

Newsletter of  
The Black River Astronomical Society

# Guidescope

Lorain County, Ohio

June 2019

Website: [blackriverastro.org](http://blackriverastro.org)

Newsletter submissions: [Editor](#)

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--Wednesday, June 5, 7 p.m.: Regular meeting, Carlisle Visitors Center.  
Astronomical Automobiles by Denny Bodzash

--Friday, June 7, 10-midnight: Public observing, Nielsen Observatory (cloud  
backup date Saturday, June 8)

--Thursday, June 13, 7 p.m.: Board meeting, Blue Sky Restaurant, Amherst

--Friday, June 21, 10-midnight: Public observing, Nielsen Observatory (cloud  
backup date Saturday, June 22)

--Sunday, June 30, 1-4 p.m.: Solar observing, Sandy Ridge Reservation  
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## Visit Our Website

Explore if you will the informative BRAS [website](#) and all its interesting, timely [links](#), and join the interactive members-only [BRAS Forum](#) to better keep in touch.

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## Guidescope Contributions Wanted

If you have any astronomy-related wanted/for sale announcements, astronomical photos you've taken, interesting article links, equipment reviews, observing reports, essays, or anything that you think to which the local amateur astronomy community could relate, please send it to your [humble Guidescope editor](#) for inclusion in forthcoming issues.

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## BOARD SUMMARY

May 9, 2019

The May meeting of the BRAS Board of Directors was called to order at 7:10 p.m. with 10 Directors present. The Minutes from the April meeting were read and approved as was the Treasurer's Report. Next came committee reports with the *Guidescope* editor, Bill Ruth, reporting that all was well, with some member submissions. The Website committee reported that there were no issues with the website and the Instrumentation Chairman, John Reising, reported all was well the last time we were at the observatory. We recently had a nice 5" telescope donated that needed a mount. John believes he may have one that would be suitable in the dark recesses of the Reising Home for Wayward Telescopes, and he will stop by the building and get the scope to see what he can match with it. This scope would make a nice loaner. The OTAA committee chair reminded Directors of the OTAA Convention schedule for 2019 which is as follows:

CVAS	June 29
MVAS	August 24
CAA	Sept. 21
BRAS	Sept. 28

The Metro Parks Liaison had no report.

Programming is fairly well set for the year as follows:

June	Denny Bodzash	Astronomical Automobiles
July	Tim Kreja	The Colonization of Mars

August	Jodi McCullough	Astrophotography
September	Members Forum-Results from the Member Survey / How I got started in Astronomy	
October	Annual Meeting of the Members/Elections/Video	
November	Visit to the Oberlin College Planetarium (tent.)	
December	Holiday Pot Luck Dinner at the LCMP Amherst Beaver Creek Reservation	

Old business came next with Schauer reminding members that we are doing a program exchange with MVAS. Their President, Jodi McCullough, is coming to do a program on astrophotography for us in August. Schauer will contact her about when she would like us to present a program for them. We wonder about July.

The second item of Old Business was a follow up to our discussion about possibly traveling to Kentucky to see the transit of Mercury on November 7<sup>th</sup> since it will likely be cloudy in northern Ohio. Old friend and long-time member Randy Beachler, who now lives in Kentucky, contacted us and offered us the opportunity to come to his home town of LaGrange, Kentucky for the event. There is a church parking lot that overlooks a valley that Randy uses to observe low horizon events. He reports that there are several motels and restaurants in the area.

Finally, MVAS has had a C-14 donated to them with typical fork arms and drive base. They want the optical tube, but may not want the drive base and fork arms. They do, however, need a Losmandy mounting plate. We might be able to trade the mounting plate we have on our Losmandy mount for the fork arms/drive base. More discussion with MVAS will be forthcoming.

Next came New Business. Schauer reported that CVAS gives out awards each year, and he wondered if we might want to do something similar. We could, for example, give out a “Best New Member” award, an “Above and Beyond” award, or a “Backbone of the Club” award. These could be given at the December Holiday Pot Luck or perhaps at our OTAA convention. The Board may discuss this further.

Dan Walker showed the club a new offering from Guy Ottewell that is a “Map of the Starry Sky” which is a poster three feet wide and two feet high. It is on sale for \$31.95 and might look good on the wall of the new storage building. Dan will order one after it was moved by Greg Zmina and seconded by Mickey Hasbrook that we purchase one.

The final order of business was a reminder from the President that 2019 is the 70<sup>th</sup> anniversary of the founding of the BRAS, which would seem to call for a celebration. After some discussion, we have decided to order a sheet cake (or cakes), to have more food items than our usual hot dogs, with Debbie Zmina offering to cook pulled pork for us, and to find and invite as many long-time members as we can. Greg Cox will bring the club Charter, which some of us, including the President, have never seen. And we will try to have a speaker, Perhaps Dan Stinebring or Rob Owen, both professors at Oberlin College and on the front lines of the gravity wave research efforts. More planning and discussion to come.

Dates were set, and the meeting was adjourned at 8:25 p.m.

~Steve Schauer

## **Nikon D1 Turns 20**

The last five minutes of evening newscasts are normally the domain of dumber than usual criminals, celebrity gossip, and two-headed snakes. On June 15, 1999, this is where there might have been a 30 second story about the announcement of a digital camera. While not significant at the time, history would prove otherwise. This wasn't just any camera, it was the Nikon D1, the camera that changed the course of photographic history, and the hobby of astrophotography, forever.

While it has long since been relegated from top of the line photographic tool to historical artifact, the historical impact of the Nikon D1 is undeniable. True, digital cameras previously existed but, up until the D1, they were considered by most as expensive toys extremely deep-pocketed amateurs used to impress their friends. With the D1, the picture changed. While the introduction price of about \$5,500 is stratospheric, it paled in comparison to the previous, vastly inferior digital SLRs already on the market, which could cost upwards of \$20,000. As an added bonus, unlike the other digital SLR cameras of the day, the D1 was built entirely from the ground up by a single major manufacturer, Nikon, and was reverse compatible with all Nikon F Mount lenses, which date to 1959. These facts, coupled with its outstanding (for the time) performance helped make the D1 a camera that professionals were willing try. No longer would the digital SLR be seen as an expensive toy for a rich hobbyist. With the Nikon D1, the digital SLR matured into the practical photographic tool that every good camera should be.

After the success of the D1, the floodgates were opened. Other manufacturers, quick to realize that the digital SLR was here to stay, jumped aboard the bandwagon. Fuji would launch its S1 Pro in January, 2000. Canon unveiled its EOS D30 in May of the same year. Both of these companies' cameras, though of vastly inferior build quality compared to the D1, were priced in the \$3,000 range, which was about half the introductory price of the D1. Canon launched its first professional body, the EOS 1D the following year. With the two biggest photographic companies (Nikon and Canon) now firmly in the digital camp, the rest of the major manufacturers joined the digital race.

For many of us in the BRAS, the astrophotography bug will bite sooner or later. For some, this is a passing fancy that never amounts to more than the occasional dusk/dawn planetary conjunction or crescent Moon snap but for others, it morphs into a hobby in and of itself, where Hubble-like pictures become the goal. Wherever you fall on the spectrum with your digital SLR, your camera has a single common ancestor: the Nikon D1, which was introduced 20 years ago this month.

~Denny Bodzash

## Deep-Sky Objects for June

Objects for Binoculars							
RA	Dec	Number	Mag(s)	Size/Sep.	PA	Const.	Type of Object
16 <sup>h</sup> 41.7 <sup>m</sup>	+36° 28'	M13	5.7v	16.6'		Her	Globular Cluster
16 <sup>h</sup> 54.0 <sup>m</sup>	-41° 48'	6231	14'	2.6v		Sco	Star Cl. In "False Comet"
17 <sup>h</sup> 21 <sup>m</sup>	-27° 23'	LDN 1773		300'x60'		Sco	Dark Neb. "Pipe Nebula"
17 <sup>h</sup> 40.1 <sup>m</sup>	-32° 13'	M6	4.2v	33'		Sco	Star Cl. "Butterfly Cluster"
17 <sup>h</sup> 46.3 <sup>m</sup>	+05° 43'	IC4665	4.2v	40'		Oph	Star Cluster
17 <sup>h</sup> 59.9 <sup>m</sup>	-34° 49'	M7	3.3v	80'		Sco	Star Cluster
small <sup>h</sup> (2-6 <sup>m</sup> )	''						
16 <sup>h</sup> 23.6 <sup>m</sup>	-26° 32'	M4	5.8v	26.3'		Sco	Globular Cluster
16 <sup>h</sup> 47.2 <sup>m</sup>	-01° 57'	M12	6.8v	14.5'		Oph	Globular Cluster
16 <sup>h</sup> 57.1 <sup>m</sup>	-04° 06'	M10	6.6v	15.1'		Oph	Globular Cluster
17 <sup>h</sup> 14.6 <sup>m</sup>	+14° 23'	64-Alpha	3.5", 5.4"	4.9"	107o°	Her	Double Star
17 <sup>h</sup> 15.0 <sup>m</sup>	+24° 50'	65-Delta	3.1", 8.2"	8.9"	236o°	Her	Double Star
17 <sup>h</sup> 17.1 <sup>m</sup>	+43° 08'	M92	6.4v	11.2'		Her	Globular Cluster
Objects for Medium Telescopes (8-14 inch)							
RA	Dec	Number	Mag(s)	Size/Sep.	PA	Const.	Type of Object
15 <sup>h</sup> 15.9 <sup>m</sup>	+56° 19'	NGC 5907	10.3v	11.5'x1.7'		Dra	Galaxy
16 <sup>h</sup> 17.0 <sup>m</sup>	-22° 59'	M80	7.3v	8.9'		Sco	Globular Cluster
17 <sup>h</sup> 13.7 <sup>m</sup>	-37° 06'	NGC 6302	9.6v	50"		Sco	"Bug Nebula"
17 <sup>h</sup> 22.3 <sup>m</sup>	-38° 29'	NGC 6337	12.3v	48"		Sco	Planetary Nebula
17 <sup>h</sup> 37.6 <sup>m</sup>	-03° 15'	M14	7.6v	11.7'		Oph	Globular Cluste
17 <sup>h</sup> 58.6 <sup>m</sup>	+66° 38'	NGC 6543	8.1v	"18/350"		Dra	Plan. Neb. "Cat's Eye"
Objects for Larger Telescopes (16-inch & larger) Challenge Objects							
RA	Dec	Number	Mag(s)	Size/Sep.	PA	Const.	Type of Object
16 <sup>h</sup> 04.4 <sup>m</sup>	+40° 41'	NGC 6058	12.9v	>23"		Her	Planetary Nebula
16 <sup>h</sup> 32.5 <sup>m</sup>	-13° 03'	M107	8.1v	10'		Oph	Globular Cluster
16 <sup>h</sup> 47.0 <sup>m</sup>	+47° 32'	NGC 6229	9.4v	4.5'		Her	Globular Cluster
17 <sup>h</sup> 29.3 <sup>m</sup>	-23° 46'	NGC 6369	11.4v	30"		Oph	Plan. Neb. "Little Ghost"
18 <sup>h</sup> 18.8 <sup>m</sup>	-13° 47'	M16/IC4703		35'x28'		SerCd	Eagle Neb. & Star Cluster
18 <sup>h</sup> 59.3 <sup>m</sup>	+48° 28'	NGC 6742	13.4v	30"		Dra	Planetary Nebula

Print and use the [Deep-Sky Interest Group - Observation Form](#) to record your observations.

Thanks to Len Jezior for deep sky objects charts.

# N14 Northern Sky Spring-Summer Constellations

NEBULA	Position	v-Mag.	Size	Shape	Type	Vis.	Dist.	R.A.	Dec.
6205 M13	Her $\square$	6	12/15'	15'	O V GC	$\square$	25000ly	16 <sup>h</sup> 41.7	36 <sup>o</sup> 46'
6341 M92	Her $\square$	6	11	8	O IV GC	$\square$	30000	17 17.1	43.14

6205 M13 Hercules Cluster, bright nebula in binoculars, outer portion is well resolved in a telescope at high power, core is partially resolved.  
 6341 M92 Similar to M13, some outer stars resolved in a telescope, oval halo.

6210  $\Sigma 5$  Her  $\square$  9  $\frac{1}{2}$ ' 0.3 O D PN  $\square$  5000 Ly 16 49.5 23.30

STAR	Position	V-Mag.	B-V	Te.	Abs.	Name	Dist.	R.A.	Dec.
17 $\kappa$	Boo $\square$	4.4	0.2	1	1 <sup>m</sup>	} Sep. 36'	165ly	14 <sup>h</sup> 15.5	51 <sup>o</sup> 79'
21 $\iota$	Boo $\square$	4.7	0.2	1	2		98	14 16.2	51.37
23 $\theta$	Boo $\square$	4.0	0.5	3			48	14 25.2	51.85
27 $\gamma$	Boo $\square$	3.0	0.2	1	1	Ceginus	86	14 32.1	38.31
39	Boo $\square$	5.7	0.5	1	1		230	14 49.7	48.72
42 $\beta$	Boo $\square$	3.5	1.0	-1	1	Nekkar	220	15 01.9	40.39
44 $\iota$	Boo $\square$	4.7-4.9	0.6	4			42	15 03.8	47.65
49 $\delta$	Boo $\square$	3.4	0.9	1	1		118	15 15.5	33.31
51 $\mu$	Boo $\square$	4.2	0.3	1	1	Alkalurops	120	15 24.5	37.38
7 $\zeta$	CrB $\square$	4.6	-1	-1			450	15 39.4	36.64
11 $\varphi$	Her $\square$	4.2	-1	0			230	16 08.8	44.93
17 $\sigma$	CrB $\square$	5.2	0.6	4			71	16 14.7	33.86
22 $\tau$	Her $\square$	3.9	-1	-1			320	16 19.7	46.31
30 $g$	Her $\square$	4.5-5.2	1.4	-1			360	16 28.6	41.88
35 $\sigma$	Her $\square$	4.2	0.0	-1			300	16 34.1	42.44
40 $\zeta$	Her $\square$	2.8	0.7	3			35	16 41.3	31.60
44 $\eta$	Her $\square$	3.5	0.9	1			112	16 42.9	38.92
58 $c$	Her $\square$	3.9	0.0	0			165	17 00.3	30.93
67 $\pi$	Her $\square$	3.2	1.4	-2			360	17 15.0	36.81
68 $u$	Her $\square$	4.8-5.5	-1	-2			900	17 17.3	33.10
75 $\rho$	Her $\square$	4.1	0.0	-1			400	17 23.7	37.15
85 $\iota$	Her $\square$	3.8	-2	-2			500	17 39.5	46.01
91 $\theta$	Her $\square$	3.9	1.4	-3			600	17 56.3	37.25

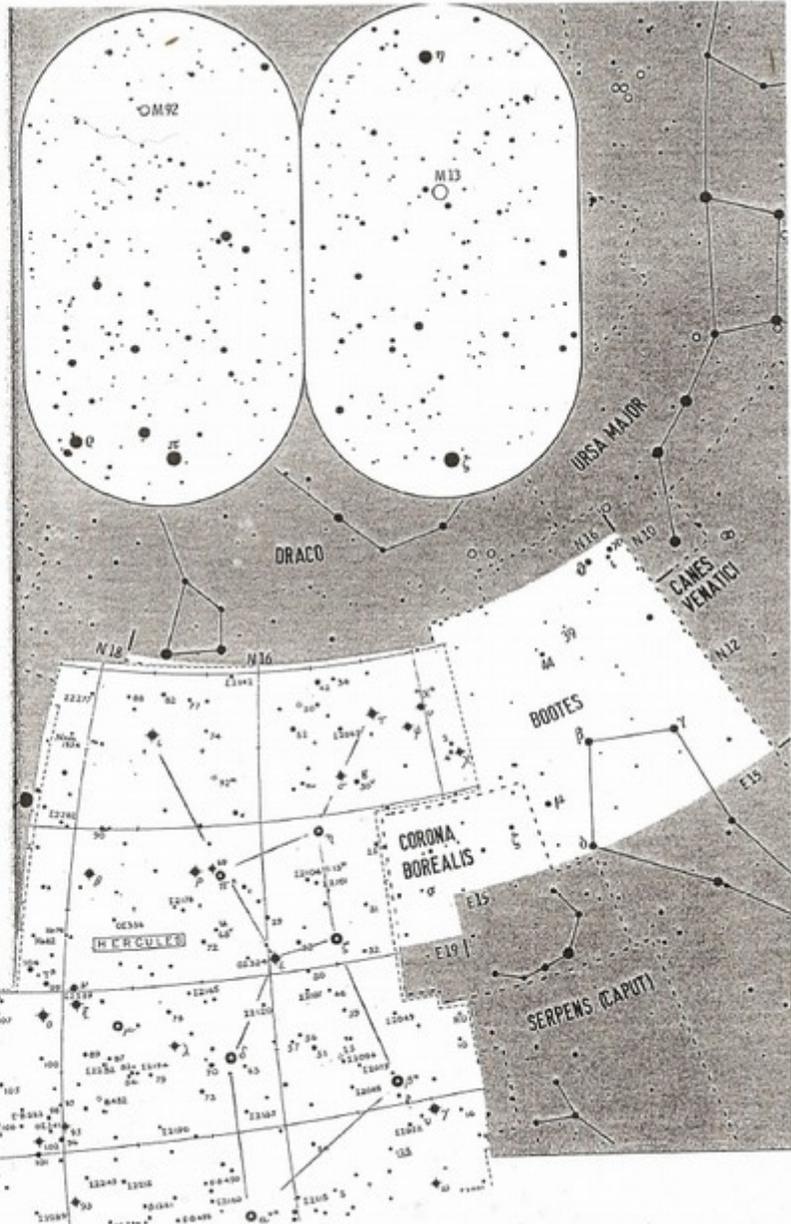
## BINARY

STAR	Position	V-Mag.	B-V	Te.	Sep.	PA	Vis.
17 $\kappa$	Boo $\square$	4.5	6.6	0.2	0.4	11	13.6
21 $\iota$	Boo $\square$	4.8	8.1	0.2	0.8	11	38.8
39	Boo $\square$	6.2	6.6	0.5	0.5	11	2.7
44 $\iota$	Boo $\square$	5.1	6-7	0.6	0.7	11 <sup>0</sup>	2.2
				1995	2007	2.3	
				2020	2015	2.1	
49 $\delta$	Boo $\square$	3.5	7.8	1.0	0.6	11	104.9
51 $\mu$	Boo $\square$	4.3	6.5	0.3	0.6	11	108.8
		7.0	7.6	0.6	0.6	11	2.2
7 $\zeta$	CrB $\square$	5.0	6.0	-1	-1	11	6.3
17 $\sigma$	CrB $\square$	5.6	6.6	0.6	0.6	11	7.1
75 $\rho$	Her $\square$	4.5	5.5	0.0	0.0	11	4.1

38  $\eta$  Her 3.5 5.0 1.4  
 a Her 3-4 5.4 1.5 0.7 4.9

## VARIABLE STAR

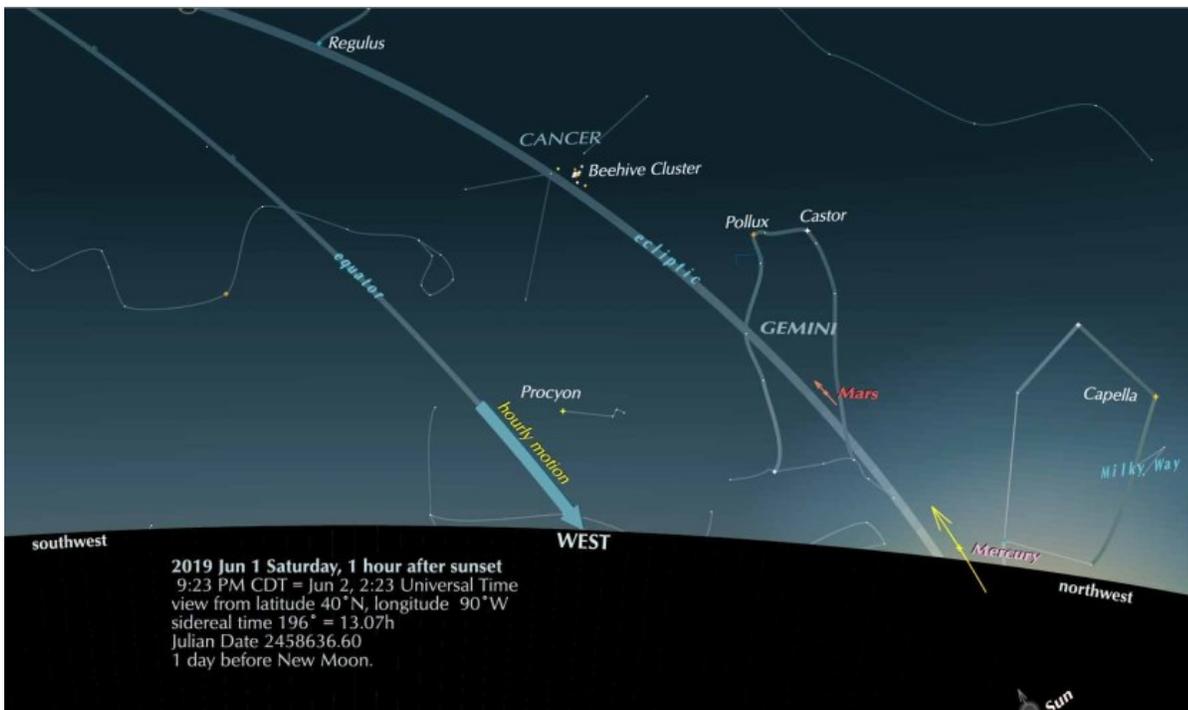
44 $\iota$ Boo $\square$		Period 0.267819 d
		Min. 2451200.18
		Binary star mag. 5.1 and 6.0-6.6.
30 $g$ Her $\square$		semireg.
		Period 70-90 d
		Extrema 4.3-6.3
68 $u$ Her $\square$		Period 2.05107 d
		Min. 2451200.9
		Eclipse $\approx$ 10 hours



Thanks to John Reising for Constellation of the Month.

## Satellite Constellations

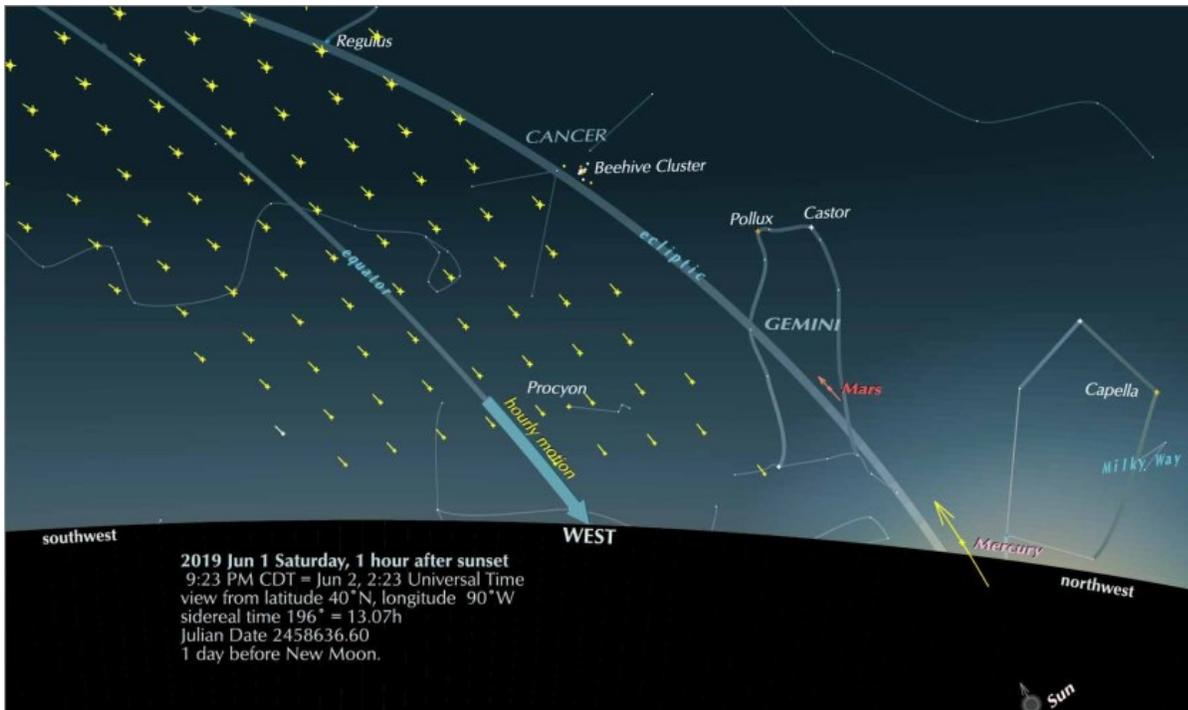
Here is the evening sky for Saturday, June 1.



Mars, traveling north of the northermost part of the ecliptic, was at its greatest declination north (more than  $24^\circ$ ) on May 16. But it is still falling lower in the evening sky, to pass behind the Sun on September 2. Mercury, moving in the opposite direction, came from behind the Sun on May 21 and will be farthest out on June 23.

The Moon is well below the horizon at this time – it will be New, passing the Sun, on June 3. So the sky will be dark, if clear of clouds and of light-pollution.

But here is a guess at what this sky could look like after [Elon Musk's SpaceX company and nine others have launched their "constellations" of commercial satellites.](#)



Musk's first 60 Starlink satellites were "blasted into space" on May 30.

They were 280 miles up and crossing from horizon to horizon in about five minutes. Their eventual height will be 240 miles, so that they will be less bright but above the horizon for longer and in sunlight for longer. They will be visible for three or four hours after sunset and before sunrise, which means that in the summer they will be visible all night.

There will be a first 1,584 of these satellites, and eventually 12,000. They are to be used for internet communication. Besides SpaceX, nine other companies are working on this "global space internet."

Astronomers, as quoted by the press, were "surprised." "Everyone's quite surprised by how bright they are," said one. They experienced "dismay as they began to calculate the potentially drastic impact on people's views of the cosmos." One might expect them to have rather easily, and early, calculated the extra light added to the sky and the area of sky blocked for telescopes. And one might expect a science correspondent to write a more astronomy-literate sentence than "Since the satellites are higher than the Earth's surface, they remain illuminated by sunlight after sunset here."

On looking again at the article, I see that I may have been optimistic about the density. Here's how the first "train" of Starlinks appeared as it went over Holland.



▲ Trail of SpaceX Starlink satellites seen in sky over Netherlands - video

Is our children's view of the universe to be roofed off by these "constellations"?

There is something of an analogy with the constellation, or procession, or ant-trail of people now to be seen on Mount Everest. This photograph of a couple of days ago gave me a sharp shock.



Where is Sirius? Where is the long outdoors apprenticeship of getting to know the starry sky? Where is the epic of the gradual winning to the world's summit?

~Guy Ottewell

<https://www.universalworkshop.com/2019/05/31/satellite-constellations/#more-7526>

(Thanks to Dave Lengyel for the Ottewell blog link.)