



The Binocular Sky

No. 101
April 2020



Newsletter

Introduction

How the world has changed since the last **Binocular Sky** Newsletter! I hope you are all keeping safe. I am so grateful for this hobby and for what I am experiencing as mutual comradeship among amateur astronomers, with Zoom talks, Virtual Astronomy Club, etc., and we do have some advantages compared to some other hobbies:



So what do we have in the sky this month? We're losing the ice giant Uranus, but as well as the usual Deep Sky stuff, we have three circumpolar comets of varying difficulty, Venus traversing the Pleiades, a meteor shower whose peak coincides with the New Moon, and some easy lunar occultations.

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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 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. Let's hope for clear skies on the evening of the 3rd, when Venus traverses the Pleiades. 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 it 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, although the imagination of it being a ribbon waterfall plunging into a splash-pool needs some gravity-defying modification because, during spring evenings, the waterfall flows diagonally 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.

One of the best objects for small binoculars is [Melotte 111](#), the cluster that gives *Coma Berenices* its name. In Greek mythology, it is the hair of Queen Berenice, but the Romans saw it as the veil dropped by Thisbē in Ovid's tale of star-crossed lovers. In early April it is suitably placed at astronomical dusk and later.

If you look at the chart on the next page, you will see the objects in red, the galaxies, down the centre of the chart. The open clusters, which are more concentrated along the Milky Way (hence their alternative name, "galactic clusters") are mostly confined to the horizon region. So, during April

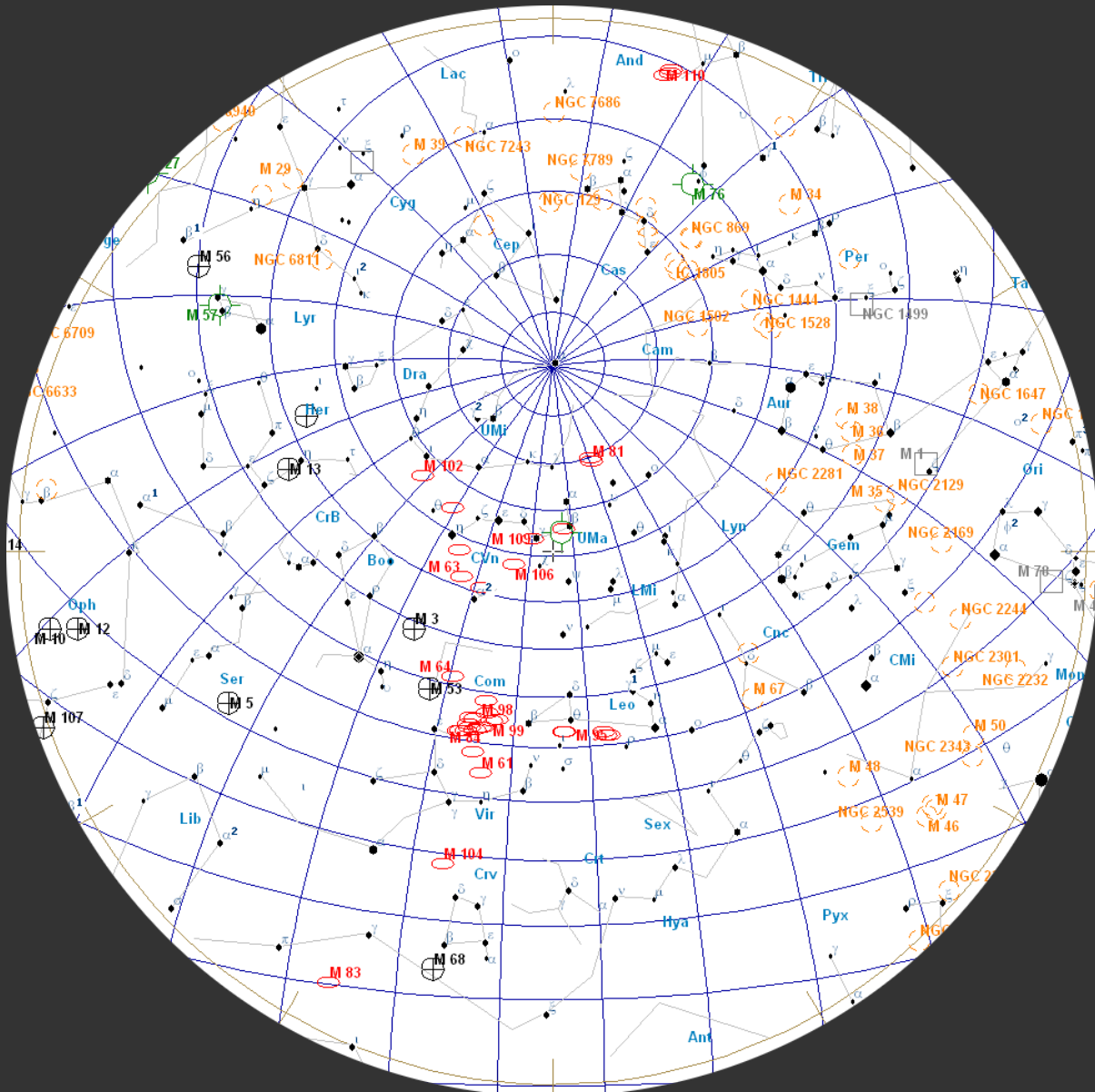
51°N

April 01, 23:00 UT

April 15, 22:00 UT

April 31, 21:00 UT

(chart is "clicky")



dependent on your local conditions and the aperture of your binoculars. A few years ago, on a particularly transparent April evening, I decided to see how many Vir/Com galaxies I could count using my 16x70s. I gave up; not only were there so many, but most were only visible with averted vision so, of course, when I looked *at* them, they simply disappeared and this made it difficult to remember patterns so that I could avoid duplication (or omission). Do try it – not the counting, just the sheer pleasure of being able to detect so many with such simple kit.

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.

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 a big binocular, also observe the edge-on NGC4565 (Berenice's Hair Clip), which is next to Melotte 111.

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 ghostly planets.

If you missed it last month, take this opportunity to appreciate Herschel's Garnet Star, μ Cep, which is at a comfortable elevation early in the evening. The wide field of medium-sized binoculars enables you to hold it in the same field as Alderamin (a Cep), so you can appreciate the colour difference.

Lastly, the colourful star-fields around the "back" of Leo that we looked at last month are still on view for a couple of months. In particular, enjoy the pretty groups of stars within the rectangle bounded by β , δ , θ , and 93 Leonis, and, later this month, the region just to the south of σ Virginis.

For interactive maps of Deep Sky Objects visible from 51°N, you can
 visit: http://binocularsky.com/map_select.php

April Deep Sky Objects by Right Ascension

Object	Con	Type	Mag	RA (hhmmss)	Dec (ddmmss)
NGC 884 and NGC 869 (the Perseus Double Cluste	Per	oc	5.3	022107	570802
M45 (the Pleiades)	Tau	oc	1.6	034729	240619
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
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
M81 (NGC 3031)	UMa	gal	7.8	095533	690401
M82 (NGC 3034)	UMa	gal	9.2	095554	694059
NGC 3242 (the Ghost of Jupiter)	Hya	pn	8.6	102446	-183833
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
NGC 3521	Leo	gal	10.0	110548	-000215
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
M94 (NGC 4736)	CVn	gal	8.2	125053	410717
M53	Com	gc	7.6	131255	181010
M63 (NGC 5055, the Sunflower Galaxy)	CVn	gal	8.6	131549	420159
M51 (NGC 5194, the Whirlpool Galaxy)	CVn	gal	8.9	132952	471144
M3 (NGC 5272)	CVn	gc	6.2	134211	282233
M101	UMa	gal	7.7	140312	542957
M5	Ser	gc	5.7	151833	20459
M13 (NGC 6205, the Great Hercules Globular Clust	Her	gc	5.8	164141	362738
M92 (NGC 6341)	Her	gc	6.4	171707	430812
μ Cep (Herschel's Garnet Star)	Cep	vs	4.0	214330	584648

Variable Stars

Selection of Binocular Variables (mag < +7.5)			
Star	Mag Range	Period	Type
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
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

Mira-type stars near predicted maximum (mag < +7.5)		
Star	Mag Range	Period (days)
W And	6.7-14.6	397
U Ori	4.8-13.0	377

Double Stars

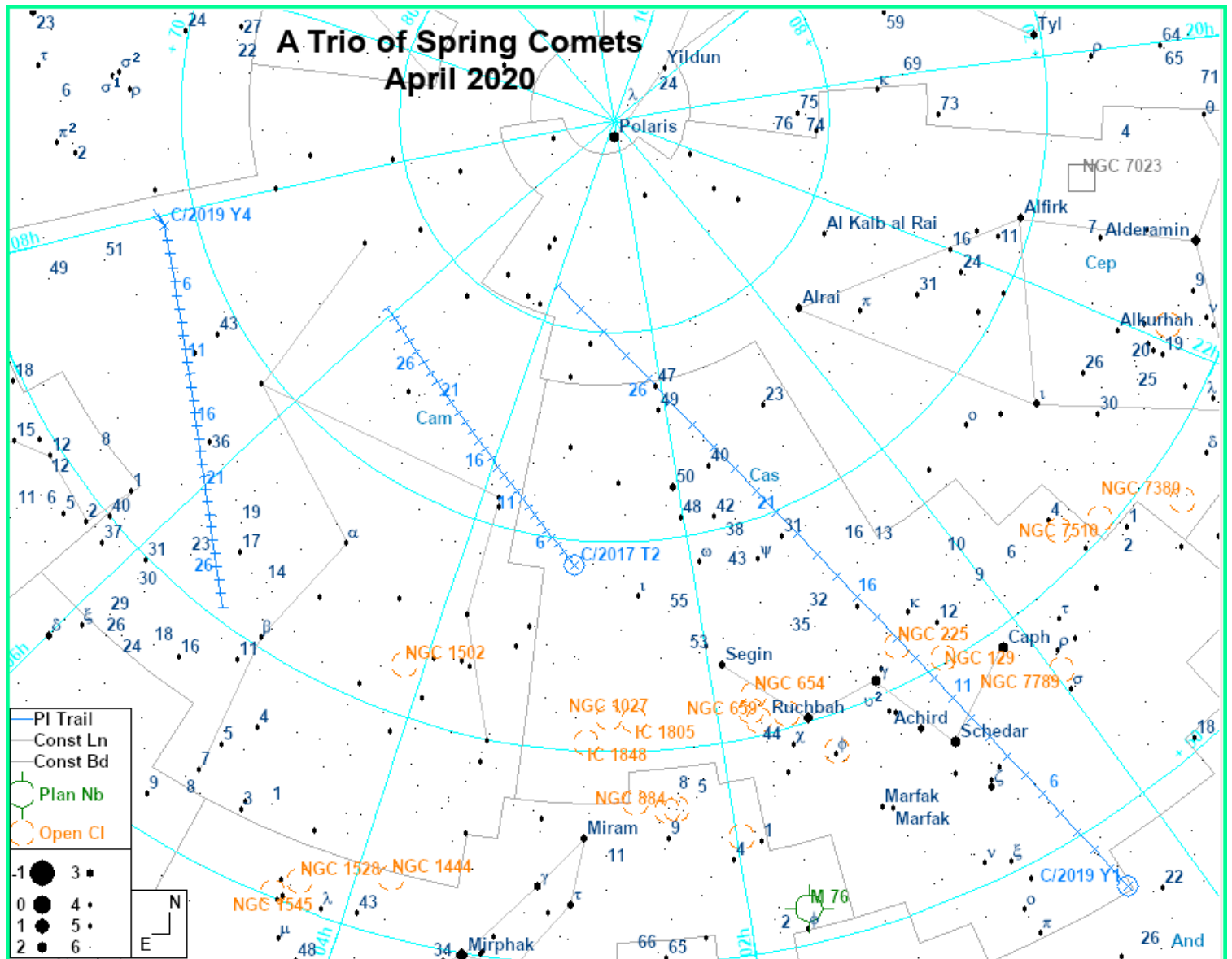
Binocular Double Stars for April			
Star	Magnitudes	Spectral Types	Separation (arcsec)
τ Leo	5.0, 7.4	K0, G5	89
δ Cep	4.1, 6.1	F5, A0	41
ι Cnc	4.0, 6.0	G5, A5	31
ν Boo	5.0, 5.0	K5, A2	628
DN & 65 UMa	6.7, 7.0	A3, B9	63
π -1 Umi	6.6, 7.2	G5, G5	31
ν Dra	4.9, 4.9	A5, A5	62
39 Dra	5.1, 7.9	A2, F8	89

The Solar System

(Clicking on the charts below will take you to higher resolution ones)

Comets

After a long dearth of comets, we now have three circumpolar (from the UK) ones of varying difficulty.



The one with the most potential is **C/2019 Y4 (ATLAS)** (chart), the last comet to be discovered in 2019. It is brightening, and some models suggest

that it might achieve naked eye visibility by next month. We shall see; comets are notoriously fickle. At the moment it is visible in 10x50 binoculars from a semi-rural site, and some observers (with younger eyes than mine!) report having seen it in 8x40s. It's visible all night, but is higher in the evening.

Next is another ATLAS comet discovered last December, **C/2019 Y1 (ATLAS)** ([chart](#)). It's a bit brighter than 9th mag, but is now fading rapidly as it climbs into Cassiopeia, so you'll need to catch it early in the month before the Moon becomes too obtrusive; the best times are early evening or pre-dawn. You'll probably need at least 70mm binoculars.

Also requiring 70mm binoculars is the one we introduced last month, **C/2017 T2 (PanSTARRS)** ([chart](#)). This is also a bit brighter than 9th mag, but should brighten slightly over the course of the month. It is within 20° of the NCP, so is visible all night.

If you find that your planetarium program is giving "interesting" magnitudes for some comets (e.g. P/289 (Blanpain) showing as mag 3.2 when it's actually mag 20), it's likely that the orbital elements that it's using are erroneous. You can get reliable elements from <http://astro.vanbuitenen.nl/cometels>.

Meteor Showers

The Moon is ideal for the Lyrids, which are predicted to peak on the the 22nd, the day before New Moon. The shower has already started, so do look out for them whenever you have Hercules in a dark sky (yes, the radiant is in Hercules until a few days after the peak). The meteors are grains of dust that were left in the wake of Comet C/1861 G1 (Thatcher). 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 that can remain in the sky for 30 seconds or more.

The Moon

April 01	First Quarter
April 08	Full Moon
April 14	Last Quarter
April 23	New Moon
April 30	First Quarter

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)**.

Lunar Occultations April 2020 50.9°N 1.8°W							
Date	Time (UT)	Phase	Star	Spectral Type	Magnitude	Position Angle	Cusp Angle
Apr 02	00:05:24	D	58 Gem	A1	6.2	277	61N
Apr 09	00:25:20	R	94 Vir	A0	6.5	169	47N
Apr 09	00:49:35	R	95 Vir	F2	5.5	176	60S
Apr 25	21:24:29	D	85 Tau	F3	6.1	296	83S
Apr 27	22:58:29	D	3 Gem	B2	5.8	297	39N
Apr 27	23:08:50	D	4 Gem	B9	6.9	299	70N
Apr 29	23:13:33	D	7 Cnc	K0	6.8	280	77S

Public Outreach & Talks

All my public talks and outreach events for the next few months have been postponed or cancelled. However, there is one on-line replacement (although, for you, I'll merely be preaching to the converts):

2nd [Virtual Astronomy Club](#)

Two Eyes are Better Than One (Talk)

The Answers to last month's "Century Twenty Questions"

1. Tycho Brahe in 1577, 2. Heather Couper, 3. Charles Moss Duke Jr, 4. Vortex (Diamondback and Raptor models), 5. Strathspey, 6. Hamlet (Shakespeare), 7. A comet (Milton), 8. Mars (Tennyson), 9. As opposed to oblique, 10. King and Mountain, 11. A composition by Jimi Hendrix, 12. Birefringence, 13. Thomas Harriot, 14. The "Rosse Leviathan", 15. Urania, 16. Antikythera mechanism, 17. Superluminal travel (in a limerick), 18. Disc (in a limerick), 19. Werner von Braun (song by Tom Lehrer), 19. Gerald Hawkins.

How did you do?

Zoom Talks during "Lockdown"?

I regularly give talks, on *Binocular Astronomy* and numerous other astronomical topics. During the current "lockdown" in the UK, I'd be happy to do this on Zoom if that is of interest. For astronomy societies (and some other groups), I would not charge (although I have never knowingly refused 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 small PayPal donation to newsletter@binocularsky.com

Wishing you Clear Dark Skies,

Steve Tonkin

for

The Binocular Sky

Acknowledgements:

The charts in this newsletter were prepared with Guide v9.0 from <http://projectpluto.com> or [Stellarium](#) under [GNU Public License](#), incorporating Milky Way panorama ©Axel Mellinger

Variable star data based on *The International Variable Star Index*
Occultation data derived with Dave Herald's *Occult*

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