



AU AstroNews

The Newsletter of the Astronomical Unit

October 2016

Sponsored by the Santa Barbara Museum of Natural History



“That’s right. All of it’s older than dirt.” Photo: Tom Totton.

THE OCTOBER GENERAL MEETING

Our speaker for the October General Meeting will be Omer Blaes from the UCSB Physics Department. His talk is titled “Dwarf to Super Novae: How Dead Stars Occasionally Light Up and Tell Us About the Universe.”

Omer offers the following description for his talk: “Billions of years in the future, our Sun will eventually run out of all of its fuel and will turn into an extraordinarily dense, Earth-sized star known as a white dwarf. Most white dwarfs, including our future Sun, slowly fade into oblivion, but if they can steal matter from another nearby star, they can rejuvenate themselves. Many such “new stars”, or “novae” have been observed over the course of history. Some are due to periodic increases of infalling matter from instabilities in the accretion flow, some are due to thermonuclear explosions on the white dwarf, and some are due to thermonuclear explosions of the entire white dwarf itself! I will discuss all three classes, including some recent work that we believe resolves a problem in our understanding of the first class. Observations and modeling of all these systems can shed light on the physics of planet formation, have historically confused us as to the size of the universe, and more recently, have revealed that 70% of the “stuff” that

makes up the universe is some form of mysterious ‘dark energy’.”

OUTREACH SUMMARY

Since the last newsletter, avid AU outreach volunteers Tim Beccue, John Boyd, Mike Chibnik, Adrian Conrad, Tim Crawford, Zak Dafaallah, Joe Doyle, Tony Galván, Ruben Gutierrez, Art Harris, Jürgen Hilmer, Jacey Hoch, Sean Kelly, Thomas Klein, Adrian Lopez, Zanna Lucy, Pat & Chuck McPartlin, Janet & Martin Meza, Bonnie & Bruce Murdock, Susan & Max Neufeldt, Edgar Ocampo, Javier Rivera & Quasars, Sonja Rodriguez & Carlos Flores, Dianne & Russell Ruiz, David Salvia, Colin Taylor, Tom Totton, Tom Whittemore, Jim Williams, Jerry Wilson, and Paul Winn showed cool astro stuff to 1837 interested people.

OCTOBER OUTREACH EVENTS

Here are the outreach events scheduled so far for October. Events are subject to change and cancellation, so contact Chuck at macpuzl@west.net or 964-8201 for the latest information.

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.

THURSDAY, OCTOBER 6, SETUP 7 PM

Scopes for an Astronomy Night at Goleta Valley Junior High. Setup on blacktop to the west.

FRIDAY, OCTOBER 7, 7 PM

Monthly AU meeting in Farrand Hall at SBMNH. Hear a talk about what dead stars can tell us about the Universe.

SATURDAY, OCTOBER 8, 5 PM

Monthly AU planning meeting at SBMNH, in the classroom next to Javier's office.

SATURDAY, OCTOBER 8, 7 PM

Monthly Public Star Party at SBMNH, next to Palmer Observatory. International Observe the Moon Night.

TUESDAY, OCTOBER 11, SETUP 7 PM

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

THURSDAY, OCTOBER 13, SETUP 5 PM

Telescopes for Science Night at Kellogg School, 475 Cambridge Drive in Goleta.

SATURDAY, OCTOBER 15, SETUP 7 PM

Astronomy Night for Homecoming at Westmont Observatory, next to the baseball field.

FRIDAY, OCTOBER 21, SETUP 6:30 PM

The monthly Public Telescope Night at Westmont Observatory, next to the baseball field.

FRIDAY, OCTOBER 28 TO SUNDAY, OCTOBER 30

Annual AU Campout at the Mohawk Shores group site at Cachuma Lake. The Saturday dinner will be a catered event at 4:30 PM. The number of cars we are permitted to have with the site is limited, so carpool or come early if you can. If we run out of car permits, and you have to pay at the entrance gate, keep your receipt for reimbursement from the AU.

Information on the Cachuma Lake Wildlife

Cruises:

Be sure to reserve a place if you want to take the cruise on Friday (3 PM to 5 PM), Saturday (10 AM to Noon and 3 PM to 5 PM), or Sunday (10 AM to Noon), and meet at the marina 30 minutes before! Climb aboard the "Osprey" for a 2-hour lake tour with a Santa Barbara County Park Naturalist. The cruise takes a look at area wildlife, wildflowers, and resident birds along the shore. Reservations: (805) 568-2460 weekdays 10 AM to 3 PM, (805) 686 5055 weekends and after 3 PM. \$17/adults; \$7/child 4-12 years old; please no children under 4.

MONDAY, OCTOBER 31

Halloween! Show the sky to trick-or-treaters wherever you are. Astronomical eye candy won't

hurt your teeth!

From the Workshop

Tim Crawford

Editor's note: Tim's knowledge of the history of the telescope is a constant source of discussion at our Tuesday mirror-making workshops. We hope you enjoy this first-in-a-series of articles on the history of the telescope.

At the last radio show, the host, Baron Ron Heron, asked me why I was so fascinated by the Hale 200-in telescope. Well, I mentioned I had thought for some time of doing a presentation for the AU on the "history of the telescope." I said that I pondered for a long time on where to begin.

Should I begin on the sands of a desert where travelers sat by cooking fires and, after the fires were out, they noticed how some sand had melted together forming a looking glass? Or should I begin by noting that Galileo was not the first man to discover the telescope? In fact, the origin of the telescope is a murky one at best. Should I begin with Sir Isaac Newton making the first reflecting telescope - not by design but by making a working scope?

Well, I didn't answer Ron's question as well as I could have. In fact, I said that after many years of coming to fruition, the Hale telescope saw first light or at least Edwin Hubble exposed the first image on January 26, 1949. It was the object we know now as Hubble's Variable Nebula, NGC 2261. The significance to me was that I was 4 days old! But, that's not the whole answer - not by any means. The whole answer is kind of "the rest of the story."

It's kind of difficult to tell when the idea of the Hale scope began, but in April 1928 Hale wrote an article in Harpers Magazine telling of "the lure of the uncharted seas of space." If we use this magazine as a start, it took 20 years for the Hale 200-in to finally be dedicated on June 3, 1948.

The Hale Telescope came through the Great Depression, World War II, a flood, an earthquake, and many other setbacks which cost a whole lot of money and time. It even survived vandals that took potshots at the mirror on its long journey from New York to California.

But, even that is not the best answer to the Baron's question. So why begin with the Hale Telescope?

There were many scopes created up to the time of the Hale that used new materials and new methods. The Yerkes 40-in refractor was and still is the largest refractor in existence. The Mount Wilson 60-in or 100-in Hooker scope deserved major headlines and accolades. Why Hale's 200-in?

In my humble opinion it is because the Hale scope had to break "new ground" - not only with its incredible ability to gain new insights into the universe around us, but in the new science of materials; the new massive trusses and mountings, the new method of casting a one piece slab of borosilicate glass, the method of using a fine film of oil for bearing surfaces. It involved solving huge setbacks in problems for compensating for the slumping of this massive piece of glass technically considered a liquid. How did they compensate for the deformation of glass when the scope would slew to another area of the sky? Another problem was the fork mount itself. As the scope slewed the huge weight would deform the mount. How did they stop that from happening? Any of these things could have spelled the end of the project for sure. In so many ways, the Hale Telescope followed an ever-upward path to the end. And where no path existed, the many creators of this huge undertaking became the path.

That is the reason I thought to start here, with the Hale Scope. It is not the beginning of large scopes nor is it the end, but it is truly a magnificent story from beginning to end. I would love to retell it all to you at another time. But for now, think of this. The amount of glass removed to create the initial curve of the mirror was 4.5 tons of glass! It took 6 or 7 years, partially because they had to halt for World War II.



Mike Chibnik star tests his 10" mirror. Photo: Bruce Murdock.

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October 2016

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4	5	6 GV JUNIOR HIGH 7PM	7 AU GENERAL MEETING 7PM	8 PLANNING MEETING 5PM STAR PARTY 7PM SBMNH
9	10 TECH TALK KZSB (AM 1290) 9-10AM	11 CAMINO REAL MARKETPLACE 7PM	12	13 KELLOGG SCHOOL 5PM	14	15 WESTMONT COLLEGE 7PM
16	17	18	19	20	21 WESTMONT COLLEGE 6:30PM	22
23	24 TECH TALK KZSB (AM 1290) 9-10AM	25	26	27	28 AU CAMPOUT	29 AU CAMPOUT
30 AU CAMPOUT	31 HALLOWEEN!					

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