



# The Binocular Sky

August  
2018

# Newsletter



## Introduction

Welcome to August's **Binocular Sky** Newsletter. If you've not read it before, the intention of this monthly publication is to highlight some of the binocular targets for the coming month. It is primarily targeted at binocular (and small telescope) observers in the UK, but should be quite useful for observers anywhere north of Latitude 30°N and not entirely useless even further south (I have at least one subscriber as far south as 4°S).

Astronomical darkness, albeit short-lived, has now returned for most of the UK – the observing season proper approaches. Owing to the longer darkness, we have more lunar occultations available, but most are reappearances, and none is of a star brighter than mag +5.9; not ideal! Next month will be much better.

It's Perseids month, which means it's also *Solarsphere* month. *Solarsphere* is a "bijou" astronomy and music festival with a very friendly atmosphere. A few more [details on page 9](#), but go to their [website](#) for full info.

I've been putting the "Ukrainian Parallelogram" (*AstroDevices Parallelogram Standard III Pro*) through its paces. See the [Mini-Review on page 10](#).

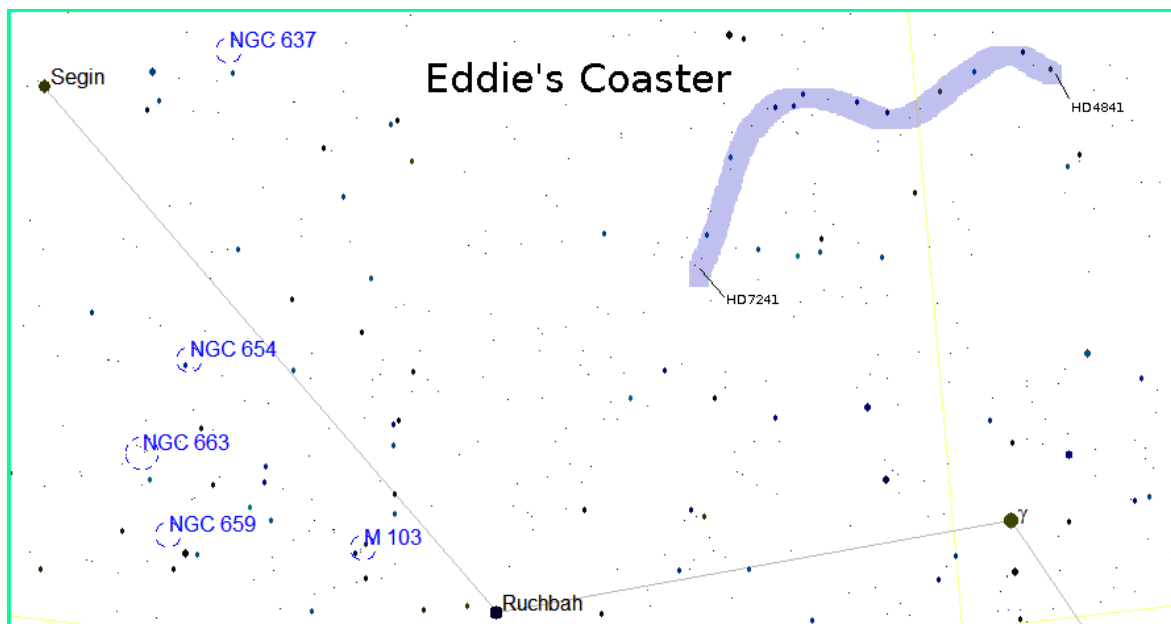
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## The Deep Sky

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

As the sky darkens at twilight, in the north are [NGC 457 \(the Owl Cluster\)](#) and [NGC 663](#) in Cassiopeia, the [Perseus Double Cluster](#), and [Stock 2 \(the Muscleman Cluster\)](#). Also visible in Cassiopeia is "Eddie's Coaster", a lovely curve of stars that is not particularly apparent on star charts or images, but which is obvious in 10x50 binoculars. This asterism is named for Eddie Carpenter, the West Country amateur who has delighted people with it for many years. You won't find it on any star charts, so:

*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.*



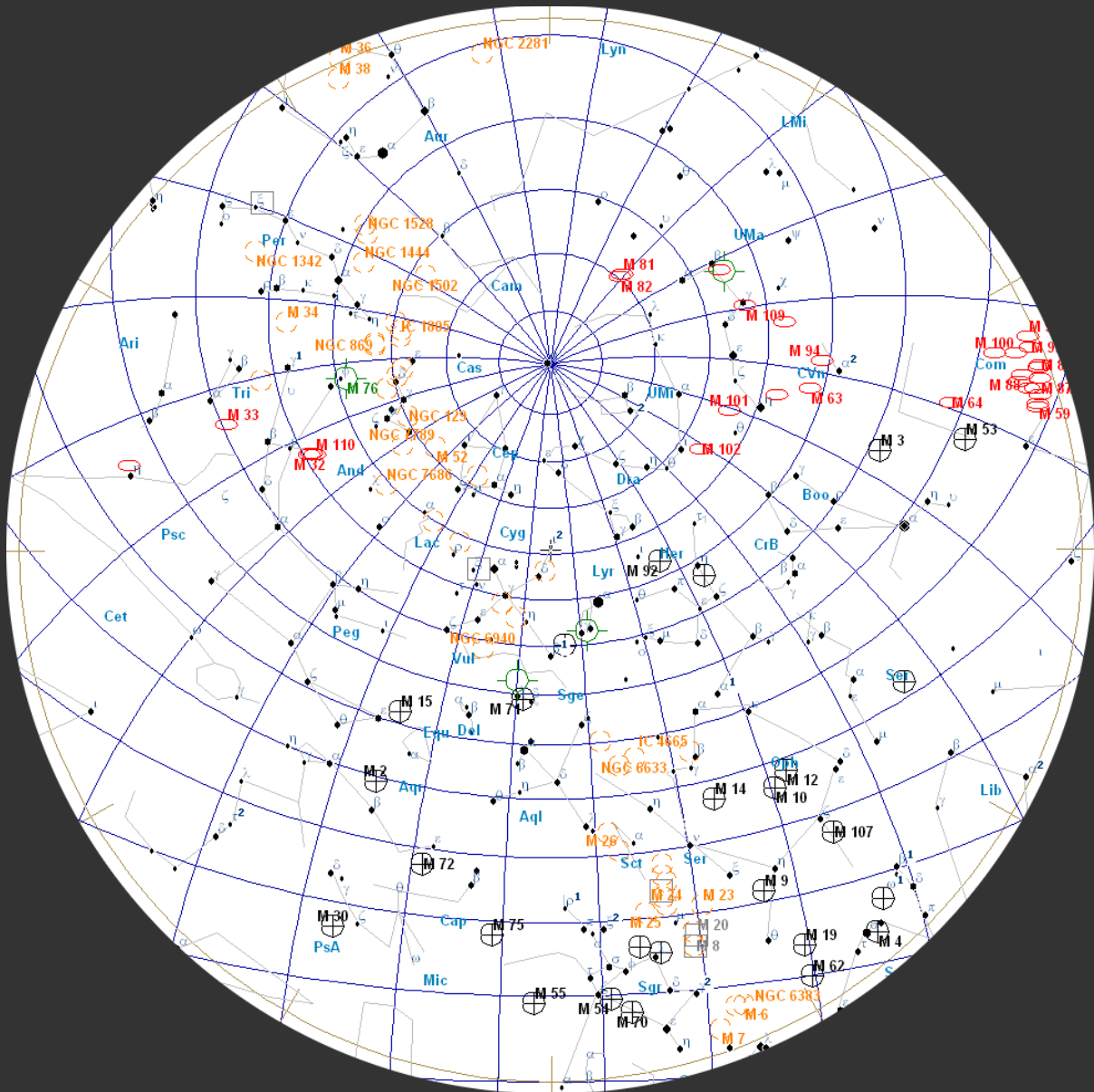
More open Clusters are visible in the southern sky in the region of Ophiuchus. These include [Melotte 186](#), [NGC 6633](#), [IC 4665](#) and [M11](#), The [Wild Duck Cluster](#), all of which are easily visible in 50mm binoculars. [M11](#), which is a cluster of over a thousand stars, benefits enormously from larger apertures and the higher magnification that permits more stars, including the "V"-shaped grouping that gives it its common name, to be revealed.

[IC 4665](#) benefits enormously from larger apertures and the higher magnification that permits more stars to be revealed. You should seek out a particularly attractive curved chain of bright white stars that forms part of the greeting "Hi" (inverted in binoculars from the Northern Hemisphere)

51°N

August 01, 23:00 UT   August 15, 22:00 UT   August 31, 21:00 UT

(chart is "clicky")



written in the sky.

Even further to the south, culminating at around local midnight, is a group of open clusters in Serpens and Sagittarius that includes M16 (the Eagle Nebula), M17 (the Swan or Omega Nebula), M23, M24 (the Sagittarius Star Cloud – the densest accumulation of stars you will see with binoculars anywhere in our galaxy), and M25.

Also worth enjoying in this region of sky is the denser part of the Milky

Way that forms the *Scutum Star Cloud* as a backdrop to this cluster. While you are in this region of sky, see if you can find Barnard's Star in Ophiuchus. This has the largest known proper motion of any star. (*Proper motion* is motion with respect to the celestial sphere.) Although it is visible in 50mm binoculars from a dark site, it is considerably easier in larger glasses and I recommend a minimum of 70mm.

In August, 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. Very well placed this month are M81 (Bode's Nebula) and M82 (The Cigar Galaxy), both of which are 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) and M101 which, although it is a large object, is very difficult owing to its low surface brightness. The Great Andromeda Galaxy, M31, is also rising into the sky to a reasonable altitude this month. It is large and bright enough to be able to withstand quite a lot of light pollution although, obviously, it benefits from a dark transparent sky.

*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!*

The two Hercules globulars, M92 and the very impressive, and very easy to find, M13 are at a very good altitude for observation. Although M13 is clearly larger than M92, I find it to be easier to resolve the outer stars of the latter one.

*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.*

While you're in Hercules, using 70mm or larger binocs, see if you can find an asterism that was introduced by, and named for, the prolific American binocular astronomer, Phil Harrington: Hrr 7. Find *Kajam* ( $\omega$  Her) and pan 2° W to a golden 8<sup>th</sup> mag star which is part of a 1.3°-long chain of fainter stars that runs approximately north-south. Phil sees a zigzag, but others have seen a dragon, a long-tailed tadpole, and a flower. What do you see?

Also visible this month is M5 in Serpens, which is one of the largest globular clusters known, being 165 light years in diameter. Its apparent size is nearly as large as a Full Moon. At a reasonable altitude from the beginning of the month are the very bright M15, M2 (which looks almost stellar at 10x50) and NGC 6934. This last cluster is very easy to see and is excellent for demonstrating how globular clusters respond to transparency. In apertures of around 70mm and upwards, almost all of them look larger as the sky becomes more transparent. NGC 6934 displays this to the greatest extent of any globular on which I have tested the phenomenon.

The easiest planetary nebula, M27, the Dumbbell Nebula – although I insist that it looks more like an apple core than a dumbbell! – is visible in the evening skies in even 30mm binoculars. At the other extreme, if you have binoculars of at least 100mm aperture, see if you can find and identify NGC 6572, a planetary nebula in Ophiuchus. Even in large glasses it looks stellar, but it has the distinction of being possibly the greenest object in the sky.

*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 ghostly planets.*

There are two other objects which, owing to their southerly declination, are best observed this month. They are the two bright emission nebulae, M20 (the Trifid) and the larger, brighter and easier M8 (the Lagoon). They are only about a degree and a half apart, so they will fit into the same field of view of even quite large binoculars.

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)

## August 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
Eddie's Coaster	Cas	ast	7.0	010129	634005
NGC 457 (the ET Cluster, the Owl Cluster)	Cas	oc	6.4	011932	581727
NGC 663	Cas	oc	7.1	014601	611406
Stock 2 (the Musclemans Cluster)	Cas	oc	4.4	021434	591358
NGC 884 and NGC 869 (the Perseus Double Cluster)	Per	oc	5.3	022107	570802
M81 (NGC 3031)	UMa	gal	7.8	095533	690401
M82 (NGC 3034)	UMa	gal	9.2	095554	694059
M51 (NGC 5194, the Whirlpool Galaxy)	CVn	gal	8.9	132952	471144
M101 (NGC 5457)	UMa	gal	7.7	140312	542057
M5 (NGC 5904)	Ser	gc	5.7	151833	020459
Harrington 7	Her	ast	9.0	161652	132255
M13 (NGC 6205, the Great Hercules Globular Cluster)	Her	gc	5.8	164141	362738
M92 (NGC 6341)	Her	gc	6.4	171707	430812
IC 4665 (The Summer Beehive)	Oph	oc	4.2	174618	054300
M23 (NGC 6494)	Sgr	oc	5.5	175700	-190100
Barnard's Star	Oph	st	9.5	175749	044136
Melotte 186	Oph	oc	3.0	180030	025356
NGC 6572	Oph	pn	9.0	181206	065113
M24	Sgr	oc	4.6	181826	-182421
M16 (NGC 6611, the Eagle Nebula)	Ser	oc	6.0	181848	-134749
M17 (NGC 6618, the Omega Nebula or Swan Nebula)	Sgr	en	6.0	182048	-161059
NGC 6633	Oph	oc	4.6	182715	063030
M25 (IC 4725)	Sgr	oc	4.6	183146	-190654
M11 (NGC 6705, Wild Duck Cluster)	Sct	oc	5.8	185106	-061600
M27 (NGC 6853, the Dumbbell Nebula, the Apple)	Vul	pn	7.6	195936	224318
NGC 6934	Del	gc	8.8	203411	072415
M15 (NGC 7078)	Peg	gc	6.2	212958	121003

## Double Stars

Binocular Double Stars for August			
Star	Magnitudes	Spectral Types	Separation (arcsec)
67 Oph	4.0, 8.1	B5, A	54
ρ Oph	5.0, 7.3, 7.5	B5, A, B3	151, 157
53 Oph	5.7, 7.4	A2, F	41
δ Cep	4.1, 6.1	F5, A0	41
γ Her	3.7, 9.4	F0, K	43
d Boo	3.5, 7.8	K0, G0	105
μ Boo	4.3, 7	F0, K0	109
ι Boo	4.0, 8.1	A5, A2	38
n 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

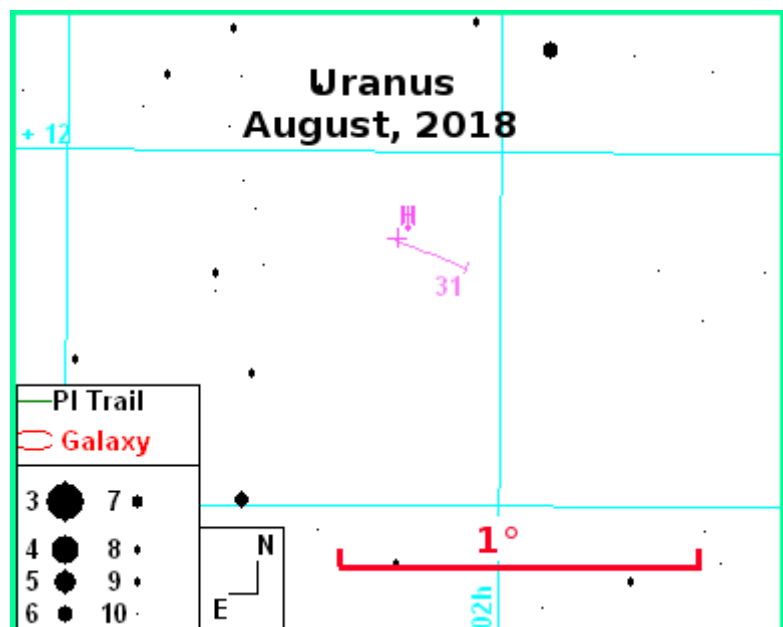
## Variable Stars

Selection of Binocular Variables (mag < +7.5)			
Star	Mag Range	Period	Type
U Cep	6.8-9.2	2.5d (increasing)	Eclipsing binary
EK Cep	8.2-9.5	4.3d	Eclipsing binary
V1010 Oph	6.1-7	0.66d	Eclipsing binary
RR Lyr	7.06-8.12	0.57d	RR Lyr
TX UMa	7.0-8.8	3.06d	Eclipsing binary
ZZ Boo	6.7-7.4	4.99d	Eclipsing binary
R Sge	8.0-10.4	71d, 1112 d	RV Tau
U Sge	6.5-9.3	3.38d	Eclipsing binary
DY Vul	8.4-9.7	-	Irregular
U Vul	6.7-7.5	7.99d	Cepheid
X Cyg	5.9-6.9	16.39d	Cepheid
SU Cyg	6.4-7.2	3.84d	Cepheid
AF Cyg	6.4-8.4	92.5	Semi-regular

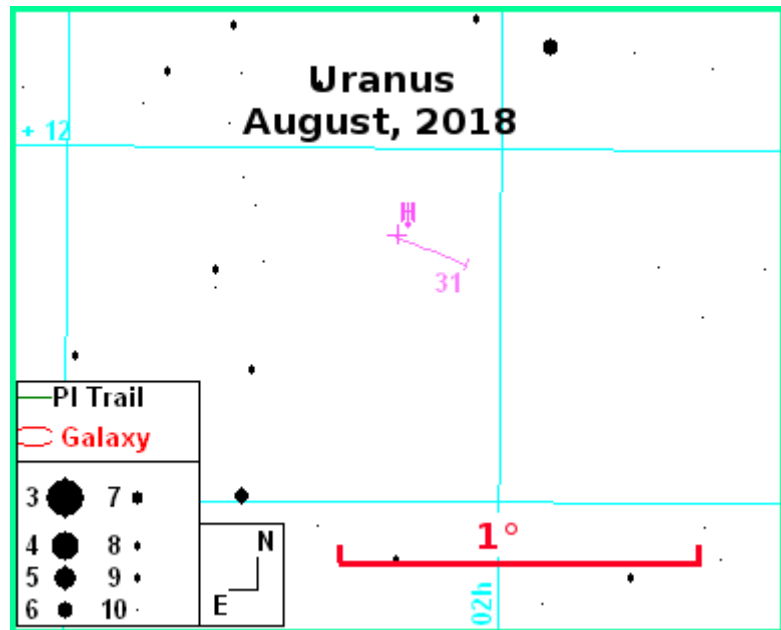
Mira-type stars near predicted maximum (mag < +7.5)		
Star	Mag Range	Period (days)
R Aql	5.5-12.0	270
S CrB	5.8-14.1	360

## The Solar System

At the beginning of August, **Uranus** is 40° high from southern Britain at Nautical dawn, and gets gradually better all month, shining at mag +5.8 (brightening to +5.7) in southern Aries.



**Neptune** is much easier than last month (though no brighter at mag +7.8) than it was last month. At the beginning of the month it gains an altitude of about 30° during astro-dark transits during nautical twilight. By the end of the month, it transits 40 minutes after midnight.



## Comets

There are no comets suitable for small to medium binoculars this month.

## Asteroid Occultations

There are no predicted asteroid occultations of stars mag +7.5 or brighter, visible from mainland UK, this month.

## Meteor Showers

The Moon is ideal for the Perseids, which are predicted to peak on the 12<sup>th</sup>, the day after New Moon, but the shower has already started, so do look out for them whenever you have Perseus in a dark sky. The meteors are grains of dust that were left in the wake of Comet Swift-Tuttle. As these particles enter the atmosphere, they compress and heat the air in front of them. This heat causes the surface of the particle to ablate and ionise.

Binoculars are useful for observing the persistence of these ionisation trains that form the streak in the sky which is what we observe as a "shooting star". Last year, I fortuitously caught one head-on (I was looking for something else at the time) – it was a bright flash of light that "exploded" into a puff of smoke.



## 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)**.

Lunar Occultations, Aug 2018, 50.9°N, 1.8°W							
Date	Time	Phase	Star	Spectrum	Magnitude	Cusp Angle	Position Angle
01 Aug	02:02:02	R	HIP 117420	K4	6.1	72N	269
03 Aug	03:50:49	R	HIP 6679	F0	7	28N	312
05 Aug	00:56:39	R	HIP 14036	K6	5.9	70N	273
21 Aug	22:46:47	D	HIP 91347	A5	5.9	34N	32
28 Aug	01:34:33	R	HIP 116428	G5	6.4	89N	262
31 Aug	02:44:10	R	HIP 9343	G5	6.8	86N	258

## The Moon

August 04	Last Quarter
August 11	New Moon
August 18	First Quarter
August 26	Full Moon

## 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.

- 2<sup>nd</sup>: Dorset "Earth Mysteries" Group    **Time and Calendars** (Talk)
- 12<sup>th</sup>: [Solarsphere Astronomy and Music Festival](#)    **Binocular Astronomy** (Workshop)
- 13<sup>th</sup>: [Solarsphere Astronomy and Music Festival](#)    **Pseudoastronomy: Planet X, Zetans and Lost Civilisations** (Talk)

If you think you might like to mix music, camping and astronomy, give [Solarsphere](#) a try. It boasts a good dark site (with a "red light only" camping option for observers), decent showers/loos, good craic, and is very family-friendly, with lots of astro-related workshops specifically for youngsters. And it's a bargain at £45 all in for a weekend of camping + gigs and talks, none of which clash!

## Mini-Review

### Astro Devices Parallelogram Standard III PRO

#### Properties

Weight (lbs)	11
Payload (lbs)	15
Vertical range (cm)	84
Counterweight arm	20mm od tube
Tripod Mount	10mm + optional 3/8" and 5/8" adaptors
Instrument mount	1/4" and 3/8" Whitworth
Degrees of motion	4
Centre of mass adjustment	No
Body Material	Steel and aluminium
Handles	2, poly-carbonate
Counterweights	Optional
Origin	Ukraine



**Price: \$239 (USD)**

**Available from:** [Astro Devices](#)

This is the parallelogram made by Valentin Gajdaj in the Ukraine. It has four degrees of motion, but no centre-of-mass adjustment for the binocular.

It has a robust, unrefined "functional" feel to it, with some rough edges and some nice touches. It is provided without a tripod or counterweight, but takes a 20 mm-bore Skywatcher/Vixen counterweight (I use a 5kg with the 20x80 binoculars shown above), and is threaded for a 10mm tripod bolt, with 3/8" and 5/8" adaptors being optionally available. The mounting bracket will take instruments with 1/4" and 3/8" mounting bushes.

The "rough edges" include slightly oversized bolt-holes in the parallelogram arms, which leads to a 3° sag in the mounting bracket and a 3/8" adaptor that is too small

for the tripod head-locking screws to engage with it.

The “nice touches” include the two handles – which are surprisingly useful, arms that are sufficiently long to enable reclined and standing observing without having to adjust the tripod height, stainless steel fittings, slotted arms (weight reduction) and, importantly, very smooth motions with no “stiction”. It is rated for a 15lb binocular and, with enough counterweight and a sufficiently sturdy tripod, it will hold this, although vibration/oscillation damping time is inevitably increased.



The parallelogram can be used reclined or standing without adjusting the tripod height

With its four degrees of motion it is a welcome step up from entry level parallelograms like the *Orion Paragon*, but (not that you would expect it for the price!) no match for the *UA Deluxe* mounts that had five degrees of motion and both vertical and longitudinal centre-of-mass adjustment.

I found that, with a *Manfrotto 075* tripod, it was ideally matched to my *Helios Stellar 20x80* binocular; this has a longitudinal mounting bar for centre-of-mass adjustment.

You can compensate for the “rough edges”, making this a pleasant mount to use.

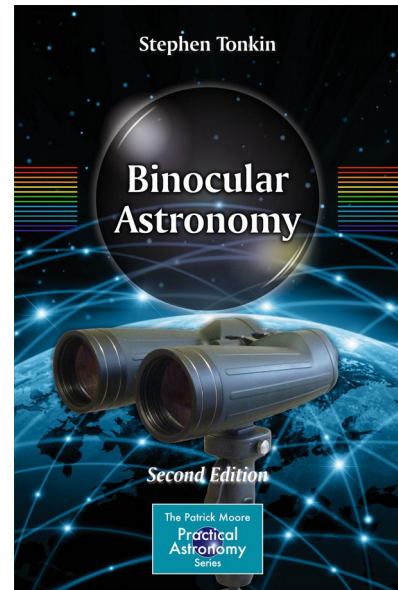
Should you need to communicate with him, Valentin is contactable by email and usually responds within a day or two. A nice addition to the armoury.

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

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- Purchase my book, [Binocular Astronomy](#):  
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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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