Houston Astronomical Society

GuideStar

July, 2005

At the July 1 meeting...

Bill Leach

Epoch of Stars

Extreme Stars,
Most Massive
Most Luminous

We say that we are stargazers, but how much do we know about the stars, really? Often we observe stars in the aggregate (in clusters or in galaxies), but there's a lot to know about the birth, life and death of individual stars.

There's also a lot to know about the classification of stars.

Do the letters OBAFGKM mean anything to you?

Have you heard of the Hertzsprung -Russell diagram?

HAS member Bill Leach will be at the July meeting and discuss with us some of the more interesting star types.

Bill Leach at Astronomy Day 2004

Highlights:

HAS Web Page:
http://www.AstronomyHouston.org

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

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.
Don Selle - "Building a Home Observatory"

Site orientation meeting: ..... 7:00 p.m.
Classroom 12145

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

See last page for a map and more information.

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: Steve Sartor H:281-370-3544
Vice Pres: Bill Leach ..... H: 281-893-4057
Secretary: Brian Cudnik ..... H: 832- 912-1244
Treasurer: Bill Flanagan H:713-699-8819

Additional Board Members

		Liaison responsibility
Steve Goldberg	713-721-5077	
Don Pearce	713-432-0734	
Jay Levy	281-557-4920	Field Trip and Observing, Program
Kenneth Miller	936-931-2724	
Kent Francis		

Committee Chairpersons

Audit	Don Selle	281-391-5470
Education	Richard Nugent	713-524-1993
	Susan Kennedy	281-376-3262
Field Tr./Obsg.	Kenneth Miller	936-931-2724
Novice	George Stradley	281-376-5787
Observatory	Michael Dye	281-498-1703
Program	John Blubaugh	713-921-4275
Publicity	Joe Khalaf	713-660-8219
Telescope	Mike Hamlin	281-489-2926
Welcoming	Susan Kennedy	281-376-3262
	Darlene Sartor	281-370-3544

Ad-Hoc Committee Chairpersons

Historian	Leland Dolan	713-688-0981
Librarian	Peggy Gilchrist	281-443-8773
Logo Mds Sales	Judy Dye	281-498-1703
Long Range Plan	Bill Leach	281-893-4057
Parliamentarian	Kirk Kendrick	281-633-8819
Publ. Star Party	Richard Nugent	713-524-1993
Rice U. Coord.	Matt Delevoryas	713-666-9428
Schedule Obs'v't'y	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.
Dr. Lawrence Armendarez, U. of St. Thomas

Dues and Membership Information

Annual Dues:Regular	$36.00
Associate	$6.00
Sustaining	$50.00
Student	$12.00
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, imm ediate 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 $32.95/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

Welcome to New Members!

The Houston Astronomical Society encourages you to join our group of active amateur astronomiers 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. 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 Leach	281-893-4057
Comets	Don Pearce	713-432-0734
Lunar & Planetary	John Blubaugh	713-921-4275
Occultations & Grazes	Wayne Hutchison	713-827-0828
Advanced	Bill Leach	281-893-4057

Other Meetings...

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://www.fbac.org

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-mailbill.leach@nhmccd.edu.
Web site: www.astronomyclub.org

Houston Astronomical Society

General Membership Meeting

Friday, June 3, 2005
University of Houston

Minutes

- Announcements:
  - New visitors announced
  - Judy Dye Logo sales (Moon Phase Calendar - $2.25)
  - Steve Goldberg – Time Capsule opened at 50-year anniversary. 09/24 Picnic/unearth time capsule. New time capsule built during next year. Watch Guidestar for more information. Contents will be shown during October meeting.
  - 06/25 Novice Star Party next in Hockley, Texas at the Rafter Ranch. They will be working on Lunar Certificate. The web address is www.raftermranch.com. Hamburgers and hotdogs ready at 5:00 pm. Please RSVP at 936-931-2724 to ensure enough food.
  - It was brought up by the President that interruptions during presentations/lectures should be limited. The audience should hold all questions and comments until after the speaker is finished.
  - Don Pierce – Comet Report is on the Comet Corner on the website. The August meeting speaker will be the discoverer of Comet Machholz.
- The 46th Science Engineering Fair of Houston H. A. S. winners were introduced by Richard Nugent. He also mentioned that Jay and Peggy Levy were the co-chairs, Judging Coordination of the SEFH. The Second Place winner was Mark Connell and his project was titled "Kepler's Third Law: Measuring Saturn's Size, Mass, and Density – Will It Float?" Mark will be a Senior at Clear Lake High School. Earth and Saturn is demonstrated in Kepler's Third Law: (Msun + mplanet) p2 = ka3. Mark used 4 of Saturn's moons to determine his observations over an 8 week period using an 8 inch telescope. He calculated the orbital periods of Saturn's moons. He determined the diameter of Saturn using arc seconds and geometry. Its mass is 104 times Earth's mass. He then showed that Saturn's density is less than water, which proves Saturn floats.

  The First Place winner was Yan Hui Lye who will be a Senior at the Kinkaid School placed first at the Texas State Science Fair in San Antonio. Her project was "Tree Growth and Sunspot Activity". She found an 11 year correlation using tree ring measurements. She found a correlation between radiation and tree growth, taking into account different growth differentials and yearly sunspot cycle correlations. Average time shift of 1.6 years might be an explanation of the lower correlation she actually found. She studied other natural factors (water, pollen, weather, natural disasters). Higher latitude and elevation causes higher impact of sunspot to tree growth. She measured 726 trees.

- Steve Goldberg gave a presentation on the differences between the Texas Star Party versus the Winter Star Party in the Florida Keys. Some comparisons:
  - Altitude difference
  - Line to get in (same)
  - Front gate (need badge to get into WSP)
  - TSP is ½ mile while WSP is ¼
  - Ground condition – dirt (TSP)/grass (WSP) although TSP had grass this year
  - Various sizes and kinds of telescopes at both locations
  - Dining hall – Indoors (TSP)/outdoors (WSP)
  - Housing – Hotels, bunkhouses, tents (TSP)/"Cheekees" (WSP)
  - Meeting hall – WSP 1/3 size of TSP
  - Observing Programs: TSP – Novice, Binocular, Telescope, Advanced/WSP "Tippy's Treasure Chest"
  - WSP – stars are "very steady" (no twinkling); can see more southerly objects
  - Fewer speakers at WSP
  - Registration limited to 650 at WSP
  - Light pollution – WSP next to US Hwy 1 – some white light

The meeting adjourned at 9:35 PM.

July/August

Calendar:

Photo by Scott Mitchell

Date	Time	Event
July 2005		
1	7:00 p.m.	Novice Presentation - UH
	8:00 p.m.	General membership meeting - UH
		Bill Leach "Epoch of Stars"
2		Prime Night-Columbus
4		Comet Tempel1 Impact
		See skyandtelescope.com for details
6	7:03 a.m.	New Moon
14	10:20 a.m.	First Quarter Moon
21	6:00 a.m.	Full Moon
27	10:19 p.m.	Last Quarter Moon
30		Members Observatory Night- Columbus
August 2005		
4	10:05 p.m.	New Moon
5	7:00 p.m.	Novice Presentation - UH
	8:00 p.m.	General membership meeting - UH
		Don Machholz - Comet Hunter
7		Neptune at Opposition
12	9:38 p.m.	First Quarter Moon
		Perseid Meteor Shower peak
19	12:53 p.m.	Full Moon
24	early a.m.	Mercury in morning sky
26	10:18 a.m.	Last Quarter Moon

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

GuideStar deadline for the August issue is July 15

Check the web site:

www.astronomyhouston.org

Webmaster: Bob Rogers

siteworkerbob@hotmail.com

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

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 siteworkerbob@hotmail.com.

Special "Help" Volunteers

Any member who wants specific information on an astronomical topic may call special help volunteer (listed in most issues of the *GuideStar*). 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.

At the HAS meeting, please remember to park across from Entrance 14 because of the construction in the parking lot of the Science and Research bldg.

Observations... of the editor

by Bill Pellerin, GuideStar Editor

In for a penny...

Have you ever heard the saying, "In for a penny, in for a pound"? The idea is once you invest in something you're obliged to continue to invest in the thing. That has happened to me. At the Texas Star Party, I purchased a used Celestron 8" SCT optical tube. I have a GM8 Losmandy mount which is a good match for this optics. So far so good.

The tube had a Losmandy plate on it, so I figured I was all set. Nope. I didn't realize the Losmandy dovetail plate for the G11 is not the same one as the GM8. So, I sold the G11 plate on Astromart.com (a great place to buy and sell, by the way) and purchased a GM8 plate on-line. I also got a red-dot finder for the tube and a plastic case to put it in. So, now that I'm really ready to go with the telescope, I've more than doubled my original investment. I haven't had the opportunity to actually *try* this configuration yet. I'll let you know how it works out.

Summer Observing

Last Saturday evening (June 11) I doused myself with insect repellant and went outside with my small refractor for a while. While summer doesn't officially start for several days (as I'm writing this) it's already quite warm. I was outside last Saturday perspiring in the heat with the occasional mosquito buzzing my ear and ignoring the insect repellent. I really love being outside at night, but observing during the summer months can be a bit uncomfortable. I remember being out some weeks ago when the evening temperatures were a bit more moderate and thinking, "This is just perfect". It was. Cool, comfortable weather and clear skies make for great observing. We're just going to have to tough it out this summer and wait for cooler evenings, or go somewhere else.

Right now (12:30 p.m. on June 18) it's 93 degrees in the shade. In the sun who KNOWS what the temperature is. The weather forecasters on the radio have started saying things like, "It's 93 degrees outside, but it feels like its 110 degrees". You're darn right it does!! The moon is approaching full and even though it may be a clear night, I'm not going to set up the telescope equipment. The moon is up at sunset and stays up until about 3:00 a.m.

A REAL Independence Day Event

This Independence Day will be special. As if you need reminding, there's going to be an impact event with comet Tempel1 on the (early) morning of July 4. Here's hoping that you get to see it. The farther west you can get the better, because the event will be higher in the sky for observers farther west. Details are at skyandtelescope.com, and at a lot of other web sites, I'm sure.

Novice Meeting in August

I wouldn't normally comment on a particular Novice meeting that's upcoming, but in August I'll be talking about how to prepare for an observing trip. I hope you'll come to the meeting and that we can have a good time talking about this subject.

I haven't asked our webmaster, Bob Rogers yet, but I plan to ask him to post some of my materials from the meeting on the web site. That way, if you want them, you think they have value to you, they'll be available. And, I won't be obliged to make copies in advance of the meeting.

Until next time...
clear skies and new moons!

..Bill

Houston Astronomical Society

50th Anniversary Event

September 24, 2005

50 years ago in September the Houston Astronomical Society was formed. The Society has done many new things over the years. One of the major accomplishments since the founding of the Society was the building of our **Columbus Observatory**. The land surveying started in 1979, and in 1982 the current observatory building was dedicated. Three years later a time capsule was placed in the ground on the south side of the building.

On **Saturday, September 24, we will have our annual picnic**. At the picnic we will unearth and open the capsule. And to help celebrate our 50th anniversary we are inviting all the area clubs to attend our picnic. As usual, the HAS will supply the food for the picnic, including meats and sides, you bring the drinks. We will also have the observatory open for our visitors, a stellation tour at twilight, and the usual observing session when it gets dark.

We will need an RSVP if you are planning to attend. Watch for details in the coming months. Mark you calendar now for September 24.

Friday, October, 21, 2005 -

5th Houston/Beaumont Regional Astronomy Meeting

Houston Community College

Saturday, October 22, 2005 -

Astronomy Day 2005

at The George Observatory

Current information will be posted at: www.astronomyday.org

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.

Subject	Name	Phone
Asteroids	Barbara Wilson	281-933-1289
Astrometry	Richard Nugent	713-910-5945
Astrophotography	Steve Goldberg	713-721-5077
Beginning in Astronomy	Peggy Gilchrist	281-443-8773
	Amelia Goldberg	713-721-5077
CCDs & Astrophotography	Randy Brewer	
Comets	Kenneth Drake	936-890-3735
	Don Pearce	713-432-0734
Computers	Matt Delevoryas	713-795-0808
	Leland Dolan	713-688-0981
	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	713-688-0981
	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	
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
Telescopes	Clayton Jeter	281-573-1337
Variable Stars	Barbara Wilson	281-933-1289
	Tom Williams	713-526-2868
Video	Larry Mitchell	281-448-8700

Observatory Duty Roster

by Michael B. Dye, Observatory Chairman

This is the duty list for July, August and September. 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	**Brett Maiwald**	**281-259-3694**
Kenneth Drake	Site	
Victor Flores	Site	
Fred Garcia	Members Observatory Night	07-30-05
Cliff Goldman	Members Observatory Night	07-30-05
David Herlinger	Site	
Bob Menius	Site	
Clayton Jeter	Members Observatory Night	07-30-05
Stanley Jones	Site	
Keith Jurgens	Site	
August Supervisor	**Preston Engebretson**	**713-270-9574**
Arnie Kaestner	Site	
David Kahlich	Site	
Jerod Kendrick	Site	
Howard Leverenz	Site	
Jay Levy	Members Observatory Night	08-27-05
Kenneth Miller	Site	
John Missavage	Members Observatory Night	08-27-05
Larry Mitchell	Members Observatory Night	08-27-05
Debbie Moran	Site	
September Supervisor	**Don Selle**	**281-391-5470**
Stan Musielewicz	Site	
Johnny Norris	Site	
Richard Nugent	Members Observatory Night	09-24-05
Ralph Overturf	Site	
Don Pearce	Members Observatory Night	09-24-05
Sim Picheloup	Members Observatory Night	09-24-05
Scott Poteet	Site	
Eric Rothgeb	Site	
Larry Wadle	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.

Want Ads

For Sale: 2 year old Meade ETX-70AT Digital Telescope with Autostar Computer Controller. Package includes field tripod, dew shield, AC adapter, 9mm and 25mm eye-pieces, carrying case for tripod and scope. $175.00 Contact Dave at dderosa@houston.rr.com

Wanted: High quality photographs of the constellations Andromeda, Cassiopeia, Orion, and Ursa Major for use by my company. Call Richard Braastad at 713-529-4050.

For Sale: Meade ETX 90EC Telescope, and Meade tripod Used once. Includes Autostar controller. Paid $850 new 6 months ago – no time for a new hobby. Includes all original boxes and manuals, and carrying case for scope and tripod. Before I put it on eBay, I'd like someone local to enjoy this scope. I'll take $500 or any reasonable offer. Contact Bill at beley8@houston.rr.com.

Your advertisement is WANTED

Send your buy/sell/trade ads to the editor of the *GuideStar* for inclusion in the next issue. There's no charge for publishing non-commercial ads. Help yourself by disposing of unused equipment, and help others by giving them a good deal on equipment they can use to enjoy the night sky.

Observatory Corner

By Michael B. Dye Observatory Chairman

I would like to start this article with a short update about our (Judy's and mine) stay at the TSP camping facility. I would like to state that Judy and I were able to set up our tent with out too much fuss (with each other). I did discover that tent stakes that one buys in Houston that will work in the sand at the Observatory Site would not even come close to working at the TSP campgrounds. That ground is HARD. Just about every one of those stakes that I pounded into the ground bent in one way or another. I ended up going into the local town (Ft Davis) and getting 20 spikes that were about 14 inches long and one half inch in diameter. I re-staked the tent using the new stakes. We had put up our blue tent cover over Bob's tent and between the two systems (the new stakes and the blue tarp) we were able to keep the rain out when it (the rain) showed up late Thursday evening. All that practice at the Observatory Site paid off. I would like to thank Bob for loaning Judy and me his tent to use at TSP. Unfortunately the one thing that the tent could not keep out was the cold. I woke up Monday morning and it was 42 degrees in the tent.

The next item is to remind you to please reserve September 24 (which is a Saturday) for the Houston Astronomical Society Annual Picnic. This year is our 50th anniversary and we will be opening the Time Capsule that has been buried at the Observatory Site since 1985.

The locks are working in the bathrooms at the Observatory Site again. We got two new locking mechanisms installed (one for the East and the West bathrooms). I still need to adjust the magnet for the West bathroom because if someone grabs the doorknob while the door is 'locked' and pulls the door, the door will unlock. This is probably not good. I know this for a fact, because it happened to me. No, I wasn't the person on the outside trying to get in, I was on the inside on the pot. Anyway, I would like to thank Jerry Grosman for again coming to my rescue by installing the new bathroom locks.

The next item is about how we should pay attention to what we are doing. A few Saturday's ago I was at home getting ready to go to the Observatory site to update the Corby Access control system that controls the Observatory Locks and Telescopes. The phone rang and it was Bob Rogers asking if I could stop and get a new starter for our new John Deere tractor. The Tractor would not start and they (Bob and Ed) wanted to mow the grass. I got the model number from Bob and started checking on line for the closest John Deere dealer. I finely found a phone number for a dealership just down the street from me on the Sam Houston Toll Road. I called the number and talked to the nice salesman on the other end of the line and discovered the following things (not necessarily in this order). (1) The dealership I had called was not open yet, in fact not even built. It did however have a phone number that was answered by a store someplace north of Humble. (2) The part I needed was not carried at any of the local stores in Houston or even the surrounding counties. (3) If we needed the part, we were going to have to special order it.

I called up Bob with the good news. He didn't sound very upset and indicated that he and Ed would continue working on the tractor. We drove out to the Observatory Site and discovered Bob removing the battery from the tractor to test it. They had decided that the problem was not the starter. I went over to the picnic bench in front to the Bunkhouse and started eating my lunch (we had stopped in Columbus to get lunch before coming out to the Site). I finished my lunch and went over to Bob to check on the progress. They (Bob and Ed) had discovered the problem. It seems that the tractor will not start if the PTO (Power Take Off) is still engaged while attempting to start the tractor. Disengaging the PTO will allow the tractor to start. Another earth shaking crisis averted.

I was at the Observatory Site to reload the Corby Access control system, so I went over to the Observatory building to accomplish that activity. I would like to thank Bob Rogers and Jerry Grosman for installing the new Corby control board. They did a great job of putting all forty or so wires back where they belong. This just left me the job of reloading the database back into the system. I hooked up the computer that I had brought along just for this purpose. I then discovered that my last good backup was dated 1999. This is most likely the last time the system failed. I really need to make more backups when I enter data into the system. I reloaded the 1999 backup and the system worked. I did a data dump back into the 'portable' computer that I use for this activity.

Continued....

Observatory Corner... from previous page

We (Judy and I) went home where I did a comparison study (by hand because the 'portable' computer floppy drive didn't work) to discover which names had been left out of the database. This turned out to be only about 10 names.

The next Saturday Judy wasn't interested in going to the Observatory Site with me so I started out on my own. I got about 13 miles from the house and remembered that while I had all the data necessary to update the Corby system I had forgotten the 'portable' computer back at the house. Back home I went.

I started out again. This time I arrived at the Observatory Site with all the necessary equipment and data. I spent about an hour updating the Corby System database and backing it up using the Corby supplied software that was in the 'portable' computer. I am glad to report that the Observatory is 100 percent functional again.

I would like to publicly thank both Bob Rogers and Ed Szczepanski for all the wonderful work they do keeping the telescope pad and picnic areas mowed. I am bringing up this subject because while the John Deere Lawn Tractor is a great tractor, it was not designed to mow the entire field. We need someone who has a tractor and bush hog who can mow the grass in the other areas. Ken Miller will not be able to mow the grass this year like we did last year. This is because, for medical reasons, Ken will not be able to ride a tractor for the entire summer. If anyone knows of someone who has a tractor and bush hog and has the time available to come and mow the Observatory Site, please contact me. Our John Deere lawn tractor can only do so much.

The Society continues to benefit from members who shop at Randalls and now Kroger's. For this we (the Society) thanks you. Please link your Randalls card to the Houston Astronomical Society so that the society can benefit from the Randalls program. Our number is #6618. This is very easy to do, just go to the Courtesy Booth and tell the person there what you what to do. If you shop at Kroger, we now have a card available (at the General Meeting) that you present at the cash register when you check out. We can thank Joe Khalaf for his efforts in getting the cards.

Please fill out the appropriate log form when you use the site. Remember we use these forms as attendance records and to report Observatory Site problems such as broken toilets.

Membership Renewals...

Your membership is renewable on January 1 of each year.

Total yearly dues are $36.

If you paid your dues after the first of 2004, you will only owe for the fraction of the year remaining in 2005. For example, if your dues are paid through March, 2005, you'd owe for 75% of 2005, or $24.

Magazine subscriptions can be renewed at any time and the renewal does not need to be synchronized with your HAS dues.

Membership in the Houston Astronomical Society is one of the great bargains in Astronomy.For a regular membership of $36 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.

Encourage other astronomy enthusiasts to join the organization as well. It's a great group.

Thanks!

Moving a Mountain of a Dish

by Patrick Barry

Your first reaction: "That's impossible!"

How on earth could someone simply *pick up* one of NASA's giant Deep Space Network (DSN) antennas—a colossal steel dish 12 stories high and 112 feet across that weighs more than 800,000 pounds—move it about 80 yards, and delicately set it down again?

Yet that's exactly what NASA engineers recently did.

One of the DSN dishes near Madrid, Spain, needed to be moved to a new pad. And it had to be done gingerly; the dish is a sensitive scientific instrument full of delicate electronics. Banging it around would not do.

"It was a heck of a challenge," says Benjamin Saldua, the structural engineer at JPL who was in charge of the move. "But thanks to some very careful planning, we pulled it off without a problem!

"The Deep Space Network enables NASA to communicate with probes exploring the solar system. Because Earth is constantly rotating, a single antenna on the ground can communicate with a probe for only part of the day, when the probe is overhead. By placing large dishes at three locations around the planet—Madrid, California, and Australia—NASA can maintain contact with spacecraft around the clock.

To move the Madrid dish, NASA called in a company from the Netherlands named Mammoet, which specializes in moving massive objects. (Mammoet is the Dutch word for "mammoth.")

On a clear day (bad weather might blow the dish over!), they began to slowly lift the dish. Hydraulic jacks at all four corners gradually raised the entire dish to a height of about 4.5 feet. Then Mammoet engineers positioned specialized crawlers under each corner. Each crawler looks like a mix between a flatbed trailer and a centipede: a flat, load-bearing surface supported by 24 wheels on 12 independently rotating axes, giving each crawler a maximum load of 194 tons!

One engineer took the master joystick and steered the whole package in its slow crawl to the new pad, never exceeding the glacial speed of 3 feet per minute. The four crawlers automatically stayed aligned with each other, and their independently suspended wheels compensated for unevenness in the ground.

Placement on the new pad had to be perfect, and the alignment was tested with a laser. To position the dish, believe it or not, Mammoet engineers simply followed a length of string tied to the pad's center pivot where the dish was gently lowered.

It worked. So much for "impossible."

Find out more about the DSN at http://deepspace.jpl.nasa.gov/dsn/ . Kids can learn about the amazing DSN antennas and make their own "Super Sound Cone" at The Space Place, http://spaceplace.nasa.gov/en/kids/tmodact.shtml.

Giant Deep Space Network antenna in Madrid is moved using four 12-axle, 24-wheel crawlers.

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. Parking is NOW across from Entrance 14, by the stadium.

Board of Directors Meeting

The Board of Directors Meeting is held on dates scheduled by the board at 7:00 p.m. at the University of St. Thomas. 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 available on the HAS web site to all members of H.A.S., and to persons iinterested in the organization's activities. Contributions to *GuideStar* by members are encouraged. Electronic submission is helpful. Submit the article in text, MS-Word format via email BillPellerin@sbcglobal.net. Copy must be received by the 15th of the month for inclusion in the issue to be available 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.

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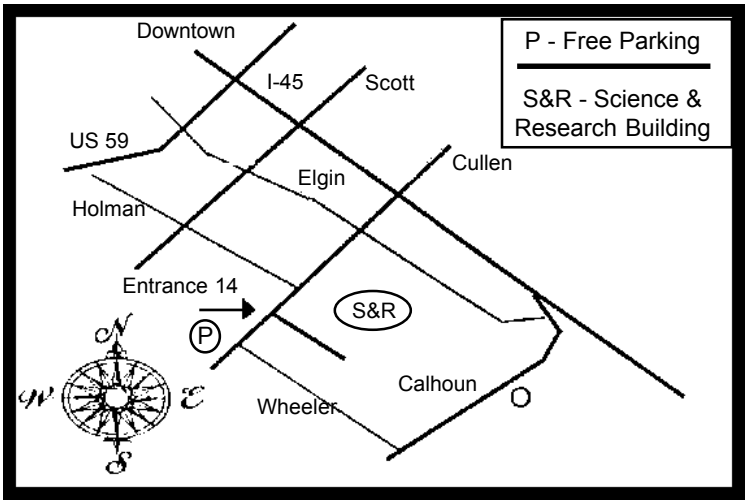

Houston Astronomical Society

Meeting
July 1, 2005
7:00 Novice & Site Orientation
8:00 General Meeting

University of Houston

Houston Astronomical Society

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

The Houston Astronomical Society welcomes you to our organization. The HAS is a group of dedicated amateur astronomers, most of whom are observers, but some are armchair astronomers. The benefits of membership are:

- ☐ Access to our 18 acre observing site west of Houston -- a great place to observe the universe!
- ☐ A telescope loaner program -- borrow a HAS telescope and try observing for yourself!
- ☐ A monthly novice meeting, site orientation meeting, and general meeting with speakers of interest.
- ☐ Opportunities to participate in programs that promote astronomy to the general public (such as Star Parties at schools)
- ☐ A yearly banquet with a special guest
- ☐ A yearly all-clubs meeting for Houston area organizations
- ☐ Meet other amateurs and share experiences, learn techniques, and swap stories

You're invited to attend our next meeting.
You'll have a great time.