



# GuideStar

**August, 2008**

*At the August 1 meeting...*

## **Remote Planets... Uranus and Neptune**

**Richard Schmude of ALPO**

At the end of the solar system (now that Pluto has been demoted) lie the two planets Uranus and Neptune. These are no dwarf planets, but robust, full-sized worlds. If you've been to some of Richard Schmude's past presentations, you know that he is a lot of fun to listen to. Be at the meeting on August 1.

### **First Place Award for Astronomy Day 2007 Awarded to Houston Area Clubs**

These clubs made the 2007 Astronomy Day at the George Observatory an international award winner!!

- Astronomical Society of South East Texas
- Fort Bend Astronomy Club
- George Observatory
- Houston Astronomical Society
- Johnson Space Center Astronomical Society
- North Houston Astronomy Club

The event was mobbed by 4000 participants and the work of the organizers and the volunteers made it great. Congratulations!

This is an international award that was awarded last year to the Iranian Astronomical Society.

### **Highlights:**

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**Death of a Supergiant ..... 16**

**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.  
Gordon Houston - Open & Globular Clusters

Site orientation meeting: ..... 7:00 p.m.  
Classroom 121

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: Bill Leach.....H: 281-893-4057  
 Vice Pres: Ken Miller .....H: 936-931-2724  
 Secretary: Doug McCormick.....H: 281-996-0177  
 Treasurer: Bill Flanagan .....H:713-699-8819  
 Past President: Steve Sartor .....

### Additional Board Members

Steve Goldberg.....713-721-5077  
 Don Pearce.....713-432-0734  
 John Missavage.....  
 Clayton Jeter .....

### Committee Chairpersons

Audit .....Tom Blocker .....

### 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'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.  
 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, 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* and *Astronomy* magazines are available to members at a discount.

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.

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## 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

## 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.ghg.net/cbr/jscas/>

**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](mailto:bill.leach@nhmccd.edu). Web site: [www.astronomyclub.org](http://www.astronomyclub.org)

## Logo Sales

The *Observer's Handbooks* for 2008 are available. They sell for \$25.00. If you would like to have one or more, please e-mail me at [judyadye@aol.com](mailto:judyadye@aol.com), call me at 281-498-1703, or see me at the meeting... *Judy Dye*

# August/September Calendar:



Photo by Scott Mitchell

Check the web site:  
[www.astronomyhouston.org](http://www.astronomyhouston.org)  
**Webmaster: Kay McCallum**  
[kaym@mcclibrary.net](mailto:kaym@mcclibrary.net)

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 [kaym@mcclibrary.net](mailto:kaym@mcclibrary.net).

**Date Time Event**

## August

1	5:13 a.m.	New Moon
		Total Solar Eclipse (Asia)
	7:00 p.m.	HAS Novice Meeting, U of H
	8:00 p.m.	HAS General Meeting, U of H
2		Prime Night, Columbus Observing Site
8	3:20 p.m.	Moon at first quarter
12		Perseid meteors peak
16	4:17 p.m.	Full Moon
23	6:50 p.m.	Moon at last quarter
		Novice Star Party, Columbus Observing Site
30	2:58 p.m.	New Moon

## September

5	7:00 p.m.	HAS Novice Meeting, U of H
	8:00 p.m.	HAS General Meeting, U of H
7	9:04 p.m.	Moon at first quarter
10	11:00 p.m.	Mercury at greatest elongation east
12	9:00 p.m.	Venus 0.30 deg. N.N.E. of Mars
15	4:14 a.m.	Full Moon
22	12:05 a.m.	Moon at last quarter
	10:44 a.m.	Fall equinox
27		Prime Night, Columbus Observing Site
		Star Party, Columbus Observing Site
29	3:12 a.m.	New Moon

Send calendar events to Doug McCormick  
 - [skygazer10@sbcglobal.net](mailto:skygazer10@sbcglobal.net)

## Publicity Suggestion Box

I welcome any suggestions that *any* member has to offer. It doesn't matter how trivial you think your idea may be. All input will be reviewed and welcomed.

Let's grow.

Please drop me a note at the following address.

[itjdm0@yahoo.com](mailto:itjdm0@yahoo.com)

John Missavage- HAS Publicity Chair

★ ★ ★ ★ ★

**GuideStar deadline**

**for the September**

**issue**

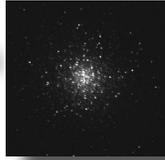
**is August 15**

★ ★ ★ ★ ★



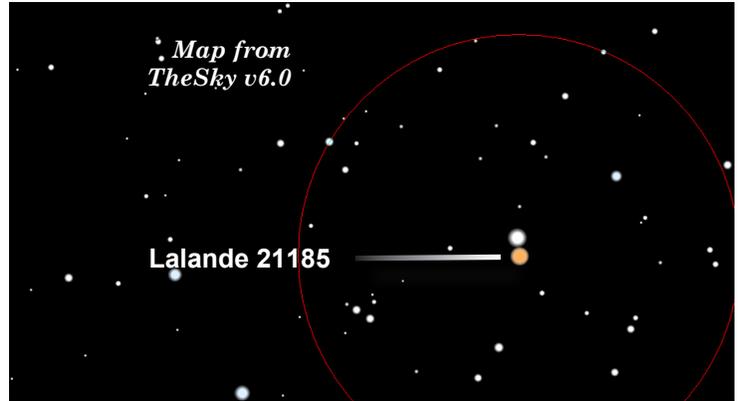
# Observations... of the editor

by Bill Pellerin, GuideStar Editor



## Nova Science Now

PBS (KUHT in Houston) is showing some new programs "Nova Science Now" featuring Neil deGrasse Tyson and appearing weekly. I've had the pleasure to see a few of these, and they are all fascinating. The format is that Neil takes on two or three topics and presents a report on each of the topics. These aren't too technical, but they don't talk down to the audience either. The stories respect your ability to understand complexity if it's well explained. Oh, yes, and the presentations are in HD, too, so if you just dropped a few coins on a new HD TV, here's something you'll enjoy.



## A Shallow Sky Mystery

Lalande 21185 was my 'shallow sky' object last month. Did anyone (besides me) observe it? Here's the interesting thing. My map (from TheSky) last month shows there to be a star very close to Lalande 21185. Here are the specifications:

Lalande 21185	GSC 2521:2270	mag 7.5	
	GSC 2521:834	mag 7.1	1.25 arc minute from Lalande

So, here we have two stars, with very similar magnitudes, at 1.25 arc minute apart. Yet, when I looked at this place in the sky with my 4" refractor, I could only see one star. What gives? Is one of these stars a variable? Neither is indicated as a variable.

Was I looking in the wrong place? No, I'm sure that I wasn't. I was very careful to match the surrounding stars to this location.

One clue... I did a Google search for GSC2521:834 and landed on a page that says "# GSC errata: stars to remove" at the top. Below that was this:

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A slew of nearby "stars", since replaced by Tycho/Hipparchos. Many were imaged twice, in different places at different times:  
 2521 834 Lalande 21185  
 2521 2270 Lalande 21185

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The first two numbers in each line represent the GSC (Guide Star Catalog -- a catalog of stars used to guide the Hubble Space Telescope). In TheSky these are represented as GSC 2521:834 and GSC2521:2270.

So... it appears that the star was imaged twice in two different locations. So, which GSC star designation actually corresponds to Lalande 21185? It turns out that *both* do. One GSC designation was assigned when the star was observed in 1984 and one GSC designation was assigned in the year 2000. What's going on here is that the star has a high proper motion (real movement across the sky) and

that between the two observations it had moved 1.2 arc second. The keepers of the GSC didn't realize that the stars identified by these designations were, in fact, the *same* star.

The errata file is associated with some astronomy software called 'Project Pluto'. Check it out at [www.projectpluto.com](http://www.projectpluto.com). There is a 'Contact Us' link on the web site, so I sent an email to that address asking for an interpretation of the contents of that error file. What happened then was a series of emails going through last week. With the permission of the writer, Bill Gray, I'm including these emails in this issue of the *GuideStar*. Bill knows about the GSC and the errors in it and what may be the future of astronomy software. Here is the email conversation (only slightly edited):

July 22  
Good day;

*I am the editor of the Houston Astronomical Society GuideStar newsletter. As such, I write a 'Shallow Sky Object of the Month' article. In the July, 2008 issue I wrote about Lalande 21185 -- the close star nobody has heard of.*

*My software, TheSky from Software Bisque shows two stars at that location, separated by 1.25 arc minute, but when I observe the location with my 4" refractor, I only see one. TheSky shows one as GSC 2521:834 and the other as GSC2521:2270.*

*Continued...*

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## Observations... from previous page

Your site has the following information:

**GSC errata: stars to remove**  
**A slew of nearby "stars", since replaced by Tycho/Hip-**  
**parchos. Many were imaged twice, in different places at**  
**different times:**  
**2521 834 Lalande 21185**  
**2521 2270 Lalande 21185**

*So... my question is... which one of these GSC numbers represents Lalande 21185? I take it from your information that the GSC is in error in that it identified two stars at the location when there's only one.*

*Thanks very much.*

*..Bill Pellerin*

-----July 22

From: Bill J Gray <pluto@projectpluto.com>  
Sent: Tuesday, July 22, 2008 3:44:09 PM  
Subject: Re: I need help understanding your GSC errata file

Hi Bill,

Odd you should happen to have come across that file!

The answer is: both represent Lalande 21185, at two different times. GSC 2521 834 was imaged on one plate, taken in 1984. And when the GSC was compiled, some bright stars were added from a separate catalog (the Tycho Input Catalogue). GSC 2521 2270 is one of those: it gives the position of Lalande 21185 as it was in 2000.

Ideally, somebody would have noticed this when the GSC was compiled, and the object would have been listed with just one GSC number. But that didn't happen. GSC was made with somewhat limited resources -- star mapping isn't a very high priority amongst professional astronomers -- and it was really made with only one objective: to get enough stars mapped accurately enough to help in pointing the Hubble telescope (hence the name "Guide Star Catalog").

Just to confuse matters further: when the "final" Tycho catalog came out a few years later, it mostly used the GSC numbers. But it added new ones for stars that hadn't been in the original GSC. In this case, they again overlooked the fact that Lalande 21185 had been catalogued in GSC (twice) and came up with a third designation for it: 2521 2279.

There are many such oddities in the GSC. Some time back, I gave up cursing them and instead created 'errata.txt' as a list of known spurious objects in GSC (as you probably saw, a mix of satellite trails, scratches on the plates, asteroids, and deep-sky objects). So my Guide software suppresses these oddballs: you see just the "for-real" Lalande 21185, plotted with proper motion and parallax correctly accounted for.

In this case, I am reasonably certain that the GSC errors arose because this star has high proper motion. If you looked at the 1984 position, and compared it to the 2000 position,

you might say: "Those two positions are far enough apart (about 1.2 arcminutes) that they must refer to two separate stars." A slightly more sophisticated program would have included the effects of proper motion, and would have realized that the stars did line up back in 1984. But the GSC folks didn't do that.

You're right that this is a nearby star of which no one has heard. I vaguely recall reading about it in a science fiction novel when I was a kid, and maybe a reference in a *Sky & Telescope* article a while back. That's about it.

-- Bill (Gray)

July 22  
Bill;

*Thanks very much for your reply. I found an article in Sky and Telescope that mentions Lalande 21185. It was in the July 2002 issue, page 42. The item says that the star's proper motion is 4.8 arc seconds/year which would become 78.8 arc seconds in the 16 year interval you mention.*

*This is, of course equal to 1.28 arc minutes or 1 arc minute + 18.8 arc seconds. The Sky software show the 'two' stars as 1 arc minute + 16 arc seconds apart. Close enough for science, as they say.*

*As part of my digging around on the Internet for references to this star I did find a novel called "Lalande 21185" by Burnett R. Toskey. It can even be ordered from Amazon.com for \$20.99, although it's "not in stock" at the moment.*

*Thanks again.*

*..Bill Pellerin, Houston*

July 23  
Hi Bill,

I perhaps should have been more exact: the midpoint of the Palomar plate used for that GSC data was 6 February 1984, at 9:45 UT.

The most accurate data for this star come from the Hipparcos catalog, and by default, that's all my Guide 8.0 software shows; the 1984 and 2000 versions are suppressed (that's what 'errata.dat' is for). But I disabled the errata file so that Guide would show the "real" Lalande 21185 from Hipparcos data, plus the 1984 and 2000 versions from the GSC. Those show up as being 76.82 arcseconds apart.

Next, I set Guide to show the sky as it would have appeared on 6 February 1984 at 9:45. The "real" Lalande 21185, plotted using Hipparcos data, "moved" right over the spurious star from the GSC. (They don't quite line up; the positional difference is .42 arcseconds, which is well within the limits of the GSC.)

Doing the same thing for 1 January 2000, the epoch of the Tycho Input Catalog, caused the "real" Lalande 21185 to move over the 2000

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## Observations... from previous page

version from the GSC, to within .75 arcseconds. I'm slightly surprised that it's off by that much, but not enormously so.

-- Bill (Gray)

July 23  
Bill;

*Thanks for the update.*

*It's remarkable that this error continues to exist in the data. No effort is being made, apparently, to scrub the data of errors.*

*Enjoy your weekend.*

*..Bill Pellerin, Houston*

July 24  
Hi Bill,

"...It's remarkable that this error continues to exist in the data. No effort is being made, apparently, to scrub the data of errors."

Not much of one, it's true. In part, that's because some later star catalogues managed to avoid at least some of these errors, in assorted ways. The USNO A2.0 catalog, for example, used (at least) two plates, one red-sensitive and one blue, for every point in the sky. This means (1) you get both a red and a blue magnitude for each star, so you get some very rough idea as to its color; and (2) if the star appears on one plate but not the other, the USNO folks could assume it was spurious and left it out.

The latter assumption was a little flawed, because a faint object might just barely appear on one plate but not the other, especially if it had a strong color. But it was a vast improvement over GSC.

USNO-B1.0 took this a step further: the data comes from five sets of plates, two red-sensitive, two blue, one infrared. That let them do much more sophisticated analysis for moving objects and they could accept anything that showed up on two or more plates.

So, you ask, why are we all still using GSC (both my Guide software, your TheSky, various others)? Simple: GSC can be used legally. You can copy the USNO data at no charge, but I can't bundle it with my software and sell it, nor can I make a subset (the full datasets are 6.3 and 80 gigabytes each). So GSC has been used, warts and all.

The great hope is that the USNO's latest catalog, UCAC-3, will be released later this year (it's been delayed several times). That should give us an all-sky catalog, much more accurate and consistent and detailed than GSC, without all the legal issues surrounding A2.0 and B1.0. But since 1991, the GSC has been what we could sell with star charting/planetarium software.

Some people have tackled the GSC issues (obviously, me among them). My approach was to first match GSC to some deep-sky catalogs, which cleaned up a lot of problems; many DSOs registered as "blobs" in the GSC. Next, I provided the hand-removal option, which is how Lalande 21185 got fixed. You may want to check with the Software Bisque folk; they may suggest a way to repair this in TheSky.

-- Bill (Gray)

July 27  
Hello Bill;

*Thanks for the additional information.*

*While we all wait for an improved star catalog, I assume that many (most?) of the errors in the GSC have been identified and documented. This should be true, if it isn't. Software makers could simply adopt the generally accepted error list and incorporate a capability into their software to not show those errors in their sky maps.*

*I'll check their web site to see if Bisque has some 'fixes' for TheSky 6.*

*In the meantime... Clear Skies....*

*..Bill Pellerin, Houston*

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

*..Bill*

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# Observatory Corner

By Bob Rogers, Observatory Chairman



*Hello everyone.*

The last time that I wrote my article for the *GuideStar* was in April. After that, things went drastically downhill for me. I ended up spending about six and a half weeks in the hospital undergoing five surgeries and I still have one more to go. I am glad to report that I'm on the upside of things and that my strength is slowly coming back. The doctors have told me that my rehab may take over a year to complete. I'm also glad to report that with the diabetes, the doctors were able to save my left foot even though it is still numb, but in time the feeling should come back. Let's hope so. I want to thank everyone in HAS for your thoughts and prayers during the bad times that I was going through, It meant a lot for my wife and I. I especially want to thank Steve Goldberg for taking over the observatory duties during my absence and keeping everyone informed of my progress.



*Bob Rogers at the HAS Observing site for the pouring of the tractor shed base.*

went to the site on July 2nd for the pouring of the concrete slab (pictures provided) for the Tractor Shed. As promised, the Tractor Shed has also been ordered. For an additional \$425.00, the contractor has agreed to come back out and install the wall for the back side of the shed.

An update on the C-14 project – Allen Gilchrist, Chuck Shaw and a few others on the Observatory Committee will be at the site on Saturday July 26 to install the new upgrade to the C-14. We hope to have everything done by that evening. We will also be installing a new Air Conditioner in the Telescope room due to the old unit that is in there now has quit working after 20 years. I hope to have enough help out there to complete both projects at the same time.

An update on the Tractor Shed – The contractor that was hired to do the job didn't come through, so I called Jerry's (the Carport dealer) and was able to get another contractor to do the job for us. The price went up to \$1600.00 for the form and pouring of the concrete. Amelia Goldberg and I

If you have a Randalls card, and have not done so, please have it coded for the Houston Astronomical Society. Our number is #6618. The Society gets 1 percent of the gross sales that members spend at Randalls. Randalls totals up the amount spent each quarter and will send us a check if the amount goes over \$2,500.00, otherwise the total rolls over to the next quarter or zeros out at the end of the calendar year. So please link your Randalls card to the Houston Astronomical Society so that the society can benefit from this 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 want to do.

Some dates of interest here for everyone. George Stradley, our Field Trip and Observing Chairman, has set the following 2008 Field Trip Schedule –

- August 23rd for a Novice Party
- September 27th for the All Clubs Field Trip /HAS Picnic
- October 25th for a HAS General Membership – Ken Miller's Ranch.

Keep an eye out on the Web site and here at the Observatory Corner for future updates for these Field Trips.

If you have any suggestions or thoughts for the site, let me know.

*Thanks,*

*Bob Rogers*

Observatory Chairman  
281-460-1573  
siteworkerbob@hotmail.com

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## *Just Looking*

A GuideStar Interview by Clayton L. Jeter

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## **Peter Nolan - Past HAS President**

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What a treat it was to interview Peter Nolan this month, our own HAS past president from 1985-86. When I came on board as a novice here with the society in 85', Pete was our president. As Pete spoke as host to those many meetings during that era, he always made sure there was fun and lots of laughs. Between Lee Cain our Vice President then, and Pete, there was always a wealth of astronomy information to learn. This duo was a winning combination for our club.



It was always a pleasure to see Pete's wife, Tessie, at all of those meetings too. She was very active within the society. Because they moved to the Texas Hill Country in recent times, we see them on rare occasions at our meetings. Too long.

On a light note...I must admit that I'm not the only HAS member around who thinks that Pete resembles CBS's "The Late Show", David Letterman. Are you blushing yet Pete?

If you haven't met Peter Nolan... here's your chance. Enjoy the read.

### ***The Pete Nolan bio...***

I grew up on the south shore of Long Island. Great place to be a kid. I spent almost every day in the summer at Jones Beach. Not so hot for astronomy, though - too many houses, street lights, and cars.

One of my favorite kid possessions was a small table-top-mount refractor. I used to sit on the curb and look at the moon and the

stars that were bright enough to pierce the New York gloom. One night I aimed the peep-sight finder at a star and looked into the telescope, to be rewarded with a tiny Saturn. Wow! I called out to the other kids nearby to see this wonder. My first star party!

My favorite class in junior high school was Earth Science. I was inspired by our teacher. He truly loved the physical sciences and shared his knowledge with us with glee. He recommended outside reading of books and magazines. One of those was a journal called *Sky & Telescope*.

After surviving my fourth class ("mug") year at New York Maritime College, I began to enjoy what the school had to offer: practical use of astronomy (celestial navigation), meteorology and oceanography. And "luxury" cruises to Europe in the summer aboard our old troop transport training ship. The eleven-and-a-half-month school years just flew by, and before I knew it I was a deck officer on Exxon (Humble Oil) tankers. Getting paid good money to have fun - most of the time!

Usual run was from Baytown to New Jersey.

Once in a while we had the perfect night in the middle of the Gulf of Mexico. Calm seas, still air and the blackest skies I've ever seen. I would watch for the rise of a bright planet or star on nights like this and wouldn't be surprised if the bow lookout didn't report the "ship" on the horizon when the object popped up.

Had several fun and challenging assignments with Exxon over the years after I came ashore, but the best was my last. I returned to the marine subsidiary of Exxon, SeaRiver, just in time to head up a major effort to develop all new training programs for our seagoing and inland marine personnel. The US had signed on to a world-wide upgrade of training and proficiency

*Continued ...*

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## *Just Looking... from previous page*

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requirements that rocked the maritime world. Time was short, and the changes were significant. With the help of several wonderfully talented sea-going officers, we developed simulator training (Emergency Preparedness, Liquid Cargo, Engine Room Simulation), based on the type of training used by the airlines for cockpit resource management. Our courses became, and still are, the industry standard.

When I retired in early 2001, I knew one of the first things I wanted to do was a dinosaur dig, an opportunity to visit “deep time.” Tess and I went to Malta, Montana that summer on a weeklong exploratory quest. We went out early each morning and looked for bone. And bone there was. Our group found part of a hip bone sticking out of a cliff, that turned out to be a complete skeleton of a mature female Hadrosaur known as Roberta. We went back the following summer to extract the fossil from the cliff, and I made a couple trips up there in the winter to help prepare the bone for exhibition. The summer before our first trip they found what is known as Leonardo, the Mummy Dinosaur. Roberta is the same species as Leonardo - a Brachylophosaur. Since then a couple more have been found in the same area; in fact, it is the most complete collection of any species known.

Some of the long time HAS'ers may remember Floyd Thorn. Floyd was a member of HAS in the mid 80s. He moved out to the Hill Country after his wife passed away. We would visit him on our way to West Texas and when we went out to Kerrville for the annual bicycle rides over Easter weekend. One day Floyd asked me if I would be willing to give a presentation about our dinosaur digs to the rock and mineral club he belonged to in Fredericksburg. I had fun putting it together and was amazed at how well it was received. Before I knew it I was doing presentations throughout Texas, Montana, and Canada. I had pictures and information about the Leonardo mummy before it became so famous. I'm looking forward to Leonardo's premier at HMNS later this year.



Our good friend Floyd Thorn passed away in late 2003. He was a wonderful man, naval aviator in WWII, dedicated astronomy disciple to kids of all ages, and a gifted raconteur. He'd built his new

home on a hilltop near Mountain Home in 1988. He also built something very special - a two-story observatory, complete with a 10.5 foot Ash Dome. When his daughter inherited the property she thought she would keep it for a weekend retreat from her home in Dallas. It was a bit far, though, and when she decided

to sell it, we bought it!

We now had two houses. Planned to continue to live in The Woodlands and travel out to the Hill Country when we could. To make a long story short, we sold the house in The Woodlands in March 2007, and now live here in the hills. We are about 17 miles NW from, and 500' higher than Kerrville. The observatory was in pretty bad shape, but now is fully operational. (You can see the dome on a sunny day up on the hill to the right above IH-10 West right before the speed limit increases to 80). Good dark skies (no street lights; wooded area), wonderful bicycling, kayaking, hiking, and interesting wildlife.

### *The Pete Nolan interview...*

Clayton: It's wonderful Pete to have you here for this most interesting interview. How did you first become involved with HAS?

Pete: We joined HAS in 1981. Steve Goldberg was President. The meetings were fun – Steve's enthusiasm for his hobby bought us back time and time again.

Clayton: You have two very time consuming interests... astronomy and paleontology. How do you find the time to pursue both?

Pete: Being retired helps a lot. For the past year we have had little time for trips away from home as we are adding a new section to our house and remodeling the existing part. We've been engaged in a continuous dust propagation study, though.

Clayton: I remember at a HAS general meeting years ago, you showed and spoke about your 7" Questar telescope. Do you still own that fine instrument? Was it a great performer like I have heard and read about? It's been years since I've seen one.

Pete: Yes, I do. The seven is a wonderful telescope optically, though the mounting left a bit to be desired. It is basically an upscale of my 3.5" Questar, but it slips at some angles. I made several trips to New Hope, PA and had an opportunity to see “big yellow,” the 12" Questar, in their backyard dome there.

*Continued ...*

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## Just Looking... from previous page

Clayton: Being that you moved to the Texas Hill Country, did you ever join another astronomy club?

Pete: We joined the Austin club for a couple years. We thought we would use their fine observatory site up at Lake Buchanan, but the drive was pretty far. San Antonio is over 75 miles from us, so we're a bit isolated. There are two other domes in our neighborhood, but no local club, yet.

Clayton: By the way, thanks for the photo of your observatory for this interview. You told me earlier, "The photo of our observatory is from the air, sort of. Took it while dangling 85' in the air in a bosun's chair attached to a 90' crane. Wonderful view".

Can you better describe that photo session!!!!????

Pete: In addition to the house and observatory, Floyd Thorn erected a 55' ham radio tower on the property. It was just north of the house. Floyd was a dedicated ham operator and member of the Hill Country Amateur Radio Club.

I got my ham license a couple years ago, but didn't think I would ever get to the level of the hobby that Floyd was. Unfortunately the guy wires and anchors were right in the middle of the planned expansion of the house. We tried several other solutions, but realized in the end that the wires would have to go. So we had to remove the antenna and the top 20 feet of the tower, wires, and anchors. The crane operator is an ex-Navy guy and we started swapping sea stories immediately. He offered us a ride in his chair when he had completed the job. Tess went first, straight up as high as it would go. The picture of the observatory was taken with a zoom lens.

The remaining 35' of tower is well anchored at the bottom and is serving as a weather mast for one of my weather stations on the property. The anemometer is 10 meters above ground. That's the minimum height recommended. I regularly get the highest wind readings uploaded to the Citizen Weather Observer Program (CWOP). Check it out; I'm CW3398 Mountain.

Clayton: We have to know... what instrument is sitting under the dome in your home observatory?

Pete: I have a Tak NJP mount and an adjustable-height Pier-Tech pier that are on top of the 12" cement filled pier that Floyd built that goes right through the two stories and about six feet into the rock below. Most of the time I use my Tak FS 152 refractor, although it is set up for the Questar Seven and a C-11.

Clayton: Are you a visual observer only? Tell us about a typical observing session in your observatory.

Pete: I'm happy to leave astrophotography to more qualified observers. I enjoy shallow to mid sky observing – solar,

lunar, planets, and binaries, though our skies are good for deep sky most of the time.

I have a filar micrometer that I bought years ago and have fun measuring close binaries. We've had a number of out-of-town guests lately and have had some star parties. Once in a while, one of Paul Maley's occultations crosses my location, and I love to participate in that activity!

Clayton: Which one person inspired you to "jump" into astronomy? Do you have a mentor?

Pete: My earliest mentor was my Great Aunt Frances. Her interests became my interests, starting at the age of five.

Clayton: Have you a favorite star party that you attend? Are there others?

Pete: I've only attended TSP. We go out to Fort Davis at least once a year, though often just for the spectacular bicycle riding. We can get there in about 4.5 hours from the house. Heading out there in September for the annual Fort Davis Cyclefest. My favorite star party was the 2003 TSP. We took Floyd out there and had a wonderful time!

Clayton: How do you envision amateur astronomy in the next 25 years?

Pete: Hey Clayton, you told me you would ask me easy questions! Man, 25 years. Think back 25 years ago and how different things were then. Okay, I don't envision much change on the hardware side, but big changes in software. I'm reading Ray Kurzweil's book, "The Singularity is Near," and if that dude is right (and his track record is phenomenal), we'll be heading into some major changes that will hopefully allow us to vastly amplify human creativity. I'd like to be able to put on a pair of glasses, think about a particular celestial object and see it through my telescope or remotely from another scope!

Clayton: Do you have any helpful advice to pass on to observers just starting out in astrono-

*Continued on page 15 ...*

# *New SiTech Servo System Installed on C-14*

*by Allen Gilchrist*

A new Sidereal Technology (SiTech) Servo drive system was installed on the HAS C-14 scope at the Columbus Observatory on July 26. Many thanks go to Chuck Shaw for doing the installation and to HAS members Mike Edstrom, Don Selle, Bob Rogers,



*Chuck Shaw installs part of the new SiTech Servo system on the HAS C-14 while Mike Edstrom and Peyton Barnes look on.*

Ed Fraini, Peyton Barnes, and Allen Gilchrist who helped. A new Windows XP computer was also installed for use with the C-14.

This SiTech Servo system has several advantages over the old stepper motor system it replaced. The new setup is very quiet, and is much simpler to operate. It is no longer necessary to boot a control computer and start up the electronics in any particular

sequence. One can simply turn on the power supply and start observing. The system will come up tracking in RA and the scope can be either pointed manually or by using the wireless handpad.



*New SiTech electronics and handpad on C-14*

Full GOTO operation is possible using the new computer running Windows XP and TheSky Six. Just boot the computer, start TheSky Six, and connect to the scope. Point the scope at a known star and sync on that star in TheSky Six.

A short training session will be necessary before observatory key holders can use the new system. Anyone wanting to get a head start on learning the new system can visit the Sidereal Technology web page at



*New Windows XP computer with TheSky Six for full GOTO operation*

<http://www.siderealtechnology.com/>

Thanks go to Sidereal Technology for their generous discount on the cost of the system, to Software Bisque for their donation of TheSky Six, and to Ed Fraini for his donation of the new computer. Enjoy!

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# *HAS 2008 Banquet a Great Success!!*

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I would like to thank you all for helping make this a very successful banquet. We really owe Tony Settles a big thank you for recommending Dr. Steven Weinberg as our speaker. If it were not for all the advertising, members from various clubs would have been able to come. Laura Overturf and I worked really hard to make sure that everything was taken care of. It was fun putting it all together. Maybe we can do it again next year.

*Judy Dye*



*This Hubble Telescope Pin was given to Dr. Steven Weinberg at the end of the evening*

*The jeweler who made the lapel pin is Alan Cable. He did a great job and is especially adept at filling special orders. His shop is on Bissonnet at Greenbriar.*



*Dr. Steven Weinberg at the end of his presentation.*



*Judy Dye and Bram Weisman at the Banquet*

For more pictures from the HAS Banquet, go to the HAS web site:

[www.astronomyhouston.org](http://www.astronomyhouston.org)

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## Want Ads

### For Sale: Takahashi NJP Temma Mount

The mount is in excellent condition and comes with auto guider cable, custom made heavy duty Scope Guard case, power supply in Pelican case, four 14 lb weights, hand controller, polar finder illuminator, PC cable, Losmandy saddle plate and software. I am asking \$4,500. Contact Mike Squicciarini, Richmond, Texas 281-277-1885 (home), msquic@alltel.net.

### For Sale: Nexstar 5se

Nexstar 5se bought in June 07. Like new condition, barely used (bought a bigger scope): This is a great starter scope if you're new to the hobby!

Includes a Zhumell 1.25 Inch Eyepiece and Filter Kit and A/C power source. Still have all the original boxes. Asking \$550.00

Rick Hillier  
Call 713-875-6463 (cell)  
e-mail hillier\_rick@yahoo.com

### For Sale: Celestron C-5 Outfit

Includes:

- 5x24 finder scope
- Erect image diagonal
- Four Eyepieces: 25 mm; 17 mm; 12.5 mm; and 7.5 mm
- Equatorial wedge, adjustable for latitude
- Battery powered (9v) motor drive
- Celestron Rubber Covered Tripod--very sturdy
- Carrying case-Celestron

Condition excellent. Price: \$425 for complete outfit. For more information or to make offer, contact Tom Williams, 713-526-2868.

### For Sale: 17.5" Newtonian

Perfect for imaging or visual star parties. 17.5" f4.5 Newtonian telescope with highly accurate microprocessor-controlled, step-based alt-az drive system with focal plane rotator. Designed and built by Andy Saulietis and the owner. Accepts ST4-compatible inputs for autoguiding. Mechanical and calibration work done by the owner to optimize system accuracy for autoguided CCD imaging. Original 1981 Coulter mirror refigured to smooth 1/8th-wave surface by Sky Optical in late 80's. Primary and secondary recoated with enhanced coatings group by PAP in early 90's. Optics in excellent condition. 80mm f5 finder. Breaks down to numerous major pieces for transport. With modest effort, can be a traveling scope, but better as a semi-permanent observatory. See my website for many images made with this system over the last decade.

Price negotiable. For pickup/delivery, maybe can meet you halfway. Call 281-482-5190 or E-mail Al Kelly.

### For Sale: Celestron Nexstar 8

Like New Condition...Celestron Nexstar 8, Used only 2 times in back yard. Some extras include Solar filter, 1 1/4" star diagonal, 40 mm multi-coated nexstar plossel, 8-24 mm Z00 eyepiece, variable polarizing filter, 2X multicoated Barlow. \$ 850.00 Jack DeNina, Willis, Texas 936-856-0704, jjack9485@cs.com

*Email your ads to Kay McCallum, our Webmaster, at KayM@MccLibrary.net and to Bill Pellerin, GuideStar editor at billpellerin@sbcglobal.net*

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## How can I learn more about the Astronomical League?

Amateur astronomers from across the country benefit from perusing the many pages of the Astronomical League's website, [www.astroleague.org](http://www.astroleague.org). Naturally, this is the place to go if you're looking for information about upcoming events and League news. But there is so much more...

Want to learn all about one of the great League observing programs? Go to [www.astroleague.org/observing.html](http://www.astroleague.org/observing.html).

Do you know of a worthy candidate for one of the many League awards? Look at <http://www.astroleague.org/al/awards/awards.html>.

Are you interested in buying a particular book about our fascinating hobby? Then go to [www.astroleague.org/al/bookserv/bookserv.html](http://www.astroleague.org/al/bookserv/bookserv.html).

There is even something to help your club function better. Try [www.astroleague.org/al/socaid/socaidid.html](http://www.astroleague.org/al/socaid/socaidid.html)

Make the most of your Astronomical League membership! **To find out more about what the Astronomical League offers you, why not log on to [www.astroleague.org](http://www.astroleague.org) today?**

# Zubenelgenubi

by Bill Pellerin, GuideStar Editor

**Object:** Zubenelgenubi, Alpha Librae  
**Class:** Bright double-star  
**Magnitude:** 2.75  
**R.A.:** 14 h, 50 m, 52.7 s  
**Dec:** - 16 degrees, 2 minutes, 30.4 seconds  
**Distance:** 77 ly  
**Constellation:** Libra  
**Size:** n/a  
**Optics needed:** Naked eye, binocs, telescope

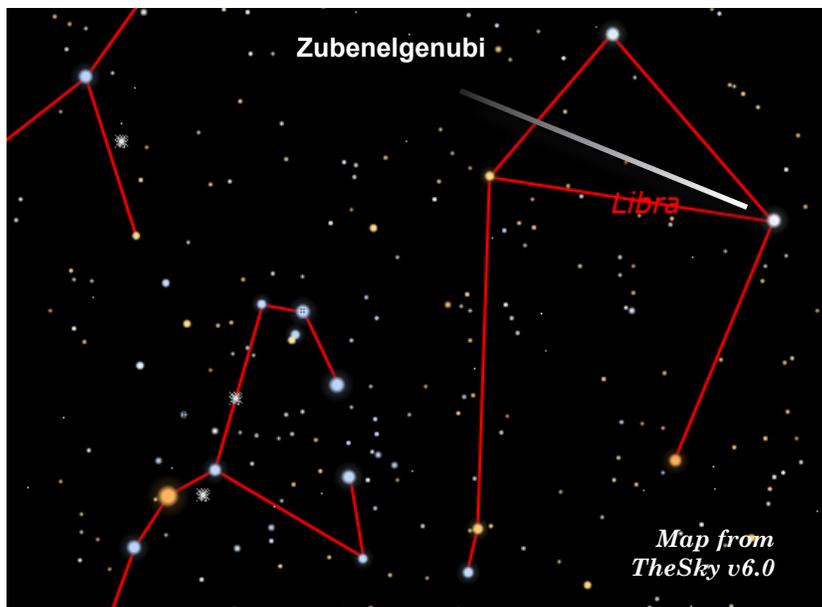
## Why this object is interesting.

There's the name... Zubenelgenubi. The first time I heard this name I laughed out loud, but the last laugh is to be owned by this lovely double star in the constellation Libra, the scales. It's an Arabic name that means the "southern claw" and it was given this designation because it was thought to be part of the constellation Scorpius. The "northern claw", also part of Libra, is named Zubeneshamali.

Zubenelgenubi is on the Astronomical League double star list, so if you observe this star you'll be on your way, but not well on your way, to getting the double-star award. What you will see is a pair of stars that you can see without optical aid. Look to the northwest (upper right, unless you're standing on your head) of the primary star to find the secondary one. The two stars are 3' 51" apart. The conventional wisdom is that a sharp-eyed person can split a double star if it's about 4' between the components. Give this one a try.

I found a formula on the Internet (where all information is guaranteed to be accurate) that says the magnification required to comfortably split a double star is equal to  $480/d$ , where  $d$  is the spacing of the double star in arc-seconds. The formula assumes that a visual separation of 8 arc seconds will provide the observer with a comfortable split. You probably already know, from experience, that the greater the difference in brightness between two stars of a double-star system, the more difficult it is to split the double.

The stars, together, are also Alpha Librae, the alpha star (but only the second brightest) in the constellation Librae. Astronomers, being the clever people that they are, call one of the pair (at magnitude 5.2) Alpha-1 and the dimmer star (at magnitude 2.8) Alpha-2. Surprise! Alpha-2 is a very, very close double star. They are separated by .01 arc second, so you won't be able to see them with your telescope no matter what eyepiece you use.



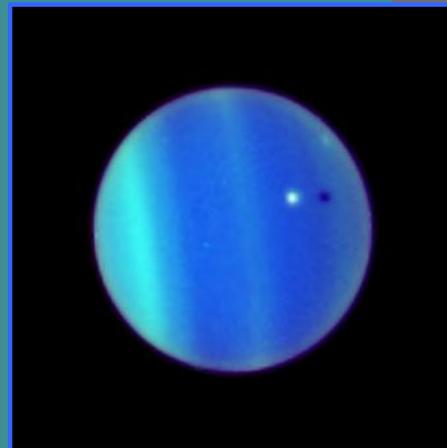
Interestingly, though, the Alpha-2 pair is near the ecliptic and can be occulted by the moon. You'd see it disappear in two steps.. fully bright, half bright, gone. You'd see it re-appear the same way. If this opportunity comes along it'd be a nifty observation to make.

The fainter star is of the class F with a temperature of about 6700 Kelvin; the brighter is of the class A at a temperature of 8500 Kelvin. It's unlikely that you'd see a color difference in the stars. They should both look white to the eye.

Check this star system out early in the evening. By mid August it sets around 11:30 p.m.

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## *Just Looking... from page 10*

Clayton: Do you have any helpful advice to pass on to observers just starting out in astronomy? How about getting started in paleontology?

Pete: Let me focus on paleontology, as there are many in HAS who would be better with newcomers to astronomy. Paleontology is a field that well directed amateurs can and have made major contributions. There really aren't that many degreed paleontologists around involved in field studies, and I have encountered some who can barely find their way out of their academic settings, let alone actually find bone in the field. Amateurs on organized explorations find the really big time fossils. It is fun and very rewarding. Before you know it, you'll be picking up fossils (carefully, please), and if you show interest and are willing to invest your time to the science, you may be invited to participate on levels normally reserved for graduate students.

Clayton: Is there an email address that you use that one of

our members could contact you for an additional question or two?

Pete: Sure, the address is [panolan@windstream.net](mailto:panolan@windstream.net).

Clayton: Thanks Pete for taking the time to share your interest and thoughts with us for our monthly HAS newsletter, "The Guide Star". We wish you luck with all of your astronomy interests. Please keep visiting our society more often...we miss you and Tess. Clear skies, always...

# Death of a Supergiant



By all outward appearances, the red supergiant appeared normal. But below the surface, hidden from probing eyes, its core had already collapsed into an ultra-dense neutron star, sending a shock wave racing outward from the star's center at around 50 million kilometers per hour.

The shock wave superheated the plasma in its path to almost a million degrees Kelvin, causing the star to emit high-energy ultraviolet (UV) radiation. About six hours later, the shock wave reached the star's surface, causing it to explode in a Type IIP supernova named SNLS-04D2dc.

Long before the explosion's visible light was detected by telescopes on Earth, NASA's Galaxy Evolution Explorer (GALEX) space telescope captured the earlier pulse of UV light — scientists' first glimpse of a star entering its death throes.

"This UV light has traveled through the star at the moment of its death but before it was blown apart," explains Kevin Schawinski, the University of Oxford astrophysicist who led the observation. "So this light encodes some information about the state of the star the moment it died."

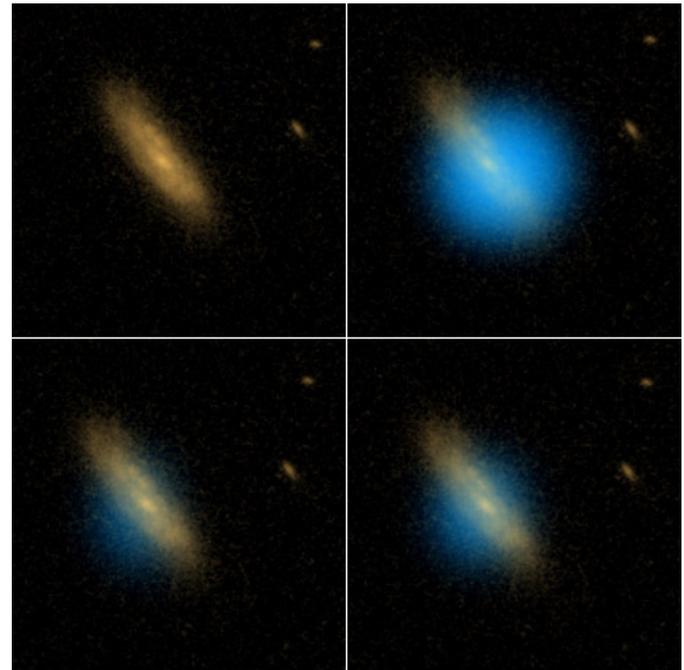
And that's exactly why astronomers are so excited. Observing the beautiful nebula left behind by a supernova doesn't reveal much about what the star was like before it exploded; most of the evidence has been obliterated. Information encoded in these UV "pre-flashes" could offer scientists an unprecedented window into the innards of stars on the verge of exploding.

In this case, Schawinski and his colleagues calculated that just before its death, the star was 500 to 1000 times larger in diameter than our sun, confirming that the star was in fact a red supergiant. "We've been able to tell you the size of a star that died in a galaxy several billion light-years away," Schawinski marvels.

"GALEX has played a very important role in actually seeing this for a few reasons," Schawinski says. First, GALEX is a space telescope, so it can see far-UV light that's blocked by Earth's atmosphere.

Also, GALEX is designed to take a broad view of the sky. Its relatively small 20-inch primary mirror gives it a wide, 1.2-degree field of view, making it more likely to catch the UV flash preceding a supernova.

With these advantages, GALEX is uniquely equipped to catch a supernova before it explodes. "Just when we like to see it," Schawinski says.



*Sequence of images shows supernova start to finish. The top left image shows the galaxy before the supernova. At top right, the bright UV flash called the shock breakout indicates a red supergiant has collapsed. At bottom left, moments later, the flash is mostly gone. As the debris expands, it heats up again and becomes brighter (bottom right). The supernova became 10 times the size of the original over the following few days, thus becoming visible to supernova hunters.*

For more information, visit [www.galex.caltech.edu](http://www.galex.caltech.edu), "Ultraviolet Gives View Inside Real 'Death Star'." Kids can check out how to make a mobile of glittering galaxies at [spaceplace.nasa.gov/en/kids/galex\\_make1.shtml](http://spaceplace.nasa.gov/en/kids/galex_make1.shtml).

*This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration*

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***Minutes***  
***of the July, 2008 Meeting of the***

***Houston Astronomical Society***

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The July, 2008 meeting of the Houston Astronomical Society was called to order on July 11th at 8:01 p.m. by HAS Vice President, Ken Miller.

**Opening Announcements:**

- Ken Miller introduced himself and related that he would be presiding over the meeting as President Bill Leach had a death in the family.
- Ken welcomed everyone to the meeting, including two new members and four guests.

**Announcements:**

- Judy Dye related that 100 people had registered for the HAS Banquet set for the next evening, July 12th, at the Hilton Houston Southwest.
- Leland Dolan talked about what he was doing 50 years ago on July 11, 1958. He was attending an HAS meeting where he joined the club. The club President was Lee Myers and the speaker talked about the first U.S. satellite. At the closing of that meeting they showed a movie. Back then the meetings were in the old science building. It's still there, but the meeting room no longer exists. Shortly after joining the club, Leland bought his first scope, a 4"Newtonian for the whopping price of \$50.00. Congratulations to Leland for his 50 years of membership in HAS!!!!
- Judy Dye announced she had several IMAX DVDs to give away, made available to us in limited amounts by Rice University. Titles included It's about time, Lucy's Cradle, Amazing Astronomers of Antiquity, and Future Moon.
- Member Jason Zabcik announced that he had just attended the Grand Canyon Star Party. Jason had pictures for the club to see and was sporting his T-shirt from the Star Party.

**Program:**

- Art Ciampi introduced the featured speaker for the evening, former HAS President Don Pearce, who delivered his presentation entitled, "Comets: Their Origin and Fate." Upon the conclusion of this presentation, Don answered questions and received a gift of appreciation from the society.

**Closing Announcements:**

- Steve Sartor related that George Stradley was battling COPD respiratory issues. Steve stated that the issues are not heart-related, but George could not trek very far without become very weak. Steve encouraged members that know George to email him and wish him well.
- Ken Miller asked everyone to keep our thoughts with George and with Bill Leach his family.
- Ken pronounced the meeting adjourned at 9:14 p.m.

The HAS Secretary wishes to thank John Missavage who took the meeting notes from which these minutes were produced.

***Remember --***

All HAS memberships are due for renewal in January. Pay your 2008 dues now!! Our membership year now corresponds to the calendar year.

Mail your dues to the address on the last page of this *GuideStar* or bring your payment to the meeting.

### 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

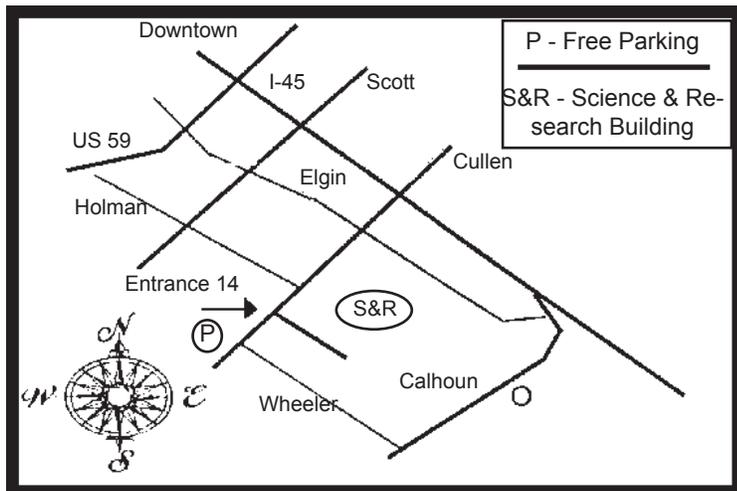
The Board of Directors Meeting is held on dates scheduled by the board at 7:00 p.m. at the University of St. Thomas. Information provided to GuideStar will be published. The meetings are open to all members of the Society in good standing. Attendance is encouraged.

### 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 interested 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](mailto: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.

Editing & Production: Bill Pellerin, 713-880-8061; FAX: 713-880-8850;  
Email: [BillPellerin@sbcglobal.net](mailto:BillPellerin@sbcglobal.net)

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## Houston Astronomical Society Meeting Meeting on August 1

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.***