



AU AstroNews

The Newsletter of the Astronomical Unit

June 2017

Sponsored by the Santa Barbara Museum of Natural History



"I understand this often happens when he stares at the moon through Chuck's scope." Photo credit: T. Totton.

OUTREACH SUMMARY

THANKS! to all the volunteers who helped out for International Astronomy Day! Since the last AU newsletter, volunteers Peter Angeloff, Emilio Antonucci, Farshad Barman, John Boyd, Mike Chibnik, Zandra Cholmondsey, Jamie Clark, Tim Crawford, Joe Doyle, Kazue & Mike Farris, Art Harris, Baron Ron Herron, Jürgen Hilmer, Sean Kelly, Chris Larson, Adrian Lopez, Janet & Martin Meza, Pat & Chuck McPartlin, Bonnie & Bruce Murdock, Max Neufeldt, Edgar Ocampo, Peggy O'Rork, Javier Rivera, Carlos Flores & Sonja Rodriguez, Russell & Dianne Ruiz, David Salvia, Colin Taylor, Cez & Tom Totton, Andrew Tuma, Chris Ulivo, Tom Whittemore, Jim Williams, and Patricia & Jerry Wilson shared astronomy with 1786 people.

June marks the end of our school science night season, and the start of summer campground nights and Bacara Thursdays.

JUNE OUTREACH EVENTS

The Telescope Workshop meets on Tuesday evenings at 7:30 PM at the Broder Building at SBMNH. Contact Tim Crawford at tcrawf3@cox.net for information. Listen to the AU on the radio at KZSB 1290 AM at 9 AM on the second and fourth Monday of each month.

Here are the AU events scheduled so far for June. Events are subject to change, so to get the latest information on schedules, or directions, just contact Chuck at 964-8201 or macpuzl@west.net

THURSDAY, JUNE 1, SETUP 7 PM

Telescopes for Bacara Resort and Spa. We set up on the Angel Oak lawn overlooking the ocean.

FRIDAY, JUNE 2, 6 PM

Annual AU potluck dinner at the MacVeagh House at SBMNH.

SBAU Potluck!
Friday June 2, 2017, dinner @ 6pm
planetarium show 7:30-8:00 pm
MacVeagh House at the Porch
SB Museum of Natural History
Bring a dish to feed 4 to 6. Beverages & tableware provided.
For more info, contact Tom Totton @ 805-562-8795.

SATURDAY, JUNE 3, SETUP 8 PM

Telescopes for Refugio State Beach, in the SW corner of their day use parking lot.

TUESDAY, JUNE 6, SETUP 7 PM

Telescope Tuesday at the Camino Real Marketplace in Goleta. We set up in the plaza by the theater.

THURSDAY, JUNE 8, SETUP 7 PM

Telescopes for Bacara Resort and Spa. We set up on the Angel Oak lawn overlooking the ocean.

FRIDAY, JUNE 9, SETUP 8 PM

Slide show and scopes for Carpinteria State Beach. We set up on the sidewalk toward the ocean from the entry kiosk.

SATURDAY, JUNE 10, 10 AM FOR 24 HOURS

Relay for Life at Bishop Diego Garcia High School. They'd love to see any scopes that can come by that day or evening after the Star Party at SBMNH.

SATURDAY, JUNE 10, 6 PM

Planning meeting in the classroom next to Javier's office at SBMNH. Come plan your club's activities. All are welcome.

SATURDAY, JUNE 10, 8 PM

Monthly Public Star Party, next to Palmer Observatory at SBMNH.

THURSDAY, JUNE 15, SETUP 7 PM

Telescopes for Bacara Resort and Spa. We set up on the Angel Oak lawn overlooking the ocean.

FRIDAY, JUNE 16, 8 PM

Monthly Public Telescope Night at Westmont College, at their observatory, next to the baseball field.

TUESDAY, JUNE 20, 9:24 PM PDT – Northern Hemisphere Summer begins with the Solstice.

THURSDAY, JUNE 22, SETUP 7 PM

Telescopes for Bacara Resort and Spa. We set up on the Angel Oak lawn overlooking the ocean.

SATURDAY, JUNE 24, SETUP 8 PM

Slide show and telescopes for campers at Lopez Lake, up by Arroyo Grande. Contact Chuck if you're planning to come, so we can arrange camping for Friday and Saturday night.

WEDNESDAY, JUNE 28, SETUP 8 PM

Slide show and scopes for Carpinteria State Beach. We set up on the sidewalk toward the ocean from the entry kiosk.

THURSDAY, JUNE 29, SETUP 7 PM

Telescopes for Bacara Resort and Spa. We set up on the Angel Oak lawn overlooking the ocean.

FRIDAY, JUNE 30, SETUP 8 PM

Telescopes for Refugio State Beach, in the SW corner of their day use parking lot. (Asteroid Day, on the anniversary of the Tunguska Event.)

From the President...

Early Concepts of Nothing.

The concept of a vacuum and representation of nothing with something were both topics of philosophical discussion in pre-modern times. Leucippus in 500 BC first postulated the concept of a true vacuum.

"Unless there is a void with a separate being of its own, 'what is' cannot be moved – nor again can it be 'many', since there is nothing to keep things apart." [Excerpt From: John D. Barrow. "The Book of Nothing." Vintage Books, 2000].

In other words, there must be a nothing, otherwise everything is filled and there can be no motion of anything, for there is nowhere unoccupied to move to. Interestingly there was, about that time, a puzzling object called a water-catcher. It was a metal tube with a bulb on the bottom that had a few small holes in the bottom. If you put the bulb into water and your finger over the top of the open tube, then when you lifted the device out of the water it retained the water. When you removed your finger, the water rushed out. Basically it was a pipette. The principle demonstrated by this object puzzled scientists and philosophers for over 2000 years until it was correctly explained by Evangelista Torricelli in the seventeenth century. You remember Torricelli. He's the guy who the unit of vacuum, a "torr" or one mm of mercury is named after. Torricelli filled a one ended glass tube with liquid mercury and submerged the open end in a cup of mercury. If the tube was long enough there would be a void inside the top of the tube, since atmospheric pressure was not strong enough to

support a column of mercury longer than 760 mm. This void was recognized as the first true vacuum. This was the first experimental proof that nothing exists.

The other nothing, a symbol for zero, made all of our modern mathematics possible. Though the idea of representing nothing by a specific symbol had arisen independently in several ancient civilizations including the Mayans, Sumerians, and Babylonians, the written symbol zero now used in modern mathematics first appeared in India about 450 AD. It then traveled to Arabia by the 700s and made its way to Europe with the Moors, and by the 1600s was used by Newton and Leibniz to develop their calculus. A symbol for zero, or representing nothing by something, is a tricky concept and the source of innumerable puns, but key to enabling the placeholder number system necessary for modern mathematics and science.

“ ‘I see nobody on the road,’ said Alice. ‘I only wish I had such eyes,’ the King remarked in a fretful tone, ‘to be able to see Nobody! And at that distance too! Why it’s as much as I can do to see real people, by this light!’” , Lewis Carroll.

Next month’s topic is Nothing part 2. The Classic Physics view of Nothing.

Jerry Wilson



Comet Johnson. Imaged by Bruce Murdock on 5/19/2017.

AU Information Box

President: Jerry Wilson 968-4056
jerryawilsonphd@gmail.com

Vice President: Adrian Lopez 898-9971
vicepresident@sbau.org

Secretary: VACANT

Treasurer: Colin Taylor 967-8140
dancingmagpie@cox.net

Equipment: Art Harris 968-4017
n6is@cox.net

Outreach: Chuck McPartlin 964-8201
outreach@sbau.org

Newsletter: Tom Whittemore 687-2025
kometes@aol.com

Refreshments: Tom Totton
tomcez@cox.net

Webmaster: Paul Winn 886-2319
webmaster@sbau.org

SBMNH Astronomy Programs Manager

Javier Rivera 682-4711x173
jrivera@sbnature2.org

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AU mailing address:

Astronomical Unit
c/o Santa Barbara Museum of Natural History
2559 Puesta Del Sol Road
Santa Barbara, CA 93105-2998

On the Web: <http://www.sbau.org>

June 2017

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|--------|--|---|---|--|--|---|
| | | | | 1 | 2 AU ANNUAL POTLUCK 6PM MACVEAGH HOUSE SBMNH | 3 REFUGIO STATE BEACH 8PM |
| 4 | 5 | 6 CAMINO REAL MARKETPLACE 7PM | 7 | 8 BACARA RESORT AND SPA 7PM | 9 CARPINTERIA STATE BEACH 8PM | 10 PLANNING MEETING 6PM STAR PARTY 8PM SBMNH |
| 11 | 12 TECH TALK KZSB (AM 1290) 9-10AM | 13 | 14 | 15 BACARA RESORT AND SPA 7PM | 16 WESTMONT COLLEGE 8PM | 17 |
| 18 | 19 | 20 SUMMER BEGINS AT 9:24PM PDT | 21 | 22 BACARA RESORT AND SPA 7PM | 23 | 24 LOPEZ LAKE 8PM |
| 25 | 26 TECH TALK KZSB (AM 1290) 9-10AM | 27 | 28 CARPINTERIA STATE BEACH 8PM | 29 BACARA RESORT AND SPA 7PM | 30 REFUGIO STATE BEACH 8PM | |

The Astronomical Unit

c/o Santa Barbara Museum of Natural History
2559 Puesta Del Sol Road
Santa Barbara, CA 93105-2998