December is our annual elections. For those that cannot attend, please print out and fill out the ballot in this bulletin, then mail it back to the LAAS; the address is on the left, or if you wish, you can Email in your selections to Secretary@LAAS.org.

We still need a New Members Coordinator. Anyone interested should try and contact David Sovereign or Peter De Hoff; contact information at left.

My continued thanks to all who have and continue to contribute to the success of the bulletin with their articles and images. And a plea for more of you to write or submit images for our bulletin. The deadline for submitting bulletin material is the 10th of each month. Please submit electronically, if possible, to BulletinEditor@laas.org

All other material may be sent to the address listed at the top of the column at left, but timely reception and publication cannot be guaranteed. ♦

David Nakamoto
Griffith Observatory
Public Star Party Update

PJ Goldfinger

PJ Goldfinger handles our Griffith Observatory Public Star Party List. In speaking with our GO public star party contact, Griffith would like the LAAS to adhere strictly to the following understanding. Please note this is not final, changes forthcoming in the future.

--- Current Attendance Policy for the GO Public Star Party ---

- LAAS Members Only - sorry no guests and only families that fall under Family Membership status allowed.

- It is the focus and Priority 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.

- LAAS Members must 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 the same. Your name, any LAAS Members in your car, The make of car, Car License plate #, Bring Telescope y/n. NOTE: Those attending with out a telescope as a favor will be required to be of some assistance if asked, needed and able - Thanks !!!

- The list currently has been updated to 30 spots for LAAS members.

- To sign up for the Griffith Observatory Star Party the NEW email address is laas.starparty@gmail.com

We understand the disadvantages all around in the change of scheme to LAAS Members Only attending these events. Patience from all LAAS Members is appreciated. The LAAS would like to continue a commendable relationship with Griffith Observatory as we have done so for perhaps some 50+ years now.

This new information as well as reminders and updates will be sent out in the LAAS members email list plus the bulletin to keep everyone informed. So don't forget to sign up. ☀️

Vol 81, issue 12
President’s Message

The December general meeting will be held on the 10th. This is an important meeting since elections for the officers and board members that will be serving the Society in 2008 will be held this month. Last minute nominations will be accepted. December is also the show and tell month where the speakers will be you, the members of the LAAS. This is the chance to show your pictures and talk about any new projects that you have completed or are developing. Short member presentations should not be restricted only to December, but be given at other general meetings to share with your fellow members what you are doing. ♦

Outreach Program

The LAAS Outreach program is having a busy season, conducting star parties at schools throughout our region, and at some of these events our own "Galileo Guy" explains and demonstrates astronomy and its history to rapt audiences of pupils, parents and teachers. The season began with star parties in September at Wadsworth Elementary School in central Los Angeles and the Bruggemeyer Library in Monterey Park. During October we visited Hoover Elementary School in mid-city Los Angeles and Valley View School in La Crescenta. On November 1st, we participated in the dedication of Monrovia High School's new telescope, and as this is written we are scheduled to visit Overland Avenue Elementary School in west Los Angeles on November 16, Helen Keller Elementary School in Lynwood on November 20, Sunny Brae Avenue Elementary School in Winnetka on November 21, and Kester Avenue Elementary School in Van Nuys on December 7. We continue to receive invitations from other schools and organizations, and we are gratified to note that these requests frequently come from schools where we have been enthusiastically received in the past. We urge any LAAS members who would like to share their interest in and knowledge of astronomy with the children in our communities to contact us about participating in these events. — Herb Kraus. ♦

Colossus

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The Magellanic Clouds
By Tim Thompson

We don’t live in a wimpy galaxy. The massive Milky Way is attended by about 24 dwarf galaxies, all bound together by gravity in a collection not surprisingly known as the Milky Way Group. Some of the dwarfs are in various stages of being digested by the Milky Way. Some are almost too far away for the Milky Way to hang onto. Some are spheroidal galaxies, like super globular clusters. Some are “irregular” galaxies with poorly defined shapes. The best known of the dwarf satellite galaxies in the Milky Way Group are the irregular Magellanic Clouds.

The clouds are named after Ferdinand Magellan (Fernão de Magalhães in his native Portuguese), who led the expedition that recorded them in 1519-1522. But the first recorded observation of the Magellanic Clouds is credited to the Persian astronomer Abd Al-Raman Al Sufi (known to Europeans as Azophi, the lunar crater Azophi is named after him). He was able to observe the Large Magellanic Cloud from southern Arabia, and he included it in his Book of Fixed Stars in 964 A.D. The Magellanic Clouds are referred to as The Big Cloud and The Little Cloud, both in Bayer’s Uranometria (1603) and Flamsteed’s star atlas (1795). It was not until later that they came to be commonly named after Magellan. They are, of course, conspicuously naked eye objects, and have been known since prehistoric times.

The Large Magellanic Cloud (LMC) sits astride the southern constellations Mensa & Dorado, and it spans about 11 x 9 degrees. It lies about 152,000 light years from Earth, and weighs in with about 20 billion solar masses. The LMC is home to the most active region of star formation in the local group of galaxies, the Tarantula Nebula (30 Doradus). The Tarantula Nebula holds about 800,000 solar masses of ionized gas in a region about 1000 light years across. The inner core of the Tarantula Nebula holds a dense cluster of about 2400 O & B class stars, NGC2070. The core of NGC2070 is R136, a cluster of O & B stars that shines about 78,000,000 times brighter than the sun and weighs in at about 500,000 solar masses. The Tarantula Nebula is the most active star formation region in the Local Group of galaxies. If it were at the same distance from us as the Great Nebula in Orion (M42), it would span half the sky in width, and be bright enough to cast shadows.

The Small Magellanic Cloud (SMC) sits in the southern constellation Tucana, and it spans about 5 x 3 degrees. It lies about 200,000 light years from Earth, and weighs in with a mass only 1/10 that of the LMC, about 2 billion solar masses. Like the LMC, the SMC is experiencing continued

(Continued on page 7)
Above is the large Magellanic Cloud, and to the right the Small Magellanic Cloud. The Large Magellanic Cloud (LMC) shows an obvious dense stellar disk, seen almost edge on in the upper part of the image, and extended clouds of stars below. The conspicuously bright red & pink complex in the upper left is the Tarantula Nebula. The LMC is about 152,000 light years away and holds about 20,000,000,000 solar masses.

Image by Loke Kun Tan at http://www.staryscapes.com

The Small Magellanic Cloud (SMC) shows a concentration similar to the LMC, but without the same extended star clouds. The red & pink areas are HII star forming regions scattered throughout the galaxy. The SMC is about 200,000 light years away, and holds about 1/10 the mass of the LMC. The SMC shares the sky in this image with the spectacular foreground globular cluster 47 Tucanae (NGC604) to the left of the image. The globular cluster is only about 14,500 light years away, is 50 arcminutes in diameter, holds 1,300,000 solar masses, and is one of the largest Milky Way globular clusters. A second Milky Way globular cluster, NGC 362 is at the bottom of the image, about 20,000 light years away. The image is by Stephane Guisard.
active star formation. But the smaller mass of the SMC, and its greater distance, make it a less favorable area on the sky to study star formation.

The **Magellanic Stream** is a filament 100 degrees long and 10 degrees wide on the sky, made up of about 200,000,000 solar masses of neutral hydrogen gas. The stream connects the Milky Way to the Magellanic Clouds, and is a result of the tidal gravity of the Milky Way stripping gas out of the Magellanic Clouds. It is a clear sign that the Milky Way is beginning to devour the Magellanic Clouds, which have been able to stand up to the mass of the Milky Way only because of their own significant mass & large distance. The much closer Sagittarius Dwarf is well on the way to being devoured, and the recently discovered Carina Dwarf galaxy is almost digested. Radio astronomers have mapped the complex filaments of the Magellanic Stream. The Magellanic Stream was first discovered by northern hemisphere observers Wannier & Wrixon in 1972, and connected to the Magellanic Clouds by southern hemisphere observers Mathewson, *et al.*, in 1974.

The **Magellanic Bridge** runs between the two Magellanic Clouds. Unlike the Stream, the Bridge is not a pure gas phenomenon. The bridge holds a population of stars estimated to be about 100,000,000 years old. This is much too young for stars that were stripped from either of the Magellanic Clouds.
by tidal gravity, so the stars must have formed in the bridge, out of gas that had already been stripped from the LMC & SMC. Hindman, \textit{et al.}, first discovered the Magellanic Bridge as a stream of neutral hydrogen gas in 1963. Irwin, \textit{et al.}, discovered the stellar component in 1985.

Dust in our own Milky Way makes it difficult to observe star formation in our own Galaxy. The Orion Nebula, M42, is probably the most heavily studied star forming region in our Galaxy. But the lack of dust in the line of sight to the Magellanic Clouds makes them excellent observational laboratories for studying star formation. This is especially true for the heavily observed area around the Tarantula Nebula and R136 in the LMC, one of the few places where we can see the formation process for high mass stars. Furthermore, the distance to the LMC is a key step in the cosmological distance ladder, where relative distances are always easier to come by than are absolute distances. So there are many papers in the astronomical journals reporting on studies of the absolute distance to the LMC. That way distances that are known relative to the LMC can then be converted into absolute distances. The Magellanic Clouds are two of the great targets for amateur & professional astronomers alike. ∗
The image at left shows the Milky Way, the Magellanic Clouds and Comet McNaught. Miloslav Druckmiller made the image on January 28, 2007, in the Patagonia region of Argentina. The image is 100 degrees across.

The image above is an HST image of the massive star cluster R136 in the Tarantula Nebula. The cluster is so compact that it was originally cataloged as a single star. It was only discovered to be a cluster when astronomers realized that it must have been far too massive for a single star. The cluster weighs about 500,000 solar masses, shines 78,000,000 times brighter than the sun, and holds dozens of stars that might be as heavy as 100 solar masses.

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The images on this page are of Comet Holmes. They were taken by Jeff Schroeder from Ford Observatory using the observatory’s 18-inch Newtonian reflector.

Comet Holmes is normally not visible to the unaided eye, but an outburst similar to the one it experienced during its discovery year 1892 caused it to shine at around mag +2, but unless another outburst happens, it’ll probably fade back to obscurity by the time this bulletin goes to press.
Ballot for 2007 LAAS Board Elections

_____ President—David Sovereign
_____ Vice-President—Mary Brown
_____ Secretary—Kate Hutton
_____ Treasurer—Herbert Kraus

Board Members (Vote for 9 only)
_____ PJ Goldfinger
_____ Tim Thompson
_____ Reggie Flores
_____ Norman Vargas
_____ Richard Roosman
_____ David Nakamoto
_____ Mike White
_____ Don Degregori
_____ Herman Meyerderks
_____ Bob Deubler
_____ Amber Vasquez
_____ Darrell Dooley
_____ Manuel Vaeza

Write-in Candidates

____________________________________________________________________________________

____________________________________________________________________________________

Please cut out and mail to:
LAAS
2800 East Observatory Rd.
Los Angeles, CA  90027

Ballots must reach the LAAS before the December 10th General Meeting.
This image shows the LAAS site. Up or North is towards the left. The image was generated by Google Earth, a s/w package that simulates a 3-D look from satellite imagery.
Telescope for Sale

CG-5 on a GoTo mount with tripod in excellent condition. It will support up to a 35lb OTA. It’s 2 years old and I’m asking $400.

Please contact Ed Smither at (818) 845-6914, or at twopilots2@mindspring.com

SCT for Sale

Meade 10" SCT—2 stands, one that bolts to the ground.
Complete set of Televue lens.
SBIG digital imaging CCD system.
$4600.00 OBO
Call Ray @ (661) 264 - 6627

Map to Monterey Park Observatory

(The place to build your telescope)
Mars in the constellation of Gemini will be rising late in the evening and is coming into opposition this month. The winter constellation of Orion, the king of winter, is in good position for observation all evening. For those new members that do not have a telescope of their own or members that would like to try out other types, the LAAS has a large selection of telescopes that can be borrowed.

LAAS-1: Celestron 4.5” f/8 Newtonian reflector on a Polaris equatorial mount.

LAAS-2: Upgraded Tasco 4.5” f/8 Newtonian reflector on a driven Edmund equatorial mount.

LAAS-4: Telescopics 6” f/5 Newtonian reflector on a Dobsonian mount.

LAAS-5: Parks 6” f/6 Newtonian reflector on an equatorial mount equipped with a clock drive.

LAAS-7: 80mm Meade f/15 refractor on an Orion Sky View Deluxe mount.

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

LAAS-9: 80mm f/6.25 refractor on a home made equatorial mount. This RFT is a new addition to the loaner program and was donated by our recording secretary, PJ Goldfinger, who used it to complete the Messier catalog of deep sky objects.

All telescopes come equipped with a set of three eyepieces. In the case of reflectors, a collimation tool is included and in the case of refractors a star diagonal is included.

For further information call: David Sovereign at (626) 794-0646. ✯
## Events Calendar

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Location and Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec 8th (Sat)</td>
<td>Dark Sky Night</td>
<td>Lockwood Valley.</td>
</tr>
<tr>
<td>Dec 10th (Mon)</td>
<td>General Meeting</td>
<td>Griffith Observatory. Elections, &amp; member’s Show &amp; Tell</td>
</tr>
<tr>
<td>Dec 22nd (Sat)</td>
<td>Public Star Party</td>
<td>Griffith Observatory. See pg 3 for details on how to attend.</td>
</tr>
<tr>
<td>Jan 5th (Sat)</td>
<td>Dark Sky Night</td>
<td>Lockwood Valley.</td>
</tr>
<tr>
<td>Jan 12th (Sat)</td>
<td>Public Star Party</td>
<td>Griffith Observatory. See pg 3 for details on how to attend.</td>
</tr>
<tr>
<td>Jan 14th (Mon)</td>
<td>General Meeting</td>
<td>Griffith Observatory. Speaker to be determined</td>
</tr>
</tbody>
</table>

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.

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## New Members Corner

Welcome to the Los Angeles Astronomical Society! Right now, we have lost our previous New Members Coordinator to college, so we’re looking for someone to take over this position. If you’re interested, please contact one of the board members on page 2.<br>

Email: coordinator@laas.org

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LAAS Home Page: [http://www.laas.org](http://www.laas.org)
LAAS Bulletin Online: [http://www.laas.org/bulletin.html](http://www.laas.org/bulletin.html)
**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.

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**Sky and Telescope Subscription News**

Everyone with a club subscription to Sky and Telescope should send the renewal bill directly to Sky Publishing.

People who wish to start a Sky and Telescope subscription should contact the LAAS Treasurer (see the contact information on page 2) directly to subscribe to the magazine at the club rates, and then thereafter send the renewal bills directly to Sky Publishing.

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**Astronomy Magazine Subscription Rate Changes**

For those that subscribe to Astronomy Magazine through the LAAS, the rate has gone up to $35 a year.

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**Membership Annual Dues:**
- Youth $20.00
- Regular (18-65) $35.00
- Senior Citizen (65 and up) $20.00
- Senior Family $30.00
- Family $50.00
- Group or Club $50.00
- Life $500.00

**Additional fees:**
- Charter Star member $30.00
- Star member, with pad $70.00
- Star member, no pad $60.00

*(Membership due date is indicated on the mailing label)*

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**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

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