

BULLETIN

volume 82, issue 9 *September 2008*

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**OUR 82nd YEAR OF
ASTRONOMY IN LOS
ANGELES**

Los Angeles Astronomical Society
Griffith Observatory
2800 East Observatory Road
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Editor's Message

I'd like to report that one of our members, Rob Komoto, set a personal record when, on August 1st, he spotted the very thin crescent Moon 18 hours after New Moon ! Congratulations Rob ! Rob informed me that the record is something like 12 hours, but at 18 hours he is, as far as I know, the record holder for the LAAS.

I noticed that the Newsgroup traffic had some people complaining about how the Perseids were a dud again this year. A little research sometimes goes a long way, or a little calculation. The fact is that the Perseids are normally faint, and that an hourly rate of 140 per hour (which I measured once a long time ago) translates to a little over two meteors a minute on average. But people look at the number 140 and forget that without units, numbers are misleading.

If you want bright meteors, look to the Leonids or the Geminids, if you can stand the cold and the usually low rates for the Geminids.

My thanks to all who have contributed to the success of the bulletin. Please consider writing or submit images. Please keep articles to 1,500 words or less. For images, submit only a few well-chosen images, with captions if possible. The deadline for submitting bulletin material is the 10th of each month. Please if possible submit electronically to

(Continued on page 3)

Material may be sent to the LAAS address listed at the top of the column at left, but timely reception and publication cannot be guaranteed. ✧

Griffith Observatory Public Star Party Procedure

PJ Goldfinger handles our Griffith Observatory Public Star Party List. As patrons may drive up freely and reservations are no longer needed, we will continue to keep a sign up list for this event. Please note changes may occur in future PSP events and to read the policy below each month.

LAAS Members must still sign up on time - Deadline is no later than the Tuesday night prior to the Saturday GO Public Star Party each month. The list information required is:

- Your name, any LAAS Members and Non members in your car.
- Bring Telescope y/n.

NOTE: Those attending without a telescope as a favor will be required to be of some assistance if asked, needed and able.

It is primarily the main focus of any LAAS member who attends this event to be of Public Service with their telescopes in showing the patrons of Griffith Observatory the delights of the nighttime sky. New Members are not expected to adhere to this policy. Please feel free to come up and enjoy the event given you are signed up.

Parking will be on the east side of the Griffith Observatory Hill designated for GO employees. A guard will be stationed with the LAAS GO PSP list. It is always wise to have one's LAAS name badge and/or club ID on them just in case. Unloading telescope and equipment will remain the same procedure as well, with a drive up , drop off and park down hill routine.

The list currently has been updated to 30 spots for LAAS members. First come, first serve.

Please check the LAAS website and Yahoo list for changes and updates in any LAAS event, as there are many communication mediums and some are missed.

To sign up for the Griffith Observatory Star Party the email address is: laas.starparty@gmail.com. Attendance is only granted once a confirmation email has been received. Most important though is to have fun and enjoy! ✧

PJ Goldfinger

Mt Wilson 60" Nights



LAAS has arranged for two full nights at the Mount Wilson 60-inch telescope this year. The Aug 29th session is fully booked up. There still remain spaces for the Sept 26th night.

September 26th, Friday, full night

Only LAAS members are allowed to sign up. If there is still room two (2) weeks prior to the date, paying guests will be permitted. Everyone who shows up, whether family member, friend, or guest, will have to pay in order to be allowed in the 60-inch telescope observatory. The cost is \$75 per person for the full night (no half night reservations on a full-night outing). We are allowed to accommodate only a limited number of participants at each session, and your reservations are being accepted on a first come, first serve, basis.

To secure your reservation, send in your request AND A CHECK payable to LAAS to our Treasurer at:

P.O. Box 56084
Sherman Oaks, CA 91413

Any LAAS member who has not been to a 60-inch night at Mount Wilson should consider it as an opportunity to visit astronomy history. To see the location and equipment used by giants such as Shapley and Hubble will add to your appreciation of their contributions.

The scope will belong to LAAS all night. We mutually agree upon which objects to view. Often, a member is the operator, so it is a very comfortable environment. (Do bring a coat, however). The viewing is without a doubt the best you are likely to see in your lifetime.

If you need any further information about attending these nights on Mount Wilson, contact our Treasurer at treasurer@laas.org or by mail at P.O. Box 56084, Sherman Oaks, CA 91413. ✧

Mount Wilson

By Timothy Thompson

The towers of the 150-foot & 60-foot solar tower telescopes, and the conspicuous white domes of the 60-inch & 100-inch telescopes of Mt. Wilson Observatory are easily seen from throughout the Los Angeles Area. Big Bang Cosmology tells us that there is no single place in the universe that can be identified as the place where the universe began. It tells us that the universe began everywhere, all at once. But we can identify a single place where our modern understanding of the universe was born, and that place is Mt. Wilson Observatory.

George Ellery Hale

The founder of Mt. Wilson Observatory was one of the least publicly recognized, but most important figures in modern astronomy, George Ellery Hale. Born 29 June 1868, Hale graduated with a bachelor's degree in physics from the Massachusetts Institute of Technology in 1890. By 1892 Hale was already at work on establishing an observatory for the largest telescope in the world, and completed that task with the founding of Yerkes Observatory and its 40-inch refractor in 1897. By 1903 he was at it again, and secured a grant from the Carnegie Institution for \$10,000, the first of many, towards the establishment of an observatory on Mt. Wilson. In 1908 he surpassed his own largest telescope in the world with a new largest telescope in the world, the 60-inch reflector at Mt. Wilson Observatory. But Hale did not wait around, and in 1906, two years before the 60-inch telescope was completed, Hale had already ordered a 100-inch (2.5 meter) mirror blank from St. Gobain Glass Works in France. That mirror blank became the 100-inch Hooker Telescope in 1917. In 1928 Hale secured a \$6,000,000 grant from the Rockefeller Foundation for the construction of a 200-inch (5-meter) telescope on Palomar Mountain. Delayed by WWII, the 200-inch Hale Telescope saw first light in 1948, eclipsing the 100-inch as the world's largest telescope. The Hale Telescope remained the world's largest until the Soviet Union finally built a bigger telescope, the 236-inch (6-meter) Bol'shoi Teleskop Azimutal'nyi (Big Telescope Azimuth), which began operation in 1976. So, although Hale himself passed away on 21 February 1936, he was nevertheless responsible for the world's largest telescope from 1897 to 1976, a span of 79 years. And this is only one of many significant accomplishments, which include founding the California Institute of technology, establishing The Astrophysical Journal, and being the first to discover magnetic fields on the sun. Hale was more of a force to be reckoned

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Images of the 100 inch provided by Don Nicholson, President Emeritus of MWOA.

LAAS President Emeritus & board member Tim Thompson is currently the President of the Mt. Wilson Observatory Association (MWOA), a volunteer support organization for Mt. Wilson Observatory (MWO). In anticipation of a significant increase in activity of the Mt. Wilson Institute (MWI), which operates Mt. Wilson Observatory, MWOA will be looking for people to train as docents, tour guides and session directors. Anyone interested in taking part in the volunteer program at MWO is encouraged to contact Tim Thompson (timthompson3@verizon.net). Volunteers will be obliged to join MWOA, will be cooperatively trained by MWOA & MWI, and subject to approval by MWI. This is a potentially significant opportunity for anyone wishing to become involved in one of the world's leading centers in the history & current events in astronomy.

with than simply a man.

Mt. Wilson Solar Observatory

On 13 June 1904 George Hale signed a 99-year lease with the Mt. Wilson Toll Road Co. for 40 acres of mountain top land. On 20 December 1904 the Carnegie Institution approved Hale's plans and The Mt. Wilson Station of the Yerkes Observatory became The Mt. Wilson Solar Observatory of the Carnegie Institution of Washington. The horizontal Snow Solar Telescope moved successfully from Yerkes Observatory to Mt. Wilson in 1905. The 60-foot Solar Tower Telescope saw first light in 1908, and the 150-foot Solar Tower Telescope saw first light in 1911. Mt. Wilson quickly became the world's premiere solar observatory. The solar telescopes at Mt. Wilson Observatory were the largest and most productive in the world in their time, a point often overlooked in light of the 60-inch and 100-inch telescopes. The first magnetic fields to be discovered off of Earth were discovered in sunspots, by Hale himself, observing with the 60-foot Solar Tower

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Telescope, on June 25 1908. Other accomplishments include the discovery that sunspots are relatively dark because they are relatively cool, and the discovery & proper description of flow patterns around sunspots, a correct calibration of solar spectral line wavelengths. Mt. Wilson Solar Observatory was the world's premiere solar observatory, and the birthplace of modern solar physics & astronomy.

The 60-inch & 100-inch Telescopes

Quickly established as the world's premiere solar observatory, it did not take long for the observatory to also become the world's premiere center for more traditional nighttime astronomy. The 60-inch mirror blank was a birthday present for Hale from his father, is 7.5 inches thick and weighs 1900 pounds. The mirror was placed in its cell on December 7, 1908, and saw first light the next day; its first photographs were made on December 20, 1908. The 9000 pound 100-inch mirror arrived on the mountain on July 1, 1917, and saw first light November 1, 1917. With the completion of the 100-inch telescope, the word "solar" was dropped from the title, and the observatory officially became The Mt. Wilson Observatory of the Carnegie Institution of Washington.

Prior to the 60-inch telescope, the largest telescope in the world was the 40-inch refractor at Yerkes Observatory, completed in 1897, and prior to that it was the 36-inch refractor at Lick Observatory, completed in January 1888. The light collecting area of the 40-inch is only 1.24 times that of the 36-inch, but the light collecting area of the 60-inch is 2.25 times that of the 40 inch, and the 100-inch area is 2.78 times that of the 60-inch. Pushed by Hale's ambition, the new telescopes on Mt. Wilson significantly increased the reach of astronomy to farther & dimmer objects. We also see that the world's largest telescopes before were refractors, but the new telescopes at Mt. Wilson were reflectors. Thus was the only way Hale could make such significant advances in aperture, and he had to overcome a significant bias against reflecting telescopes, and in favor of refracting telescopes, to get it done. The new, reflecting telescopes on Mt. Wilson are the first large telescopes in the modern era of reflectors that led to the 10-meter telescopes at Keck Observatory on Mauna Kea, and to ambitions now on paper to build telescopes as large as 100-meters! The era of modern telescopes, not just modern astronomy, started on Mt. Wilson.

The revolutionary new telescopes resulted in a revolutionary new understanding of the universe. The 60-inch telescope went to work on the problems of stellar evolution in the Milky Way, while the 100-inch telescope

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went to work on the problem of galactic evolution in the universe. Harlow Shapley, using the 60-inch telescope, studied the distance and distribution of globular clusters, and proved observationally, for the first time, that Earth was not at the center of the Milky Way. Edwin Hubble, using the 100-inch telescope, proved that the “spiral nebulae” were really “extragalactic stellar systems”, much farther away than anyone had imagined. He also combined his work on classifying galaxies with the discoveries of galaxy spectral redshifts made elsewhere to establish the first observational evidence that the universe was dynamic and expanding. This, combined with the theoretical work of the Belgian Priest Georges Lemaitre, was our first step into Big Bang Cosmology. Nicholson & Pettit used the 100-inch telescope in our early forays into multi-wavelength astronomy by making the then astonishing discovery that the night side of Venus had the same temperature as the day side by observing in the infrared. Michelson & Pease used the 100-inch to make the first successful optical interferometer, which they used to measure the diameter of Betelgeuse. These are only a few of the major advances in all areas of astronomy, astrophysics and cosmology that were made at Mt. Wilson Observatory. Indeed, the science of astrophysics, as we understand it today, was entirely invented at Mt. Wilson Observatory.

Today on the Mountain

Mt. Wilson Observatory is now well established as the single most significant facility in the history of astronomy. There are few things you can do in astronomy that were not done first on Mt. Wilson. But the tradition of hosting the largest telescopes in the world continues. The Infrared Spatial Interferometer (ISI), operated by the University of California at Berkeley and Nobel Prize winner Charles Townes, is the largest infrared interferometer in the world. The ISI has made significant studies of circumstellar shells & disks, and of stars in advanced stages of their evolution. The Center for High Angular Resolution Astronomy (CHARA) has established the world’s largest optical interferometer at Mt. Wilson Observatory, with a 300-meter baseline that barely fits on the crowded site. The CHARA array has already made significant observations measuring stellar diameters, and even measuring the distribution of brightness & temperature across a star. At Mt. Wilson Observatory the tradition of reaching deeper into the sky, a tradition that started with George Ellery Hale, continues to today. ✧

NIGHTFALL

DEEP SKY TREATS IN THE DESERT 2008

Thursday through Sunday
October 30 to November 2, 2008
Palm Canyon Resort
221 Palm Canyon Drive
Borrego Springs, California 92004
<http://www.nightfall2008.com>
info@nightfall2008.com

N I G H T F A L L B A S I C S

Nightfall 2008 is a four-day event held at a desert resort in Borrego Springs, California; this is the 16th annual edition. The resort supports the event by either switching off or changing to red all of the exterior lighting, and by making Nightfall the exclusive user of the property for its duration. There is no cost to come to Nightfall, but lodging or RV parking costs at the resort are the responsibility of the attendee (see below). You may also stay at a nearby hotel, or camp at the adjacent state park, and still set up on the main event grounds during Nightfall.



W H A T C A N I D O ?

You may attend Nightfall for one, two or three nights (minimum two-nights if you are staying at the Palm Canyon Resort). Many people make a mini-vacation out of it and come out on Thursday afternoon and stay until Sunday. Nightfall typically offers sunny, mid-fall days - great for exploring the nearby Anza Borrego Park; you can also attend workshops on astro-imaging and related topics during the day on Friday and Saturday (special registration/fees required). At night, there are several designated areas on the hotel grounds for telescope set-up; these areas have signs, and will be identified in the printed program. Large telescopes can be safely left outside, but participants are encouraged to keep cameras and other accessories in their cars, or take them back to their rooms, and you should provide protection against the sun and dust during the day. Other free activities during Nightfall include a Friday afternoon reception in the hotel saloon, a Saturday afternoon potluck dinner, and Saturday night sky tour.

H O W D O I R E G I S T E R ?



If you plan on staying at the Palm Canyon Resort, either in a hotel room or in the RV park, you need to call the resort at (800) 242-0044 or go online at www.p cresort.com. **You should reserve early - the resort is often sold out by the end of summer.** When calling, please tell the clerk you are attending Nightfall (aka "the telescope event"), or you may be told the resort is booked for the weekend. Rates this year range from \$94 to \$105 a night for rooms, and \$28 to \$34 a night for RV sites; both require a minimum two-night stay. If you are coming in an RV and want to have a separate space for your telescope gear,

you must pay for that space. If you are interested in attending the astroimaging workshops on Friday or Saturday, please check the website - www.nightfall2008.com - for registration information and cost.

Silhouettes on the Moon

By David Nakamoto

With the flyover of the International Space Station during the August public star party, that makes it three (?) public star parties in a row where artificial satellites flew within eyesight of the public at Griffith. One night it was three satellites; and Iridium flare, the ISS, then the Hubble Space Telescope. While these are exciting events for amateur astronomer and lay-public alike, there is something of a let down in seeing just a pinpoint of light.

Of course, this is due to their small size, but I think it's also due to the limited surface that is reflecting sunlight to the observer. Certainly the ISS is a large piece of real estate, so one might expect to see some hint of an extended object instead of a pinpoint of light. However, the inhabited portions of the ISS are cylindrical in shape, so just a glint of light would be visible from them. The solar panels are the big reflectors, and are responsible for most of the light from the ISS.

I suppose one could try and look through a telescope and see if something is visible. The trouble is the speed of any low earth orbiting satellite like the ISS. It taxes most observer's ability to track, and you have to do it manually, since no computerized mount is pre-programmed for such work to my knowledge (although there might be programs you can download to a laptop to do the job). I know some amateurs have done the work of programming such telescopes, using web cameras to capture the images and using image processing techniques to bring out the faint and small features.

But there is another way to see satellites, which allows one to see the shape and size of the satellite easily. This involves trying to see the silhouette of the satellite on the Moon.

Of course, there are advantages and disadvantages to this technique. The advantages is that you can see the shapes of satellites easier, and you can see smaller and/or fainter ones. I've seen satellites against the moon that I couldn't see with the unaided eye once they were past the face of the Moon. On the other hand, you are limited to those satellites that cross the lunar face, and you can't predict when particular ones will do so. The website HeavensAbove can't help much. They're dedicated to those satellites that are visible to the unaided eye, which means the brighter ones. They don't predict when a satellite might cross the moon.

If you wish to try this, all you need is a telescope. In this case, size is less important than the ability to see the entire lunar face at one time, in order to increase the odds of seeing a satellite silhouetted on the lunar disk. Remember that you're looking for a dark object on the bright face of the

moon, not the other way around, so it's to your advantage if more of the lunar face is visible. Image brightness isn't a requirement either; in fact, the eyestrain caused by the brightness of the moon would deter one from the long times needed at the eyepiece to spot a satellite. Since you don't know when a satellite will cross the lunar face, you need to observe for long times.

A web camera would help a lot, IF you can keep most of the moon under surveillance. If you're taking video for later processing, I believe you're best bet is to keep the frames or exposures per second as low as you can, to prevent the generation of large video files. Because unless you can plan ahead and know when a particular satellite is going to cross the Moon, it's going to be tough to catch one by random chance on video. Then again, in theory, you should spot more satellites this way because instead of depending on the brightness of the satellite itself, you're only depending on when it will cross the lunar face. And remember, you can see satellites crossing the lunar face even at full moon, when the satellite would normally be in earth's shadow and hence invisible ! If you try either visually or with a camera, let me know how you did. Write to me at BulletinEditor@laas.org.

Equipment for Sale

Meade AR-5 LX D55 \$550.00

OTA

German Equatorial Mount

#930 diagonal mirror

Autostar control

Standard tripod

Standard finder scope

Ten pound balance weight

Manual

Original box w/foam

Meade Super Plossl eyepieces,
multicoated \$140.00

6.4 mm 1.25 in

9.4 mm 1.25 in

12.4 mm 1.25 in

15 mm 1.25 in

20 mm 1.25 in

26 mm 1.25 in

32 mm 1.25 in

40 mm 1.25 in

56 mm 2 in

Meade Nebula filter #908N (1.25 in.)
..... \$89.00

Meade Nebula filter #910B (2 in)

..... \$119.00

Meade Plossl 9mm Illuminated reticle,
wireless \$77.00

Meade Electronic Eyepiece..... \$70.00

Meade 929 Diagonal Mirror UHTC, 2
in \$119.00

Meade #932 45 deg erecting prism
..... \$47.00

Meade 2x Telenegeative Amplifier,
model 140 \$20.00

Meade #905 Variable Polarizing Filter
..... \$48.00

Meade Universal AC Adapter. \$59.00

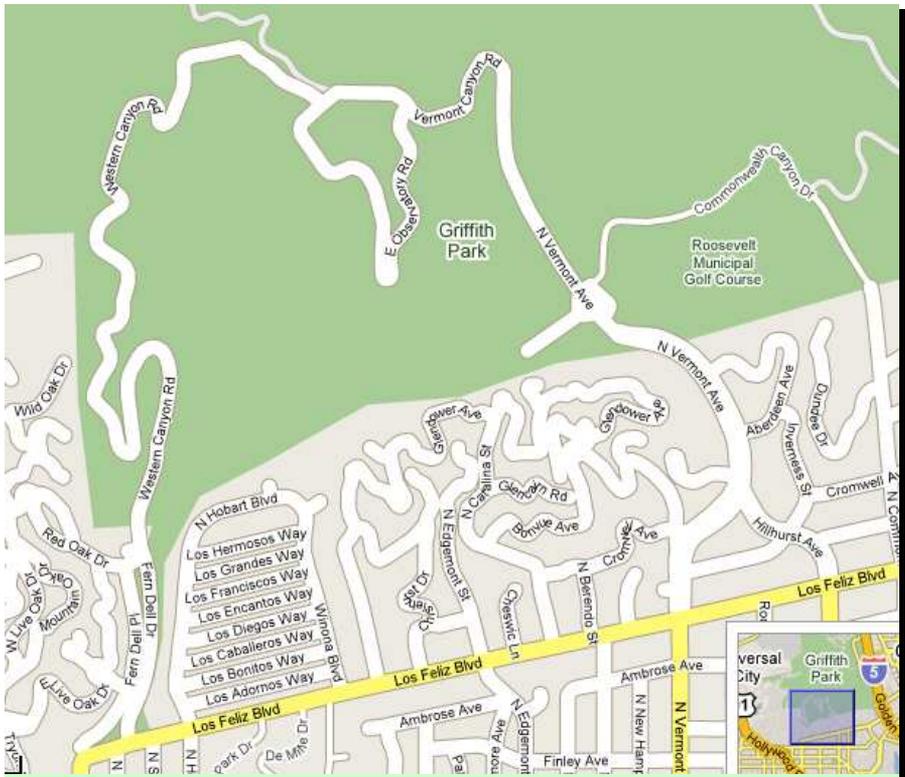
Meade Battery Pack (8 D-
cells).....\$0.00
\$1338.00

The scope and peripherals are in
excellent condition - used a half dozen
times. I no longer have space to set up.
If you're interested, contact:

Rick Smith

951-849-7640

Banning, CA (1)



Greek theater events cause closure of Vermont Ave. to through traffic. Please save this map for future reference. I will post it in the bulletin from June to September, and then not for the rest of the year.

Use Ferndale, which changes into Western Canyon Road. Ferndale is about 1 mile further west on Los Feliz than either Hillhurst or Vermont. Ferndale becomes Western Canyon Road once you enter the park. Western Canyon Road is very windy, so drive carefully. You will have to go through the tunnel at the top of the road and turn right onto East Observatory Road. ✧

Outreach Program

Come on out to the school and show all the enthusiastic kids, parents, and teachers the night sky. They always appreciate it. And if you get WOW's when they look through you scope, you'll feel good. If no scope, come out anyway and help up set up or answer questions from the kids. So, Outreach volunteers, let's pitch in. I'm sure the kids and adults will appreciate our effort.

Thanks !

Outreach@laas.org

(818) 891-3087 ✧

Don DeGregori

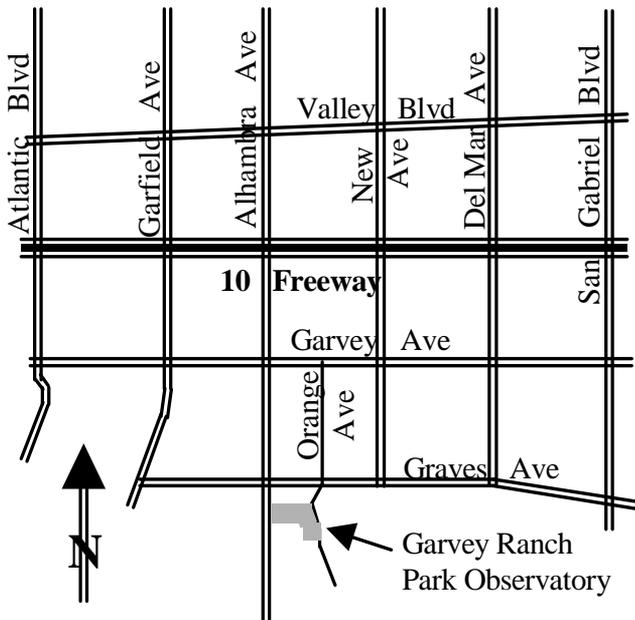
FOR SALE: Vintage Questar 3.5-inch Telescope

Your L.A. Astronomical Society is selling a 1971 standard 3.5-inch Questar (Serial No. 1-CV-4546-BB) that was donated to us by a generous friend. But this telescope is not well suited for use at LAAS' public star parties and other outreach activities or as a loaner scope for our members, and it is too valuable to languish in our shop. It's an excellent instrument that was fully reconditioned this year by Questar Corp. and is in pristine condition. Its premium features include a Cer-Vit mirror for increased reflectivity and broad band coatings to reduce light loss, and it comes with all the standard Questar components and accessories of its era, including two "Erfler" eyepieces (26 mm and 12 mm), an off-axis sun filter, a synchronous drive AC motor, and a cowhide leather carrying case with a luggage cover. It is being offered for sale at \$2,300, but reasonable offers will be considered. Contact the LAAS treasurer at treasurer@laas.org or by mail at P.O. Box 56084, Sherman Oaks, CA 91413.



Map to Monterey Park Observatory

(The place to build your telescope)



LOANER CORNER



It might not look like it, but the spring and summer star parties are just around the corner. Now is the time for new members and existing members that would like to try out something new to check out one of the LAAS loaner telescopes. At the present time there are several available. All are fully equipped with a set of eyepieces. A simple collimating tool is included with all reflectors and a star diagonal is included with refractors.

LAAS-1: 4.5" f/8 Celestron reflector on a Polaris mount.



LAAS-2: 4.5" f/8 Tasco reflector on an Edmund equatorial mount with a clock drive. This telescope has been upgraded with a 1.25" focuser and 6x30 finder.

LAAS-4: 6" f/5 Telescopic reflector on a Dobsonian mount.

LAAS-6: 10: f/4.5 Discovery reflector on a Dobsonian mount. This fast telescope is also equipped with a Tele View Paracorr to correct off axis coma common with fast paraboloids.

LAAS-4

LAAS-7: 80mm f/15 Meade refractor on an Orion Sky View Deluxe equatorial mount. This is an excellent instrument for the Moon and planets.

LAAS-2

LAAS-8: 80mm f/11.4 Selsi refractor on an equatorial mount.

LAAS-9: 80mm f/6.25 refractor with University Optics objective on an equatorial mount. This fine Rich Field Telescope is good for going through the Messier Catalog.

For more information call: David Sovereign at (626) 794—0646. ✧

David Sovereign



EVENTS CALENDAR

Date	Event	Location and Information
Sep 6th (Sat)	Public Star Party	Griffith Observatory. See pg 3 for details on how to attend.
Sep 8th (Mon)	General Mtg	Griffith Observatory Speaker to be announced.
Sep 27th (Sat)	Dark Sky Night	Lockwood Valley
Oct 4th (Sat)	Public Star Party	Griffith Observatory. See pg 3 for details on how to attend.
Oct 13th (Mon)	General Mtg	Griffith Observatory Speaker to be announced.

The board meeting is held at 8pm on the Wednesday night prior to the general meeting, at Garvey Ranch Park. The Monday general meetings start at 7:30 pm unless otherwise noted. See each month's bulletin for updates.



LAAS Home Page: <http://www.laas.org>
 LAAS Bulletin Online: http://www.laas.org/Resources_Newsletter.htm

LAAS Yahoo Group—how to join

The group is private, and therefore does not come up in a search. To join, send email to: LAAS-subscribe@yahoogroups.com. Include your full name so the moderator can verify your LAAS membership. Your full name is necessary so we can check our records to see if you really are a LAAS member. If approved, you will receive further instructions via email. ✧

Sky and Telescope Subscriptions

Sky and Telescope subscriptions renewals should be sent directly to Sky Publishing. To start a Sky and Telescope subscription, contact the LAAS Treasurer (see the contact information on page 2) directly to get the club rates, then thereafter send the renewal bills directly to Sky Publishing. ✧

Astronomy Magazine Subscriptions

For those that subscribe to Astronomy Magazine through the LAAS, the rate has gone up to \$34 a year, \$60 for two years. ✧

Membership Annual Dues:

Youth	\$ 20.00
Regular (18-65)	\$ 45.00
Senior Citizen (65 and up)	\$ 30.00
Senior Family	\$ 40.00
Family	\$ 60.00
Life	\$ 500.00

Additional fees:

Charter Star member	\$ 30.00
Star member, with pad	\$ 70.00
Star member, no pad	\$ 60.00
Printed Bulletin	\$ 15.00

(Membership due date is indicated on the mailing label)

HANDY PHONE LIST



LAAS Answering Machine	(213) 673-7355
Griffith Observatory Program.....	(213) 473-0800
Sky Report.....	unavailable for now
Lockwood Site	(661) 245-2106
(not answered, arrange time with caller. Outgoing calls – collect or calling card)	
Mt. Wilson Institute.....	(626) 793-3100