Inside this issue:

Mount up - Part II ................................................................. 1,3,7
Editors' Message ................................................................. 2
Telrad's NEEDED ............................................................... 2
The Art of Observing ..................................................... 4-5,7,11-12
President's Paragraph ..................................................... 6
Monthly Quiz ...................................................................... 6
Jed Laderman - "The Nature of Time" ................................. 8
Mount Wilson 60" Nights ................................................... 9
The Outreach Extension ..................................................... 10
Call for Donations for RTMC Booth ................................ 12
This Month in History ...................................................... 13
Loaner Corner ................................................................... 14
Events Calendar ............................................................... 15

EDITOR'S NOTE:
Notes, corrections, questions, ideas, articles? All are welcome at: laas_editor@yahoo.com.

A day without sunshine .................................................... is like night.

MOUNT UP - PART II

EQUATORIAL

By David Sovereign

Although Alt-Azimuth mounts described in the previous article are easy to build and use, they do not have the capability to correctly track objects across the sky for long exposure photography or extended visual observation of a specific object. For

(Continued on page 3)
EDITOR’S MESSAGE

It’s been a busy month with more to come. The Riverside Telescope Makers Conference (RTMC) is coming up (Memorial Day Weekend) so consider joining the legions of fellow amateur astronomers from the West Coast and beyond for a weekend of amateur astronomy at Camp Oakes near Big Bear. This is one of the biggest Astronomy events of the year so be sure to check it out at http://www.rtmcastronomyexpo.org. As always, the LAAS will be there in force so there will be plenty of familiar faces in the crowds. Lots of fun.

Mary, the librarian, needs help in organizing and cleaning out the library, so stop by on a Wednesday Night and give her a hand. We’re going to collect most of the duplicate Sky and Tel magazines and sell them at RTMC.

Telrad’s NEEDED

Some of the LAAS Loaner scopes need Telrads on them. If you have a Telrad looking for a good home where it will see good use, contact Dave Sovereign about donating it to the LAAS Loaner program. These would really help out beginners in learning the sky with the Loaner scopes. Proper usage instructions will be given to the users and the Club would really appreciate your donation.
As of this writing, spring has sprung. Our friends, Orion and Taurus, are beginning to slide into the western sky in the evening. Saturn is just past opposition with Jupiter not far behind. At the present time there are 6 fully equipped telescopes available.

LAAS-1 - 4.5" f/8 Celestron reflector on a solid Polaris equatorial mount. It comes equipped with a Kellner eyepiece, two Orthoscopics, and a collimation tool. These 4.5" reflectors are small enough to be easily carried and set up, but with enough aperture to provide good views.

LAAS-2 - 4.5" f/8 Tasco reflector on a motorized Edmund equatorial mount. This telescope has been upgraded with 1.25" accessories, a 6x30 finder, and very solid wooden legs. It comes fully equipped with a set of three Kellner eyepieces and a collimation tool.

LAAS-4 – 6" f/5 Telescopics reflector on a Dobsonian mount. It comes with a set of three Orthoscopic eyepieces and a collimation tool. This instrument is compact and easy to use.

LAAS-6 – 10" f/4.5 reflector by Discovery on a Dobsonian mount. It is equipped with a set of three Plossl eyepieces and a collimation tool. This instrument is especially good for observing faint galaxies in the Virgo and Coma clusters. This is currently located in the Monterey Park shop.

LAAS-8 – 80mm f/11.4 refractor by Selsi is on an equatorial mount. A pair of Plossl eyepieces and a short focus Orthoscopic has replaced the three Kellner eyepieces. This is one of the smaller telescopes in the collection that will make it easy to carry to a dark sky site.

LAAS-9 – 8" f/4.5 reflector on a Dobsonian mount that is motorized with a Dob Driver II. The mount has been raised on short wooden legs to bring the eyepiece up to a convenient level. It is equipped with three Plossl eyepieces, a collimation tool, and a power supply for the Dob Driver. At the present time LAAS-9 is located at the shop in Monterey Park. For Sale: $400 for members

For further information concerning these loaner telescopes call: David Sovereign at (626) 794-0646.
It is well-known that with human perception if you know what it is you’re looking for, you more easily spot it. In Astronomy this means that you can always increase the value and enjoyment of the experience if you invest in a little research. This is obviously true when the object is faint and barely registers on the eye. But this is also true when the object is bright and details would seem to be easy to see. As many found during the 2003 Mars Opposition, what you see is very dependent on what you expect to see. An example was trying to see the two Martian satellites using the Mt. Wilson 60-inch Cassegrain. I spotted Deimos without too much trouble, and Norm Vargas spotted Phobos, but neither of us could spot the satellite the other had seen until we compared notes, found out that we had seen different objects and then knew where to look.

There are several things you can do to increase the chances of seeing planet details. The larger the telescope the better, because higher magnifications can be achieved, and the larger the aperture the finer the features that can potentially be seen. Perhaps just as important, use telescopes with long focal ratios, f/8 or longer. This not only increases the available magnification, but it also reduces effects associated in short focal ratios such as chromatic dispersion and diffraction effects from large secondary obstructions.

You need to steady the seeing. Avoid surfaces that both store a lot of heat during the day and release a lot of it during the night, such as concrete and asphalt. Grass is a good surface to observe from. Let the telescope

---

**This Month in History**

**April 7, 1795:** France adopts the metric system

Gabriel Mouton, Vicar at St. Paul’s Church in Lyon France (who was also an astronomer) proposed in 1670 a comprehensive decimal measurement system based upon the size of the Earth. Other proposals were made, but more than a century passed before any action was taken. In 1790, during the French Revolution, the National Assembly of France requested the French Academy of Science to “deduce an invariable standard for all the measures and all the weights. The commission appointed by the Academy created a system that was simple and scientific. The unit of length was a portion of the Earth’s circumference. Measures for volume and mass were to be derived from the unit of length, thus relating the basic units to each other. The commission chose the name meter for the unit of length; its origin is from the Greek word metron meaning “a measure.” The physical standard of a meter is a brass rod that equals one ten-millionth of the distance from the North Pole to the equator along the meridian running near Dunkirk in France and Barcelona in Spain. In 1960, the meter was redefined in terms of wavelength of light by the 11th CGPM and the new system was given the official symbol of SI, which stands for systems international. In 1983, the meter was redefined again this time in terms of the speed of light by the 17th CGPM resulting in better precision but keeping its length the same.

---

**Map to Monterey Park Observatory**

(The place to build your telescope)
(Art of Observing, Continued from page 11)

Other similar events will happen, as the satellites of Jupiter do their dance around their giant master. Consult the observer’s section in Sky and Telescope for future events. I’ll also try and find any such events visible from Los Angeles and publish them in this bulletin. Since my own interest is in transits, I’ll only search and list these events, and only those where some part of the transit is visible before midnight. But Callisto passes too far to the north for it or its shadow to transit in front of Jupiter during this season and probably for a few years. The times are approximate, so please consult Sky and Telescope or Astronomy to get the actual time.

For April:
F 040105, 9pm to 11pm — Io shadow transit.
W 040605, 10pm to 12pm — Europa shadow transit.
F 040805, 11pm to 1am — Io shadow transit.
M 041105, 7pm to 10pm — Ganymede shadow transit. Ganymede itself will be halfway through its transit when Jupiter rises enough to observe, and ends its transit at 8pm.
Su 041705, 7pm to 9pm — Io shadow transit.
M 041805, 930pm to 1130pm — Ganymede transit. Its shadow starts its transit at 1030pm.
Su 042405, 9pm to 11pm — Io shadow transit.

Happy observing!✦

---

**Call for Donations for RTMC Booth**

This year at RTMC, the club will need to pay money to get a booth that is in a decent spot. We request donations to help defray the costs of the booth. If you have some items that you would like to sell, and whose proceeds would go to the LAAS, please contact a board member about permission to sell those items at the Official LAAS Booth. So join in the fun with your fellow LAAS members and contact Jim Hunter to make your contribution to this much needed booth. Please send checks of any size (remember, there are over 300 members) to:

Los Angeles Astronomical Society
2178 Kenilworth Ave.
Los Angeles, CA 90039

Thanks for your generosity in keeping the LAAS seen at RTMC

—LAAS Board

---

The goal is to reduce eye fatigue by not holding one eye shut. You soon learn to ignore what you see through the other eye. Breathe deeply and regularly. You don’t see more details by holding your breath. As you starve your eyes of oxygen, your vision gets worse and worse. Many deep sky observers know of this from long experience, and it applies to planet observers also. By the way all these techniques work on microscopes as well as telescopes.

This month Jupiter rises earlier each night, and along with Saturn provides a lot of observing opportunities. Because observers need to communicate what they see on Jupiter, especially since features can change in days or sometimes hours, they’re identified by specific names. Almost any telescope will show the alternating bands of light and dark running across Jupiter. The dark bands are called “belts” or less commonly “bands”. The light bands are called “zones”. The two main dark belts straddling the equator are the North and South Equatorial Belts. Between these is the Equatorial Zone. The two zones above and below the Equatorial Belts are the North and South Tropical Zones.

The famous Red Spot is in the South Equatorial Belt and is only visible roughly every other night.
PRESIDENT’S PARAGRAPH
Dave Sovereign

The spring brings with it warmer evenings for observation. The next special event for the LAAS is the annual new member’s pot luck and star party at Monterey Park. It is scheduled for the evening of Saturday, April 30th. The pot luck will start at about 5:00 PM followed by presentations by some of our members and the star party on the lawn in front of the shop. New members will be eligible for door prizes to be given away after the dinner. On another note, I would like to see more members giving short, 5 to 6 minute, talks at our general meetings about what you are doing. Perhaps a new telescope or a trip to some fascinating place that you have visited. I feel that seeing fellow LAAS members giving presentations after a lecture by a professional will bring the Society closer together. Until the next general meeting: good seeing.

Monthly Quiz
APRIL CONTEST, By Mary Brown

A constellation is a grouping of stars, which is recognized by the International Astronomical Union. What is the total number of constellations in the night sky?

Rules:
1. Letters must be postmark by or before last day of the month.
2. Email also accepted by last day of the month: nwrgz@yahoo.com
3. Winner will receive prize at the general meeting.
4. Winner will be selected from all correct answers by a drawing.
5. Only winner will be notified.
6. Correct answer will be in the following month’s bulletin.
7. Rules can be changed if necessary, notice will be given of any changes.

Along with your correct answer send us your name, address and phone number

By mail send to:
Los Angeles Astronomical Society
4800 Western Heritage Way
Los Angeles, CA 90027

Hollow. Festoons appear bluish in color and sweep from the Belts towards the equatorial zones. While the polar hoods are relatively easy to see the mottling in these regions is more difficult to discern. Barges are dark spots that migrate within a belt. White ovals are usually smaller storms in the Jovian atmosphere, and many times you can spot them around the region of the Red Spot.

More information can be found at the Association of Lunar and Planetary Observers, ALPO, at: http://www.lpl.arizona.edu/~rhill/alpo/jup.html

Another site that defines some of the terms used to describe the http://ephemeris.sjaa.net/0202/g.html

I took image #1 using a 127–mm aperture f/12 telescope and a Creative Pro eX web camera. Hundreds of images were selected, combined, and processed using Registax v2, then through Paint Shop Pro v8 to bring out more detail than could be seen visually through this telescope. It shows what might be seen using a very large telescope of 20–inches of aperture or more, but the features shown here are much higher in contrast than would appear visually.

On April 11th from roughly 7pm to 9pm PST, Jupiter’s large moon Ganymede and its shadow cross in front of Jupiter. Because Ganymede is large and relatively dark compared to Jupiter, both are easy to see in moderately large (100 mm or more aperture) telescopes. This doesn’t happen often for any location on the earth. Because of Ganymede’s slow motion around Jupiter, you can look at Jupiter after 30 minutes and see the position of Ganymede change. This is one of the few things that you can see change in the heavens in a short amount of time. Image #2 shows a similar event from last year. Ganymede is the small dark spot in the upper right quadrant of Jupiter, Io’s shadow is nearest the center, and Ganymede’s shadow is in the upper left. In this second image, Io is in front of the disk of Jupiter, but its brightness and color are so similar to Jupiter’s that it cannot be seen, even after the image was heavily processed to try and bring it out. Despite the fact that its location was known to the author, in this case even knowing where to look nothing can be seen at the indicated position that can be identified as being Io.

(Continued on page 12)
The Outreach Extension

One of the stated objectives of the Los Angeles Astronomical Society is to promote the public understanding of astronomy.

Our public outreach program seeks to do that by supporting public star parties like the monthly Griffith Observatory events. The purpose of this article is to inform the LAAS membership about our outreach program and to invite you to participate. In addition to the monthly events at Griffith, we are invited to speak at schools and with groups like the Boy Scouts, Girl Scouts and other youth organizations.

Don DeGregori and TheGalileoGuy have recently taken over responsibility for LAAS outreach. We would like to increase the number of the LAAS outreach events. In order to do this we need more membership participation.

We want to invite all members to participate. Even if you are a new member you can still help. This is an excellent way to learn about astronomy. TheGalileoGuy can tell you from personal experience that doesn’t take much knowledge to be able to fool a fifth grader. Also you don’t need to own a telescope. This is a good way for you to learn by teaching others.

If you are interested, contact us at TheGalileoGuy@aol.com or Don1mh@earthlink.net, or call (310) 546-1437. Give us your phone number, e-mail address, availability times and let me know where you live. We’ll put you on a list and you will be contacted when outreach opportunities come up.

Clear skies
Don DeGregori & TheGalileoGuy

“Astronomy compels the soul to look upwards and lead us from this world to another”
—Plato

(Mount Up, Continued from page 3)

A third type of equatorial is the horseshoe. It consists of fork at the south end connected to a large disk at the north end with a U shaped opening where the tube assembly is mounted. The drive can be either on the rim of the disk or at the south end of the fork. Examples of this are the 200” Hale reflector on Mount Palomar and the 10” telescope made by LAAS member, Mike Stoiber. These are very stable mounts that can cover the entire sky, but they take up a lot of real estate on the ground.

There are many other designs for equatorials, such as the Springfield or designs based on a helioscope with a moving mirror to feed the telescope. A Poncet platform is a more recent design that can be visualized as a horseshoe with the top cut off. These are low to the ground and can be used to mount a Dobsonian to give it equatorial motion for up to 2 or 3 hours. As with alt-azimuth designs, use your imagination when designing a new mount for your telescope.

(Art of Observing, Continued from page 5)

because of the difference in the rotation rate between Jupiter (10 hours) and the earth (24 hours). Most of the time you won’t see the actual spot, especially if it has faded as it has in recent years, but even when the Spot isn’t readily visible it will carve out a large notch in the South Equatorial Belt. This is called the Great Red Spot.

(Continued on page 11)
JED LADERMAN TO SPEAK ON
THE NATURE OF TIME

Sunday, April 24, at the Altadena Public Library

On Sunday afternoon, April 24, Jed Laderman will lead us on an exploration of one of the most mysterious phenomena in the Universe—time itself—at the Mount Wilson Observatory Association’s monthly public lecture at the Altadena Library.

What is time? Is time travel possible? What happens to time in a black hole? Laderman’s talk, “The Nature of Time,” will address questions like these with perspectives ranging from relativity to quantum physics, leading us on an excursion from the beginning of time in the Big Bang to its possible remote ending. He teaches astronomy at El Camino College and is a member of the Santa Monica Amateur Astronomy Club and a Trustee of the Mount Wilson Observatory Association.

Please join us at 2:30 P.M. for this free program. Refreshments will be served before the talk, beginning at 2:00 P.M. For more information about this lecture, call Bob Eklund at (310) 216-5947.

The Altadena Public Library is located at 600 E. Mariposa Street in Altadena, two stop signs west of Lake Avenue at the corner of Mariposa and Santa Rosa Avenue (Christmas Tree Lane). Exit the 210 freeway at Lake Avenue and go approximately 2 1/2 miles north to Mariposa Street in Altadena. The lecture is in the library’s Community Room.

The Mount Wilson Observatory Association (MWOA) is a public-membership support group for the Mount Wilson Observatory. MWOA’s goal is to help the public better understand Mount Wilson Observatory’s unique history and ongoing scientific work. For information about MWOA membership, contact Don Nicholson at (310) 476-4413, donn@mwoa.org, check the MWOA web site, www.mwoa.org, or write to MWOA, P.O. Box 70076, Pasadena, CA 91117.

Mt Wilson 60” Nights

The Mount Wilson 60” nights are back! The dates for the nights are as follows:

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 10th</td>
<td>Lots of good stuff in the sky</td>
</tr>
<tr>
<td>August 13th</td>
<td>This is a half night and has a little moon for some 60” Moon shots</td>
</tr>
<tr>
<td>October 30th</td>
<td>This one is going to fill up ASAP.  Big Time MARS night. It’s a Sunday but this Mars Opposition is far superior to the last one.</td>
</tr>
<tr>
<td>November 4th</td>
<td>MARS Opposition again. Sign up Soon!</td>
</tr>
</tbody>
</table>

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. Be sure to let Jim Hunter know the names of your guests as he is keeping a waiting list. (First Come, First Serve)

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 Wilson and Hubble, will add to your appreciation of their contributions.

The 60-inch was the largest scope in the world when it saw first light. It is a step back in time to see the huge riveted structure, similar to photos of WWI battleships. The power supply for the dome’s movement works fine but looks like a Saturday matinee Sci Fi picture from the 40-50’s.

It should be understood, that the scope belongs to LAAS the 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 your are likely to see in your lifetime.

We already have reservations for each of the nights, so don’t delay and miss a unique opportunity to socialize with other members and view objects you only see in publications.

Send your check payable to LAAS, for $50 per person per night - $25 for the half night on August 13, to Jim Hunter, 2178 Kenilworth Ave., LA 90039. Please specify the nights and names of attendees.
**Jed Laderman to Speak on The Nature of Time**

**Sunday, April 24, at the Altadena Public Library**

On Sunday afternoon, April 24, Jed Laderman will lead us on an exploration of one of the most mysterious phenomena in the Universe—time itself—at the Mount Wilson Observatory Association’s monthly public lecture at the Altadena Library.

What is time? Is time travel possible? What happens to time in a black hole? Laderman’s talk, “The Nature of Time,” will address questions like these with perspectives ranging from relativity to quantum physics, leading us on an excursion from the beginning of time in the Big Bang to its possible remote ending. He teaches astronomy at El Camino College and is a member of the Santa Monica Amateur Astronomy Club and a Trustee of the Mount Wilson Observatory Association.

Please join us at 2:30 P.M. for this free program. Refreshments will be served before the talk, beginning at 2:00 P.M. For more information about this lecture, call Bob Eklund at (310) 216-5947.

The Altadena Public Library is located at 600 E. Mariposa Street in Altadena, two stop signs west of Lake Avenue at the corner of Mariposa and Santa Rosa Avenue (Christmas Tree Lane). Exit the 210 freeway at Lake Avenue and go approximately 2½ miles north to Mariposa Street in Altadena. The lecture is in the library’s Community Room.

The Mount Wilson Observatory Association (MWOA) is a public-membership support group for the Mount Wilson Observatory. MWOA’s goal is to help the public better understand Mount Wilson Observatory’s unique history and ongoing scientific work. For information about MWOA membership, contact Don Nicholson at (310) 476-4413, donn@mwoa.org, check the MWOA web site, www.mwoa.org, or write to MWOA, P.O. Box 70076, Pasadena, CA 91117.

---

**Mt Wilson 60” Nights**

The Mount Wilson 60” nights are back! The dates for the nights are as follows:

- **June 10th**, Lots of good stuff in the sky.
- **August 13th**, This is a half night and has a little moon for some 60” Moon shots.
- **October 30th**, This one is going to fill up ASAP. Big Time MARS night. It’s a Sunday but this Mars Opposition is far superior to the last one.
- **November 4th**, MARS Opposition again. Sign up Soon!

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. Be sure to let Jim Hunter know the names of your guests as he is keeping a waiting list. (First Come, First Serve)

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 Wilson and Hubble, will add to your appreciation of their contributions.

The 60-inch was the largest scope in the world when it saw first light. It is a step back in time to see the huge riveted structure, similar to photos of WWI battleships. The power supply for the dome’s movement works fine but looks like a Saturday matinee Sci Fi picture from the 40-50’s.

It should be understood, that the scope belongs to LAAS the 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 your are likely to see in your lifetime.

We already have reservations for each of the nights, so don’t delay and miss a unique opportunity to socialize with other members and view objects you only see in publications.

Send your check payable to LAAS, for $50 per person per night - $25 for the half night on August 13, to Jim Hunter, 2178 Kenilworth Ave., LA 90039. Please specify the nights and names of attendees.
The Outreach Extension

One of the stated objectives of the Los Angeles Astronomical Society is to promote the public understanding of astronomy.

Our public outreach program seeks to do that by supporting public star parties like the monthly Griffith Observatory events. The purpose of this article is to inform the LAAS membership about our outreach program and to invite you to participate. In addition to the monthly events at Griffith, we are invited to speak at schools and with groups like the Boy Scouts, Girl Scouts and other youth organizations.

Don DeGregori and TheGalileoGuy have recently taken over responsibility for LAAS outreach. We would like to increase the number of the LAAS outreach events. In order to do this we need more membership participation.

We want to invite all members to participate. Even if you are a new member you can still help. This is an excellent way to learn about astronomy. TheGalileoGuy can tell you from personal experience that doesn’t take much knowledge to be able to fool a fifth grader. Also you don’t need to own a telescope. This is a good way for you to learn by teaching others.

If you are interested, contact us at TheGalileoGuy@aol.com or Don1mh@earthlink.net, or call (310) 546-1437. Give us your phone number, e-mail address, availability times and let me know where you live. We’ll put you on a list and you will be contacted when outreach opportunities come up.

Clear skies
Don DeGregori & TheGalileoGuy

---

“Astronomy compels the soul to look upwards and lead us from this world to another”

—Plato

---

A third type of equatorial is the horseshoe. It consists of fork at the south end connected to a large disk at the north end with a U shaped opening where the tube assembly is mounted. The drive can be either on the rim of the disk or at the south end of the fork. Examples of this are the 200” Hale reflector on Mount Palomar and the 10” telescope made by LAAS member, Mike Stober. These are very stable mounts that can cover the entire sky, but they take up a lot of real estate on the ground.

There are many other designs for equatorials, such as the Springfield or designs based on a helioscope with a moving mirror to feed the telescope. A Poncet platform is a more recent design that can be visualized as a horseshoe with the top cut off. These are low to the ground and can be used to mount a Dobsonian to give it equatorial motion for up to 2 or 3 hours. As with alt-azimuth designs, use your imagination when designing a new mount for your telescope.

(Mount Up, Continued from page 3)

because of the difference in the rotation rate between Jupiter (10 hours) and the earth (24 hours). Most of the time you won’t see the actual spot, especially if it has faded as it has in recent years, but even when the Spot isn’t readily visible it will carve out a large notch in the South Equatorial Belt. This is called the Great Red Spot.

(Continued on page 11)
PRESIDENT’S PARAGRAPH
Dave Sovereign

The spring brings with it warmer evenings for observation. The next special event for the LAAS is the annual new member’s pot luck and star party at Monterey Park. It is scheduled for the evening of Saturday, April 30th. The pot luck will start at about 5:00 PM followed by presentations by some of our members and the star party on the lawn in front of the shop. New members will be eligible for door prizes to be given away after the dinner. On another note, I would like to see more members giving short, 5 to 6 minute, talks at our general meetings about what you are doing. Perhaps a new telescope or a trip to some fascinating place that you have visited. I feel that seeing fellow LAAS members giving presentations after a lecture by a professional will bring the Society closer together. Until the next general meeting: good seeing.

Monthly Quiz
APRIL CONTEST, By Mary Brown

A constellation is a grouping of stars, which is recognized by the International Astronomical Union. What is the total number of constellations in the night sky?

Rules:
1. Letters must be postmark by or before last day of the month.
2. Email also accepted by last day of the month: nwrgzz@yahoo.com
3. Winner will receive prize at the general meeting.
4. Winner will be selected from all correct answers by a drawing.
5. Only winner will be notified.
6. Correct answer will be in the following month’s bulletin.
7. Rules can be changed if necessary, notice will be given of any changes.

Along with your correct answer send us your name, address and phone number

By mail send to:
Los Angeles Astronomical Society
4800 Western Heritage Way
Los Angeles, CA 90027

(Art of Observing, Continued from page 7)

Hollow. Festoons appear bluish in color and sweep from the Belts towards the equatorial zones. While the polar hoods are relatively easy to see the mottling in these regions is more difficult to discern. Barges are dark spots that migrate within a belt. White ovals are usually smaller storms in the Jovian atmosphere, and many times you can spot them around the region of the Red Spot.

More information can be found at the Association of Lunar and Planetary Observers, ALPO, at:
http://www.lpl.arizona.edu/~rhill/alpo/jup.html

Another site that defines some of the terms used to describe the
http://ephemeris.sjaa.net/0202/g.html

I took image #1 using a 127-mm aperture f/12 telescope and a Creative Pro eX web camera. Hundreds of images were selected, combined, and processed using Registax v2, then through Paint Shop Pro v8 to bring out more detail than could be seen visually through this telescope. It shows what might be seen using a very large telescope of 20-inches of aperture or more, but the features shown here are much higher in contrast than would appear visually.

On April 11th from roughly 7pm to 9pm PST, Jupiter’s large moon Ganymede and its shadow cross in front of Jupiter. Because Ganymede is large and relatively dark compared to Jupiter, both are easy to see in moderately large (100 mm or more aperture) telescopes. This doesn’t happen often for any location on the earth. Because of Ganymede’s slow motion around Jupiter, you can look at Jupiter after 30 minutes and see the position of Ganymede change. This is one of the few things that you can see change in the heavens in a short amount of time. Image #2 shows a similar event from last year. Ganymede is the small dark spot in the upper right quadrant of Jupiter, Io’s shadow is nearest the center, and Ganymede’s shadow is in the upper left. In this second image, Io is in front of the disk of Jupiter, but its brightness and color are so similar to Jupiter’s that it cannot be seen, even after the image was heavily processed to try and bring it out. Despite the fact that its location was known to the author, in this case even knowing where to look nothing can be seen at the indicated position that can be identified as being Io.

(Continued on page 12)
(Art of Observing, Continued from page 11)

Other similar events will happen, as the satellites of Jupiter do their dance around their giant master. Consult the observer’s section in Sky and Telescope for future events. I’ll also try and find any such events visible from Los Angeles and publish them in this bulletin. Since my own interest is in transits, I’ll only search and list these events, and only those where some part of the transit is visible before midnight. But Callisto passes too far to the north for it or its shadow to transit in front of Jupiter during this season and probably for a few years. The times are approximate, so please consult Sky and Telescope or Astronomy to get the actual time.

For April:
F 040105, 9pm to 11pm — Io shadow transit.
W 040605, 10pm to 12pm — Europa shadow transit.
F 040805, 11pm to 1am — Io shadow transit.
M 041105, 7pm to 10pm — Ganymede shadow transit. Ganymede itself will be halfway through its transit when Jupiter rises enough to observe, and ends its transit at 8pm.
Su 041705, 7pm to 9pm — Io shadow transit.
M 041805, 930pm to 1130pm — Ganymede transit. Its shadow starts its transit at 1030pm.
Su 042405, 9pm to 11pm — Io shadow transit.

Happy observing! ♦

Call for Donations for RTMC Booth

This year at RTMC, the club will need to pay money to get a booth that is in a decent spot. We request donations to help defray the costs of the booth. If you have some items that you would like to sell, and whose proceeds would go to the LAAS, please contact a board member about permission to sell those items at the Official LAAS Booth. So join in the fun with your fellow LAAS members and contact Jim Hunter to make your contribution to this much needed booth. Please send checks of any size (remember, there are over 300 members) to:

Los Angeles Astronomical Society
2178 Kenilworth Ave.
Los Angeles, CA 90039

Thanks for your generosity in keeping the LAAS seen at RTMC

—LAAS Board

The goal is to reduce eye fatigue by not holding one eye shut. You soon learn to ignore what you see through the other eye. Breathe deeply and regularly. You don’t see more details by holding your breath. As you starve your eyes of oxygen, your vision gets worse and worse. Many deep sky observers know of this from long experience, and it applies to planet observers also. By the way all these techniques work on microscopes as well as telescopes.

This month Jupiter rises earlier each night, and along with Saturn provides a lot of observing opportunities. Because observers need to communicate what they see on Jupiter, especially since features can change in days or sometimes hours, they’re identified by specific names. Almost any telescope will show the alternating bands of light and dark running across Jupiter. The dark bands are called “belts” or less commonly “bands”. The light bands are called “zones”. The two main dark belts straddling the equator are the North and South Equatorial Belts. Between these is the Equatorial Zone. The two zones above and below the Equatorial Belts are the North and South Tropical Zones.

The famous Red Spot is in the South Equatorial Belt and is only visible roughly every other night.
It is well-known that with human perception if you know what it is you're looking for, you more easily spot it. In Astronomy this means that you can always increase the value and enjoyment of the experience if you invest in a little research. This is obviously true when the object is faint and barely registers on the eye. But this is also true when the object is bright and details would seem to be easy to see. As many found during the 2003 Mars Opposition, what you see is very dependent on what you expect to see. An example was trying to see the two Martian satellites using the Mt. Wilson 60-inch Cassgrain. I spotted Deimos without too much trouble, and Norm Vargas spotted Phobos, but neither of us could spot the satellite the other had seen until we compared notes, found out that we had seen different objects and then knew where to look.

There are several things you can do to increase the chances of seeing planet details. The larger the telescope the better, because higher magnifications can be achieved, and the larger the aperture the finer the features that can potentially be seen. Perhaps just as important, use telescopes with long focal ratios, f/8 or longer. This not only increases the available magnification, but it also reduces effects associated in short focal ratios such as chromatic dispersion and diffraction effects from large secondary obstructions.

You need to steady the seeing. Avoid surfaces that both store a lot of heat during the day and release a lot of it during the night, such as concrete and asphalt. Grass is a good surface to observe from. Let the telescope
As of this writing, spring has sprung. Our friends, Orion and Taurus, are beginning to slide into the western sky in the evening. Saturn is just past opposition with Jupiter not far behind. At the present time there are 6 fully equipped telescopes available.

LAAS-1 - 4.5” f/8 Celestron reflector on a solid Polaris equatorial mount. It comes equipped with a Kellner eyepiece, two Orthoscopics, and a collimation tool. These 4.5” reflectors are small enough to be easily carried and set up, but with enough aperture to provide good views.

LAAS-2 - 4.5” f/8 Tasco reflector on a motorized Edmund equatorial mount. This telescope has been upgraded with 1.25” accessories, a 6x30 finder, and very solid wooden legs. It comes fully equipped with a set of three Kellner eyepieces and a collimation tool.

LAAS-4 – 6” f/5 Telescopics reflector on a Dobsonian mount. It comes with a set of three Orthoscopic eyepieces and a collimation tool. This instrument is compact and easy to use.

LAAS-6 – 10” f/4.5 reflector by Discovery on a Dobsonian mount. It is equipped with a set of three Plossl eyepieces and a collimation tool. This instrument is especially good for observing faint galaxies in the Virgo and Coma clusters. This is currently located in the Monterey Park shop.

LAAS-8 – 80mm f/11.4 refractor by Selsi is on an equatorial mount. A pair of Plossl eyepieces and a short focuser Orthoscopic has replaced the three Kellner eyepieces. This is one of the smaller telescopes in the collection that will make it easy to carry to a dark sky site.

LAAS-9 – 8" f/4.5 reflector on a Dobsonian mount that is motorized with a Dob Driver II. The mount has been raised on short wooden legs to bring the eyepiece up to a convenient level. It is equipped with three Plossl eyepieces, a collimation tool, and a power supply for the Dob Driver. At the present time LAAS-9 is located at the shop in Monterey Park. For Sale: $400 for members

For further information concerning these loaner telescopes call: David Sovereign at (626) 794-0646.

(Mount Up, Continued from page 1)

these applications, an equatorial that will track an object without field rotation is necessary. There are many variations of equatorial mounts. Only a few of the more common designs will be described in this article.

The earliest equatorial mount is the German T, which is still very popular, especially for refractors with their long tubes. It consists of a polar axis that points north and a declination axis perpendicular to it on the north end. High quality mounts utilize bearings or bushings in the polar and declination axis housings to produce smooth motions. The instrument is mounted on the upper end of the declination axis with a counter weight on the lower end. The German T is more stable than a fork, since the telescope is not suspended on a pair of arms. If a mount is equipped with a clock drive, it is usually installed on the south end of the polar axis. On some mounts, the drive gear is around the polar axis near the north end. Simple equatorial mounts have been built out of common pipe and using the threads, which have been lapped in, as bearings. These “turn on threads” equatorials are inexpensive and easy to make but are not easily driven by a motor since the declination axis will move north and south as the polar axis is turned.

Another common type of equatorial is the fork mount. They have a polar axis like a German T however the declination axis is split with bearings on both arms of the fork with the telescope suspended between them. These are usually used to mount instruments with short tubes, like Schmidt-Cassegrains and Rich Field Telescopes. Although not strictly a fork, some fork mounts have only one arm. The Orien Earnst 16” telescope in the LAAS Observatory and the Celestron Nexstar series are examples of a single arm fork. An English yoke, like the 100’ Hooker telescope on Mount Wilson, can be considered a derivation of a fork with the north end extended to a second bearing. These mounts do not require a counterweight on the dec-

(Continued on page 7)
It’s been a busy month with more to come. The Riverside Telescope Makers Conference (RTMC) is coming up (Memorial Day Weekend) so consider joining the legions of fellow amateur astronomers from the West Coast and beyond for a weekend of amateur astronomy at Camp Oakes near Big Bear. This is one of the biggest Astronomy events of the year so be sure to check it out at http://www.rtmcastronomyexpo.org. As always, the LAAS will be there in force so there will be plenty of familiar faces in the crowds. Lots of fun.

Mary, the librarian, needs help in organizing and cleaning out the library, so stop by on a Wednesday Night and give her a hand. We’re going to collect most of the duplicate Sky and Tel magazines and sell them at RTMC.

Telrad’s NEEDED

Some of the LAAS Loaner scopes need Telrad’s on them. If you have a Telrad looking for a good home where it will see good use, contact Dave Sovereign about donating it to the LAAS Loaner program. These would really help out beginners in learning the sky with the Loaner scopes. Proper usage instructions will be given to the users and the Club would really appreciate your donation.

Events Calendar

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 9th, 2005 (Sat)</td>
<td>LAAS Star Party</td>
<td>Lockwood Valley</td>
</tr>
<tr>
<td>April 11th, 2005 (Mon, 8pm)</td>
<td>General Meeting</td>
<td>Griffith Observatory Satellite</td>
</tr>
<tr>
<td>April 16th, 2005 (Sat)</td>
<td>Public Star Party</td>
<td>Griffith Observatory Satellite</td>
</tr>
<tr>
<td>May 7th, 2005 (Sat)</td>
<td>LAAS Star Party</td>
<td>Lockwood Valley</td>
</tr>
<tr>
<td>May 9th, 2005 (Mon, 8pm)</td>
<td>General Meeting</td>
<td>Griffith Observatory Satellite</td>
</tr>
<tr>
<td>May 14th, 2005 (Sat)</td>
<td>Public Star Party</td>
<td>Griffith Observatory Satellite</td>
</tr>
</tbody>
</table>
Inside this issue:

Mount up - Part II ................................................................... 1,3,7
Editors’ Message ...........................................................................2
Telrad’s NEEDED ...........................................................................2
The Art of Observing ..................................................... 4-5,7,11-12
President’s Paragraph .................................................................6
Monthly Quiz ...............................................................................6
Jed Laderman - “The Nature of Time” ........................................7
Mount Wilson 60” Nights ..................................................................9
The Outreach Extension ..................................................................10
Call for Donations for RTMC Booth .............................................12
This Month in History ..................................................................13
Loaner Corner .............................................................................14
Events Calendar ...........................................................................15

EDITOR’S NOTE:
Notes, corrections, questions, ideas, articles? All are welcome at:
laas_editor@yahoo.com.

A day without sunshine ................................................................. is like night.