

GuideStar



December, 2014

Volume 32, #12

At the December 5 Meeting

Vote on Bylaws, HAS Leaders!!!

Special Incentive:

Door prizes... but only if there's a quorum at the meeting

Your choice:

- **Baader Planetarium, Hyperion 72 degree Aspheric 2"/1.25" 31mm eyepiece**
- **TeleVue 2.5x Powermate 1-1/4 Inch Barlow Lens.**
- **Plus other prizes.**

Satellites of the Outer Planets

Justin McCollum, Professor Comet

Justin McCollum will give a talk on the satellites of the outer planets, part one. Come and see what is special about these distant, mysterious worlds.

The GuideStar is the winner of the 2012 Astronomical League Mabel Sterns Newsletter award.



The Houston Astronomical Society is a member of the Astronomical League.

Highlights:

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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.

All meetings are at the University of Houston Science and Research building. See the last page for directions to the location.

Novice meeting: 7:00 p.m.

Spin Cast Mirror Lab — Bill Spizzirri

General meeting: 8:00 p.m

Bylaws / Election / Justin McCollum — satellites of the outer planets

See last page for directions 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

President: Bill Pellerin C:713-598-8543
 Vice Pres: Rene Gedaly
 Secretary: Bill Flanagan
 Treasurer: Don Selle

Directors at Large

Ash Alashqar
 Mark Holdsworth H:713-478-4109
 Bram Weisman
 John Haynes H:802-363-8123
 Brian Cudnik H:832-912-1244

Committee Chairpersons

Observatory Mike Edstrom
 Audit Scott Mitchell H:281-293-7818
 Education Debbie Moran
 Field Tr./Obsg Steve Fast 713-898-2188
 Novice Debbie Moran
 Program Brian Cudnik H:832-912-1244
 Publicity Bram Weisman
 Telescope Allen Wilkerson
 Welcoming Vacant
 Membership Steve Fast 713-898-2188

Ad-Hoc Committee Chairpersons

Texas Star Party ... Steve Goldberg H:713-721-5077
 AL Coordinator Doug McCormick
 GuideStar Bill Pellerin C:713-598-8543
 Outreach Bram Weisman
 Webmaster Jeffery McLaughlin
 Email: webmaster@astronomyhouston.org
 By-Laws Review ... Scott Mitchell H:281-293-7818
 Urban Observing .. Bram Weisman
 Audio/Visual Michael Rapp
 Video Rob Morehead
 Steve Goldberg Recognition

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
 Associate\$6
 Sustaining\$50
 Student\$12
 Honorary N/C

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*. *The GuideStar*, the monthly publication of the Houston Astronomical Society is available on the web site. 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 last page 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. You can also join (or renew at the organization web site, www.astronomyhouston.org).

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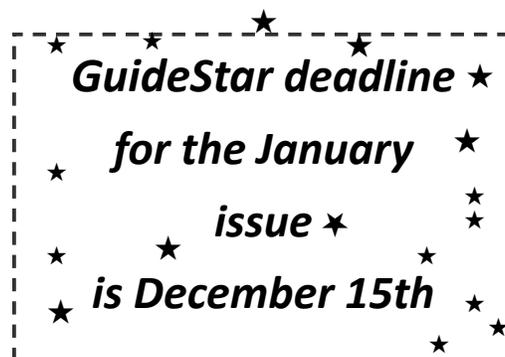
Other Meetings...

Johnson Space Center Astronomical Society meets in the the Lunar and Planetary Institute on the 2nd Friday of each month. Web site: www.jscas.net

Fort Bend Astronomy Club meets the third Friday of the month at 8:00 p.m. at the Houston Community College Southwest Campus in Stafford, Texas http://www.fbac.org/club_meetings.htm. Novice meeting begins at 7:00 p.m., regular meeting begins at 8:00 p.m. Website: <http://www.fbac.org>

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

Brazosport Astronomy Club meets the third Tuesday of each month at the Brazosport planetarium at 7:45 p.m. The Brazosport planetarium is located at 400 College Boulevard, Clute, TX, 77531. For more information call 979-265-3376



President's Message

by Bill Pellerin, President

Annual Meeting on December 5

The 2014 'Annual Meeting' of the Houston Astronomical Society will take place on December 5, 2014 at the University of Houston main campus.

We will be voting on bylaws revisions and on officers, board members, and committee leaders for 2015. To be able to vote at this meeting we will need to have at least 73 members present to meet the requirement of the bylaws that 15% of eligible voting members constitutes a quorum.

To encourage you to come to the meeting the board voted to offer door prizes and special refreshments for the meeting.

Bylaws revisions— (third) notice of vote!!

The current and the proposed bylaws documents are available on the HAS web site (www.astronomyhouston.org). Please review these and be prepared to vote on their adoption at the December meeting.

Thank you to everyone who served the HAS in 2014

A large group of dedicated people took the time to serve the members of the HAS in 2014. Without these people the HAS wouldn't work and it wouldn't be the great organization of almost 500 members that it is today. Thank you!

Rene Gedaly—Vice President — In addition to her responsibilities to take over the meetings in the absence of the president, Rene was in charge of the nominating committee for 2015, worked on the Founder's Day Event in March, took an active role in the bylaws revisions that are being presented this month, and was an active participant in board meetings.

Bill Flanagan — Secretary — Bill has served the membership in various roles for several years, notably as Treasurer. This year he stepped in as Secretary and has done an excellent job documenting the board and regular meetings of the HAS. Bill also worked on the bylaws revisions and participated in many outreach events.

Don Selle — Treasurer — The treasurer works behind the scenes to make sure that our budget is in order and that all income and expenses are accounted for. He takes the time to explain the financial situation of the organization to the board and to financial neophytes like me. He has developed and presented budgets for 2014 and 2015 to the board. Don has also written several excellent articles for the *GuideStar* newsletter. And, with all that, Don was the chef for the Founders Day event lunch (excellent spaghetti and sauce).

Ash Alashqar, Mark Holdsworth, Bram Weisman, John Haynes, and

Brian Cudnik — Board Members— have served the organization as board members in 2014 and have helped the executive team and committee leaders guide the organization as it worked through many operational issues in 2014.

Mike Edstrom — Observatory Chair — Started 2013 as the Vice President and was obliged to take over and lead some general meetings when I was unable to do so. When Bob Rogers passed away, Mike moved to the chair of the Observatory Committee. In that role Mike has continued with some of the initiatives begun by Bob and has initiated new site services for the membership. The observatory site is a better place thanks to Mike and his team.

Scott Mitchell—Advisor—worked on numerous legal issues and advised the officers and board members. He also reestablished our tax exempt status with Colorado County, saving the HAS a significant tax payment. He also worked on the bylaws revisions.

Debbie Moran—Novice and Education—has done an outstanding job as novice and education chairs. She has worked to make sure that the monthly novice programs are meeting the needs of new observers. Debbie has also participated in many outreach events.

Brian Cudnik—Program—With help from Steve Goldberg, Brian has assured that we have interesting and informative presentations at our monthly meeting. We've all learned a lot from our presenters, and enjoyed the excellent programs.

Bram Weisman—Publicity—Bram has added to his many roles in the organization by taking on the role of publicizing the organization.

Allen Wilkerson—Telescope—One of our most successful programs in our loaner telescope program. Allen has done a great job

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managing and maintaining our inventory of equipment and making sure that it's available for members to use.

Steve Fast—Membership—Steve has taken on the role of encouraging potential members to join, keeping up with name badges, and maintaining membership information. With nearly 500 members it's a lot to keep up with.

Steve Goldberg—Texas Star Party liaison—keeps us informed about upcoming and recent Texas Star Party events. Beyond that he organized the Founder's Day Event in March (great event!), and has helped the organization with audio/visual systems and in many, many ways.

Amelia Goldberg—Astronomical League Coordinator—for many years, Amelia was our AL coordinator and did a great job keeping up with the awards issued. She has also jumped in to help with the Founder's Day Event and with many outreach events.

Doug McCormick—Astronomical League Coordinator— assures that all the AL Observing Program certificates are applied for and handed out to deserving recipients. He also writes the monthly calendar for the *GuideStar*.

Bram Weisman—Outreach— Responds to requests for and schedules outreach programs in the community. He manages HAS account on the NASA Night Sky Network.

Jeffrey McLaughlin—Webmaster—Our astronomyhouston.org website was recognized in 2012 as the best astronomy club web site in the world by the Astronomical League. Jeffrey's efforts at establishing and enhancing the services provided by the web site has been instrumental in the growth of the HAS membership.

Bram Weisman—Urban observing—Kudos to Bram for picking up the

ball on the Urban Observing program.

Michael Rapp—Audio/Visual—Michael works on setting up and taking down the audio/visual equipment at the meetings and uses his expertise in all things related to computers to assure that the technology required to support a meeting is always working.

Video—Rob Morehead—Rob championed the idea of recording meetings with the HAS board and ultimately established a process whereby members can catch up on meetings they might have missed by watching the video online. This has been a well-received service by the members. We anticipate other videos, including site training, will appear on the website in 2015.

Recognition—Steve Goldberg—As part of the Founder's Day Event at the HAS Observatory Steve worked to create and acquire commemorative plaques and markers for the HAS observatory site. These are now permanently installed at the site.

Clayton Jeter—Writer for *GuideStar*—Clayton has written almost one hundred interview articles for the *GuideStar*. At least one of these has appeared in the Astronomical League magazine, and all of these have been enjoyed by the HAS membership.

Novice Presentation—December, 2014

Spin Cast Mirror Lab—

By Debbie Moran

For the December meeting we once again have the delightful Bill Spizzirri back from Chicago who will recount his visit to the Spin Cast Mirror Lab at the University of Arizona. This lab revolutionized mirror design for today's professional telescopes, fashioning them out of spun molten glass instead of grinding them as had been done in the past.

In January we will get back to nuts and bolts when I will give a talk about the Winter Sky for 2015. Some of the most spectacular ob-

jects to be seen in a small telescope are up in the winter. We will also cover the types of objects that can be seen and how they relate to a star's life cycle.

Summary of Proposed Bylaws Changes

TABLE 1. SUBSTANTIVE CHANGES

| <i>Article</i> | <i>Section</i> | <i>Item</i> | <i>Proposed change</i> |
|--|------------------------------------|-------------|---|
| Article IV: MEMBERS | S2: DUES | 1, 2 | Deadline for dues is March 31 – lose membership benefits afterwards -- reinstatement |
| | | 3 | Clarify that dues are prorated for new members (only) Remove redundant wording |
| | S3: VOTING PRIVILEGES | | |
| | S4: MEETINGS | 2 | Add ability to change the month of the Annual Meeting |
| | S5: NOTICE OF MEETINGS | | Update definition about how meeting notices are delivered |
| Article V: OF- FICERS | S6: QUORUM AND VOTING | | Change the level of membership attendance required to establish a quorum from 15% to 10% |
| | | | List the meetings that require a quorum to vote |
| | | | Specify when Secretary must keep minutes |
| Article VI. COMMITTEES | S5: DUTIES OF OFFICERS | 3 | |
| | | 1(h) | Rename Education Committee the Education & Outreach Committee |
| | | 1(i) | |
| | | 1(i) | Dissolve Welcoming Committee |
| | | 2(d) | Create Membership Committee |
| | S1: STANDING COMMITTEES | 4(h) | |
| | | 4(i) | Remove requirement to present committee reports at Annual Meeting Define function of Education & Outreach Committee Define function of Membership Committee |
| Article VII. BOARD OF DI- RECTORS | S3: NOMINAT- ING COMMIT- TEE | 3 | Add directors to list of nominated positions |
| | | | |
| Article XI. METHOD OF ELECTION Provisos | S2: ELECTION OF DIRECTORS | 4 | New item. Clarify that the election of the board is held at the Annual Meeting |
| | | 1-4 | Reorder items into sequence: Qualifications, Nominations, Vacancies, Election |
| Article XI. METHOD OF ELECTION Provisos | S2: METHOD | 2 | Change the number of members required to tally votes |
| | | | Remove the proviso section at the end of the Bylaws. It refers to the conversion and prorating of dues for sustaining members during 1997, and carries forward to this day if not removed |

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TABLE 2. CHANGES TO MAKE BYLAWS EASIER TO READ

| <i>Proposed change</i> | <i>Example</i> |
|--|--|
| Use the same terms | Is it bylaws or By-Laws or Bylaws? Standard terms are defined in the <i>Bylaws Style Guide</i> |
| Use parallel structure and phrasing | Many astronomers are also excellent communicators. And use good grammar |
| Use the present tense of verbs forms throughout the bylaws | <i>See above</i> |
| Use consistent punctuation and formatting | Punctuation conventions are defined in the <i>Bylaws Style Guide</i> |

Pin down what “shall” means by replacing it with another choice:

| | | |
|---|---|---|
| The Board of Directors shall meet at least once each quarter... | Must they? Yes | The Board of Directors must meet at least once each quarter... |
| Meetings shall also be called upon written request of three (3) members... | Must they? No, but they can if they want to | Meetings may also be called upon written request of three (3) members... |
| The name of this corporation shall be HOUSTON ASTRONOMICAL SOCIETY | 21 st century? No, and stop shouting | The name of this corporation is the Houston Astronomical Society. |

December/January

Calendar



Date Time Event

December

| | | |
|----|------------|-----------------------------|
| 5 | 7:00 p.m. | HAS Novice Meeting, U of H |
| | 8:00 p.m. | HAS General Meeting, U of H |
| 6 | 6:26 a.m. | Full Moon |
| 13 | | Geminid meteors peak |
| 14 | 6:53 a.m. | Last Quarter Moon |
| 20 | | Prime Night, Columbus Site |
| 21 | 5:03 p.m. | Winter Solstice |
| | 7:35 p.m. | New Moon |
| 22 | | Ursid meteors peak |
| 25 | | Christmas Day |
| 28 | 12:32 p.m. | First Quarter Moon |

January, 2015

| | | |
|----|------------|-----------------------------|
| 4 | 10:54 p.m. | Full Moon |
| 9 | 7:00 p.m. | HAS Novice Meeting, U of H |
| | 8:00 p.m. | HAS General Meeting, U of H |
| 13 | 3:49 a.m. | Last Quarter Moon |
| 17 | | Prime Night, Columbus Site |
| 20 | 7:15 a.m. | New Moon |
| 26 | 10:50 p.m. | First Quarter Moon |

Send calendar events to Doug McCormick - skygazer10@sbcglobal.net

For the latest information on club events, go to <http://www.astronomyhouston.org/>

HAS Board Meeting

HAS Board meetings are scheduled regularly (see the calendar, above). All members are invited to attend these meetings, but only board members can vote on issues brought before the board.

Meetings are held at the Houston Arboretum at 7:00 p.m. on the date specified.



Follow the *GuideStar* on Twitter at:

GuideStar_HAS

Join Facebook and look for:

Houston Astronomical Society

Starline

Call 832-go4-HASO (832-464-4270) for the latest information on the meeting and other information about activities within the HAS.

Event Notification or Cancellation

HAS uses RAINEDOUT.NET to communicate late breaking updates about our various events. . Message delivery is via text messaging and e-mail. There are several ways to subscribe. If you would like to receive these notices via text messaging directly to your phone, subscribe to any of the sub-groups which interest you as follows:

To receive text messages, send any or all of the following (one at a time) to **84483**

You will receive a confirmation message back for each successful enrollment.

| <i>Text Message</i> | <i>Alerts about...</i> |
|----------------------------|--|
| OUTREACH | Public Outreach Events |
| STARPARTY | Members Only Star Parties (HAS observing site) |
| URBAN | Urban Observing Events |
| MEETINGS | HAS Meetings |

You may also enroll your phone numbers or individual e-mail addresses via the website:

Here's a shortened link to get you there: <http://goo.gl/evrGsR>

For more information, please visit www.RainedOut.net.

RainedOut notices will also automatically be sent to our e-mail list. Note that regular e-mail list conversations are not part of RainedOut communications and will not be sent to your phone as part of this service. Instructions to sign up for the e-mail list (a great way to keep your finger on the pulse of the club) are found here:

<http://www.astronomyhouston.org/about/email-list>.



Observations... of the editor

by Bill Pellerin, GuideStar Editor

Persistence and time —

Sometimes, when I do a public star party I'm asked something like, "How do you know your way around in the sky?" My answer, not meant to be flippant, is, "How do you know your way home?" The answer in both cases is that we know these things because we have experience that teaches us. You wouldn't expect to move to a new large city and know your way around immediately. You'd probably get a map and after some period of time you'd know your way around town well enough to get by.

The same is true of finding your way around the sky. You learn your way by getting a map, studying the map, and studying the sky. You have to be persistent and you have to devote the time that's required.

In the case of finding your way around a city, it's a necessity; in the case of finding your way around the sky, it's a luxury.

The same is true when it comes to learning how to operate a telescope, or a computer, or a computer controlled telescope. At first, any telescope can be bewildering. Good instructions help, but the key requirement is to keep at it. Figure it out. You and I probably have to use something like this a dozen times or more in order to get comfortable with its operation.

I spent many years working in Information Technology (computers), but I was learning something new every day. Was I an expert? I don't think so, I think I was simply persistent enough to figure out how something is supposed to work and to make it work.

The process can be frustrating. I know. I have spent hours trying to fix problems that were the result of my failure to understand and carefully follow the instructions associated with the device. Many of us actually enjoy this process, but some don't and give up before the problem is solved. By doing so, they lose the opportunity to understand what the problem was and how it was fixed. Often, problems are due to carelessness or a failure to carefully read and understand instructions before moving forward.

Mentoring

In the context of the above item (and mentioned by Mike Rao in his interview, this issue), there has been some discussion in the HAS recently about mentoring activities within the organization. There are many ways to do this but one that many of us like is the Urban Observing program. These events represent an opportunity for new or prospective observers to get out under the stars and become acquainted with how telescopes are set up and how they work. The leadership team is very interested in making this

program available on a regular basis, perhaps monthly. If you'd like to help with any of these events in 2015, let the leadership team and Bram Weisman know.

Happy Holidays...

By the time you read this we'll likely be into the holiday season. Not all of us celebrate the same holidays, but we can all look on these as an opportunity to connect with friends and family and to get a respite from our day to day activities.

All the best of the holidays to you and yours.

Until next time...

clear skies and new moons!

..Bill

Observatory Corner

By Mike Edstrom, Observatory Director



There are some improvements that have been made at the Dark Site. We have added some parking for visitors and additional trailers. Two new permanent trailer rental sites and one weekend or short term trailer site has been added on the North road. The new rental spots have already been rented by individuals who were on a waiting list and this will help cover the cost of performing the ground work, and installing the power and water. The weekend or short term (no more than 3 days) trailer site will accommodate up to a 30' trailer and has water and a 110 volt 30 amp outlet please contact me at medst22531@msn.com to reserve this site. I plan on putting a calendar on the HAS website shortly for Dark Site usage so everyone can tell what is reserved in the Observatory and the trailer site. Anyone interested in a Private Observatory site should come out to the site and see what is being built. Also please let me know if you are interested in a site so I can put you on a "wait" list for new sites and trailer spaces.

We are coming into peak observing time of the year with the first cool front now is the time to take advantage of HAS's most valued asset the Dark Site. Please remember to fill out your observing log and put it in the center box on the observing field.

As you visit the Dark Site we invite you to make suggestions as to improvements you would like to see please put the on the log sheets.

As a safety reminder please read the sign posted on the side of the metal building at the Dark Site which has directions to the hospital and contact information for the sheriff's department it also has the address to the site in case of a medical emergency.

And the Work Goes On

I **need** to remind everyone that we need to start filling out Log Reports at the site so I can give this information to the Fondren Foundation. The property is on a 99 year lease and part of the Lease agreement is that HAS needs to report every year to the Fondren Foundation that the property is being used. The Log Reports are located in the box in the middle of the field. Just open the cover, fill out the report and then slide it into the slot that is in the inside of the cover and then close the box. It is very important that everyone fill out a Log Report so that we are showing that the Observing site is being used. Your help on this is very much appreciated.

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% of the gross sales that member spends at Randalls. Randalls totals up the amount spent each quarter and will send us a check if the amount goes over \$2,500, otherwise the total roles over to the next quarter of 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. This is very easy to do, just go to the Courtesy Booth and tell the person there what you want to do.

Mike Edstrom

medst22531@msn.com

hasobschair@astronomyhouston.org

Just Looking

A GuideStar Interview by Clayton L. Jeter

Mike Rao—Joke Writer



Astronomy can be a very serious science...but our own HAS member, Mike Rao changes all that. Mike is an avid amateur astronomer both visual/formerly astrophotography, but he adds his own humor to it all. When not peering into his Schmidt Cassegrain, he's entertaining as a genuine stand-up comedian!

As usual, Mike has lots and lots to say...let's see what makes him tick. Here's Mike...

The Mike Rao mini bio...

Stats/Person:

55 Years Old - Married (Bonnie Jean)
34 years (in a row!).

3 Children, 3 Grand-Children (4 after Dec 30th).

Education AOS Computer Science / AS Accounting: Bryant and Stratton Business Institute 1982 - Deans List, 3rd in my class.

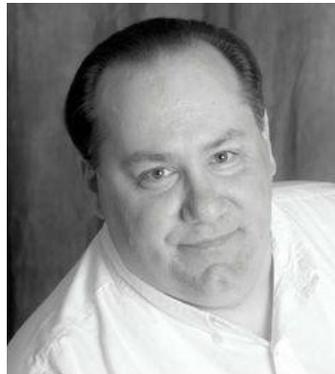
Lived in Syracuse, NY until 2009 - moved to Houston.

Personal...

- 1st Generation American on my Father's side (Sicilian).
- Have only one grandparent born in US.
- US roots go back a maximum of 2 generations - no great grandparents born in the US.

Other Hobbies...

- Italian food (look at me!).
- Comedy Writing/Performing.
- Art/Music.
- Karate - Black Belt.
- HUGE Baseball Fan (never played).
- Other Competitive Sports (all in the past).
- Football.
- Boxing.
- BasketBall.
- Weightlifting.
- Track and Field.
- Community.



The Mike Rao glamour photo shot !

- 2 term president of Liverpool, NY Optimus Club.
- POP Warner Football Coach.
- Youth basketball Coach.
- HS Basketball Coach.

Board of Directors - (sample):

- Liverpool Optimus Club.
- NYS and US Golden Gloves Boxing.
- HAS (of course).

Languages - Italian, English. -- Italian proficiency is proportional to exposure - I don't speak it all the time any longer so, when I'm immersed, comes back quickly.

Formally Started my Computer Business @ 17 while still in HS. (informally @14-15yrs old) - Eventually company became "Rent A Nerd" --

- Focus on Computer Software Development.
- Major Vertical Markets.
- Point of Sale - building materials.
- Construction - Residential and Commercial.
- Energy. (Why I now live in Houston)
- Medical.

Some Professional Achievements:

- Microsoft Certified Business Partner Since Inception of the Program.
- Published Software as a teenager and collected royalties.
- Built a 40 column display terminal emulator for the VIC 20 - did the same for the C64 -- 40 to 80 columns.
- Pool Water chemical analysis software distributed to pool stores by chemical company - I've updated to newer O/S over the years -- still in use today (40 years later!).

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- Regularly appeared in/on both local and national Publications, Radio and TV - discussing technology.
- Also had own syndicated Radio Program - "Majorgeeks Radio Hour".

Entertainment:

- Professional Joke Writer since HS. (This means I get paid to write jokes).
- Rebooted stand up - acting career 13 years ago. --
- Voiced numerous radio and TV commercials.
- Dinner theater actor (before I moved to Texas).

Performed stand up all over the US as well as in Mexico, Canada and the UK, including:

- Del Coronado Resort - San Diego.
- Broadmoor Resort - Colorado Springs.
- Tulalip Casino/Resort - Marysville WA.
- Turning Stone Casino/Resort, Oneida, NY
- Legendary Cine El Rey - McAllen, TX
- Hidalgo Mexico
- Clubs - Improv, Comedy Store (La Joya), Checkers, Funny Bone, Captain Ron's (Marco Island, FL).

Astronomy:

- Started seriously at 12 - (4" Refractor). -- Inspired by an older cousin to love science and eventually get into computer science.
- Progression of scopes -- 8"SCT, 10" SCT, 8"SCT, 9.25" SCT, 11"SCT Alt/Az, 11"SCT EQ (Current)
- Minor 2ndary scopes along the way -- Currently C6-R with custom mount, 3" Bausch and Lomb EQ (used for light travel), and 11" SCT EQ with CGE mount to be housed in my Columbus observatory.
- Observing -
- Became more than a casual visual observer of the northern skies at about 13-14 when we moved to the countryside of up-state NY.
- Got seriously involved in astrophotography about 20 years ago - got out of it after moving to Houston - (Sold some of my stuff to you as I recall).
- Astrophotography can be an all-time-consuming hobby - only get into it if you want to forget about anything else in your life (kidding but, that's why I had to quit).
- Belonged to the Syracuse Astronomical Society.
- Joined HAS right after moving here -
- Enjoy outreach the most.
- Enjoyed contributing my time to the club until - career and health got in the way but, 2015 - watch out.
- First really large group of Astronomers I have been associated

with - Enjoy the club greatly.

- Biggest regret is not being able to follow through on the re-boot of urban observing.
- Currently planning group observing trip to Peru next summer (Winter in Peru) - Would love to get as many involved as possible - open up to all clubs in the area.

The Mike Rao interview...

Clayton: Great Bio Mike....what a kick off.

But it seems you forgot to include your Great Grandmother's maiden name! And, you never mentioned your favorite salad dressing. What's up with that?

Great to have this interview session with you. I've waited a long time for this one.

Here we go...

Clayton: As a youngster, what clicked to get you into looking up into the night skies? Got a favorite object?

Mike: [WE LANDED ON A COMET!!!!](#) – Ok – just had to get that out of my system.

The first object I found on my own was M13. I was out looking at nothing in particular, perhaps Saturn, and scanned the skies in the west and noticed a fuzzy spot – pointed my scope at it and, well, WOW!

It took me several days to figure out what I was looking at – Google was called the Library back then.

It's that point where every astronomer learns how many deep space objects there are to observe and, I guess, because of my initial process of discovery, I was hooked.

Clayton: How would you like to see your own astronomy grow?

Mike: Like everyone, I would like receive a large grant to purchase all the equipment I ever wanted.

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(Continued from page 11)

Seriously, my goals are much more modest:

Short term, build my sky shed and build up my campsite out at the dark site.

With this base of operations in place, I'd like to visually observe as much as I can – probably start by going through the Messier objects again, then participate in observing programs.

Astronomy travel is a longer term goal – when I retire.

I'm planning on going to Peru next summer – Would like to get a group organized for an observing and archaeological trip. Anyone who's interested – reach out please!

I'll probably stay away from astrophotography – I had to give it up when I started missing work, sleep, and bathing (yuk!). It can be an all-consuming hobby if you're not disciplined.

Clayton: Isn't your son somewhat into this hobby? Do you guys observe together?

Mike: My youngest son, Andrew, has enjoyed helping out with outreach at schools and at the George where we would volunteer from time to time.

He's also accompanied me to the Florida Keys for the Winter Star Party.

I think that had more to do with the Florida Keys than it did the stars. Still, it is very rewarding to share your hobby with your family.

Clayton: I understand your planning to build a personal observatory out at our dark site. Tell us all about it.

Mike: I think you asked that already.....Clayton? - Hey – wake up!

Clayton: What type of observing/photo are you planning from your new observatory?

Mike: Ok – You won't give up on this.

Here is what's planned to go inside the sky shed at the darksite:

The observatory will have a killer customized CGE mount with a dual saddle and GPS. Sitting atop the CGE will be a customized 11" OTA with built in ventilation fans and corrector plate heater with a Televue 2" diagonal and Televue Eyepieces. *(I have no idea what any of that means but, it sounds cool huh?)* .

I'm staying away from astrophotography. I like showers.

Clayton: How did you acquire such a nice setup?

Mike: "Grant" Money.

Clayton: Are you into star parties and public outreach?

Mike: Wow! You really did fall asleep for a minute didn't you?

Yep. Love it. I think, the best part about HAS is the true sense of community we have as a club and how we project that.

Sharing this hobby and inspiring others is very rewarding. Eve-

ryone has been inspired and motivated by someone else – I think we all have an obligation to pay that forward. Besides, it's a lot of fun!

Clayton: I suppose you're way past stage fright? Have you always had the ability to make people laugh? Where did the humor come from?

Mike: Stage Fright is a complex thing. I'm prepared but, every comic has their horror stories. I don't care how funny you think you are – performing in front of 20 people is a lot scarier than performing in front of 200 people. I can make 200 people laugh but 20, that's tricky.

I guess comedy, for me, started in high school. I was attracted to the arts, music (*singing/trumpet*) and acting. I started writing jokes and doing standup as a teenager but, gave it up as real life crept in to take its place. I've always been funny, and never gave up the writing.

Later, at about age 38, I was encouraged to start again. Over the years since then, I've been fortunate enough to build something I do for fun into a nice little side-line. Since I've moved to Texas, I've had to start over with local work so, I perform far less and usually travel when I do perform. I miss it but, there are only so many days in a week.

Like all comics, my comedy comes from pain. I had an older brother. Do the math.

It's not really that dark but the myth about the source of comedy is true – if it weren't for my birth order, I doubt I would have ever gotten on stage.

Clayton: Tell us a bit about why you like the SCT design? I see in your Bio that you have never owned a 14" or larger Cassegrain. Think you might move up in the future?

Mike: I'll probably move up to a 16" SCT when I get more "grant" money.

I like the SCT design because of the overall size to aperture, eye piece placement

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and all my SCTs have been in the f/10 range. I like my scopes nice and slow (just like me).

Clayton: Tell us all about the Syracuse astronomy club that you were a member of?

Mike: Small club with a nice hilltop dark site: The Darling Hill Observatory. Primary Club Scope at the time I moved was a 16" f/6.

It's much like the HAS dark site except smaller, no bunkhouse and on the best observing nights you have to shovel the snow off your pad!

Clayton: I'll ask, ready to fly to the moon? And don't be serious!

Mike: You're setting me up to be funny? How nice. Hmm, such a difficult question.

Sure. I'd love to go into space but, think about it, I'm a fat guy.

I can't get Southwest Airlines to fly me to Atlanta because of my fat A**.

How am I going to convince NASA to send me all the way into space?

They would have to sew 2 space suits together.

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

Mike: I think about this a lot. Just about everyone tries out our hobby right? That's not typical of most hobbies so, why aren't there more serious amateur astronomers?

I've found that getting over the initial learning curve and understanding what to expect out of astronomy is what will keep most people engaged, at least to some extent in this great hobby.

Join a club and use their resources (*seriously*). Don't start out by shopping for equipment. Learn the basics of the sky – how the stars and planets move, the zodiacal constellations as well as the

other brighter constellations. When you first start out, go out observing often and with a plan, (and with others if possible). A plan leads to success. Success leads to persistence.

Clayton: Is there an email address that you have that another Houston Astronomical Society member could contact you for an additional question or two?

Mike: Sure – For the Peru trip, “grant” money or the joke of the day, you can e-mail me at mike.rao@optimus-us.com.

Clayton: Thanks Mike for taking the time to share your interest and thoughts within our HAS newsletter, the *GuideStar*. We wish you luck with all of your astronomy interests. Hope to see you at our Columbus dark site soon. This interview has been a total hoot!

Mike: Thanks for being a good sport Clayton. I enjoyed it tremendously – especially your “total hoot” joke at the end. Classic.

Clayton: Clear skies always...

Clayton is an avid SCT visual observer and a longtime member of the Houston Astronomical Society. Contact him at: stonebloke@gmail.com

Kids Outreach & Public Star Parties

Bram Weisman — coordinator for Outreach and Public Star Parties

Houston Arboretum - Geminid Meteors

Geminid Meteor Star Party - Hosted by the Houston Arboretum. We hope to catch a few bright Geminid meteors from the meadow and the Houston Arboretum. We will also be able to show our guests some of the brighter deep sky objects from our location in the city. The Arboretum will be providing refreshments for our volunteers.

Date: Saturday, 12/13/2014

Time: 8:30 PM - 11:00 PM

Location: Houston Arboretum, 4501 Woodway Drive, Houston, TX 77016

When Will Betelgeuse Explode?

By Phil Plait, *Bad Astronomy*, http://www.slate.com/authors/phil_plait.html

If there's one star in the sky people know about, it's Betelgeuse*.

Marking the right shoulder of the hunter Orion — remember, he's facing us, so it's on our left — this orange-red star is one of the brightest in the night sky. It's been studied for as long as we've had telescopes, yet for all our advanced technology and



Betelgeuse! Betelgeuse! Betelgeuse!

Photo by ESO/L. Calçada

knowhow, details about it are maddeningly vague. We don't even have a good determination of how far away it is!

Still, there's a lot

we *do* know:

It's a red supergiant, a star that start-

ed out life already a lot bigger, more massive, and far more luminous than the Sun. Stars like that go through their nuclear fuel extremely rapidly; while the Sun is only approaching middle age at 4.5 billion years old, Betelgeuse is dying now at an age of less than 10 million years old. And when it does finally give up the ghost, it'll do so with a bang. A very, very big bang: It'll go supernova, one of nature's most dramatic and ridiculously violent events.

But *when*? A lot's been written about that. If you believe pseudo-scientists and crackpots, you might have thought 2012 was our last chance to see it. Sometimes the news spreads that it'll go any day now. Somehow, oddly, despite all that nonsense you can still see Betelgeuse shining in the sky.

However, the thing is, it really *will* explode one day. We don't really know when, exactly, which is why I usually hedge my bet by saying it could be tonight, but more likely it'll be hundreds of thousands of years from now... a million years, tops.

As a scientist, that date range is a little bothersome. That's why I was delighted to read a research paper trying to nail down this very fact. While it's still a bit iffy, and details are still elusive, the astronomers who did the research were able to make a much more refined prediction: Betelgeuse will go boom in about 100,000 years.

Wow. That's sooner than I would have thought. It's still a long

way off, of course, but in a galactic sense that's a blink of the eye.

This prediction depends on a lot of things, so the astronomers had to make determine many basic facts about the star as best they could (generally depending on the previous work of others). It's all pretty amazing, so let me list them out for you with brief comments:

Distance: Betelgeuse is likely to be about 200 parsecs (650 light years) away. Different methods yield different distances, which has been frustrating, but a recent paper gives what may be this best result.

Age: Models of the star's evolution over time yield an age estimate of about 8.5 million years. That's a bit older than I would have expected, but quite reasonable. Compare that to the Sun's age of 4.56 billion years, and you'll see why I say stars like Betelgeuse don't live long!

Mass: The best estimates of the mass of Betelgeuse give about 20 times that of the Sun (more or less). That's a lot; as you get more massive, stars get more rare, and only a handful get this hefty.

Radius: This is where we start getting into "yikes" territory: Betelgeuse is a staggering 890 (± 200) times wider than the Sun! Bear in mind the Sun is over 100 times wider than the Earth and you may realize what a behemoth this star is. That's a radius — a *radius* — of over 600 million kilometers! Replace the Sun with Betelgeuse, and it would stretch nearly to the orbit of Jupiter. The Earth would be engulfed.

Rotation: Stars tend to rotate slowly. When they expand, as Betelgeuse did long ago, they slow down (this is called conservation of angular momentum, like when an ice skater draws in his or her arms and spins more rapidly). Betelgeuse is huge, so unsurprisingly it spins very slowly, only once every 8.4 years. The Sun spins about once a month, for comparison.

Luminosity: Betelgeuse is *bright*. It shines with the energy of 125,000 times that of the Sun. Holy wow. That's why it can be hundreds of

(Continued on page 15)

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light years away and still be one of the brightest stars in the sky. At that distance, you'd need a telescope to see the Sun at all.

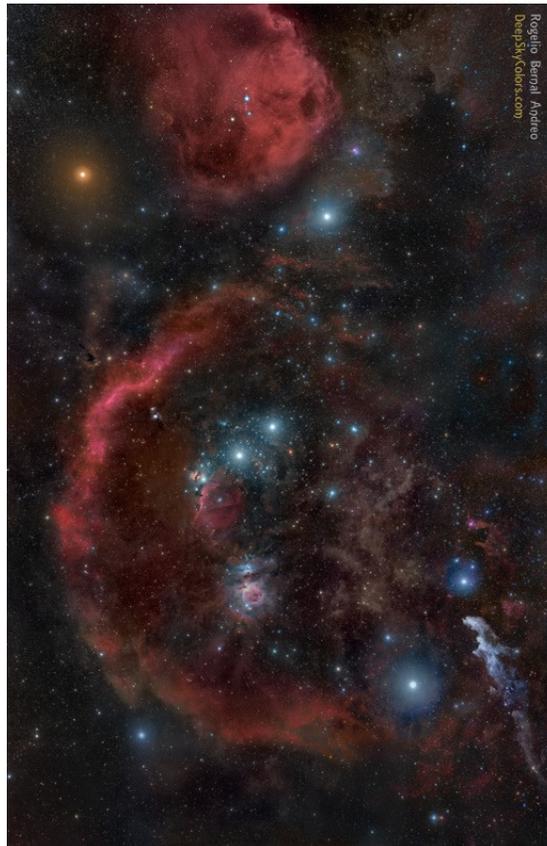
Mass loss: When massive stars use up the hydrogen fuel in their core, they start to fuse helium into carbon. This generates a lot of heat, which causes the outer parts of the star to expand (hot gases expand, after all). Betelgeuse is pretty bloated, which means gravity at its surface is pretty weak. The star is also incredibly luminous, so a gas molecule on its surface feels a strong outward force from the light, and only a weak force from gravity holding it down. The result: Betelgeuse blows a very strong wind of material away from it. It loses about a millionth of the mass of the Sun every year. That may not sound like much, but the Sun loses less than a trillionth of its mass every year. Betelgeuse blasts out *a million times as much* material as the Sun. That's not a solar wind. It's a gale.

The supernova: Using all these data, plus what we know about how stars evolve over time, the astronomers find that in about 100,000 years, Betelgeuse will run out of helium to fuse. The steps after that are a bit complicated, but essentially, it will begin to fuse ever-

heavier elements on ever-shortening time-scales, until it tries to fuse silicon into iron. This spells doom for the star, because it robs the star of the energy needed to support itself. The core collapses, heats up beyond imagining, and explodes. Ka-**BLAM!** No more Betelgeuse.

The aftermath: First, repeat after me: WE ARE IN NO DANGER, EVER, FROM BETELGEUSE.

At that distance, even the titanic detonation of a supergiant star poses no major threat. It'll be bright, as bright



A magnificent photograph of the constellation of Orion, with Betelgeuse glowing ruddily at the upper left. In my opinion, this is the best photo of Orion ever taken.

Photo by Andrea Dupree (Harvard-Smithsonian CfA), Ronald Gilliland (STScI), NASA and ESA

as the full Moon! But it's too far away to hurt us. Also? 100,000 years is a long time.

Mind you, it'll launch octillions of tons of matter into space in all directions at a decent fraction of the speed of light. But as it plows through the thin soup of stuff in space it'll slow down. The astronomers in the paper estimate the shock wave will take *six million years* to reach us, and will be moving at a mere 13 kilometers per second. It'll slam into the Sun's outgoing solar wind, and the two will wrestle, but the shock itself will stop well outside the Earth's orbit.

We're safe.

But holy cow, that'll be a show. But you'll have to wait a hundred millennia for the opening curtain.

I'm not that patient. Statistically speaking, a galaxy hosts a supernova every century or so. The Milky Way hasn't had one pop off for a long time, so we're bound to get one sooner or later that we can study. We may get a thousand or so before Betelgeuse finally loses it. Some will almost certainly even be closer than Betelgeuse is. Again, we're in no real danger from a nearby supernova, and it would be nice to see one at a relatively proximate distance. Oh, what we'd learn!

...but poor Orion. Once Betelgeuse goes, and fades away over a few months, he'll be missing his right shoulder. I wonder what myths we'll have to modify to accommodate for that?

Tip o' the neutrino detector to Tod Lauer.

** OK, fine, a lot of people know Polaris, too. And I guess, if you want to be picky, they've heard of the Sun as well. But still. Betelgeuse!*

This content distributed by the

AAVSO Writer's Bureau

Elected leadership positions for 2015: Two slates

Submitted by the 2014 Nominating Committee: Mike Edstrom, John Haynes, Jessica Kingsley, Debbie Moran, and Rene Gedaly, Chairperson

For the first time in HAS history, this year's slate of candidates for the following year may change. We, the nominating committee, enthusiastically support each of these candidates. But because the board of directors is hoping you, the membership, will vote to update the bylaws this year, the committees, and therefore nominees, may get shuffled.

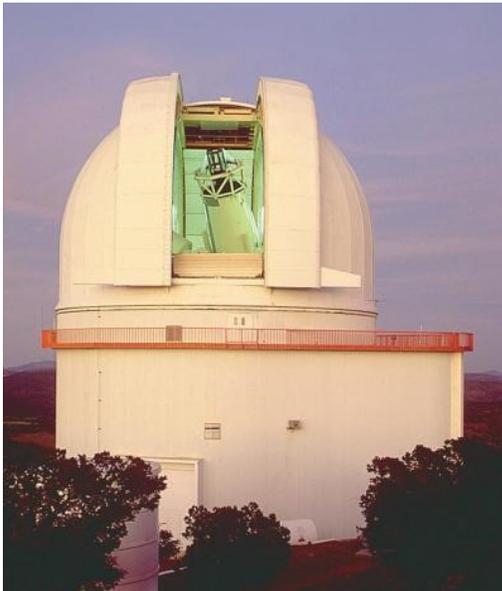
Below we present two slates of candidates for 2015. The first slate contains our nominees for the board and standing committees established under the current bylaws. The second contains the same candidates plus one, but in the positions that reflect updated bylaws.

If you vote down the proposed changes to the bylaws, the first slate goes into effect. If, however, you vote to approve changes to the bylaws that govern our society, you agree to create the Membership committee—promoted from an ad hoc to a standing committee, dissolve the Welcome committee, and create the new Education & Outreach committee—a combination of the standing Education and ad hoc Outreach committees. Board positions remain the same.

The Nominating Committee encourages all members to attend the next annual meeting. A quorum of 15 percent of the membership is required to both change the bylaws and vote in the 2015 leadership.

| <i>Nominations for 2015 Elected Leadership Positions</i> | | | |
|---|------------------|---|------------------|
| <i>1st Slate: Under current bylaws</i> | | <i>2nd slate: Under new bylaws</i> | |
| President | Rene Gedaly | President | Rene Gedaly |
| Vice President | John Haynes | Vice President | John Haynes |
| Secretary | Bill Flanagan | Secretary | Bill Flanagan |
| Treasurer | Don Selle | Treasurer | Don Selle |
| Director | Ash Alashqar | Director | Ash Alashqar |
| Director | Mark Holdsworth | Director | Mark Holdsworth |
| Director | Jessica Kingsley | Director | Jessica Kingsley |
| Director | Debbie Moran | Director | Debbie Moran |
| Director | Bram Weisman | Director | Bram Weisman |
| Telescope | Allen Wilkerson | Telescope | Allen Wilkerson |
| Field Trip & Observing | Stephen Jones | Field Trip & Observing | Stephen Jones |
| Program | Justin McCollum | Program | Justin McCollum |
| Publicity | Bram Weisman | Publicity | Bram Weisman |
| Novice | Debbie Moran | Novice | Debbie Moran |
| Audit | Scott Mitchell | Audit | Scott Mitchell |
| Observatory | Mike Edstrom | Observatory | Mike Edstrom |
| Education | Debbie Moran | * Education & Outreach | Bram Weisman |
| Welcoming | Vacant | * Membership | Steve Fast |
| | | <i>*New committee</i> | |

Viewing Night on the Harlan J. Smith 107-inch Telescope



The 2.7-meter (107-inch) Harlan J. Smith Telescope at the University of Texas McDonald Observatory. Photo by Marty Harris/McDonald Observatory

9 to 12 times each year, frequently near or around the full moon, the 107-inch Harlan J. Smith Telescope is opened for public viewing. In addition to views through the telescope, the professional astronomer using the telescope speaks about her/his research project and answers questions. A demonstration of spectroscopy (one of the many techniques used by research astronomers to learn about the universe) is given by the Visitors Center staff to offer the program partici-

pants a glimpse into how research is conducted at McDonald Observatory. Viewing Night on the 107" is typically an approximately 3 hour program from start to conclusion.

This program is not suitable for children under 10.

Scheduled dates for this program vary from month to month, and due to limited seating on the observing floor, early reservations are encouraged. The fee is \$96 per person. For programs after January 1st, 2015, the fee will drop to \$80. Dinner will NO LONGER be included with this program. (Fee subject to change w/o notice.)

Courtesy The University of Texas at Austin McDonald Observatory, publisher of StarDate magazine
<http://stardate.org/magazine>

Check the web site:
www.astronomyhouston.org

The HAS website not only has news and information about our society, but also a variety of features to manage your membership and connect with other club members. Current members can post photos, trade gear, pay dues, manage discount magazine subscriptions, swap stories in the forum, and more.

Questions about the site? Need a hand to get your account set up? Contact webmaster@astronomyhouston.org.

The HAS web site is the winner of the 2012 Astronomical League award for excellence.

Shallow Sky Object of the Month

Caph—Beta Cas—A Star in Transition

By Bill Pellerin, GuideStar Editor

Object: Caph-Beta Cas
Class: Delta Scuti variable star
Magnitude: 2.25
R.A.: 00 h, 9 m, 11 s
Dec: 59 degrees, 08 minutes, 59 seconds
Distance: 55 ly
Constellation: Cassiopeia
Spectral: F2
Optics needed: Unaided Eye

Why this object is interesting:

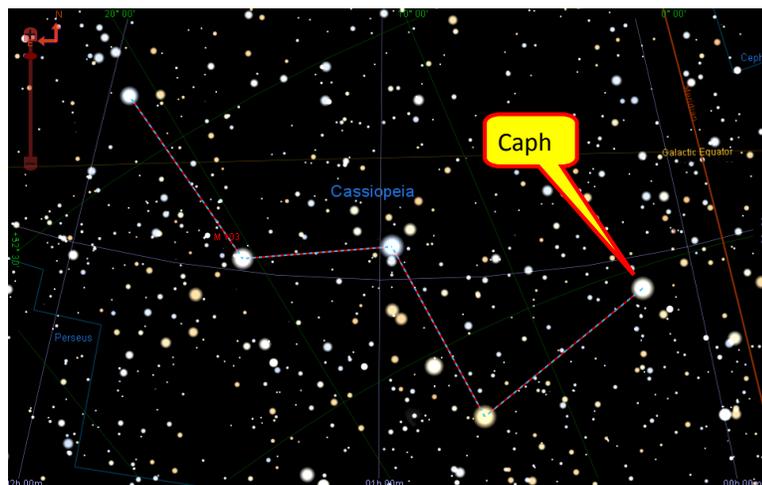
Beta Cas is an old star and like many old stars it is starting to show its age by becoming variable. In the categories of variable stars this one is called a Delta Scuti variable star and it has some common characteristics with Cepheid variable stars. Cepheids are famous because their intrinsic luminosity (power output) is related to their period of variability. Thus, they and the Delta Scuti variable stars allow astronomers to measure the distance to stars and star systems.

If you know the intrinsic brightness of a star it's easy to determine the distance using the inverse square law. That is, the brightness we see is inversely proportional to the square of the distance.

For Beta Cas, the period of variability is only about 2.5 hours, but the magnitude of the variability is only .06 magnitude, tough to see visually but easy with a photometer.

Beta Cas is ending its hydrogen fusion phase, the initial phase of all stars, and entering its helium fusion phase (the result being carbon and oxygen). Stars, as they move through life also change positions on the Hertzsprung-Russell diagram and as they do that they go through periods of instability (variability) that informs astronomers about what's going on with the star.

Generally the mechanism is that the star becomes more opaque during the dim part of the cycle, becomes hotter (because the heat is kept in by its opacity). When the star becomes hot enough to burn off the dimming layer, it



Finder chart, north is up.

Star charts generated by TheSkyX © Software Bisque, Inc. All rights reserved. www.bisque.com

gets bright again and the cycle begins anew.

It won't be long (in astronomical time), though, before the star has had enough of this phase and begins helium burning as its primary energy source.

The star is high in the sky now and easy to see at magnitude 2.25.

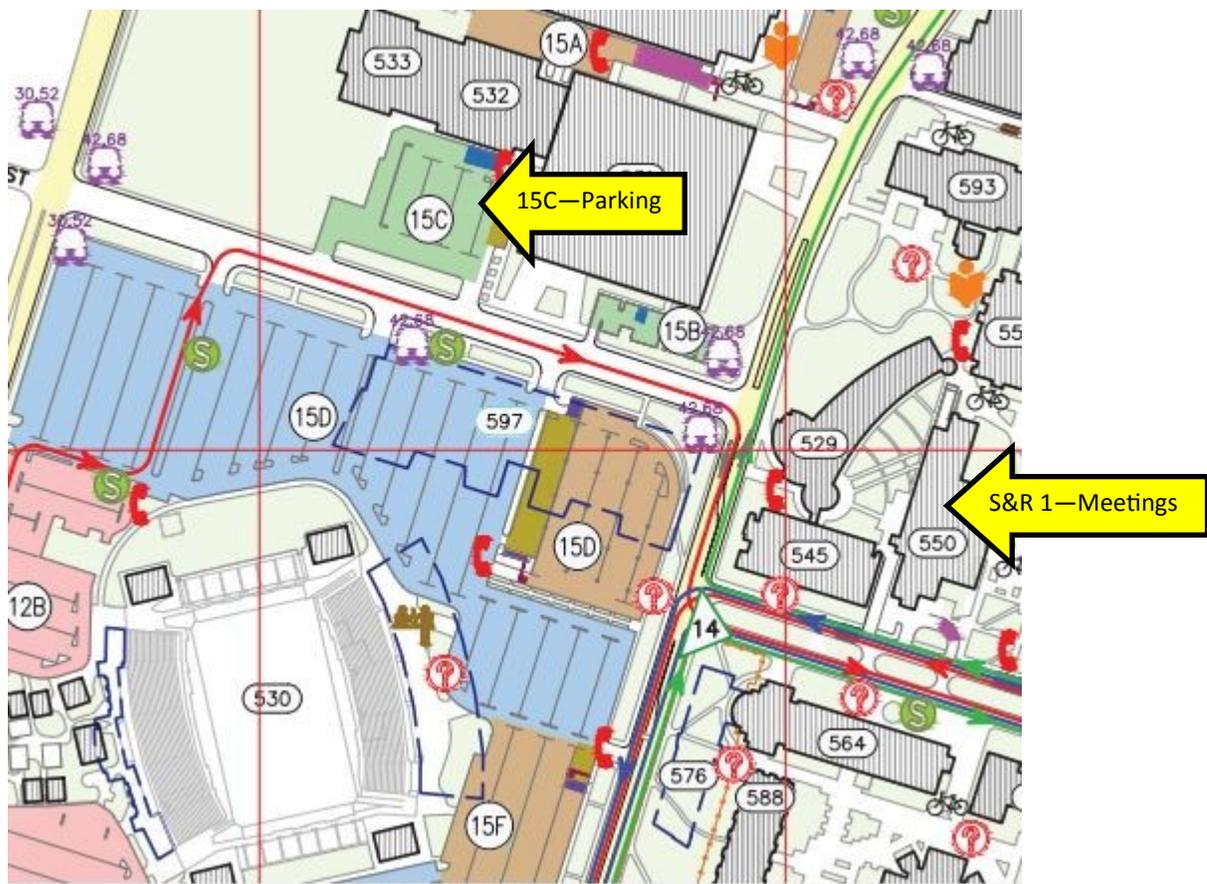
Parking at the University of Houston Main Campus

For the monthly Houston Astronomical Society Meeting

The map below shows the location of the 15C parking lot, west of Cullen Boulevard on Holman Street..

The map is from the University of Houston web site and identifies the lot that is available for parking while attending the Houston Astronomical Society monthly meeting. This parking is available from 6:30 p.m. until 10:00 p.m. on the Friday night of the HAS meeting (usually the first Friday of the month).

This parking is free. If you get a notice from the UH campus police on the night of the meeting, call the UH Security office and let them know that this area has been made available on HAS meeting night by the Parking Department.



Houston Astronomical Society

P.O. Box 800564

Houston, TX 77280-0564

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 or a conflict with other events at the University of Houston.

Board of Directors Meeting

The Board of Directors Meeting is held on dates and at locations scheduled by the board. 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 GuideStar@astronomyhouston.org. 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

Email: GuideStar@astronomyhouston.org

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

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. Access to meeting videos on the HAS web site.
- Opportunities to participate in programs that promote astronomy to the general public (such as Star Parties at schools)
- 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.

Houston Astronomical Society

Meeting on Friday, December 5, 2014

7:00 Novice Meeting, room 116 Science & Research 1 Bldg

8:00 General Meeting, room 117 Science & Research 1 Bldg

University of Houston

Directions to meeting:

From I-45 going south (from downtown)

- exit at Cullen Boulevard
- turn right on Cullen
- turn right on Holman Street; the parking lot is past the Hofheinz Pavilion
- Science and Research is across the street (2nd building back)

From I-45 going north (from NASA/Galveston)

- exit at Cullen Boulevard
- turn left on Cullen
- turn right on Holman Street; the parking lot is past the Hofheinz Pavilion
- Science and Research is across the street (2nd building back)

Parking:

There is Free Parking. See Parking map and detailed information on parking on the preceding page.