



The Binocular Sky

January
2018

Newsletter

Introduction

Happy New Year, and welcome to first **Binocular Sky** Newsletter of 2018.

As regular readers will know, my intention is to highlight some of the binocular (and small telescope) targets for the coming month. This is primarily targeted at binocular observers in the UK, but should have some usefulness for observers anywhere north of Latitude 30°N and possibly even further south.

January nights are nearly as long as those of December in the northern hemisphere, so there is a lot of sky that is observable. If you've not seen Neptune before, this is your last chance in this apparition, as it sinks towards the evening twilight as we approach February. The archetype of the Mira-type variables, Mira (o Cet) itself is now brightening and should be an easy naked-eye object. The Moon now transits the Hyades during daylight, but there is one tricky graze for the south of England on the 27th.

There is a lot of speculation about **Comet Heinze** becoming an easy binocular object as it approaches perigee on the 4th, but we know how fickle comets can be...

We finish with a review of the binocular book I've been waiting for.

All the charts are "clicky" and will take you to a higher resolution chart than is possible in the newsletter.

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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 in the early evening, 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 enough to be comfortably observed 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 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.

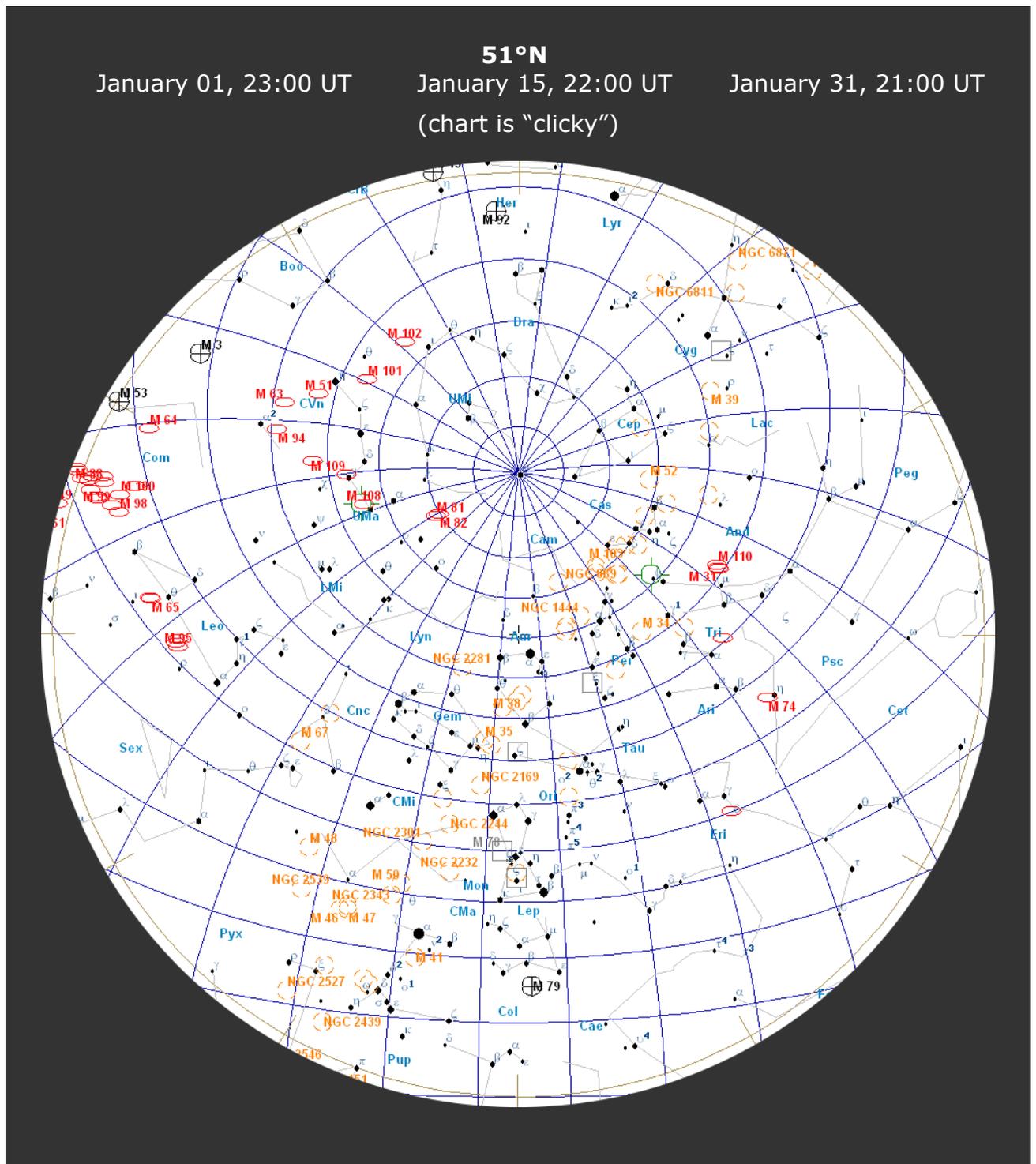
Open (also called 'Galactic') Clusters are loosely packed groups of stars that are gravitationally bound together; they may contain from a few dozen to a few thousand stars which recently formed in the galactic disk.

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 \(ζ Ori\)](#) is the multiple star [σ Orionis](#).

Two galaxies worth observing this month are [The Great Andromeda Galaxy, M31](#) and [M33 \(The Pinwheel\)](#), both of which are close to the plane of the Milky Way. [M31](#) in particular is very easily visible this month and is 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 (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. If you are up around midnight (or later) it is worth looking out for the galaxy trios in Leo ([M95/96/105](#)

*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!*

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.



January Deep Sky Objects by Right Ascension

Object	Con	Type	Mag	RA (hhmmss)	Dec (ddmmss)
M31: the Great Andromeda Galaxy	And	gal	4.3	004244	411608
M33 (NGC 598, the Pinwheel Galaxy)	Tri	gal	6.2	013351	303929
M45 (the Pleiades)	Tau	oc	1.6	034729	240619
Kemble's Cascade	Cam	ast	9.0	035752	630711
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
σ 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
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
Markarian's Chain	Vir	gal	9.9	122611	125647
NGC 4565 (Berenice's Hair Clip)	Com	gal	9.9	123620	255914

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

http://binocularsky.com/map_select.php

Variable Stars

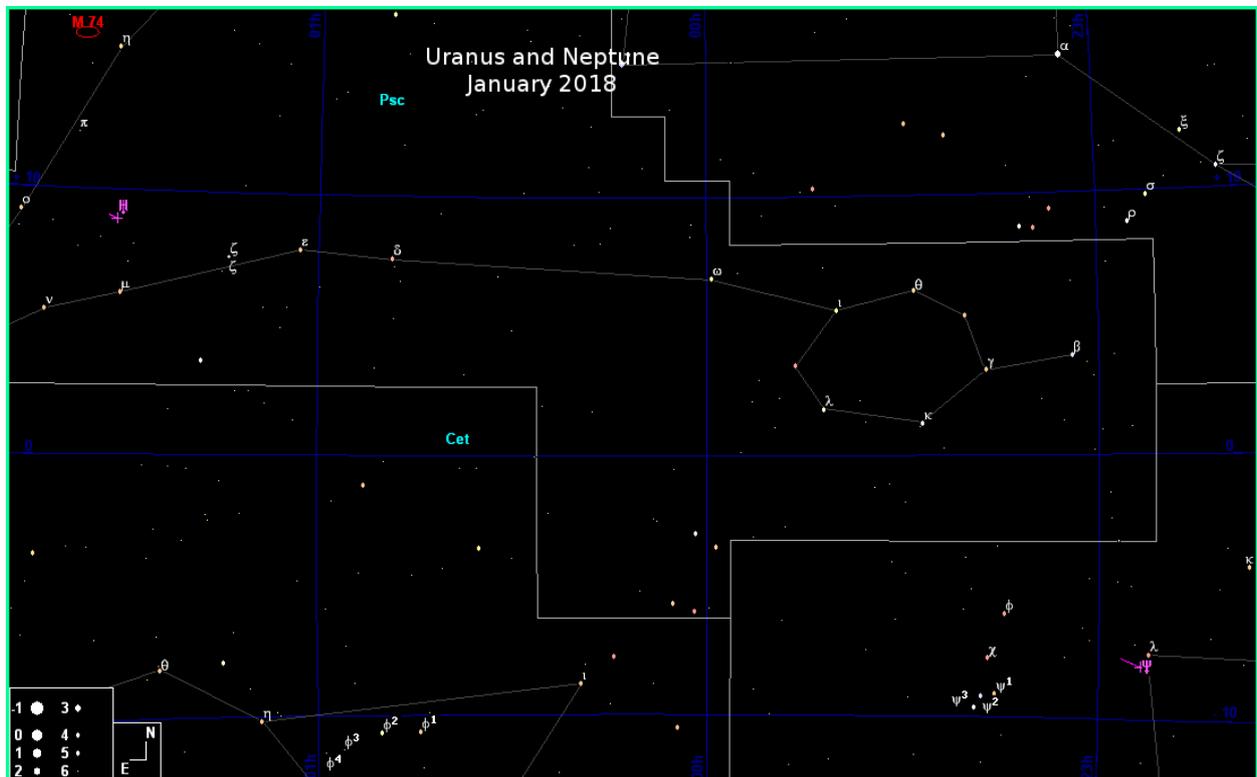
Selection of binocular variables (mag < +7.5)			
Star	Mag Range	Period	Type
AA Cam	7.5-8.8	Irreg	Irregular
RX Lep	5.4-7.4	Irreg	Irregular
U Cep	6.8-9.2	2.5d (increasing)	Eclipsing binary
SS Cep	6.7-7.8	ca. 190d	Semi-regular
RZ Cas	6.2-7.7	1.195d	Eclipsing binary

Mira-type stars near predicted maximum (mag < +7.5)		
Star	Mag Range	Period (days)
Mira (o Cet)	3.4-9.3	332

Double Stars

Binocular Double Stars for January			
Star	Magnitudes	Spectral Types	Separation (arcsec)
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
p-1 Umi	6.6, 7.2	G5, G5	31

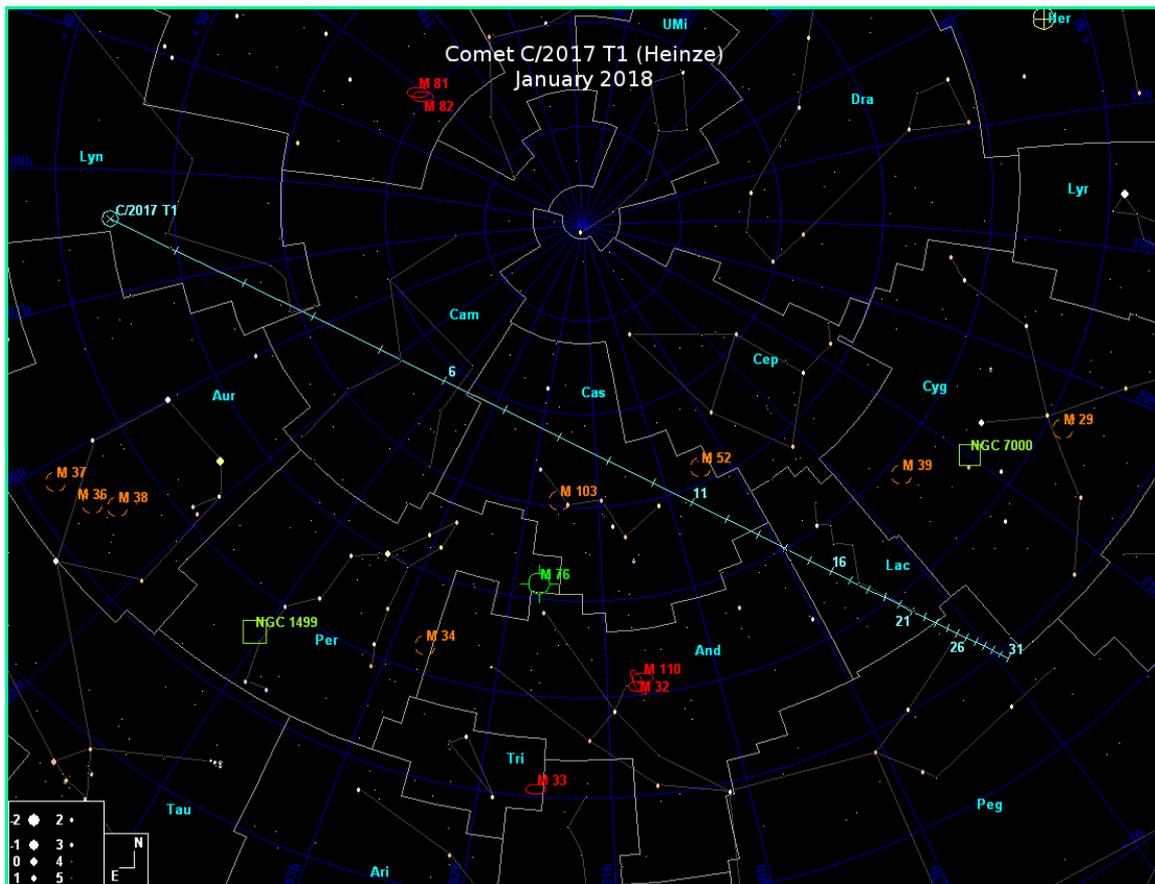
The Solar System (charts are 'clicky')



Neptune is still observable after dusk, but sinks lower and lower as the month progresses. λ Aqr,. It starts the month half a degree SSE of λ Aqr, remains a steady mag. +7.9; during the month it moves 50 arcminutes to the ENE (prograde).

Uranus is also available from the onset of twilight, but sets before 02:00 at the beginning of the month and before midnight by month end. It is much brighter than Neptune, at mag. +5.8. It starts the month just over 3.5° west of \circ Psc, its position changing by only 20 arcminutes ENE (prograde) during January.

Comets



There is a lot of speculation about Comet C/2017 T1 (Heinze) brightening to become an easy binocular object. If this does happen, it will most likely be near perigee, which is on the 4th, so the Moon will be a nuisance. However, the one thing we do know about comets, especially new ones such as this, it is that they are unpredictable.

Meteor Showers

The Moon is very unfavourable for the **Quadrantid** meteor shower on the 3rd/4th. Most meteors are due to debris left by comets, but the Quadrantid shower is one of two (the other is last month's Geminid shower,) that originates from an asteroid, in this case the Amor group asteroid **2003 EH1**. Although the Moon will wash out almost all of the meteors, the Quadrantids often produce a few bright fireballs, so you may be able to use binoculars to examine the persistence of any ionisation trails.

Asteroid Occultations

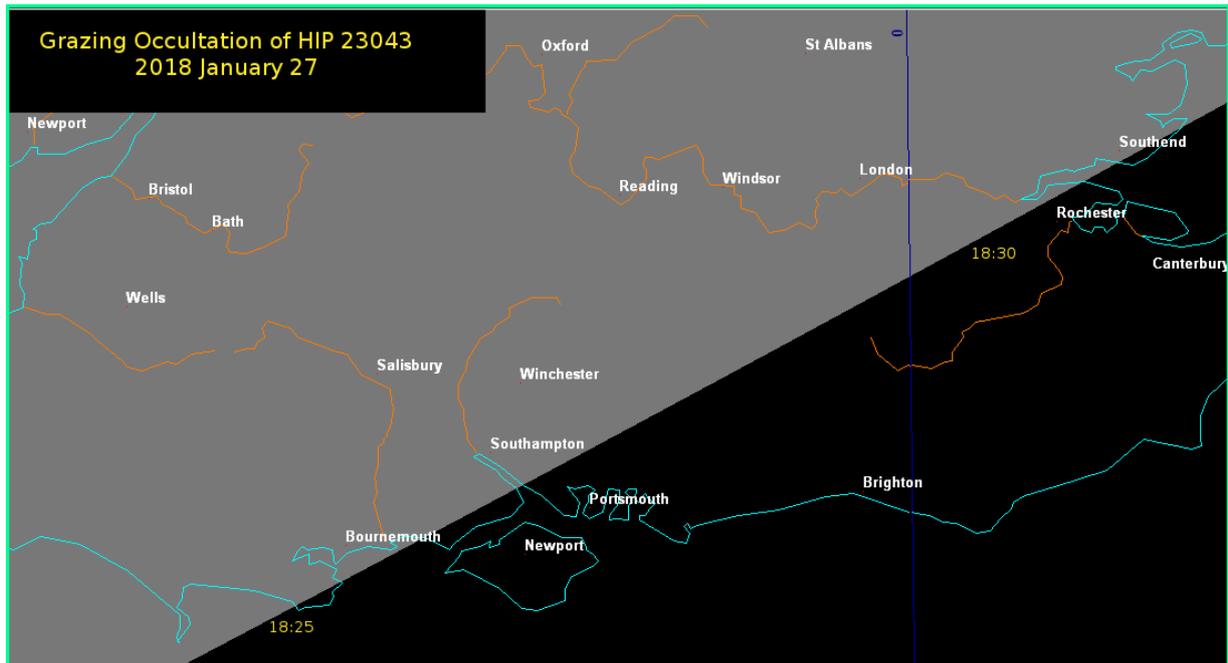
There are no predicted asteroid occultations of stars mag +7.5 or brighter this month

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**). There is a grazing occultation of a mag +5.5 star on the early evening of the 27th. It will be difficult, owing to the gibbous Moon.

Lunar Occultations, Jan 2018, 50.9°N, 1.8°W							
Date	Time	Phase	Star	Spectrum	Magnitude	Cusp Angle	Position Angle
01 Jan	02:38:34	D	HIP 26925	B9	6.7	80N	61
04 Jan	20:46:52	R	psi Leo	M2	5.4	60N	319
10 Jan	05:41:28	R	HIP 69773	K0	6.5	77N	303
10 Jan	06:10:34	R	HIP 69823	K0	6.6	89S	289
13 Jan	05:34:27	R	HIP 81695	A3	6.7	74N	298
20 Jan	18:55:53	D	HIP 112974	F8	6.7	41N	22
22 Jan	20:12:36	D	HIP 2496	A0	7.1	66S	93
25 Jan	17:32:39	D	HIP 14036	K6	5.9	84S	78
25 Jan	21:18:50	D	AQ Ari	M1	7.1	39N	22
25 Jan	23:24:16	D	HIP 14764	B8	6	67N	50
26 Jan	23:28:38	D	HIP 19261	F3	6	64S	103
27 Jan	18:21:26	D	HIP 23043	K1	5.5	13S	157
27 Jan	18:26:34	Gr	HIP 23043	K1	5.5	4.4S	
29 Jan	01:26:06	D	71 Ori	F6	5.2	56S	120

The graze track runs from Purbeck to Southend.



The Moon

January 02	Full Moon
January 08	Last Quarter
January 17	New Moon
January 24	First Quarter
January 31	Full Moon

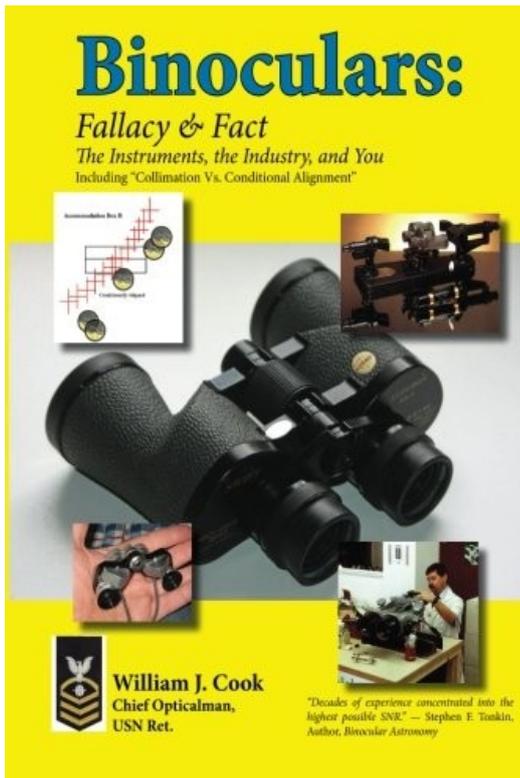
Public Outreach & Talks

During January I will be at the following event; please do come and say "Hello" if you attend:

13th: [Guildford AS](#)

Ten Ways the Universe Tries to Kill You
(talk)

Book Review:



Binoculars: Fallacy & Fact

by William J. Cook

ISBN 9781548932190

198pp

\$24.95/£19.17

I first 'met' Bill Cook a couple decades ago on an Amateur Telescope Making internet forum. Amongst the things that made an impression on me, in addition to his obvious profound knowledge of optics, were the clear way he gave no-nonsense advice and his knack for correcting misconceptions held by others in a forthright but kind manner.

This book has a history. I 'met' Bill again on the *Cloudy Nights* Binocular forum where, again, he tried to correct misconceptions. In the harsher atmosphere of the modern internet, those who share their hard-earned wisdom can be labelled "arrogant" and "condescending" for daring to have learned from their decades of experience. It has saddened me when I have seen these epithets aimed at Bill; they are simply not true. Over the years, he occasionally stated an intention to put what he has gleaned in a book. Several of us have encouraged him to do so: the fruits of this man's vast experience need to be preserved! After a few false starts, Bill eventually went down the route of self-publishing, but this is no "vanity" project: as I wrote to Bill after I'd seen a draft of his work, this is "decades of experience concentrated into the highest possible signal-to-noise ratio".

The book is divided into forty-seven mostly short chapters, arranged into three sections. The first, "*Misconceptions*" includes the bulk of them and justifiably so. As he writes, he sees many flawed notions that propagate like

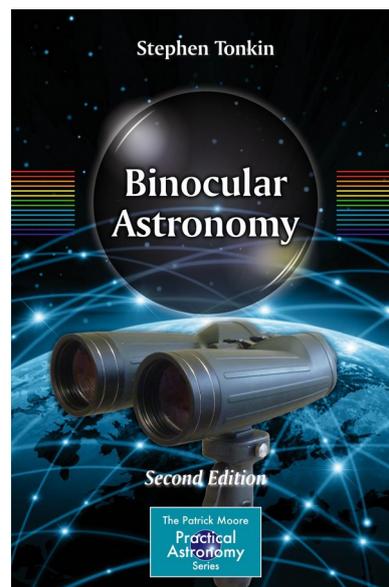
weeds, ultimately causing confusion and unnecessary expense to those who are subjected to them. With chapter headings ranging from "*I Just Bought a Great Binocular for Under \$100*" to "*I Want the Best, so I'm Buying German*", from "*You Should Always Focus Your Right Eye First*" to "*'Back 4' Prisms are Better than the Old BK7 Prisms*", you begin to get a sense of the range of topics covered. The second part is concerned with collimation; its single 37-page chapter has another popular misconception as its title: "*All you Need To Collimate Your Binocular Is a Roofline and a Jeweller's Screwdriver*", but it does tell you how to do it, as long as you have the appropriate kit (which you almost certainly don't!). The final part, "*Vignettes of Interest*", is a miscellany of information that defies grouping into wider classifications, it ranges from the history of the earliest binoculars to hand-holding large ones.

Every chapter is written with the clarity, directness and economy that those who know him have come to expect from Bill Cook; it is born of a thorough familiarity with his subject. There is a vast amount of knowledge, wisdom and insight encapsulated in these pages and there is nothing that I did not find interesting. If I have any criticism, it is the absence of an index and of page numbers in the *Contents*, but that is small fare compared to the quality of what this marvellous little book contains. You will find stuff here that you just won't find elsewhere. If you use, or intend to use, binoculars, you should read this book. You'll be glad that you did. I was.

You can get **Binoculars: Fallacy & Fact** from [amazon.co.uk](https://www.amazon.co.uk) and [amazon.com](https://www.amazon.com). (*affiliate links*)

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- Make a small [PayPal](#) donation to newsletter@binocularsky.com



Wishing you Clear Dark Skies,

Steve Tonkin

for

The Binocular Sky

Acknowledgements:

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Variable star data based on David Levy's *Observing Variable Stars*
Occultation data derived with Dave Herald's *Occult*

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