



July, 2001

At the July 6 meeting...

CCD cameras
techniques and processing

Paul Downing

Houston Astronomical Society

GuideStar

Starline - 281-568-9340

Houston Astronomical Society presents *Starline* -- a recorded message of Society events and astronomical happenings. This service is updated regularly, so call often to keep up-to-date on Society functions, new comets and more.

HAS Web Page: <http://www.astronomyhouston.org>

Schedule Changes & Up-To-Date Information

See the *GuideStar's* Monthly Calendar of Events to confirm dates and times of all events for the month, and call Starline for any last minute changes.

Observatory Site Telephone: 979-732-8861

★★★★★ *The Houston Astronomical Society* ★★★★★★

The Houston Astronomical Society is a non-profit corporation organized under section 501 (C) 3 of the Internal Revenue Code. The Society was formed for education and scientific purposes. All contributions and gifts are deductible for federal income tax purposes. General membership meetings are open to the public and attendance is encouraged.

★★★★★ Officers & Past President ★★★★★★

President: Kirk Kendrick H: 281-391-3834
Vice Pres: Bill Leach H: 713-863-8459
Secretary: Art Ciampi H: 713-665-5008

Treasurer: Debbie Moran H: 713-666-9428
Past President: Don Pearce H: 713-432-0734

★★★★★ Additional Board Members ★★★★★★

Liaison responsibility

George Dolson 713-721-1560
Bill Flanagan 713-699-8819
Howard Leverenz 713-957-8667
Jay Levy 281-557-4920 Field Trip and Observing, Program
Larry Wadle 281-395-6290

★★★★★ Committee Chairpersons ★★★★★★

Audit Gary Hlivko 713-864-2541
Education Richard Nugent 713-910-5945
Field Tr./Obsg. Steve Grubbs 713-455-5701
Novice Warren Wundt 713-697-2960
Observatory Michael Dye 281-498-1703

Program Scott Mitchell 713-461-3020
Publicity Brian Cudnik 713-460-1093
Telescope Darin Palmer 713-223-3123
Welcoming Marg Nunez 713-529-2549

★★★★★ Ad-Hoc Committee Chairpersons ★★★★★★

Historian Leland Dolan 713-529-0403
Librarian Peggy Gilchrist 281-443-8773
Logo Mds Sales Judy Dye 281-498-1703
Long Range Plan Bill Leach 281-863-8459
Parliamentarian Kirk Kendrick 281-391-3834

Publ. Star Party Marg Nunez 713-529-2549
Rice U. Coord. Matt Delevoryas 713-795-0808
Schedule Obs'v'ty Steve Goldberg 713-721-5077
Texas Star Pty Steve Goldberg 713-721-5077

★★★★★ Special Interest Groups & Help Committees ★★★★★★

These are now listed on the inside of *GuideStar* (not every month). See the Table of Contents

★★★★★ Advisors ★★★★★★

Dr. Reginald DuFour, Rice Univ.

Dr. Lawrence Pinsky, U. of H.

★★★★★ Dues and Membership Information ★★★★★★

Annual Dues: Regular \$33.00
Associate \$5.00
Sustaining . \$50.00

Student \$5.00
Honorary None

All members have the right to participate in Society functions and to use the Observatory Site. Regular and Student Members receive a subscription to *The Reflector*. Regular, Student, and Honorary Members receive *The GuideStar*. Associate Members, immediate family members of a Regular Member, have all membership rights, but do not receive publications. Sustaining members have the same rights as regular members with the additional dues treated as a donation to the Society. *Sky & Telescope* mag \$29.95/year, *Astronomy* mag \$29/year -- see club treasurer.

Membership Application: Send funds to address shown on outside cover of *Guidestar*. Attention - Treasurer, along with the following information: Name, Address, Phone Number, Special Interests in Astronomy, Do you own a Telescope? (If so, what kind?), and where you first heard of H.A.S.

Table of Contents

4	Observations of the Editor	13	Science Fair Winners!
5	Meeting notice	14	Images from a Party
7	July/August Calendar	15	HAS Web Page
8	A Daytime Occultation of Venus		HAS Logo Sales
9	Want Ads	16	Observatory Duty Roster
10	Astronomical League	17	Special Help Volunteers
	Observing Programs	18	Other Meetings
			Membership Renewals

Call the Starline, 281-568-9340 for updates and changes

Welcome to New Members!

The Houston Astronomical Society encourages you to join our group of active amateur astronomers and take advantage of the benefits of membership. As a member you'll have access to the club observing site near Columbus, Texas. (You're required to participate in a site orientation meeting before you get the gate lock combination.) The site has concrete pads for setting up your telescope, restroom and bunkhouse facilities, and areas set aside for camping. No new members this month. You'll get monthly issues of the *GuideStar* newsletter, you'll get to vote and to serve the organization as an officer, and you will be supporting the local amateur astronomy community.

Special Interest Group Listing

Any member who wants specific information on a SIG listed below may call the listed individual. Also, see the "Ad Hoc Committee Chairpersons" on the inside front cover and the "Special Help Volunteers" listing (not in every issue).

Advanced	Bill Flanagan	713-699-8819
Comets	Don Pearce	713-432-0734
Lunar & Planetary	John Blubaugh	713-921-4275
Occultations & Grazes ...	Wayne Hutchison	713-827-0828
Advanced	Bill Leach	713-863-8459

Observations... of the editor

by Bill Pellerin, GuideStar Editor

Last weekend was one to remember, wasn't it? I hope none of you suffered as the result of Allison. I've lived in Houston most of my life, and was here for Alicia and Carla, but I don't remember seeing rain and flooding like we had the weekend of June 9.

Full moon was on June 5, so the weekend of the 9th wouldn't have been a good 'deep sky' weekend in any case.

We are fortunate to have a few pictures from Kent Francis from the Texas Star Party. I didn't make it out there this year, but I look forward to hearing about it at an upcoming H.A.S. meeting. If you went, let me know how it was for you, and I'll put your comments in the next *GuideStar*.

Steve and Amelia Goldberg put together a list of the Astronomical League observing programs for this issue of the *GuideStar*. If you're wondering what to observe next, grab one of these lists and get after it. I've completed the Messier list and the double star list, and I thoroughly enjoyed each of them. Amelia doesn't mention that she's the author of the 'Universe Sampler' observing list, now recognized by the A.L. To access the Astronomical League, point your browser to:

<http://www.astroleague.org/>

...and click on "Observing Clubs".

Last month's meeting was a good one, with the Science Fair project winners showing us their stuff. Nice work by these students! Good information about the Mars, too.

Leland Dolan tells us about an upcoming occultation of Venus by the moon in the daytime. I'm looking forward to seeing that event!

Needless to say, this hasn't been a good observing month, with clear skies being in short supply. I'm still watching R Crb from Houston with my old

Continued on page 6...

Houston Astronomical Society

***Meeting Notice
For Friday, July 6, 2001***

CCD cameras techniques and processing

Paul Downing

Have you joined the CCD revolution yet? Many amateurs are now doing astronomical imaging that would have only been possible at a large observatory just a few years ago. If you're thinking about getting involved, come to the July meeting and learn what it's all about.

Schedule of meeting activities:

All meetings are at the University of Houston Science and Research building. See the inside back cover for a map to the location.

Novice meeting: 7:00 p.m.
Across from Room 117

Site orientation meeting: 7:00 p.m.
Classroom

General meeting: 8:00 p.m.
Room 117

**See the inside back cover for a map
and more information.**

Observations... from page 4

7 x 35 binoculars. I've also started watching the eclipsing binary Beta Lyr a variable that every 12.9 days goes from magnitude 3.4 to magnitude 4.3. This is a good star to watch, because it never gets so dim that it's not visible from town. The other thing... there are comparison stars (Gamma and Zeta Lyr) that you can see within the same binocular field. Check any star map to identify these stars.

While you're browsing around the constellation Lyra with your binoculars you can see the wide pair Epsilon Lyr. This, of course, is the famous double-double, because each of the 'stars' in the wide pair is itself a double. You won't see the double-double in all its glory without a telescope, however. It's an absolutely wonderful double star system.

And, of course Albireo (Beta Cyg) is well positioned for late evening viewing. Considered by many to be the most beautiful double star in the sky, this double is notable for its color contrast. You can see this with a small telescope or with tripod mounted binoculars.

Here's hoping that we have dryer weather, clearer skies, and lots to look at in July and throughout the summer.

..Bill

Volunteers notice

Fred Lennon Youth camp Star party July
June 13th
Call Marg Nunez at
(713)529-2549
or email Marg10@flash.net

July / August Calendar:



Photo by Scott Mitchell

<i>Date</i>	<i>Time</i>	<i>Event</i>
-------------	-------------	--------------

July 2001

3		Moon and Mars near in the sky
4		Earth farthest from sun
5	10:04 a.m.	Full Moon
6		HAS Club Meeting
	7:00 p.m.	Novice Presentation - U of H
	8:00 p.m.	General Membership Meeting U of H
9	12:00 p.m.	Mercury at greatest western elongation
13	1:45 p.m.	Last Quarter Moon (Friday the 13th!!)
20	2:44 p.m.	New Moon

August 2001

3		HAS Club MEeting
	7:00 p.m.	Novice Presentation - U of H
	8:00 p.m.	General membership Meeting U of H
4	12:57 a.m.	Full Moon
5	a.m.	Venus close to Jupiter in morning sky
12	a.m.	Perseid Meteor Shower
14	a.m.	Moon and Saturn close
18	9:56 a.m.	New Moon
25	2:56	First Quarter Moon

*Send calendar events to JBlubaugh@aol.com
or call 713-921-4275.*

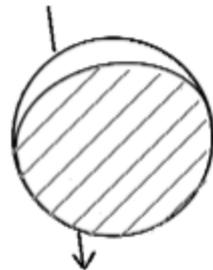
A Daytime Occultation of Venus

by Leland A. Dolan

In the early afternoon hours of Tuesday, July 17th the waning crescent Moon will occult Venus. It will be on a weekday, but if you are lucky enough to have a flexible work schedule, then you could begin lunch break at 1:00 p.m. This way, you can catch the disappearance around 1:17 or 1:18 p.m. with binoculars or even a small, portable telescope such as the Meade ETX. It should be easier to see Venus's disappearance than its reappearance at about 2:30 p.m. For one thing, the Moon and Venus will be 50 degrees up at time of disappearance. See the accompanying table. For those unfamiliar with the concept of "azimuth" (Azi in the table), 0 degrees is due North, 90 degrees is due East, 180 degrees due South, and 270 degrees is due West. Therefore you will note that Venus is four degrees south of due west at time of disappearance, and five degrees north or due west at reappearance. The 'D' and 'R' stand for disappearance and reappearance.

Time CDT	Event	Venus		Sun	
		Alt	Azi	Alt	Azi
1:18 p.m.	D	50°	266°	81°	165°
2:30 p.m.	R	35°	275°	73°	242°

You will note that the crescent Moon looks "upside-down". We are more accustomed to seeing the crescent in twilight, when the Sun is below the horizon, but during this occultation, the Sun will be higher in the sky, than the Moon. Therefore the top limb of the Moon is illuminated. Please refer to the picture, which gives a "binocular" view of the Moon's phase. Venus will disappear behind the bright limb and reappear behind the (invisible) dark limb.



Occultation
from Houston

Continued...

Occultation... from previous page

And because of the particular geometry of the Moon's limb to that of Venus, the planet will have a "strange" shape when it first pops out from behind the dark limb. It will take about half-a-minute for the entire planet to be uncovered. You may have a problem trying to guess where Venus will reappear along the dark "bottom" side of the Moon. If you are using a refractor or any kind of Cassegrain with a diagonal, the image will be upright, but reversed. Therefore looking at the picture in a mirror will give an idea of where to expect Venus to reappear.

Happy Observing!

∞ Want Ads ∞

Wanted: Someone to volunteer to re-do the posters and signs used at the Texas Star Party. Using standard poster paper, we need neat and readable lettering. Signs announce times of events, things for sale, etc. All expenses paid for materials. Steve Goldberg. 713-721-5077

Astronomical League Observing Programs

by Steve Goldberg, Astronomical League Correspondent

Observing Projects

Are you having trouble coming up with a planned observing session? Do you just seem to aimlessly bounce around the sky with no real objective? All prolific observers have a plan. Before an observing session, a “path” through the sky is made, so the time will not be wasted while the skies are clear. It is always best to have a plan of attack for that session. (And, yes, part of the plan could be to wonder aimlessly through a certain area). If you are having trouble trying to define that plan, let the Astronomical League’s Observing Clubs help. Here is a list of all the different clubs available. Some are easier than others, but each has the purpose of improving your observing skills. Pick one, or more, that appeals to you. Are you interested in seeing the entire Messier object list? Or is the local solar system your favorite? Are you a beginner to the hobby? Are you into the really “dim fuzzy” arena? There is a program for you. All of these clubs’ information is on the Astronomical League’s web site at www.astroleague.org/al/obsclubs/obsclub.html When you finish your observations you turn in a copy of your log to the appropriate person for verification. And then a certificate will be awarded. (You must be a member of a society that belongs to the Astronomical League or be a Member-at-Large. The Houston Astronomical Society is a member.) See the HAS web site (www.astronomyhouston.org) for a list of members that already have certificates. If you have any questions about these clubs, please feel free to ask me.

Learner

Lunar Club — Observe 100 objects: 18 naked eye + 6 optional, 46 binocular + 2 optional, 36 telescopic + 2 optional; each optional counts for 2 regular objects.

Urban Observing Club — Observe and record 100 objects: 87 deep sky,

Continued...

Astronomical League... from previous page

12 double stars, 1 variable star. Can observe from any site at which the Milky Way cannot be seen. Can use previous observations.

Universe Sampler Club — Projects to acquaint you with the heavens include 3 lists; a naked eye list + either a telescopic list or a second naked eye list.

Binocular

Binocular Messier Club — Observe and record 50 or more of the 110 Messier objects

Deep Sky Binocular Club — Observe and record the list which consists of 60 objects which are not on the Messier list.

Southern Skies Binocular Club — Observe and record 50 or more of the 73 objects listed.

Telescopic

Messier Club — Observe and record 70 of the 110 Messier objects for the first certificate. A second “honorary” certificate will be issued with completion of the full list.

Herschel 400 Club — Observe the 400 Herschel objects listed. 230 galaxies, 103 open clusters, 34 globular clusters, 24 planetary nebulae, 7 nebulae and 2 open cluster/nebulae.

Herschel II Club — Observe the 400 Herschel objects in the second list. Most are fainter than the first 400. 323 galaxies, 41 open clusters, 21 nebulae, 9 planetary nebulae, 3 globular clusters, and 3 open cluster/nebulae. Can use “Manual Search” or “Device-Aided Search”. Certificate will be labeled “M: or “DA”.

Continued...

Astronomical League... from previous page

Arp Peculiar Galaxy Club — Image at least 100 of the 338 Arp Galaxies with CCD.

Topical

Asteroid Observing Club — Sketch asteroids on two occasions showing the position amongst the field stars. The sketch must show that the asteroid has moved. “Regular” membership (certificate) requires 25 asteroids with at least a 4” telescope. “Gold” membership (certificate and pin) requires 100 asteroids with at least a 6” telescope.

Double Star Club — Observe the 100 multiple star systems on the list. All are fairly bright stars.

Meteor Club — Membership requires you to observe and record your observations for at least 6 hours, and at least one hour per session. Additional certificates are given for 12, 18, 24, and 30 hours. “Honorary” membership is given at 36 hours.

Planetary Observers Club — Complete 25 of the 27 listed observing projects to learn something about the planets. Projects cover the Sun, Moon, Mercury, Venus, Mars, asteroids, Jupiter, Saturn, Uranus and Neptune. None of the projects are very difficult, but will take some planning.

Sunspotters Club — Observe and make at least 20 whole-disk solar drawings showing the sunspots and groups during 2 solar revolutions (about 60 days). Classify each group and calculate the Sunspot Number for each day. Prepare at least 5 detailed group drawings and label the different features.

Science Fair Winners!

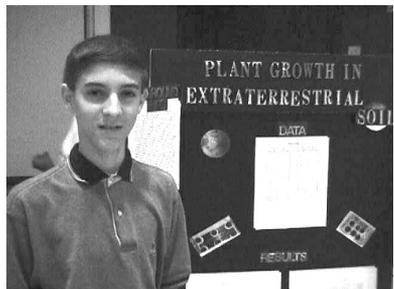
by **Bill Pellerin**, *GuideStar Editor*

At the H.A.S. meeting in June, we had three winning students from the Houston Science Fair showing off their projects.

The three presentations covered the effects of skyglow on the limiting magnitude of visible stars, the distribution of craters on the moon by size, and the properties of earth, lunar, and Martian soil for growing plants.

After the presentations, there was time to visit with the students and learn more about their projects, and future plans.

They were introduced by Richard Nugent, who coordinated the efforts of H.A.S. members as volunteer judges for the Science Fair.



Images from a Party

by Kent Francis

Not all of us made it to the 2001 Texas Star Party, but Kent Francis did and he submitted these photos to share with the H.A.S. membership.



The upper observing field at the Prude Ranch during the Texas Star Party is a sea of telescopes.



The Dobsonian telescope is very popular at the TSP. Its large aperture is well suited to the very dark skies of west Texas. One observing area has been called the "Valley of the Dobs"



A visit to the McDonald Observatory is on everybody's day-trip list at TSP

HAS Web Page

The Houston Astronomical Society Web page has information on the society, its resources, and meeting information.

The address is: <http://www.astronomyhouston.org>

Want your astronomy work and name on the Internet for the whole world to see? Have some neat equipment? Pictures in film, CCD, hand drawings or video format are all welcome on the page. Do you have an idea to improve the page? I'm listening. Send me Email at goldberg@sccsi.com. (You can click on my name on the HAS home page). Or, you can call Steve Goldberg (WebMaster), at 713-721-5077.

HAS Logo Sales

by *Judy Ann Dye*

If you are interested in any of the following items and would like to place an order, please contact me (Judy Dye) at 281-498-1703, or send a check for the items requested to 12352 Newbrook, Houston Texas, 77072-3910. Below is the current list of logo items for sale:

Grey Hooded Sweatshirt (M to XL)	\$25.00
22 Ounce Thermal Cup	\$5.00
Observe Messier	\$4.00
Observe Comets	\$7.00
2001 Observer's Handbooks	\$ 15.00

★ ★ ★ ★ ★ ★ ★ ★
★ ★ *GuideStar deadline* ★ ★
★ ★ *for the August issue is July 15* ★ ★
★ ★ ★ ★ ★ ★ ★ ★

Observatory Duty Roster

by Michael B. Dye, Observatory Chairman

This is the duty list for July, August and September. Some names may have been moved from one month to another to accommodate some conflicts. If you are listed in this roster, please be sure to contact your supervisor for any information that you may need and the date and time to be at the site. You may change from site duty to open house or from open house to site duty by pre-arrangement with the Site Supervisor for that month. Changes between months require Observatory Chairman coordination.

July Supervisor Cooper Walls 713-461-9590
Debbie Moran Site
Marge Nunez Site
Glenn Ray Members Observatory Night 07-14-01
Mike Reynolds Site
Henry Schneider Site
Steve Simpson Members Observatory Night 07-14-01
Larry Wadle Site
Mark Watson Members Observatory Night 07-14-01

August Supervisor Dana Lambert 281-933-4627
Tom Williams Site
Barbara Wilson Members Observatory Night 08-11-01
Buster Wilson Members Observatory Night 08-11-01
Warren Wundt Site
John Blubaugh Site
John Chauvin Site
Art Ciampi Site
Brian Cudnik Members Observatory Night 08-11-01

September Supervisor Allen Gilchrist 281-443-8773
George M. Dolson Members Observatory Night 09-08-01
Kenneth Drake Site
Mark Egan Members Observatory Night 09-08-01
John Fennel Site
Rusty Fletcher Members Observatory Night 09-08-01
Jean-Marc Follini Site
Fred Garcia Site
John Garza III Site

Please remember that Site work can be done anytime and does not have to be done just before Members Observatory Night. Contact your Site Supervisor for details. Names are selected for Site Duty using the current Alphabetical listing for Observatory Key Holders. If any member knows of a conflict please call me before your name is listed.

Special "Help" Volunteers

Any member who wants specific information on a subject listed below may call the individual listed. If you have a moderate knowledge of a special subject and would be happy to have others ask you about that subject, let the editor know and your subject, name and phone will be listed in *GuideStar* in the future. Note that we have listed a few possible areas where you might volunteer, but, of course, you are not limited to these. You can also have a specialty which is a sub-group of another. Note that the number of names for any subject is not limited to only one person. Also see the "Ad Hoc Committee Chairpersons" on the inside front cover and the "Special Interest Groups Listing article.

<u>Subject</u>	<u>Name</u>	<u>Phone</u>
Asteroids	Barbara Wilson	281-933-1289
Astrometry	Richard Nugent	713-910-5945
Astrophotography	Steve Goldberg	713-721-5077
Beginning in Astronomy	Peggy Gilchrist	281-558-1190
	Amelia Goldberg	713-721-5077
Comets	Kenneth Drake	281-367-1592
	Don Pearce	713-432-0734
Computers	Matt Delevoryas	713-795-0808
	Leland Dolan	713-529-0403
	Ricardo Palmeira	713-669-1409
Cosmology	Ricardo Palmeira	713-669-1409
Deep Sky	Larry Mitchell	281-448-8700
	Barbara Wilson	281-933-1289
Double Stars	John Blubaugh	713-921-4275
Drawing (Sketching)	Scott Mitchell	713-461-3020
Herschel Objects	Larry Mitchell	281-448-8700
History, Astro'y - General	Leland Dolan	713-529-0403
	Ricardo Palmeira	713-669-1409
History, Astro'y - Amateurs	Tom Williams	713-526-2868
Mathematics, Astronomical	Richard Nugent	713-910-5945
Messier Objects	Novice Committee (see inside front cover)	
Photometry	Open	
Radio Telescopes	John Hiatt	713-464-4010
Satellites, Artificial	<open>	
Solar Observing	Larry Mitchell	281-448-8700
Spectroscopy	Open	
Thin Crescent Moons	Don Pearce	713-432-0734
Variable Stars	Barbara Wilson	281-933-1289
	Tom Williams	713-526-2868
Video	Larry Mitchell	281-448-8700

Other Meetings...

Brazosport Astronomy Society meets at 7:00 p.m. on the 2nd Thursday of each month in the Planetarium of the fine Arts Center at Brazosport College. Call Steve Lamb for program details (409) 297-3984

Fort Bend Astronomy Club meets the third Friday of the month at 8:00 p.m. at the First Colony conference Center. Novice meeting begins at 7:00, regular meeting begins at 8:00. Web site: <http://rampages.onramp.net/~binder/>

Johnson Space Center Astronomical Society meets in the the Lunar and Planetary Institute on the 2nd Friday of each month. Web site: <http://www.ghgcorp.com/cbr/jscas.html>

North Houston Astronomy Club meets at 7:30 p.m. on the 4th Friday of each month in the Teaching Theatre of the Student Center at Kingwood College. Call 281-312-1650 or E-mail bill.leach@nhmccd.edu. Web site: www.astronomyclub.org

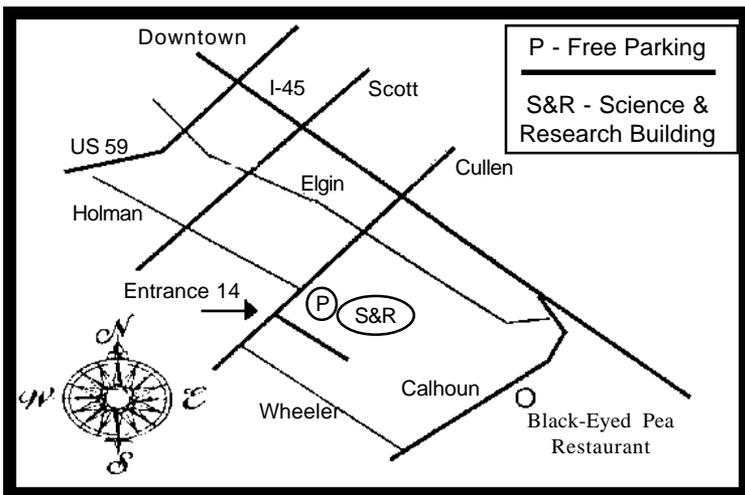
Membership Renewals...

Please check the mailing label on your copy of the *GuideStar*.

It'll tell you when your membership expires. If it expires soon, please send your renewal to the address on the outside cover of *GuideStar*. The dues information is on the inside front cover.

Membership in the Houston Astronomical Society is one of the great bargains in Astronomy. For a regular membership of \$33 you get the opportunity to support an active and growing organization, you get the monthly *GuideStar* newsletter, and you get access to the outstanding H.A.S. observing site near Columbus, Texas. (You must attend an orientation, given monthly, to use the site.) And, after two months of membership you can borrow, at no charge, one of the Society's loaner telescopes. It's the best deal in town, we think. Please renew your membership when it expires.

Thanks!



General Membership Meeting

The Houston Astronomical Society holds its regular monthly General Membership Meeting on the first Friday of each month, unless rescheduled due to a holiday. Meetings are in Room 117 of the Science and Research Building at the University of Houston. A Novice Presentation begins at 7:00 p.m.. The short business meeting and featured speaker are scheduled at 8:00 p.m. Also typically included are Committee Reports, Special Interest Group Reports, current activity announcements, hardware reviews, an astrophotography slide show by members and other items of interest.

Board of Directors Meeting

The Board of Directors Meeting is held on dates scheduled by the board at 7:00 p.m. in Room 106 of the Space Science Building at Rice University. Call StarLine for Board Meeting information. Information provided to GuideStar will be published. The meetings are open to all members of the Society in good standing. Attendance is encouraged.

GuideStar Information

The H.A.S. *GuideStar* is published monthly by the Houston Astronomical Society. All opinions expressed herein are those of the contributor and not necessarily of Houston Astronomical Society. The monthly Meeting Notice is included herein. *GuideStar* is sent via bulk rate mail to Regular, Student, and Honorary Members of H.A.S., selected individuals and recent visitors to the General Membership Meeting. Contributions to *GuideStar* by members are encouraged. Electronic submission is helpful. Submit the article in ASCII text, MS-Word (preferred), or WordPerfect format on an IBM format floppy or via AOL (BILLP10566). Mail copy to the address shown on the outside cover or to the editor at 256 East 5th Street, Houston, TX 77007. Copy must be received by the 15th of the month for inclusion in the issue to be mailed near the end of the same month. Or, bring copy to the General Membership Meeting and give it to the Editor, or phone to make special arrangements.

Editing & Production: Bill Pellerin, 713-880-8061; FAX: 713-880-8850;

AOL: BILLP10566; Internet: BILLP10566@AOL.COM

Reproduction: Mike & Judy Dye... Need help!! ... call the president to volunteer!!!

Advertising: Advertisers may inquire concerning ad rates and availability of space.



Houston Astronomical Society

P.O. Box 20332 • Houston, TX 77225-0332

NON-PROFIT
ORGANIZATION
U.S. POSTAGE
PAID
STAFFORD, TX
77477
Permit No. 183