



Lorain County, Ohio
Website: blackriverastro.org

December 2017
Newsletter submissions: [Editor](#)

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--Wednesday, December 6, 7 p.m.: Holiday potluck, Beaver Creek Reservation meeting house, Amherst. Bring a dish to pass and your own beverage and table service.

--Thursday, December 14, 7 p.m.: Board meeting, Blue Sky Restaurant, Amherst

--Friday, December 15, 7-9 p.m.: Public observing, Nielsen Observatory (note: no Saturday cloud backup date)

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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.

Guidescope Contributions Wanted

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

~Bill Ruth

BOARD SUMMARY November 9, 2017

The November meeting was called to order at 7:08 p.m. (for the second month in a row) with nine Directors present. The Minutes of the October meeting were read and approved as was the Treasurer's report. Committee reports followed with the *Guidescope* editor, Bill Ruth, reporting that all was well and that he did have some submissions. The website is also status quo. Instrumentation came next with Tim Kreja reporting that he believes there is mold on the inside of the corrector plate on the C-14 with the orange tube. Since the dec. lock is also badly worn, the Board decided to contact Celestron about sending in the tube and the fork mount to have the scope cleaned, the dec lock replaced or repaired, and also the switches on the hand paddle examined for intermittent operation. We will also inquire about the possibility of adding updated coatings. Schauer will contact Celestron. There were no new items to discuss under "OTAA" or by the Metro Parks liaison.

Programming is as follows:

December:	Annual Christmas pot luck dinner at the LCMP Amherst Beaver Creek Reservation
January:	Finish the NOVA video on the Cassini Mission
Feb., March	Open
April	Rob Owen (tentative)
May	John Reising on Mars which is at opposition on July 27 th .
June	Mickey Hasbrook on Lowell Observatory
July-Sept.	Open
October:	Annual Meeting of the Members/Board elections/short video
November:	Open

December: Annual Christmas Pot Luck

Please note the number of open dates. Any members who would like to present a program or who have a suggestion for a program, please contact an officer or Board member. The email addresses of the officers are on the bottom of the home page of the BRAS website.

Old Business came next with the first item being the choosing of dates for solar observing for 2018. We will do solar observing from 1:00-4:00 p.m. from May through October as follows:

May: Date TBA Paddle and Pedal Festival at Lakeview Park

June: June 24 Solstice Festival at Lakeview Park

July: July 29 Sandy Ridge

August Aug. 26 Sandy Ridge

Sept. Sept. 23 Sandy Ridge

Oct. Oct. 28 Sandy Ridge

The second item of discussion was the possibility of drafting a written proposal for the construction of a storage building at the Nielsen Observatory site. The President received suggestions on this.

There was only one item of New Business, which was the club participation in the Avon Lake Recreation Department's annual "Dark Skies, Bright Kids" program. The date this year is Friday, February 23rd from 7:00-9:00 p.m. The Board agreed to participate again and Jeff Walsh, Dan Walker, Mickey Hasbrook, Greg Zmina, and Steve Schauer are committed to attend.

Dates for December are as follows:

Wednesday, Dec. 6 7:00 p.m. Christmas Pot Luck Dinner at Amherst Beaver Creek

Thursday, Dec. 14 7:00 p.m. Board Meeting at the Blue Sky Restaurant

Fri. ONLY Dec. 15 7-9:00 p.m. Public Observing (Friday ONLY...NO Saturday back-up)

The meeting was adjourned at 8:45 p.m. (for the second month in a row.)

~Steve Schauer

Captain Randy's Terrific Tennessee Eclipse

Now that all the hoopla has settled down, thought I'd write up an observation...

My plan for this eclipse was to ensure that my kids and grandkids got to see totality. I was ready to drive to wherever looked like the best for clear skies. We settled on driving down to White House, Tennessee on Sunday evening. Traffic was not bad, and we arrived at the Walmart parking lot early.

I watched the weather reports overnight and decided to move a bit east to Lebanon, Tennessee. Again, traffic was not bad. We found another parking lot (Applebee's) that was closed, and there would be no interference except for other eclipse chasers. The skies were clear most of the a.m., then we had scattered cumulus.

I knew we were in a good spot to view the eclipse as we happened to be under the traffic pattern of the Lebanon airport. We must have seen 125 airplanes fly in for the eclipse!

Everyone was set for the start! Partial phases underway, we observed with our Mark I eyeballs and filters.....I also had my Williams Optics 71mm with a Thousand Oaks filter at 17 power. And we had two pairs of binoculars for totality. My grandkids are 10 and 12 years old --I went over (10 times) what things to look for in the 2 minutes 20 seconds.

We watched as the Moon's disc slipped past more than 50% of the Sun. Now it was getting exciting!

The groups of sunspots made it even better. The ambient light around us had a noticeable strangeness to it. Time for the last briefing, and set the stopwatch for 2 minutes and 20 seconds of totality.

We were all watching as the shadow approached from the west, but I'm not so sure we really saw it. What we did see was the strange lighting effects on the clouds in that direction. The previous two total eclipses I had seen were in wide open skies with no clouds around.

What sticks out in my mind in retrospect is how quickly Venus popped out. The sky went so dark so fast, that it differs from watching a slow darkening of an evening's sky, where Venus is seen in a light blue sky for some time, then slowly brightens as it gets darker. I did not see the planets Mars and Mercury.

Trying to balance looking with naked eyes, a telescope for close-up views, and binoculars, all the time watching the clock for the end of totality and making sure everyone else did the same was too much. What I did see was good! We also noted that the parking lot lights had come on, and the temperature dropped!

In a flash, I called out ONE MINUTE LEFT! Everyone concentrated on burning all the imagery into their memories.

With a few seconds to the end of totality, we saw a fantastic Diamond Ring.....and then, back to viewing with filters.

This eclipse was not a very dark one--the sunset all around the horizon effect was rather subdued. Another difference I noted between this eclipse and the previous two was that the Sun's disc seemed huge. It looked like it was a full degree in diameter, perhaps because there were buildings and trees, etc., all around us. The previous two eclipses I had seen were in huge, open fields – no ground reference nearby.

I am glad I elected to not photograph this eclipse--it would have been too much to do, and I would not have seen as much.

The cumulus clouds that were nearby were moving very slowly, and we thought one might cover the Sun at exactly the wrong time. As it worked out, they stopped moving just before totality, and we were successful, a big clear hole around the Sun! We had picked a good spot.

Incredibly, I am three for three on total solar eclipses. The difference in going to this one was it was a short drive away, not in another country thousands of miles away. The kids got to experience a total solar eclipse at the age when I first got interested in astronomy--hopefully the seeds are planted--you never know.

~Randy Beachler

Deep-Sky Objects for December

Objects for Binoculars							
02 ^h 19.0 ^m	+57° 09'	NGC 869	5.3v	29'		Per	Open Cl 200+ Double Cluster
02 ^h 22.4 ^m	+57° 07'	NGC 884	6.1v	29'		Per	Open Cl 115+ Double Cluster
02 ^h 42.0 ^m	+42° 47'	M34	5.2v	35'		Per	Open Cluster 60+
05 ^h 03.4 ^m	+60° 27'	Beta	4.0, 8.6	80.8"	208°	Cam	Double Star
05 ^h 06.1 ^m	+58° 58'	11 & 12 Cam	5.4, 6.5	108.5"	8°	Cam	Double Star
05 ^h 44.5 ^m	-22° 27'	Gamma	3.7, 6.3	96.3"	350°	Lep	Double Star
Objects for Small Telescopes (2-6 inch)							
RA	Dec	Number	Mag(s)	Size/Sep.	PA	Const.	Type of Object
04 ^h 07.0 ^m	+60° 55'	NGC 1501	11.5v	51"		Cam	Planetary Nebula
04 ^h 07.7 ^m	+62° 20'	NGC 1502	5.7v	7'		Cam	Open Cluster 45+
06 ^h 18.7 ^m	+78° 21'	NGC 2146	10.6	5.4'x4.5'		Cam	Galaxy
05 ^h 14.5 ^m	-08° 12'	Beta	0.1, 6.8	9.5"	202°	Ori	Double Star Rigel
06 ^h 08.4 ^m	+13° 57'	NGC 2169	5.9v	6'		Ori	Open Cluster 30+
07 ^h 27.1 ^m	+80° 11'	NGC 2336	10.4v	6.4'x3.3'		Cam	Galaxy
Objects for Medium Telescopes (8-14 inch)							
RA	Dec	Number	Mag(s)	Size/Sep.	PA	Const.	Type of Object
04 ^h 32.8 ^m	+78° 53'	NGC 1560	11.4v	9.2'x1.7'		Cam	Galaxy
05 ^h 24.5 ^m	-24° 33'	M79	7.8v	8.7'		Lep	Globular Cluster
05 ^h 46.7 ^m	+00° 03'	M78		8'x6'		Ori	Emis. & Refl. Nebula
05 ^h 27.5 ^m	-12° 42'	IC 418	9.3v	12"		Lep	Planetary Nebula
05 ^h 33.4 ^m	-21° 57'	NGC 1964	10.7v	5.0'x2.1'		Lep	Galaxy
07 ^h 28.9 ^m	+69° 13'	NGC 2366	10.8v	8.2'x3.3'		Cam	Galaxy
Objects for Larger Telescopes (16-inch & larger) Challenge Objects							
RA	Dec	Number	Mag(s)	Size/Sep.	PA	Const.	Type of Object
03 ^h 46.8 ^m	+68° 06'	IC 342	8.4v	22.0'x22.0'		Cam	Galaxy
05 ^h 00.0 ^m	-26° 01'	NGC 1744	11.3v	5.1'x2.5'		Lep	Galaxy
05 ^h 06.9 ^m	-03° 21'	NGC 1788		5'x3'		Ori	Reflection Nebula
05 ^h 42.1 ^m	-09° 05'	NGC 2022	11.9v	11.9v		Ori	Planetary Nebula
06 ^h 13.8 ^m	+12° 48'	NGC 2194	8.5v	8'		Ori	Open Cluster 80+
07 ^h 36.9 ^m	+65° 36'	NGC 2403	8.5v	25.5'x13.0'		Cam	Galaxy

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

Thanks to Len Jezior for deep sky objects charts

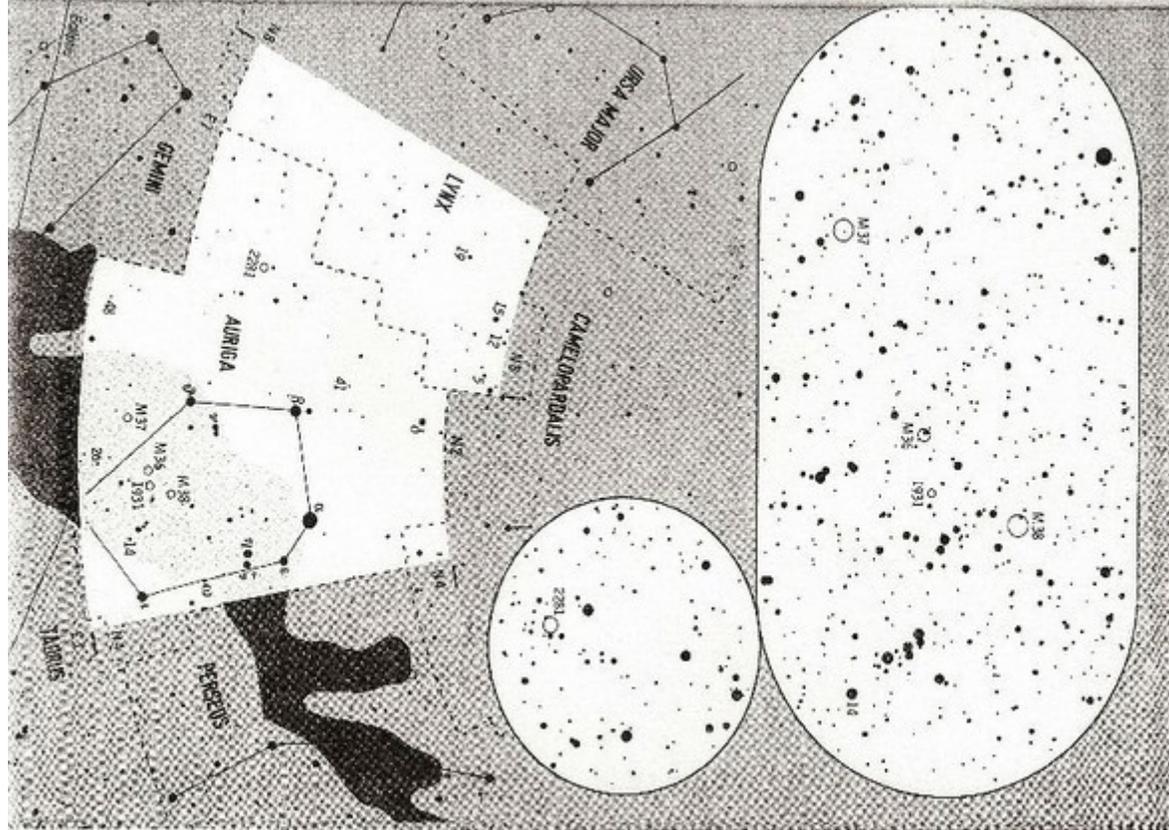
N6 Northern Sky Winter Constellations

NEBULA	Position	V-Mag.	Size	Shape	Type	Vis.	Dist.	R.A.	Dec.
1912 M38	Aur	6	12/1'	20	0 m	OC	4000ly	5 ^h 28 ^m 7 ^s	35.83
1931	Aur	10	11	2.5	0 Em	DN	6000	5 ^h 31 ^m 4 ^s	34.23
1960 M36	Aur	6	12	15	0 m	OC	4000	5 ^h 36 ^m 1 ^s	34.13
2099 M37	Aur	2	4	6	12	25	0 r	OC	4000
2281	Aur	5	6	12	20	0 p	OC	2000	6 ^h 40 ^m 3 ^s
1912 M38	Partially resolved in binoculars, interesting grouping of faint stars.								
1931	Small faint diffuse nebula, imbedded stars visible at high power.								
1960 M36	Some stars resolved in binoculars, about 60 stars in a telescope.								
2099 M37	aligned along arms, deficiency of faint stars, central condensation.								
2281	Binoculars show a large oval glow, which turns into an amazing number of stars in a telescope, a yellow mag. 9.1 star is centered.								
2281	A few bright, irregularly scattered stars in binoculars, oval core.								

STAR	Position	V-Mag.	B-V	Tr.	Abs.	Name	Dist.	R.A.	Dec.
3	Aur	2.7	1.5	-3	1		500ly	4 ^h 57 ^m 0 ^s	33.17
4	Aur	4.9	0.0	1	1		160	4 ^h 59 ^m 3 ^s	37.89
7	Aur	3.0-3.8	0.5	-7	1		3000	5 ^h 02 ^m 0 ^s	43.82
8	Aur	3.7-4.0	1.2	-3	1		800	5 ^h 02 ^m 5 ^s	41.08
10	Aur	3.2	-2	-1	1		220	5 ^h 06 ^m 5 ^s	41.23
14	Aur	4.9	0.2	0	0		270	5 ^h 15 ^m 4 ^s	32.69
13	Aur	0.1	0.8	1	0	Capella	42	5 ^h 16 ^m 7 ^s	46.00
26	Aur	5.4	0.4	1	0		450	5 ^h 38 ^m 6 ^s	30.49
32	Aur	4.0	1.1	1	0		220	5 ^h 51 ^m 5 ^s	39.15
33	Aur	3.7	1.0	1	1		140	5 ^h 59 ^m 5 ^s	54.28
34	Aur	1.9	0.1	1	0	Menkalian	82	5 ^h 59 ^m 5 ^s	44.95
37	Aur	2.6	-1	-1	1		175	5 ^h 59 ^m 7 ^s	37.21
41	Aur	5.8	0.1	1	1		300	6 ^h 11 ^m 6 ^s	48.71
5	Lyn	5.1	1.5	2	2		650, 1500	6 ^h 26 ^m 8 ^s	58.42
48	Aur	4.9-5.8	0.7	-4	1	FTT	2000	6 ^h 28 ^m 6 ^s	30.49
12	Lyn	4.8	0.1	1	1		230	6 ^h 46 ^m 2 ^s	59.44
15	Lyn	4.4	0.6	1	1		170	6 ^h 57 ^m 3 ^s	58.42
19	Lyn	5.3	-1	1	1		500	7 ^h 22 ^m 9 ^s	55.29

BINARY	Position	V-Mag.	B	V	Tr.	Th.	Sep.	PA	Vis.
4	Aur	5.0	8.0	0.0	0.5	11	4.9	•	•
14	Aur	5.0	7.9	0.2	0.4	11	14.3	•	•
37	Aur	2.7	7.1	-1.1	0.5	11	3.6	•	•
41	Aur	6.2	7.0	0.1	0.2	11	7.6	•	•
5	Lyn	5.2	7.8	1.5	1.1	11	95	•	•
12	Lyn	4.9	7.2	0.1	0.3	11	8.9	•	•
19	Lyn	5.4	6.0	0.1	0.1	11	11.0	1.8	•

VARIABLE	STAR	Position	V-Mag.	Period	Max.
7	Aur	7	5.4	48 FTT	1.9
8	Aur	8	5.4	FTT	1.9
19	Lyn	19	5.4	FTT	1.9
19	Lyn	19	5.4	FTT	1.9



Thanks to John Reising for Constellations of the Month.



“Elf on a Shelf”

Visual rhyming riddles...an astronomical interpretation

There have been some funny (and educational) musical memes floating around Facebook lately. If you've ever played in a band or sung in a choir you're sure to enjoy this one...

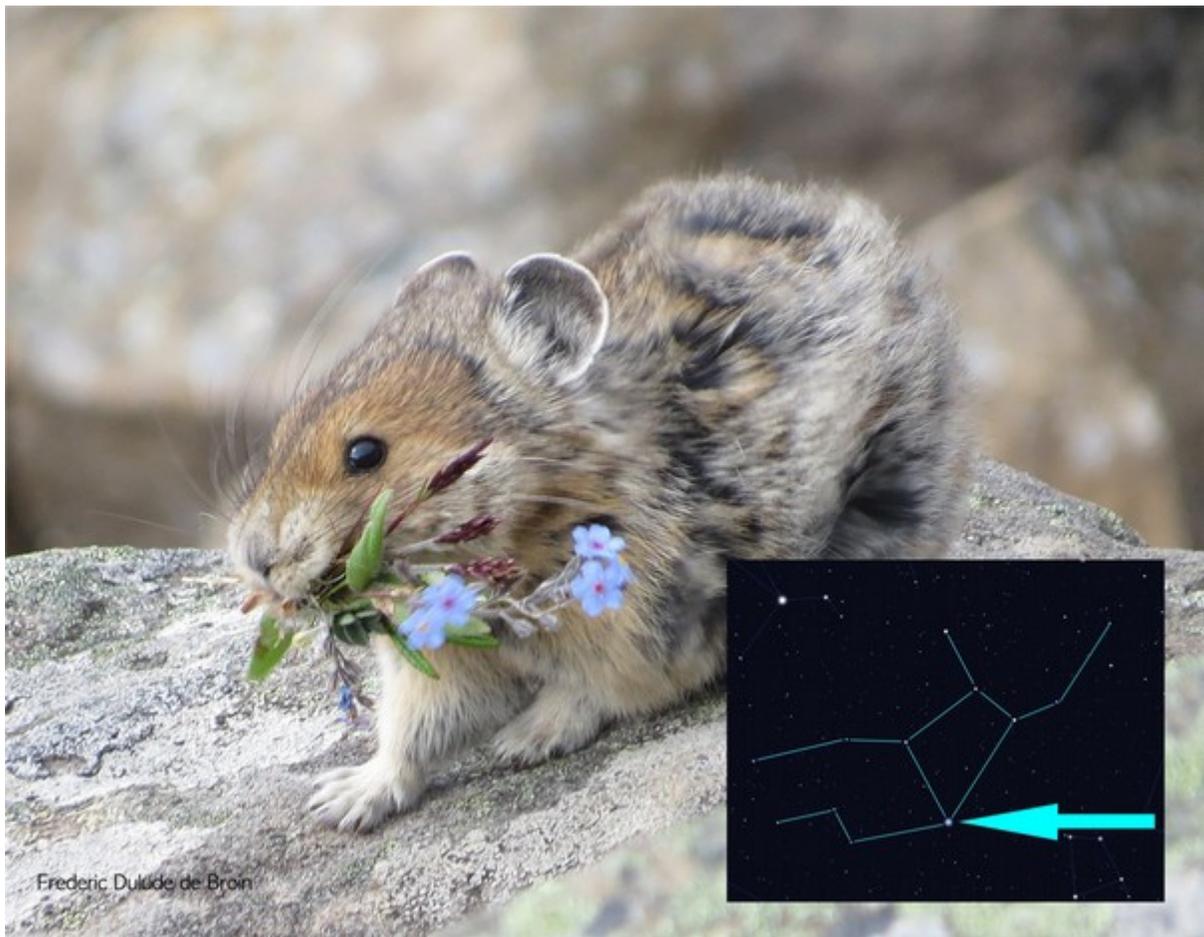


If you're less familiar with musical notation, that's “Coda on Yoda.”

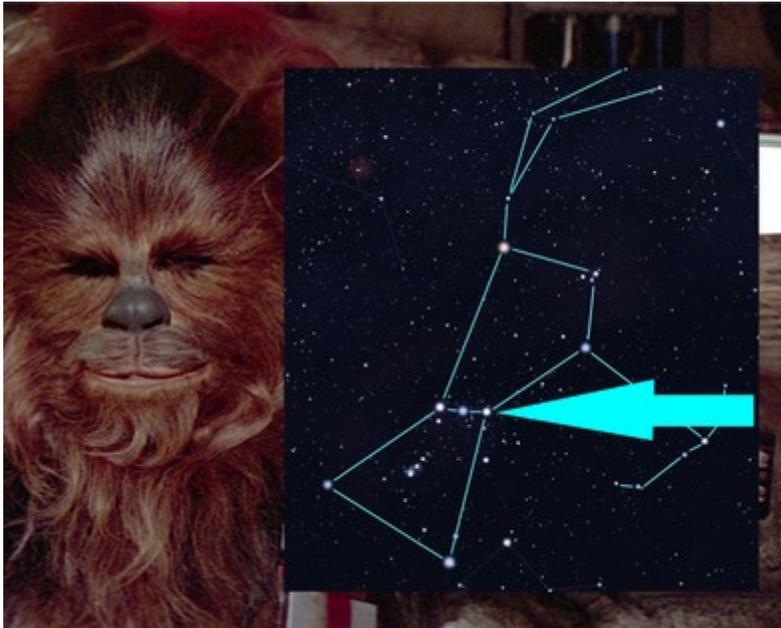
After laughing out loud to “Dorian on DeLorean” (think *Back to the Future*), and “Supertonic on Harry Connick” (ok...that one really is just for music theory nerds), I decided it would be fun to do some similar riddles based on star names. Those of you who are my friends on Facebook have seen a couple of these already, but never fear...I've come up with even more gut-busting (or maybe eye rolling) visual rhymes for your stellar-puzzling pleasure. Some stars and their background references will be easily recognizable, while others are a bit more obscure. It may help to consult star atlases, astronomy apps, and Google, but if you find yourself entirely stumped, you can also find the answers on the last page of this newsletter.

Enjoy

~*Kelly Ricks*



“Arc to Arcturus and speed on to...” The brightest star in the constellation Virgo makes a nice rhyme with the name of this alpine mammal. _____ on a _____. **Hint: it's not a rodent!*



You'll undoubtedly recognize the "movie star," pictured here, but this riddle's *true* star is also well known to astronomers as an important double star. Its light provided the "background against which the thin gas of interstellar space was first detected, when the German astronomer Johannes Hartmann in 1904 discovered absorptions in the star's spectrum that could not be produced by the orbiting pair. From this discovery, and others that followed, we now know that all of the Galaxy's interstellar space contains an enormously complex medium of gas and dust that is the birthplace of new stars." ~Jim Kaler, stars.astro.illinois.edu

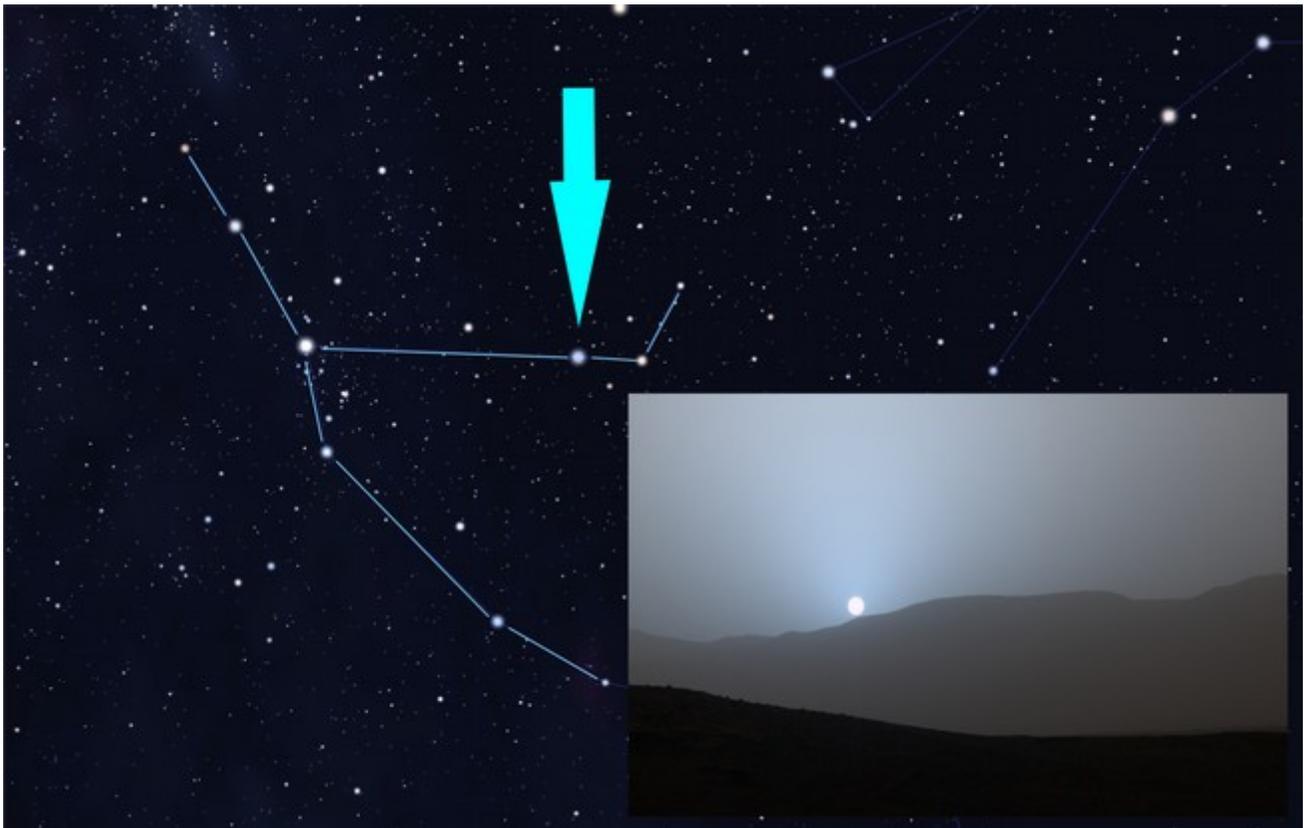
_____ on _____.

I'm continuing the sci-fi reference here, but this one is a bit more obscure...you may need to use the name of this familiar star to remember the name of this lesser known 2002 space thriller.



_____ on _____.

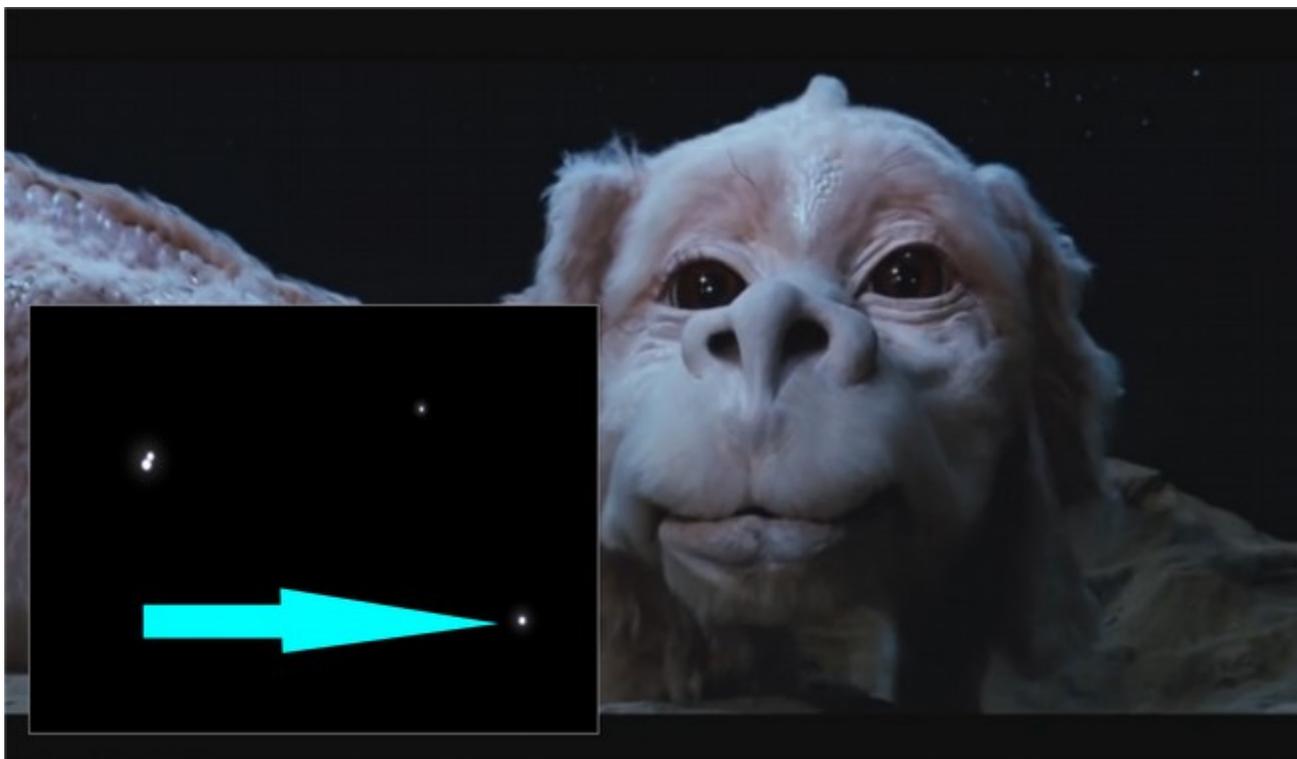
Let's reverse the view for this one...



Yes, that's right, we've got two stars featured for this rhyme, and yes, both have proper names.

The sentence here will read a little differently too. Try: "_____ next to _____."*Hint: ignore the planet.

An *OUTSTANDING* mount for a *STELLAR* rider!

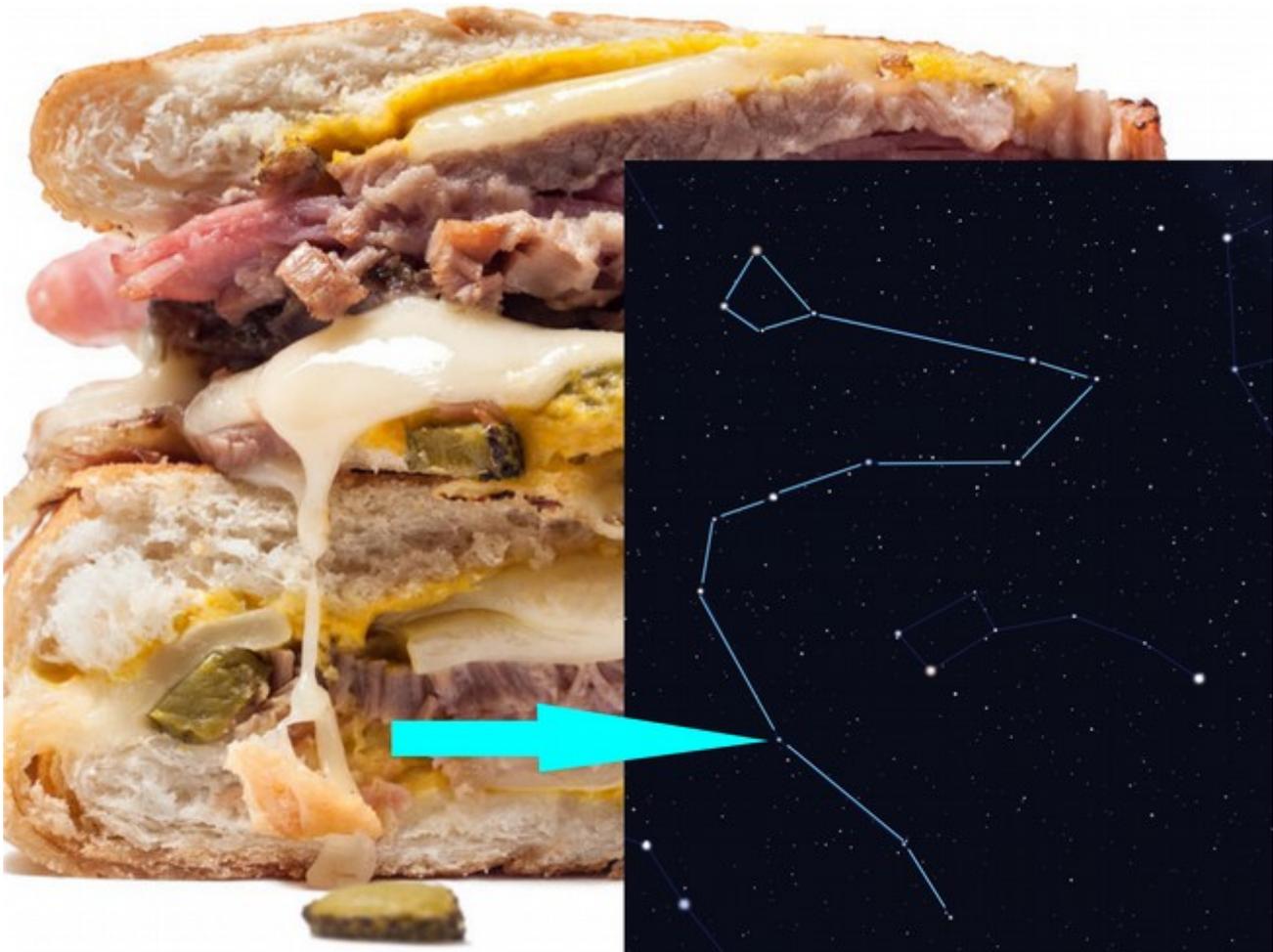


*Hint: the starry view above is telescopic. _____ on _____.



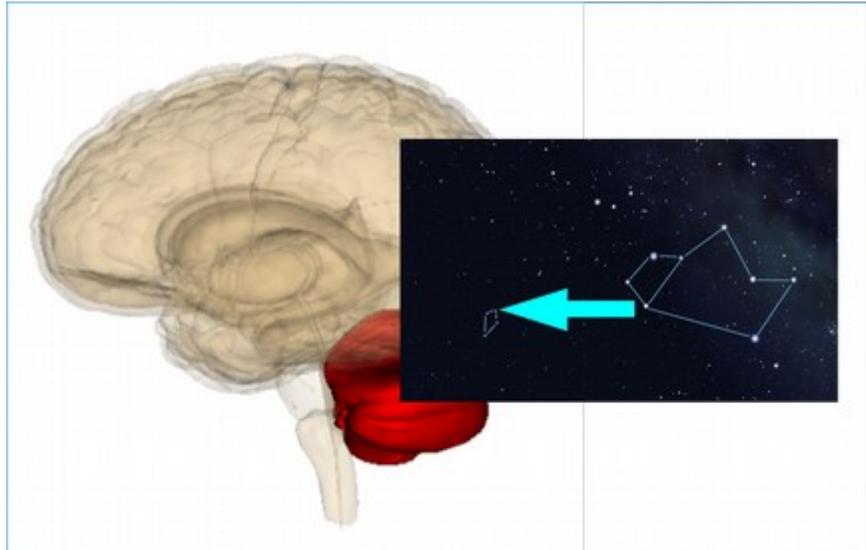
The next star featured is also part of a famous mythological pair, and was discovered to be an interesting double itself in 1718. Between 1970 and 2017, its two members have increased their observed separation by about 4".

_____ on a _____.



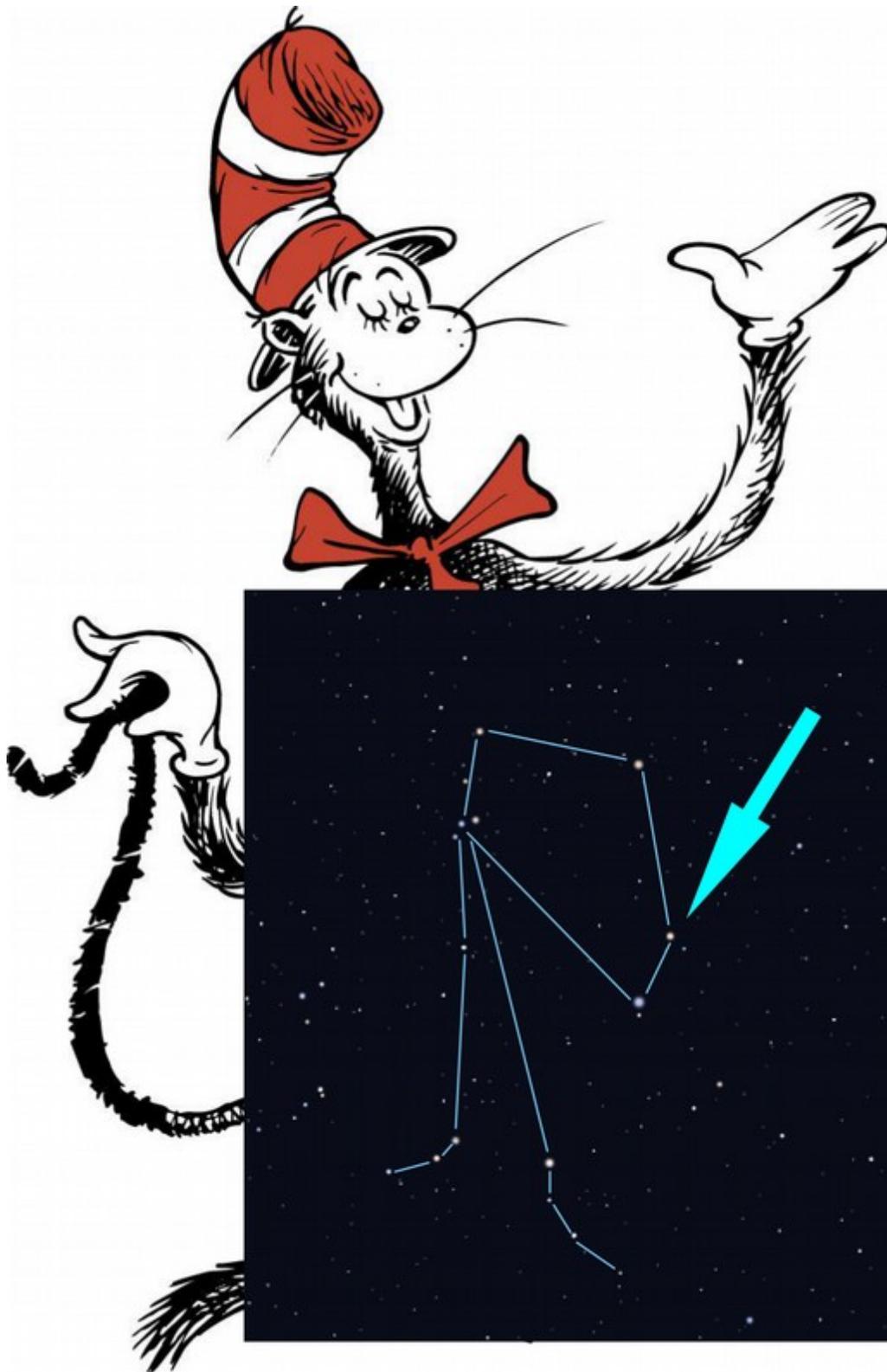
Trace back Earth's northern axis of precession about 5000 years or so, and you'll find this star. The particular kind of mouth-watering Caribbean sandwich with which it is paired would provide excellent brain food for the more challenging riddle coming up... _____ on a _____.

I'll admit, unless you're familiar with cerebral anatomy and odd visual asterisms, this one might be a little trickier.



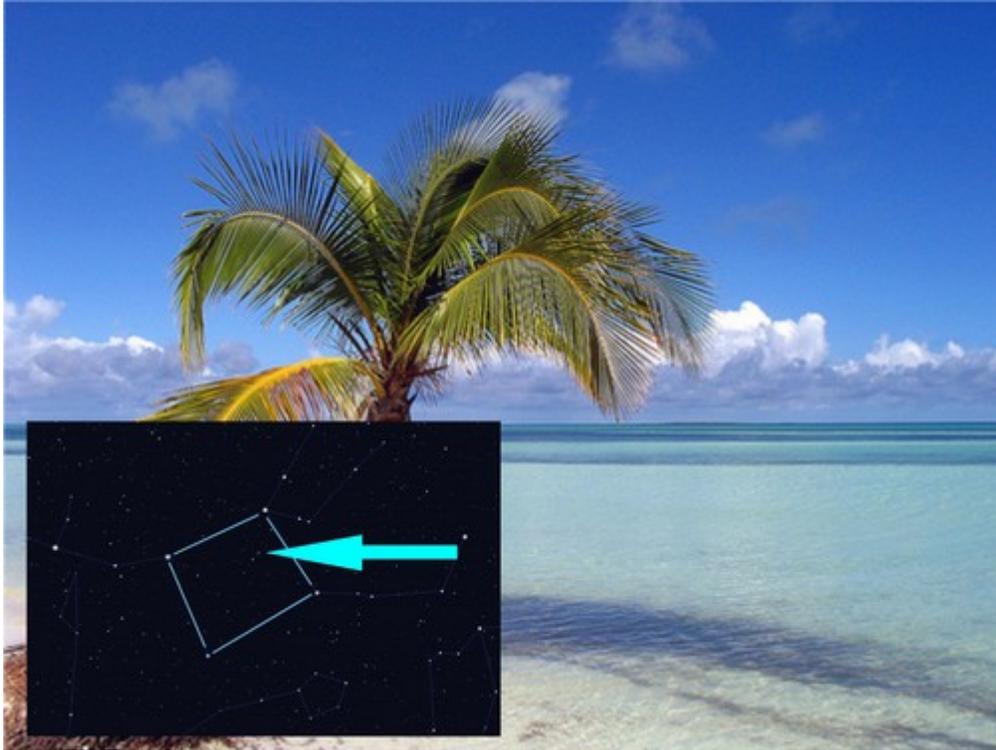
The four stars linked here are part of a tiny and little-known asterism hiding within the constellation Sagittarius (the Teapot). Omega Sagittarii is the asterism's namesake and its main member, with 59, 60, and 62 Sgr designated as II, III, and IV. If you're still scratching your head, you can thank the part of your brain highlighted here for giving you such great muscular coordination...and then change one letter for the stellar solution.

_____ on a _____.

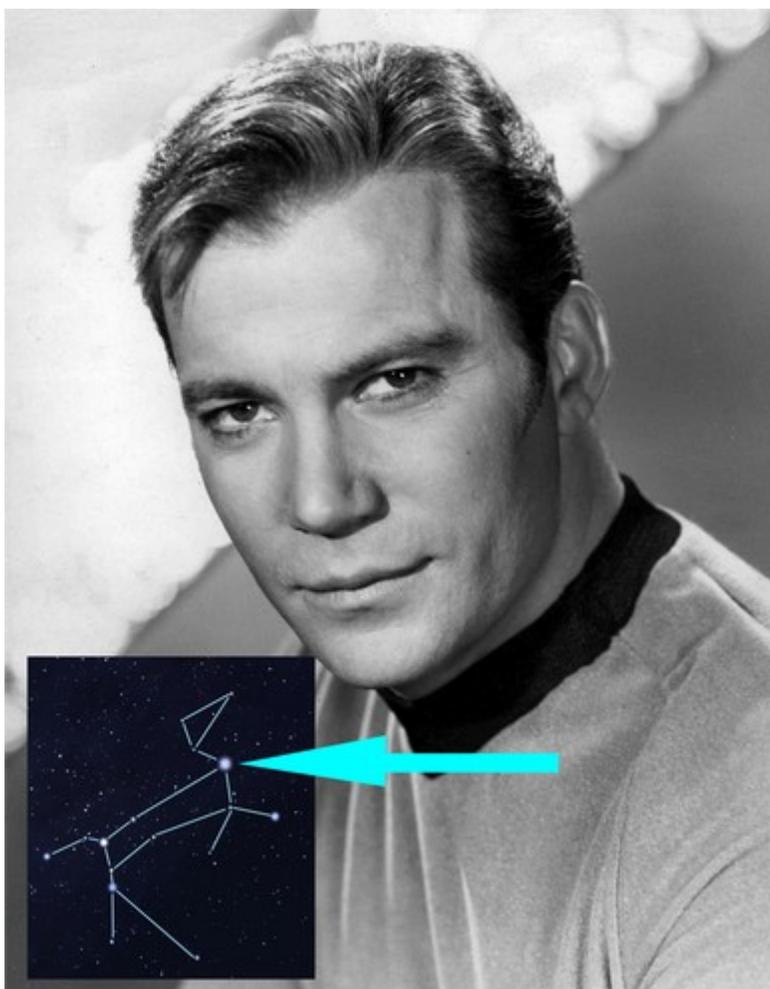


Ok! We're back to single stars...but multiple rhymes (three in this one). *Hint: the water jug asterism shown is part of the constellation Aquarius _____ on the _____ in the _____.

One of the traditional names for Tau Pegasi will help you decode this straightforward rhyme.



_____ on a _____.



And for the grand finale: one charismatic captain and a stupendously superior star!

**Hint: remember his FULL name!*

_____ on _____.

Live long and prosper my friends!

Answers:

Spica on a Pika

Mintaka on Chewbacca

Polaris on Solaris

Sol next to Algol

Alcor on Falcor

Castor on a Pastor

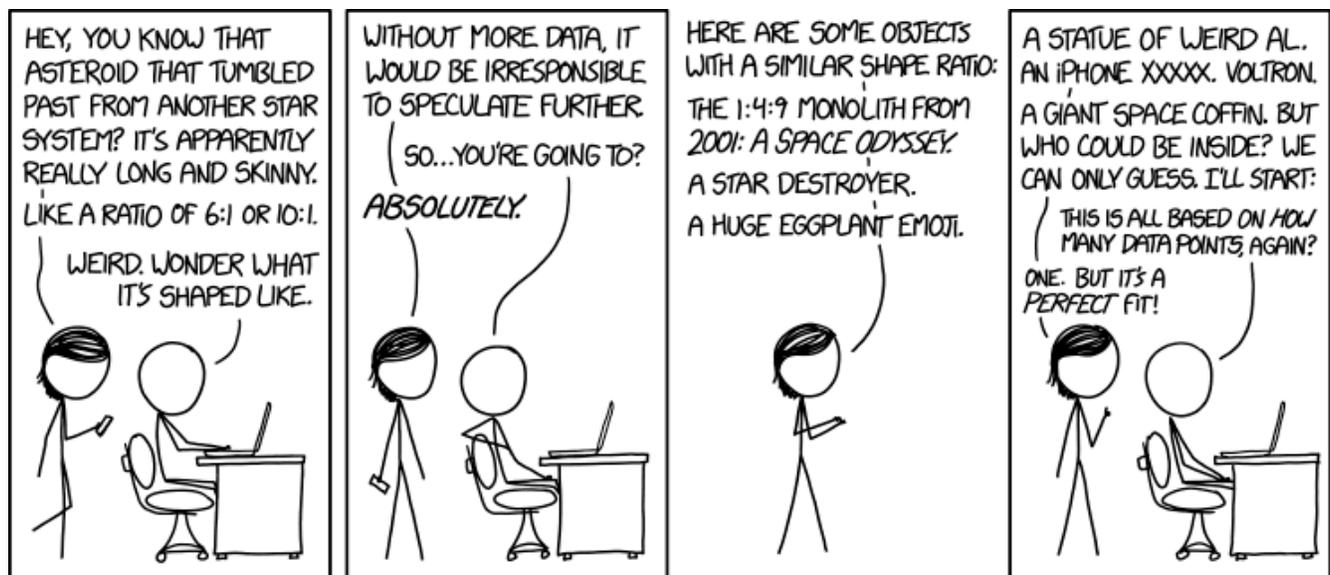
Thuban on a Cuban

Terebellum on a Cerebellum

Skat on the Cat in the Hat

Salm on a Palm

Sirius on Tiberius



<https://xkcd.com/1919/>

thanks to Lee Lumpkin