



# AU AstroNews

## The Newsletter of the Astronomical Unit

July 2020

Sponsored by the Santa Barbara Museum of Natural History



Ritz-Carlton Bacara guests look forward to an evening of outreach. Photo credit: Tom Totton.

### OUTREACH SUMMARY

Because of the ongoing pandemic, there was no public telescope outreach in June. Please stay safe and healthy by wearing masks, washing your hands frequently, and practicing physical distancing.

### OUTREACH EVENTS

The SBAU radio hour on KZSB 1290AM at 9 AM on the second and fourth Monday of each month will continue as a phone-in show, thanks to the dedication of Baron Ron Herron. Otherwise, there will be no SBAU meetings, public telescope outreach, or school events.

Although the Museum has opened for a limited set of outdoor activities, star parties and club meetings are as yet too contact-intensive for this stage of the pandemic.

### JULY SKY SIGHTS AND SITES

It's July, and the summertime Milky Way is again becoming prominent in our evening skies. After sunset on July 5, the just past full Moon, Jupiter, and Saturn will form a pretty triangle in the

southeast. A thin waning crescent Moon will join Venus and orange Aldebaran in the predawn sky on July 17.

Although they are somewhat low in the south, the gas giants Jupiter and Saturn are big and bright, with Jupiter reaching opposition on July 14, and Saturn on July 20. At opposition, the planets rise at sunset and are up all night. Don't forget their many moons, too - Jupiter has 79 and Saturn has 82 at last count. And if you're up for a real challenge, dwarf planet Pluto is at opposition on July 15. Both Jupiter and Pluto are set against the crowded backdrop of the center of the Milky Way in Sagittarius, but it'll be a little harder to pick out 14th magnitude Pluto in the busy background.

This is also the beginning of globular cluster season, with showpieces like M5, M13, M92, and M22 returning to prominence. Fill your eyepiece with glittering stars!

It seems like yesterday, at least to some of us, but July 22 is the 15th anniversary of the discovery of Comet Hale-Bopp. It's been quite a while since we've had a truly spectacular comet of the likes of Hale-Bopp or Hyakutake.

If the night sky is cloudy, there's plenty of astronomy content on the internet that is worth a look. Lowell Observatory has a collection of videos:

<https://lowell.edu/media/video-library/>

Closer to home, Las Cumbres Observatory continues to churn out astronomical discoveries:

<https://tinyurl.com/ya8qa89p>

<https://tinyurl.com/yaxasgs4>



“Call me crazy, but I think I’ll go for Pluto tonight!” Photo credit: Tom Totton.

## FROM THE PRESIDENT

*Jerry Wilson*

Using a new algorithm optimized to detect Earth size planets orbiting their star with roughly a one-year period, archived Kepler mission data was re-examined, possibly revealing an interesting planet-star system that closely mimics the Earth-Sun system. There are two ways exoplanets can be found from Earth. One is to measure the very slight periodic drop in the primary star’s brightness as an orbiting planet passes in front of the star. Commonly known as the Doppler shift, the other measures the very slight periodic shift in the star’s spectral lines from one side to other of its at-rest position, as it is pulled toward or away from the observer by one or more orbiting planets..

Located over 3,000 light-years away from Earth, the star Kepler-160 is around 1.1 times the size of the Sun and has a surface temperature of 5200°C, only 300 degrees less than the Sun’s. The star is already known to have two exoplanets – [Kepler-160 b](#), a rocky super-Earth, and [Kepler-160 c](#), a Neptune-like gas giant – but the duo’s orbits are very close to the star, and are thought to be too hot to be habitable.

These types of bigger planets close to their star are easier to identify than Earth sized planets about one AU out. The new algorithm was used to re-examine the Kepler data and found slight variations in the periods of b and c. The perturbations are now attributed to two new planets, making Kepler 160 a four planet system. Of the two new possible planets, Kepler-160 d and KOI-156.04, the former

has been indirectly confirmed to have a mass between 1 and 100 Earth masses, and an orbital period from 7 to 50 days. This planet, however, has fallen into the shadows of the more intriguing combination of the Earth-like KOI-456.04 orbiting within the habitable zone of the Sun-like Kepler-160. Kepler-160 radiates at a luminosity similar to the Sun’s, meaning that newly found KOI-456.04 receives about 93 percent of the amount of sunlight that we experience on Earth. It is suggested that if KOI-456.04 were to have an inert atmosphere with a mild Earth-like greenhouse effect its surface temperature would be around 5°C, roughly 10°C less than Earth’s average temperature. Boasting an 85 percent chance of planetary possibility, KOI-456.04 has not yet reached the 99 percent benchmark needed for full confirmation. Astronomers suspect that they may need to wait for future space missions, such as ESA’s [PLATO](#) spacecraft before they get complete validation.



“Come on, Ron. It’s not that cold in here!” Photo credit: Tom Totton.



“That’s right, Ron. I built this baby out of parts I found in our garden shed!” Photo credit: Tom Totton.

## ARTS CORNER

- I am like a slip of comet,  
Scarce worth discovery, in some corner seen  
Bridging the slender difference of two stars,  
Come out of space, or suddenly engender'd  
By heady elements, for no man knows:  
But when she sights the sun she grows and sizes  
And spins her skirts out, while her central star  
Shakes its cocooning mists and so she comes  
To fields of light; millions of traveling rays  
Pierce her; she hangs upon the flame-cased sun  
And sucks the light as full as Gideon's fleece:  
But then her tether calls her; she falls off,  
And as she dwindles shred her mock of gold  
Amidst the sisting planets, till she comes  
To single Saturn, last and solitary;  
And then goes out into the cavernous dark.  
So I go out: my little sweet is done:  
I have drawn heat from this contagious sun:  
To not ungentle death now forth I run.  
Gerard Manley Hopkins, September 13, 1864

### **Telescope**

Ted Kooser

This is the pipe that pierces the dam  
that holds back the universe,  
that takes off some of the pressure,  
keeping the weight of the unknown  
from breaking through  
and washing us all down the valley.  
Because of this small tube,  
through which a cold light rushes  
from the bottom of time,  
the depth of the stars stays always constant  
and we are able to sleep, at least for now,  
beneath the straining wall of darkness.

### **Starlight**

Ted Kooser

All night, this soft rain from the distant past.  
No wonder I sometimes waken as a child.

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### **AU annual membership rates:**

**Single = \$20 Family = \$25**

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# The Astronomical Unit

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July 2020						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2	3	4
5	6	7	8	9	10	11
12	13 TECH TALK KZSB (AM1290) 9-10 AM	14	15	16	17	18
19	20	21	22	23	24	25
26	27 TECH TALK KZSB (AM1290) 9-10 AM	28	29	30	31	