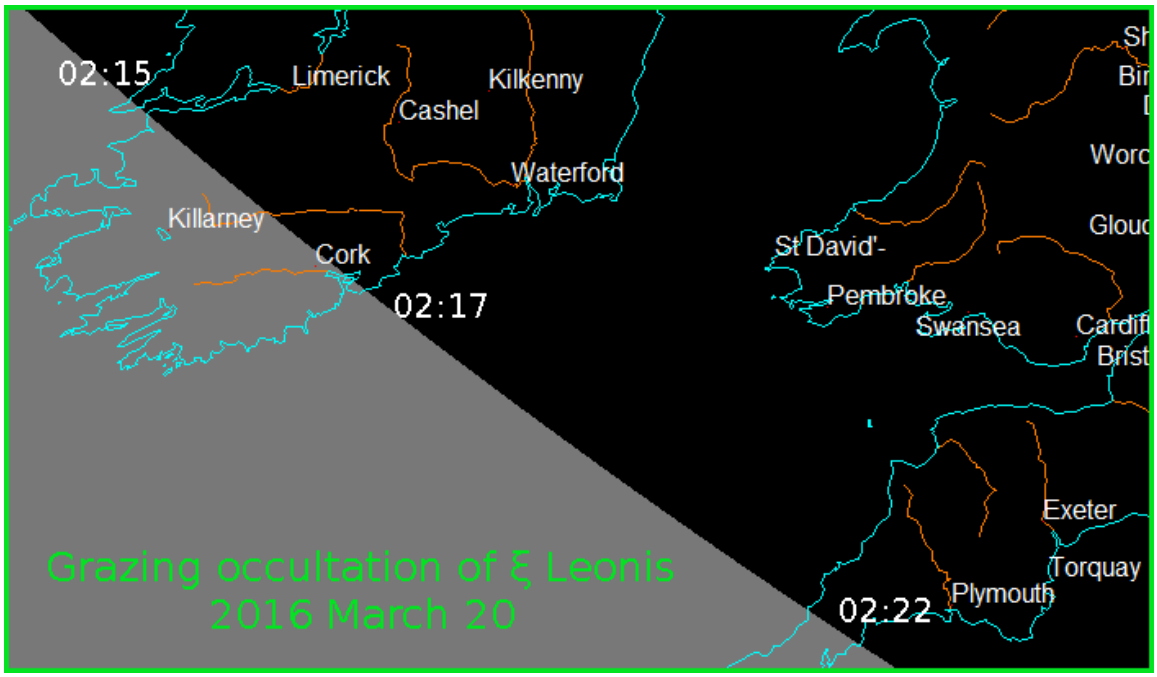
08 Mar 22:57UT Asteroid 78389 occults mag +6.2 1UT 413-114805 (SW England): Path Details

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**)raze; they are all dark-limb events unless there is a **(B)**. The highlight is the graze of ξ *Leo* on the 20th.

Lunar Occultations, Mar 2016, 50.9°N, 1.8°W

Date	Time	Phase	Star	Spectrum	Magnitude	Cusp Angle	Position Angle
Mar 15	20:06:48	D	130 Tau	F0	5.5	59N	57
Mar 16	19:04:47	D	26 Gem	A2	5.2	62N	65
Mar 20	02:25:59	Gr	ξ Leo	K0	5	4.8N	
Mar 26	04:13:39	R	κ Vir	K3	4.2	54N	320
Mar 28	01:28:02	R	eta Lib	A6	5.4	74S	263
Mar 31	03:33:36	R	Y Sgr	F8	5.8	33N	324



The Moon

Mar 01 Last Quarter

Mar 09 New Moon

Mar 15 First Quarter

Mar 23 Full Moon

Mar 31 Last Quarter

Equipment Mini-Review

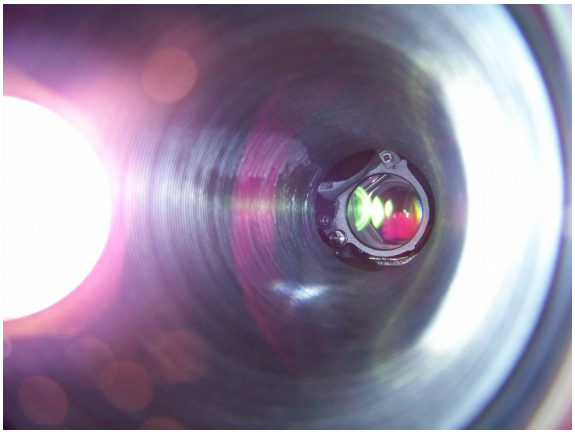
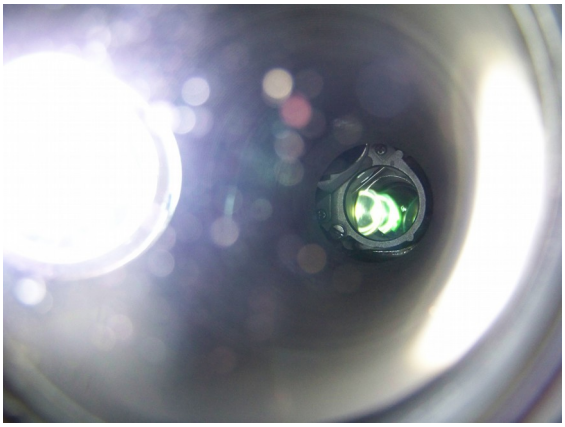
Comparison:

Old and New versions of the United Optics BA8 15x70 (*Helios Apollo, Oberwerk Ultra, Orion Resolux, etc.*)

In the decade or so since the BA8s hit the market, there has been speculation about changing specifications. In order to address this speculation, I compared a new one loaned by The Binocular Shop (S/No 141007) with my earlier (S/No 070187) version.

The short answer: some changes, mostly cosmetic, but not much.

The most obvious change is the coatings.

New	Old
	
	

The new coatings reflect more red/purple, whilst the old ones reflect more green. Although the older coatings seem less reflective, the reflection from the prisms is greater in the older binocular. This has a very small effect when observing bright objects; with stray light control (as manifested in ghost images and glare) being slightly slightly better in the newer binocular. Had I not been comparing the binoculars side by side, I probably wouldn't have noticed the difference, it is so small. I could not detect any difference at all in field flatness, image sharpness and chromatic aberration.

The eyepiece coatings seem to be very similar (newer binocular on the left again.) It is not visible in the image but, to the eye, the older binocular reflects more red/purple, the reverse of the objectives.

Also visible in the eyepiece image is a small cosmetic difference in the eye-lens surround. The eye-lens diameter is identical (24 mm), but the newer one is 0.5 mm less deeply set, not really sufficient to significantly improve the poor actual eye relief of these eyepieces, which is due mostly to the facility for screwing in a filter.

The objective lens caps in the new ones are slightly more pliable and tend to stay in better (this could be a function of age, but they are also of a darker, almost black, rubber and I experienced the old ones to be stiff since I had them, so I am pretty certain it is a characteristic of a different rubber).

The only other difference I could find was in the engraved rings in the objective lens surround. The old ones are 1mm wide, the new ones are 2mm wide. In this image, the new one is on the right.

In all, some very slight differences, but insufficient to make the new one a significantly better purchase.

Thanks to **The Binocular Shop**, who loaned the new binoculars.

Future reviews will include the *Lunt Magnesium 16x70* and the *Opticron WP Observation 16x80*.

Public Outreach & Talks

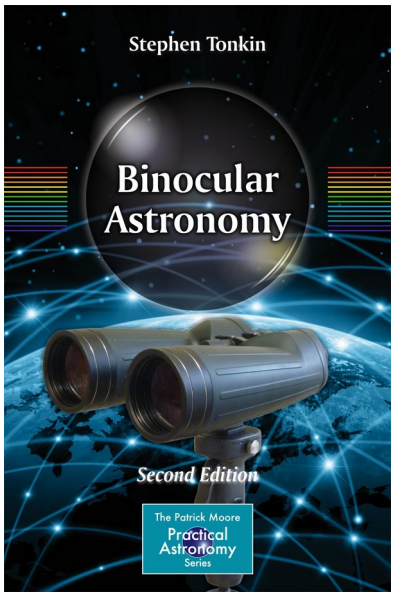
During March I will be giving two talks, where I would be delighted to meet any readers of this newsletter who attend:

18th: *Ten Ways the Universe Tries to Kill You*, 7:30pm at Beckington Astronomical Society

19th: *Two Eyes Are Better than One!*, 7:00pm at Reading Astronomical Society

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