



# GuideStar

**May, 2008**

*At the May 2 meeting...*

## **New Worlds... Extrasolar Planets**

### **Cynthia Gustava of NHAC**

It was only 20 years ago that the first extrasolar planet was confirmed. (An extrasolar planet is one which orbits a star, not our Sun.) As of April of this year, 287 planets have been discovered. Because of the methods used to discover planets (measuring the star's wobble) only large planets very near the star have been detectable. These planets have been called hot (because they're near the star) Jupiters (because they're big).

Newer techniques and more accurate measurements are allowing the detection of planets that more closely resemble the Earth.

Gaining an understanding of what fraction of stars have planet systems also helps us understand the likelihood of life in the universe.

Space telescopes to detect even smaller and more distant planets are planned, so we should expect that our understanding will increase.

### **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.

### **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.  
Aaron Clevenson (NHAC) - "Nucleosynthesis"

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.....  
 Education.....Richard Nugent.....  
 Field Tr./Obsg.....George Stradley.....281-376-5787  
 Novice.....Justin McCallum.....  
 Observatory.....Bob Rogers.....281-460-1573  
 Program.....Brian Cudnik.....  
 Publicity.....John Missavage.....  
 Telescope.....Bram Weisman.....  
 Paul & Kay McCallum.....  
 Welcoming.....Open.....

### 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-mailbill.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*

# May/June 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
<b>May</b>		
2	7:00 p.m.	HAS Novice Meeting, U of H
	8:00 p.m.	HAS General Meeting, U of H
3		Prime Night, Columbus Observing Site
5	7:18 a.m.	New Moon
		Eta Aquarid Meteors Peak
12	10:46 p.m.	Moon at First Quarter
14	11:00 p.m.	Mercury at greatest elongation east
20	9:11 p.m.	Full Moon
23	8:00 a.m.	Mars 0.28 deg. NNE of Beehive Cluster
24		Novice Star Party, Columbus Site
28	9:57 p.m.	Moon at Last Quarter
29	7:30 p.m.	HAS Board Meeting, Houston Chronicle Building
31		Prime Night, Columbus Observing Site

<b>June</b>		
3	2:23 p.m.	New Moon
10	10:02 a.m.	Moon at First Quarter
13	7:00 p.m.	HAS Novice Meeting, U of H
	8:00 p.m.	HAS General Meeting, U of H
18	12:30 p.m.	Full Moon
20	11:00 a.m.	Minor Planet Pluto @ opposition
	6:59 p.m.	Summer Solstice
26	7:10 a.m.	Moon at Last Quarter
27		June Bootid Meteors Peak
28		Star Party, Columbus Observing Site

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

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**GuideStar deadline**

**for the June**

**issue**

**is May 15**

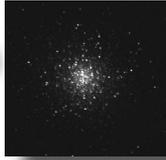
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## Observations... of the editor

by Bill Pellerin, GuideStar Editor



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The dark, west Texas skies will give you the opportunity to do some great observing at the 2008 Texas Star Party, and it all begins on June 1. This means that by the time the next *GuideStar* comes out, you should be well on your way to being prepared for the Star Party. I found my packing list from last year's event and I've been reviewing and revising it for this year.

I'm going to take my 4" refractor again. It's really astonishing what you can see with this size telescope under the dark skies of the Prude Ranch.



*The Milky Way over the 2007 TSP  
-- (from a video by) Gain Lee*

Last year was a disappointment, observing-wise. The first night, Sunday night, was a good one, but most of the nights that followed weren't. So, this year, we're looking forward to a week of clear, dark skies, right?

If you haven't made plans to go, check out the web site for more information. It's at [www.texasstarparty.org](http://www.texasstarparty.org). It often happens that accommodation on the ranch will become available as the date for the event approaches. For whatever reason, folks who had planned to go can't go and have to give up their reservation. If you're on the 'wait list' you could get a telephone call as the TSP approaches offering you accommodation on the ranch (it has happened to me).

The observing list (John Wagoner's list) for this year is available from the web site. You can begin planning your observations based on the contents of that list. Any observations you make prior to the TSP don't count, though; you have to make the observations at the event to receive a pin.

**Until next time...**

***clear skies and new moons!***

..Bill

billpellerin@sbcglobal.net

## 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.

### Tom Williams - historian

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If you look up the word, “articulate” in Webster’s dictionary, beside the word you’ll see Tom Williams photo. I love his writings, emails, and astronomy biographical stories that can sometimes be found here in the Guide Star. His writings are always so interesting. Tom is an artist who uses his keyboard as his medium.

Tom is a past H.A.S. president of ours who served our society well and was instrumental in the beginnings of our observatory in Columbus Texas. I know you’ll enjoy reading about Tom’s fascinating accomplishments here in this month’s issue.

#### The Tom Williams Bio...

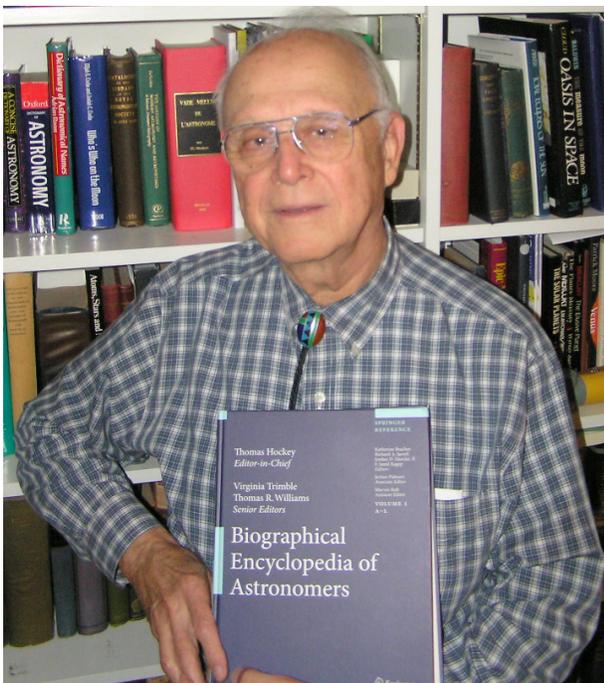
From a fairly early age in Alhambra, California, I was interested in astronomy and bugged my parents to take me to look through the telescope at the Griffith Observatory (which they occasionally did). I also wanted to visit the Mount Wilson Observatory; I could see solar telescope towers on Mount Wilson gleaming in the sun as I walked to grammar school on clear winter mornings. However, during World War II there was limited gasoline and that visit was not in the cards. Shortly after the war we moved to Arizona. Toward the end of high school, I found out that a couple of acquaintances had built telescopes and I had an opportunity to look through one of them. I got a job, and eventually had the money for the glass blanks and materials to make my own six-inch mirror. By the time I graduated from high school I had the mirror roughed out and was beginning to polish it, but then life got in the way. I got married and before I graduated from college I had two daughters.

After graduation from college, I continued to read a lot about astronomy, and eventually my job moved my family to Connecticut. One Sunday in 1967, while driving around with my family (by then with three daughters) I spotted an observatory dome in the woods. I had to find out what I could about it and knocked on the door at the Stamford Observatory. The director, Charles Scovil, was there, and showed me their 22-inch telescope; he also invited me to come to a meeting of the Fairfield County Astronomical

Society that Friday evening. I did, joined, and finally became an active amateur astronomer. Using the observatory’s mounted telescopes, I first started observing planets, as no one else at Stamford was doing that. Finally, I came to realize why; the seeing there was generally terrible, and it was impossible to get a good steady planetary image.

So I shifted to comets, and learned a lot from John Bortle who active at Stamford. I also started observing variable stars working with Scovil. For the next twenty years I observed a lot, mainly comets and variable stars and reported the results to AAVSO and the International Comet Quarterly. I became very involved on the AAVSO council, serving as the president twice. That tended to get in the way of observing but I have remained pretty active in the AAVSO since then.

I attended my first meeting of HAS in the fall of 1969 while on a business trip to Houston from New York. This was shortly after Shell announced that we would all be moving to Houston. I contacted *Sky & Telescope* to find out where and when the HAS met, and managed to make a business trip with that in mind. I joined HAS as soon as we moved to Houston in late August 1970. However, I was transferred to New Jersey in February 1972. While there, I was active in the Willingboro Astronomical Society, and taught a few of the young WAS members to observe



Tom Williams

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

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variable stars and comets (including Comet Kahoutek). One of those kids, Tod Lauer, has since become a very accomplished professional astronomer.

We returned to Houston from New Jersey in August 1976. Shortly after arriving I made an independent discovery of Nova Cyg 1976, which of course was only one of hundreds of such “discoveries.” A night or two later I attended the September HAS meeting at which I joined again. I was delighted to find that not only was the speaker Don Clayton of Rice University, but that he had a lot to say about what was already known about Nova Cyg. It was a very satisfying meeting, and I will never forget the experience.

The HAS was in a turmoil in 1976. Some members were very unhappy with the way things were going and wanted changes. A group of us got together and wrote a letter to the president, the late Ken Thompson, and asked that he initiate these changes. Instead Ken simply opted not to run for president in the next election. Dennis Zwicky was elected to get the changes started. During the Zwicky regime, we drafted a new constitution and by-laws so that HAS could incorporate, and got those documents approved by the membership (a long and difficult process). In 1979 I was elected HAS president and continued to make progress by initiating the necessary documents to achieve the IRS (501)(c)(3) status as a not-for-profit organization. That was necessary to solicit tax-deductible donations for the observatory. I appointed an observatory committee and we started the process that eventually led to the acquisition of the site at Columbus and the construction of the observatory that has served the HAS well ever since. Larry Wadle did a twenty-five year forecast of the light bubbles in south central Texas and showed that the dark sky around Columbus would be protected for a long time. Alan Parker established a contact with the Fondren Foundation and secured a lease on eighteen acres of usable land. Alan and John Hyatt were the key observatory design and construction leaders; Art Ciampi was the telescope chairman, and I acted as the finance chairman and solicited donations for the project. After the observatory was completed, it was my pleasure to plan and execute the ceremony, at which McDonald Observatory Director Harlan Smith was the dedication speaker. I served on the HAS board for a few more years, and later had a hitch as program chair.

I gave a talk at the first Texas Star Party on Prude Ranch in 1982. As part of the talk, I showed one table that listed about forty amateur astronomers who had made important contributions to the science of astronomy. That table was judged the most interesting part of the talk by a lot of people, including several professional astronomers who encouraged me to expand the list. I started working on that while continuing to observe, but by about 1990, I was spending most of my discretionary time on history rather than observing. I finally decided to make the history of astronomy my retirement project. I have been an armchair amateur astronomer since then, and rarely get out the binoculars or the telescope. I went back to school at Rice to study history formally.

Since graduation I have been practicing history as an editor of the Biographical Encyclopedia of Astronomy that was just published.

Recently, I am doing a bit more observing again as our grandchildren get up to an age where they are interested in astronomy. I am enjoying teaching them and re-acquainting myself with the sky at the same time. It is a good feeling in both regards.

### *The Tom Williams interview...*

Clayton: It's a real pleasure Tom to have you here for this months *GuideStar* interview. I found reading your bio was fascinating. I especially found it interesting to learn about your beginnings in astronomy. It seems your love for astronomy has always been deep rooted within you. Why do you think that is?

Tom: That is not an easy question to answer. Other than the natural beauty of the night sky, which regrettably we rarely see anymore, my earliest fascination was with the symmetry of the solar system and its similarity to the structure of the atom, which I learned about in the seventh grade. Of course, the more one learns, the more one realizes that the universe has a bewildering variety of objects. The scale of the universe, the origins question, and many other aspects of modern astronomy are fascinating to me, as well as the unique opportunity to study the evolution of the universe from the multitude of samples with which we are presented.

Clayton: Tell us about that first Texas Star Party? At that time, did you think it would catch on like it has?

Tom: To tell you the truth, I did not. Members of HAS had been making an annual pilgrimage to the Davis Mountains for several years before the whole thing was formalized. I thought it likely that TSP would rock along at about the same level. The Dallas/Fort Worth folks who organized that original event probably had no

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## Just Looking... from previous page

idea what would happen either. The TSP rapidly became the model for a number of observing oriented star parties now that occur all around the country. Steve and Amelia Goldberg and other HAS members who have contributed so much to the TSP over all these years deserve a lot of credit for making it what it has become.

Clayton: When you became the H.A.S. president back in 1979, there was no Columbus observatory. Where did the membership go to observe? Did you guys team-up somewhere?

Tom: When I first joined the HAS there were two places that members went to observe, the Lamar Rocket Club's observatory in West Houston, and the Baker Ranch near New Ulm. I was only at the Lamar Observatory once or twice. We organized an observing session at Lamar for a lunar eclipse, in January or February 1971 as I recall. It was a very cold but very clear night. The eclipsed moon was occulting a number of stars, and a few HAS observers tried their hand at timing occultations for the first time. The light bubble at Lamar was not good, but at the Baker Ranch skies were pretty dark. Electrical power was made available from the ranch house, so it was a good place to gather. Art Ciampi and Fred Garcia were the organizers of that event each month and can tell you a lot more about it than I can.

Clayton: What upgrades or new construction would you like to see at our observing site near Columbus in the future?

Tom: Under the dedicated leadership of John Hiatt, and then Mike Dye for so many years, the observatory site has matured far beyond my early hopes and has become a very fine asset of the HAS. I have not been there in a while and so I don't think that I am in a position to comment on any "improvements" that might now be needed.

Clayton: There are now more astronomy clubs in the Houston area. That has become a major element in the decline of membership in our society. How can we keep our societies membership strong and growing?

Tom: I don't know the actual statistics, but I believe that the HAS membership peaked around the time of Comet Halley in the mid-late 1980s. So making Comet Halley come back might do the trick. Short of that, or some phenomenal naked eye phenomenon that gets a tremendous and sustained notoriety in the media, I think the current HAS membership may represent something closer to what can be expected, not those boom years in the 1990s. With respect to the other clubs in the area, I think they help public awareness and participation in astronomy and that is what we all favor. My sense is that meeting attendance has not changed much over the past decade. Thus, the main things I can recommend seriously are 1) continuing the already strong novice program; 2) always start the main meetings at 8pm sharp; 3) continue to program a rich variety of astronomical speakers but find a way start the speaker by 8:20pm and limit their talks to 60 minutes; and 4) never go past 10pm for meeting adjournment. The club has everything else needed to continue a vibrant existence.

Clayton: Are you a visual observer only? Ever take astrophotos?

Tom: As explained above, I have not been an active observer since the early 1990s. I was strictly a visual observer then though, and never did get involved in astrophotography except at solar eclipses.

Clayton: Where is most of your observing performed with your grandchildren? What design scope do you use?

Tom: They live in Fredericksberg, so most of what we do is done somewhere near their home. At the end of 2007, we are taking them to the Davis Mountains to visit McDonald Observatory and try out a new telescope they will receive for Christmas, an f/4 Newtonian on a Dobsonian mounting. I think that will fit them well for a few years, and if they continue to be interested, we will then get them something larger.

Clayton: Do you have a favorite astronomy publication? How about a good star atlas (hard copy or electronic) that you would recommend?

Tom: *Sky & Telescope* does a fine job for me and most of my other periodicals are related to the history of astronomy, variable star astronomy, comets, etc. Since I have not been an active observer for over a decade, I am a bit out of date on the newer atlases, but always found that the Skalnate Pleso Atlas of the Heavens 1950 served me well. I guess the modern equivalent would be the Wil Tirion Atlas 2000.

Clayton: Do you have an amateur observing mentor?

Tom: No, not now.

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

Tom: We are already well into a sea change in amateur astronomy in a number of ways. First, more and more sophisticated equipment and computer programs, coupled with widespread internet connectivity, are

*Continued ...*

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## Just Looking... from previous page

making it possible to amateurs to participate in the science of astronomy in ways that could not have been imagined when I first started as an amateur. That is already making it possible for amateurs to work side by side, figuratively and literally, with professional astronomers, be recognized as coauthors on published papers, and receive other forms of recognition for their contributions. Second, there is a large overhang of professionally trained astronomers in comparison to the availability of observing time on major land-based and/or orbiting observatories. Thus, many professionals are beginning to focus on problems the don't involve that premium observing time on major instruments and instead work on interesting projects that can be accomplished with smaller instruments. That trend, too, will enhance pro/am cooperation. Third, many of these interesting smaller instrument projects involve long sequences of monitoring and measurement. Distribution of observers in both latitude and longitude contributes to the accumulation of long time-sequenced observations over a shorter period of time. The globalization of economic security, if not prosperity, has increased amateur participation all over the world. That enhances the ability of professional astronomers to conduct continuous monitoring and/or measurement projects. In effect, the professionals cannot hope to achieve such coverage otherwise and that enhances the attractiveness of pro/am cooperation. We are in a golden age of amateur opportunities in astronomy, so the next 25+ years will be very exciting!

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

Tom: More than anything else, it is important to enjoy what you are doing. This is a hobby and hobbies are supposed to be fun, but it will only be fun if you stay with it and learn. One way I found that my enjoyment of astronomy was enhanced was to do science, but that is not for everyone. However, one part of that scientific discipline, one that can enhance even the recreational observing, is to keep a written log at the telescope eyepiece. Make the log a diary of what is going on around you as well as what you are looking at, how you react to what you see, and other observations as well as the date, time, and conditions. I find it very satisfying to go back and look at those logs occasionally and try remembering what it was that was going on. The more I wrote then, the more I enjoyed it later.

Clayton: Thanks Tom for taking the time to share your interest and thoughts with us for our monthly HAS newsletter, *The GuideStar*. We wish you luck with all of your astronomy interests. Thanks too for all of the contributions you have made here at H.A.S. through the years. Clear skies, always.

• • • • •  
• **Want new information in the**  
• **GuideStar? Write it!!**  
•

• You, too, can be published here.

- • What are you doing that's new and exciting?
- • What have you read recently (book report!)?
- • What new and interesting software are you using?
- • Did you have an observation that was especially interesting?
- • Any 'lessons learned' from observing attempts?
- • What are you looking forward to at the Texas Star Party next year?

• Send your materials to Bill Pellerin,  
• the GuideStar editor at:  
• [BillPellerin@sbcglobal.net](mailto:BillPellerin@sbcglobal.net)  
•

# R Corona Borealis

by Bill Pellerin, GuideStar Editor

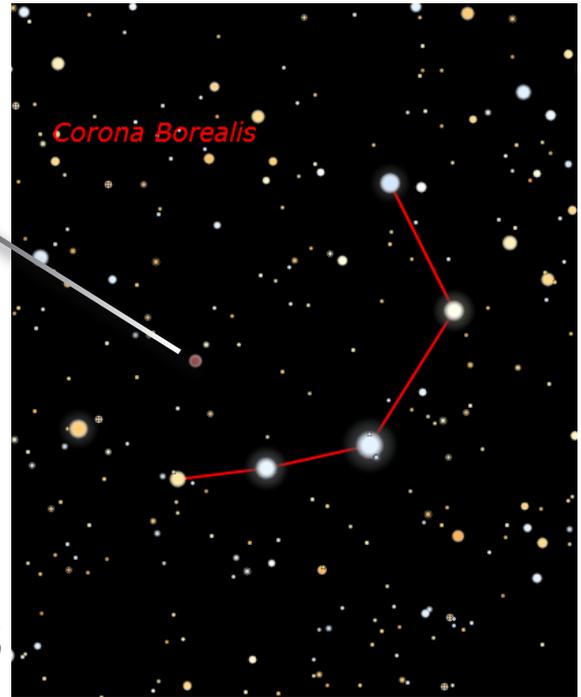
**Object:** R Corona Borealis / R Cor Bor / R Crb  
**Class:** Prototypical variable star  
**Magnitude:** Usually 6, sometimes 13 or so  
**R.A.:** 14 h, 48 m, 34 s  
**Dec:** + 28 degrees, 9 minutes, 24 seconds  
**Distance:** 6000 ly  
**Constellation:** Corona Borealis  
**Size:** n/a  
**Optics needed:** Binoculars or any telescope when it's bright, more aperture when it's dim

### Why this object is interesting.

R Cor Bor is now shining at magnitude 14, but tomorrow, yes, tomorrow, it could be shining at magnitude 6. It's overdue to brighten up, since it dimmed in August 2007. Watch this location (in the sky) for more news from R Cor Bor.

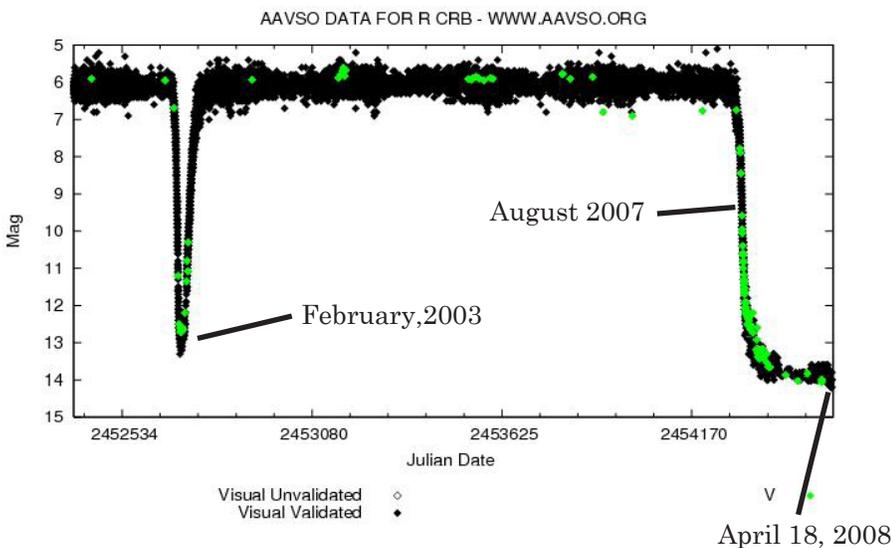
Corona Borealis (the northern crown) is just east of the constellation Bootes and just west of the constellation Hercules. If you can find the northern crown, you can find this star (see the accompanying finder chart). It lies within the circle of stars that comprise the crown and usually

R Cor Bor



Map from TheSky v6.0

Continued on next page...



Light curve of R Cor Bor from May 2002 until April 2008 from AAVSO www.aavso.org

The first variable star in a constellation is usually designated 'R' combined with the constellation name, the second one is S, and so on. When astronomers say that a particular star is the 'prototype' for a class of stars, they mean that it is the prime example of that kind of star. So, you might hear someone talk about another star called a "R Cor Bor" star, meaning that it has the same characteristics as does R Cor Bor.

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## *R Corona Borealis... from previous page*

shines at magnitude 6, easy to see with binoculars, or with the naked eye from a dark site.

It's a variable star, but it's one that has some interesting characteristics. The chart (above) shows the brightness of R Cor Bor (also called R Crb) from May of 2002 through April 18, 2008. A quick look at this chart shows that the star goes for a long time at magnitude 6 then drops to magnitude 13 or so.

What the literature says is that this star shines at magnitude 6 for a year or more before dropping to magnitude 13 (or thereabouts) for a short period. What's going on now, though, is that the star is in one of its dim phases. Since early August, 2007, the brightness of R Cor Bor has dropped substantially and now sits at about mag 14. This is a very dim star, and it would require a good sized telescope to see it.

When it will brighten again is anyone's guess, but it could happen any day. By the time you read this, it could be at magnitude 6 again. The latest observation posted on the AAVSO web site with a specified brightness is 14.0 on April 15 by Larry Shotter, somewhere in the United States (perhaps Pennsylvania, based on Google searches). The moon has been bright since then, so observations of such a dim star would be difficult.

This star has been observed at one of its dim phases by the Infrared Space Observatory (launched by the European Space Agency). It turns out that the star remained bright in the infrared wavelengths. Analysis of the data revealed that R Cor Bor blows off a dusty, carbon rich cloud that hides the star during its dim periods. Interestingly, the observation of the star was made by the ISO *only* because amateur astronomers had been monitoring the star to identify a dim interval. Being a star that's usually bright, with dim periods, R Cor Bor is sometimes called a "reverse supernova". The star actually bears no resemblance to a supernova, but the shorthand description is accurate.



## 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 web-site, [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?**

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# Stellar Compass for Space Explorers



By Patrick L. Barry

In space, there's no up or down, north or south, east or west. So how can robotic spacecraft know which way they're facing when they fire their thrusters, or when they try to beam scientific data back to Earth?

Without the familiar compass points of Earth's magnetic poles, spacecraft use stars and gyros to know their orientation. Thanks to a recently completed test flight, future spacecraft will be able to do so using only an ultra-low-power camera and three silicon wafers as small as your pinky fingernail.

"The wafers are actually very tiny gyros," explains Artur Chmielewski, project manager at JPL for Space Technology 6 (ST6), a part of NASA's New Millennium Program.

Traditional gyros use spinning wheels to detect changes in pitch, yaw, and roll—the three axes of rotation. For ST6's Inertial Stellar Compass, the three gyros instead consist of silicon wafers that resemble microchips. Rotating the

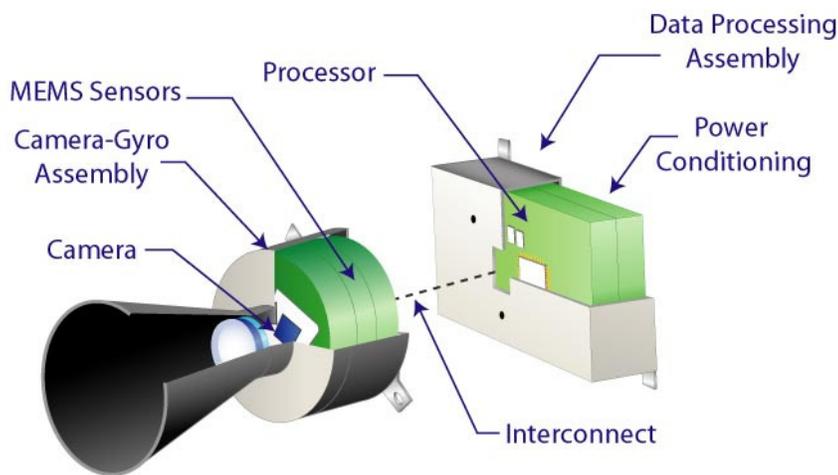
"It just performed beautifully," Chmielewski says. "The data checked out really well." The engineers had hoped that ISC would measure the spacecraft's rotation with an accuracy of 0.1 degrees. In the flight tests, ISC surpassed this goal, measuring rotation to within about 0.05 degrees.

That success paves the way for using ISC to reduce the cost of future science missions. When launching probes into space, weight equals money. "If you're paying a million dollars per kilogram to send your spacecraft to Mars, you care a lot about weight," Chmielewski says. At less than 3 kilograms, ISC weighs about one-fifth as much as traditional stellar compasses. It also uses about one-tenth as much power, so a spacecraft would be able to use smaller, lighter solar panels.

Engineers at Draper Laboratory, the Cambridge, Massachusetts, company that built the ISC, are already at work on a next-generation design that will improve the compass's accuracy ten-fold, Chmielewski says. So ISC and its successors could soon help costs—and spacecraft—stay on target.

Find out more about the ISC at [nmp.nasa.gov/st6](http://nmp.nasa.gov/st6). Kids can do a fun project and get an introduction to navigating by the stars at [spaceplace.nasa.gov/en/kids/st6starfinder/st6starfinder.shtml](http://spaceplace.nasa.gov/en/kids/st6starfinder/st6starfinder.shtml).

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



*Compass is built as two separate assemblies, the camera-gyro assembly and the data processor assembly, connected by a wiring harness. The technology uses an active pixel sensor in a wide-field-of-view miniature star camera and micro-electromechanical system (MEMS) gyros. Together, they provide extremely accurate information for navigation and control.*

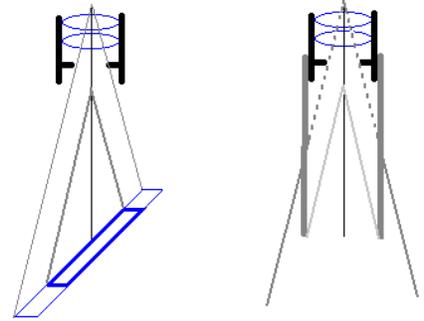
wafers distorts microscopic structures on the surfaces of these wafers in a way that generates electric signals. The compass uses these signals—along with images of star positions taken by the camera—to measure rotation.

Because the Inertial Stellar Compass (ISC) is based on this new, radically different technology, NASA needed to flight-test it before using it in important missions. That test flight reached completion in December 2007 after about a year in orbit aboard the Air Force's TacSat-2 satellite.



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## ***Membership Renewals...***

**Your membership is renewable on January 1 of each year.**

Total yearly dues are \$36.

Your payment for 2008 is due as of January 1, 2008.

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

Membership in the Houston Astronomical Society is one of the great bargains in Astronomy. For a regular membership of \$36 you get the opportunity to support an active and growing organization, you get the monthly *GuideStar* newsletter, and you get access to the outstanding H.A.S. observing site near Columbus, Texas. (You must attend an orientation, given regularly, to use the site.) And, after two months of membership you can borrow, at no charge, one of the Society's loaner telescopes. It's the best deal in town, we think. Please renew your membership when it expires.

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

***Thanks!***

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**Minutes**  
**of the April, 2008 Meeting of the**

**Houston Astronomical Society**

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**Opening Announcements:**

- Bill Leach introduced himself and welcomed everyone, including two new members and eight guests, to the meeting.

**Announcements:**

- Bill Leach announced that the March 29 Star Party, postponed due to weather, has been rescheduled for April 26th by Field Trip/Observing Committee Chair, George Stradley. All the other details remain the same. This will be a regular star party with other area clubs invited. HAS will be providing hamburgers, and attendees are asked to sign up to bring the fixings. George will send out communications via the list server asking those planning to attend to RSVP with the number of people in their party and what food items they will be bringing.
- Bill Leach drew the audience's attention to the old *Sky and Telescope* and *Astronomy* magazines on the table at the front of the meeting room. Bill related that we're cleaning out the old magazines from the HAS library to create more room for books, and he invited all to take a few of the magazines with them as they left the meeting.
- Telescope Loaner Program Co-Chair, Bram Weisman, reviewed the details of the Loaner Telescope Program and pointed members to the HAS website, [www.astronomy-houston.org](http://www.astronomy-houston.org), for more information. Bram also related that we have a new telescope in our loaner program inventory, an 8" Meade, donated anonymously.
- Bill Leach reminded members that by the general membership vote held in January, the June and July General Meetings have been moved to the second Friday of the month to avoid conflicts with Texas Star Party in June and the July 4th holiday.
- Treasurer Bill Flanagan reminded everyone that membership renewals for all members were due in January, and he invited anyone needing to pay their membership dues to see him at the end of the meeting.
- Don Pearce gave the Comet Report, highlighting Comets 17P/Holmes, C/2007 W1 Boattini, and C/2008 C1 Chen-Gao. For more information on these and other comets of interest, see Don's Comet Corner on the HAS website.
- Bill Leach introduced Justin McCollum, HAS Novice Committee Chair, and related that we probably had record attendance at the Novice meeting with 55 in attendance. For new members, Bill related that the novice meeting is held each month at 7p.m. in the lecture room across the hall from the room where we hold the general meeting.
- Bill Leach announced that noted amateur astronomer and author, David Levy, will be the featured speaker at the 9th Annual Regional Clubs astronomy meeting scheduled for the evening of October 17th.
- Steve Goldberg announced that the Texas Star Party was set to start June 1st and asked for a show of hands from those attending this year. Steve asked anyone with questions regarding TSP to contact him.
- Steve Goldberg presented Gordon Houston with the Astronomical League's Urban Club certificate #108 and Master Observers Club certificate #76 along with the pins for both awards. Gordon is the third member of HAS to receive the Master Observers Club award. To see all the awards earned by HAS members, visit the Astronomical League Certificates page of the HAS website. For more information on the Astronomical League observing programs, go to the AL website, <http://www.astroleague.org/>

**Program:**

Steve Goldberg introduced the featured speakers for the evening, Chuck Shaw, Mission Director for Hubble Servicing Mission 4, and John Grunsfeld, Astronaut and Lead EVA Mission Specialist on Hubble Servicing Mission 4. Chuck and John delivered their very well-received presentation on the upcoming fourth and final shuttle mission to service the Hubble Space Telescope.

**Closing Announcements:**

- Bill Leach pronounced the meeting adjourned at 10:12 p.m.

OOOXXXXXOOO

# Banquet News

I was asked if we were going to have a banquet soon. My answer was this: Would the members of the club support one? Some commitment would be needed by the members. This is the only dress-up affair that the club has, and I think the members enjoy having a banquet.

**So, we are going to have a banquet.** We are now in the process of finding a speaker. If you have any suggestions, please e-mail me. I would like to have a name, a contact number, and what their specialization is. If all you have is a web address for this person, send it to me.

Thank you.

Judy Ann Dye  
Banquet Chairman  
judyadye@aol.com  
281-498-1703 Ho  
281-687-4684

## Want Ads

### 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-per-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 half-way. 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*

### 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

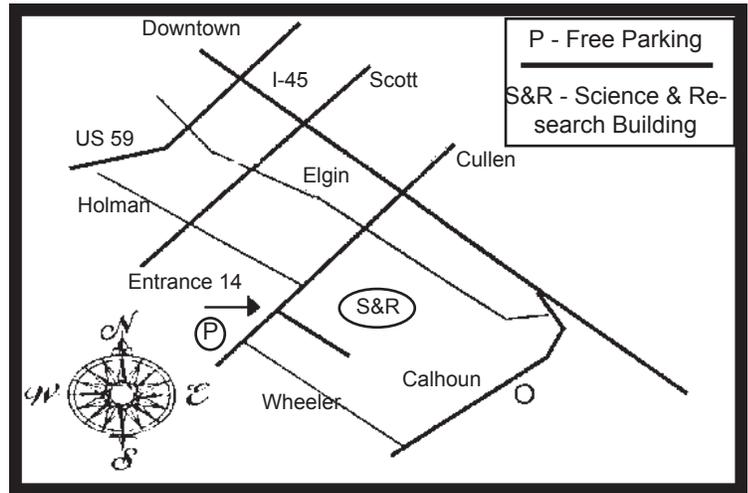
The Board of Directors Meeting is held on dates scheduled by the board at 7:00 p.m. at the University of St. Thomas. Information provided to GuideStar will be published. The meetings are open to all members of the Society in good standing. Attendance is encouraged.

### 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 May 2, 2008

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.**