



AU AstroNews

The Newsletter of the Astronomical Unit

December 2016

Sponsored by the Santa Barbara Museum of Natural History



“Really? I counted eight reindeer.” Photo: T. Totton

THE DECEMBER GENERAL MEETING

In addition to our yearly appointments and elections we have two wonderful in-house speakers this evening! Jerry Wilson, our current Vice President, will speak about the upcoming total solar eclipse.

Jerry writes: “The first solar eclipse to cross continental US since Carley Simon released ‘You’re so Vain’ in 1972 will occur on August 21, 2017.

The eclipse will start in the North Pacific Ocean and hit the US Oregon coast at 10:17 AM. Oregon will experience just under two minutes of totality. From Oregon, the eclipse will move through Idaho then down through the midsection of Wyoming, Nebraska and Missouri, then Kentucky and off the eastern coast of South Carolina. The maximum duration will be 2 minutes and 40 seconds which will occur slightly south of Carbondale Illinois.

What to expect as well as techniques for viewing and imaging will be discussed. Images of the annular eclipse of May 2012 as seen from St George Utah and the November total eclipse viewed from Queensland Australia will be discussed.” Our second speaker will be our Outreach Coordinator, Chuck McPartlin, who summarizes his talk:

“There’s a relatively nearby black hole (V404 Cygni) that is sucking matter from a companion star. Instabilities in the accretion disk cause brightness variations that are detectable with backyard equipment.”

OUTREACH SUMMARY

Since the last newsletter, AU outreachies Farshad Barman, Tim Beccue, Robert Bernstein, Chris Betsill, Mike Chibnik, Adrian Conrad, Tim Crawford, Zak Dafaallah, Eric Davis, Joe Doyle, Carolyn & Ed Edwards, Ruben Gutierrez, Art Harris, Jürgen Hilmer, Sean Kelly, Ken Kihlstrom, Chris Larson, Adrian Lopez, Pat & Chuck McPartlin, Janet & Martin Meza, Bonnie & Bruce Murdock, Max Neufeldt, Peggy O’Rork, Edgar Ocampo, Gus Pravia, Blake Rasmussen, Javier Rivera & the Quasars, Dianne & Randall Ruiz, David Salvia, Danni Tisdale, Tom Totton, Andrew Tuma, Tom Whittemore, and Jerry Wilson showed the night sky to 1264 happy viewers.

DECEMBER OUTREACH EVENTS

Here are the AU events scheduled so far for December. Remember, 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

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.

FRIDAY, DECEMBER 2, 7 PM

Monthly AU meeting in Farrand Hall at SBMNH. Elections and Members Night.

TUESDAY, DECEMBER 6, SETUP 6 PM

Astronomy night at the Goleta Public Library. We set up scopes in the back parking lot of the Christian Science Church next door. Mars is the featured subject.

THURSDAY, DECEMBER 8, GATHER AT 6 PM
Annual AU Holiday Party at the High Sierra Grill,
521 Firestone Road, at the airport. Bring an
unwrapped gift for Toys for Tots!

SATURDAY, DECEMBER 10, 5 PM
AU planning meeting, in the classroom next to
Javier's office.

SATURDAY, DECEMBER 10, 7 PM
Monthly Public Star Party at SBMNH. Bring a
scope and have fun showing goodies in the sky
outside Palmer Observatory, or just show up and
enjoy looking at them.

TUESDAY, DECEMBER 13, SETUP 7 PM
Telescope Tuesday at Camino Real Marketplace in
Goleta. We set up in the plaza next to the theater,
under the Christmas tree. For 2017 we'll move to
the first Tuesday of the month.

FRIDAY, DECEMBER 16, 7 PM
Monthly Public Telescope Night at Westmont
College, at the observatory, next to the baseball
field.

WEDNESDAY, DECEMBER 21, 2:44 AM
Winter officially starts with the solstice!

THURSDAY, DECEMBER 22, SETUP 7 PM
Telescopes for Eureka event at Girls, Inc in
Carpinteria, at 5315 Foothill Road. We set up in the
grassy field to the west of their building.

FRIDAY, DECEMBER 23, SETUP 5 PM
Telescopes for Bacara Resort and Spa. We set up on
the bluff by the Angel Oak Restaurant.

FRIDAY, DECEMBER 30, SETUP 5 PM
Telescopes for Bacara Resort and Spa. We set up on
the bluff by the Angel Oak Restaurant.

From the Workshop

Editor's note: Tim Crawford continues with his series on the
200" Hale Telescope...

The year is 1928. George Ellery Hale wrote an
article in Harpers magazine. In it he suggested
building a bigger machine. Here is a link where
you can read the article yourself:

[http://www.astro.caltech.edu/palomar/images/blog/
HarpersApril1928.pdf](http://www.astro.caltech.edu/palomar/images/blog/HarpersApril1928.pdf)

In that article Hale states, "Starlight is falling on
every square mile of the earth's surface, and the best
we can do at present is to gather up and concentrate
the rays that strike an area 100 inches in diameter."
He suggested a grand telescope to go gather
starlight out further than ever before, seeking new
understanding of the universe. He was building the
momentum to build a new telescope - the telescope
that would be named The Hale Telescope.

The following year brought with it The Great
Depression (1929-1939). In spite of the nation
being brought to its knees, Hale managed to attain
funding to start his project. He secured a 6 million
dollar grant from The Rockefeller Foundation to
build an observatory complete with a 200" telescope
to be administered by Caltech, of which Hale was a
founding member. Forward to the year 1936- the
nation was still in the grips of the Depression ...

Out from the underpass, the railway flatcar emerged
from the fog into the light. It was one of several
underpasses the modified train car had passed under
on the long journey to Palomar. After much
deliberation of which way to transport the mirror
from Corning, New York to Pasadena, California, it
was decided the path by rail across the nation was
best.

Crossing the nation by rail brought out thousands of
people curious about the big scope project. It
whetted the imaginations of some and astounded
others. But the mirror brought out vandals as well.
They actually shot at the mirror!

The railroad flatcar worked its way west at a snail's
pace. It was carrying a 200", 20-ton single slab of
borosilicate glass (Pyrex). It was transported
upright on the railroad car. It was lowered to
accommodate the load it was bearing in order to
clear the height of the underpasses it needed to
travel. A careful path was chosen.

The railroad was a lifeline to a population of people
that relied on its deliveries vital to a young nation of
innovative (and hungry) people. The railroad had to
modify normal schedules to accommodate the
transport of the mirror blank. The train left from
Corning on March 26, 1936 on its 16-day trip west.
In spite of the costs and delays, patience prevailed
and the mirror finally arrived at its destination of
the Caltech optical shop in Pasadena.

At Caltech, the grinding and finishing of the mirror was in the charge of John A. Anderson and Marcus H. Brown. They took the initial 20-ton blank down to a 14.5-ton figured mirror. It took 11 1/2 years to finish shaping the mirror. This is a little deceptive, as World War II intervened and there was a hiatus.

Four telescopes of note were brought about by Hale's efforts. First, the 40" Yerkes refractor in Wisconsin was built using lenses made by Alvan Clark. The second and third built were the 60" reflector and 100" Hooker telescope located at Mount Wilson in California. The mirrors were made by Saint-Gobain Glassworks of France out of champagne bottles. Hale's crowning achievement though was the 200" telescope. It would be located atop Mount Palomar near San Diego. He did not live to see it completed.

Kudos from the Marymount Maker Fair...

Hope you had a great Halloween. This is a long overdue thank you; sorry we rolled straight into a series of busy weeks. Thanks so much for taking part in our Maker Fair. It was such a great addition to have you and your team out there. I absolutely love the mirror grinding activity and appreciate all the knowledge you guys share! Thank you for taking the time to mobilize everyone and join us. There were close to 100 families (52 Marymount families & 40 non-Marymount/community families) in attendance.

Thanks!
Jannine

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December 2016

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2 AU GENERAL MEETING 7PM	3
4	5	6 GOLETA PUBLIC LIBRARY 6PM	7	8 HOLIDAY PARTY 6PM	9	10 PLANNING MEETING 5PM STAR PARTY 7PM SBMNH
11	12 TECH TALK KZSB (AM 1290) 9-10AM	13 CAMINO REAL MARKETPLACE 7PM	14	15	16 WESTMONT COLLEGE 7PM	17
18	19	20	21 WINTER SOLSTICE 2:44AM	22 GIRLS, INC. CARPINTERIA 7PM	23 BACARA RESORT 5PM	24
25	26 TECH TALK KZSB (AM 1290) 9-10AM	27	28	29	30 BACARA RESORT 5PM	31

The Astronomical Unit

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