

# GuideStar

April, 2010  
Volume 28, #4

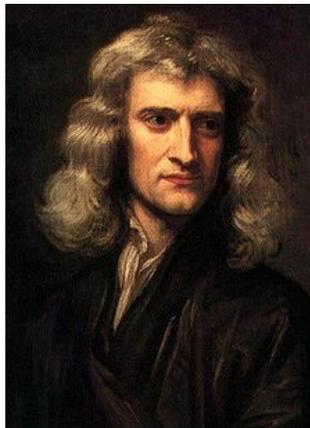
## At the April 2 meeting...

### Sir Isaac Newton – A Brief History

Jim Wessel—HAS Member

Sir Isaac Newton (1643-1727) is often mentioned as the most creative scientist who ever lived. During his lifetime, he

- Developed the Newtonian telescope — the first useful reflecting telescope design
- Wrote the *Principia Mathematica*
- Defined universal gravitation, explaining the way the solar system works
- Identified the three laws of motion which continue to be used in 'classical' physics
- Used a prism to spread white light into colors and identify the mechanism for this effect
- Developed the Calculus



Come to the April meeting and learn about Isaac Newton.

#### 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 page for directions to the location.

Novice meeting: ..... 7:00 p.m.  
*The Hertzsprung—Russell Diagram*  
By Jason McCollum

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

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 & Past President

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 Parliamentarian ...  
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 Rice U. Coord .....  
 Schedule Obs'v't'y  
 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  
 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*. 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 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.

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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

## 2010 Star Party Dates

- 4/17 All Clubs with B-B-Que
- 9/11 All Clubs with B-B-Que
- 10/9 All clubs annual picnic
- 12/4 HAS members only

## 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: [www.jscas.net](http://www.jscas.net)

**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)

## April/May Calendar



Date	Time	Event
<b>April</b>		
2	7:00 p.m.	HAS Novice Meeting, U of H
	8:00 p.m.	HAS General Meeting, U of H
4		Easter
6	4:37 a.m.	Moon at last quarter
8	6:00 p.m.	Mercury at greatest elongation east
10		Prime Night Columbus Observing Site
14	7:30 a.m.	New Moon
17		All Clubs Star Party Columbus Observing Site
21	1:19 p.m.	Moon at first quarter
22		Lyrid meteors peak
28	7:18 a.m.	Full Moon

### May

5	11:15 p.m.	Moon at last quarter
7	7:00 p.m.	HAS Novice Meeting, U of H
	8:00 p.m.	HAS General Meeting, U of H
14	8:05 p.m.	New Moon
15		Prime Night Columbus Observing Site
20	6:43 p.m.	Moon at first quarter
26	9:00 p.m.	Mercury at greatest elongation west
27	6:07 p.m.	Full Moon

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

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).

## Welcome Visitors & New Members

Welcome to new members

★  
★ ★ ★  
**GuideStar deadline**  
★ **for the May** ★  
★ **issue** ★  
★ **is April 15** ★

## Observations... of the editor

by Bill Pellerin, GuideStar Editor

### **Texas Star Party**

It's crunch time.. The 2010 Texas Star Party begins on May 9 (and runs through the 16th). If you're planning to be there, it's time to start thinking about your packing list for this year. I always start with my list from the previous year and update it as necessary. I may have acquired some new equipment since the year before or I may have disposed of some equipment. If you don't have a list check the TSP web site ([www.texasstarparty.org](http://www.texasstarparty.org)) for a list of 'What to Bring'.

While you're at it, make yourself an observing list for TSP. There will be several lists at the event, including John Waggoner's list and Larry Mitchell's list. Most of us specialize in something — variable stars, double stars, lunar and planetary, deep sky galaxies, star forming regions, supernova remnants, planetary nebula, carbon stars, and so on.

One very powerful tool for developing observing lists is SkyTools ([www.skyhound.com](http://www.skyhound.com)). See the April, 2010 issue of *Sky and Telescope* magazine for a review of the latest version. You select your objects and tell the software what night you'll be observing and the software tells you which ones will be visible, and when.

Even if you aren't registered for the TSP and don't have your housing set up it may not be too late to sign up. Go to [www.texasstarparty.org](http://www.texasstarparty.org) and read all about it.

I hope to see you there.

### **Have a Story to Tell**

Over the last few weeks I've had out-of-town (non-astronomer) visitors to my observatory and I've used the opportunity to introduce those visitors to the night sky.

If you're doing a public star party or showing someone the sky who isn't already an observer it is important to have a story to tell about what they're seeing.

I usually start with a tour of the sky, showing off the major constellations (Orion, Taurus, Gemini, Leo). Many reference books talk about the mythology associated with constellations. Have one or more of these stories ready to tell.

I talk about how the Earth is rotating to the east making the sky look like it's rotating to the west. You can talk about the Zodiacal constellations, and a few bright stars.

I always point out Polaris, the North Star and the pointers on the Big Dipper that identify Polaris.

Then, we're ready to look at a few bright objects in the telescope. Make sure you know something about the objects — what is it (a star forming region, a supernova remnant, a planetary nebula, a cluster) and how it fits into the scheme of things. It's the story you tell that counts!

The Moon, Saturn, and Jupiter are always good objects to show — big, bright, and easy to see. Many people are amazed that they can see the rings of Saturn in a backyard telescope. For Jupiter you can talk about how Galileo saw the 4 bright moons in his early telescope.

I sometimes make notes that help me 'docent' the sky. New observers often want to know how far away something is. Make sure you know this. One of the amazing things about the night sky is that we can see objects that are very very far away. I always learn something in the process.

**Until next time...**

**clear skies and new moons!**

*..Bill*

## Just Looking

### A GuideStar Interview by Clayton L. Jeter

## Scott Mitchell—Celestial Artist



is Scott Mitchell a gifted speaker or what? You bet. When giving a talk at one of our meetings, is he articulate or what? You better believe it. I swear, Scott very well could have been a popular radio DJ in Houston. He has that gifted voice. His talks at our monthly meetings were always a delight for me. I believe he could have



easily talked me into buying waterfront property in central Kansas!

It's always fun for me to look back on some of our clubs history. It's even more interesting to hear it from the guy that was in charge during that time. Let's listen to what Scott Mitchell has to say about our society's past and his love for astronomy...

#### The Scott Mitchell Bio...

My name is Scott Mitchell. I have been a member of the HAS since 1985. When I first joined the society, Peter Nolan was president, and in my first meeting, a group of club members talked about their recent expedition to South America to view Halley's comet, including our late comet expert Don Pearce. A few meetings later, Barbara Wilson gave a thrilling tour of the Virgo galaxies -- specifically how to structure an observing session to work your way through the whole complex. Later I joined the trip to Cabo San Lucas organized by Steve and Amelia Goldberg for the eclipse there. This sort of adventure-through-observation approach really synched with me, and I've been a member ever since. I served on the HAS board of directors and eventually had a term as president. I've also regularly attended the mighty Texas Star Party, and work as a director on their board of directors. I love our observing site, and have spent many happy observing sessions there. I also enjoyed several trips to Bolivia at the Southern Skies Star Party to do southern hemisphere observing.

I have a plethora of telescopes. The workhorse is a dobsonian with 4.5 focal ratio and 14 1/2 inch mirror. Lately I resurrected an 11 inch SCT that I've mounted in a backyard observing deck. I finished the Messier's, and I'm still slugging through the Herschel catalog.

I can say that astronomy has introduced me to some of the finest people I have ever met, many of whom I'm proud to call good friends.

#### The Scott Mitchell interview...

**Clayton:** Thanks Scott for joining me here. Great to have you answer a few questions for our readers.

Ok... you came to an HAS club meeting in 1985 and became a member, but what was really that first spark about astronomy that got you interested to come join us in the first place? Interested as a child?

**Scott:** I think it was a fold-out map in a National Geographic magazine featuring "Our Solar System" that first piqued my interest--I remember thumb tacking it to my bedroom door, and pestered my father about astronomical questions. We eventually bought the standard cheap 60mm telescope with the usual flimsy mount, and tiny little toy eye-pieces. But after a few half-hearted attempts to find objects other than the moon, the telescope got set aside. By that time, though, I had begun to de-

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*(Continued from page 5)*

your science fiction by the metric ton, so I never lost touch with astronomy. Later, to get away from the steady pressure of my occupation, I was looking for something to serve as an outlet -- and I happened to see a Sky & Telescope magazine. And that was that.

**Clayton:** I remember all the hoop-la about Comet Halley on its inward visit to the sun in 85' (the year I joined HAS too). It was the topic to talk about. When did you first observe it? What telescope did you use?

**Scott:** I think it was through a ten-inch reflector that somebody-- maybe Ken Drake or Don Pearce-- let me look through out at the HAS observing site. I was still thinking that a comet sort of roared overhead through the skies, like a sparkler on a guide wire, so my first view was puzzled - like, that's it?

**Clayton:** What do you think it would take to get another boost in our club's attendance? Another great comet?

**Scott:** Yes, some kind of event. As a neuron-stimulating activity for kids, astronomical observing seems to be taking second place to texting and internet games. On the other hand, most people who are invited out to observe seem to get hooked.

**Clayton:** Are you a visual observer only? Do you log or photograph what you see?

**Scott:** I tried astrophotography, but since I come from a family of artists, my approach to observing is through sketching -- I still think that the best optical recording system is our eye. Leonardo De Vinci said that only way to understand an object in nature is to draw it. And I absolutely log my observations. That's the difference between being an observer and a tourist. After all, how many times can you look at the same bright, star-attraction objects? The real fun in astronomy is working your way through a catalog and discovering hidden gems.

**Clayton:** In your bio, you mentioned your outdoor observing deck... can you describe it and your observations from there? Think you'll ever build an observatory on the deck?

**Scott:** The deck is a wooden 10' x 10' platform with a three-foot rail around it -- kind of like a gazebo without the zebo. I have a permanent pier mounted in a concrete base that comes up through a hole in the platform, so there's no vibration. For the time being, I'm doing lunar and planetary

observations -- getting ready for Mars. I live in West Houston, so I decided to forego any hope of doing serious deep sky work. But twenty sessions of observing what you can is better than no sessions wishing you could see what you can't. Luckily, my backyard faces some kind of quarter-mile utility easement, and the Royal Oaks subdivision on the other side has a high aristocratic fence around it, so my observing deck is not bedeviled with backyard neighborhood lights. For that reason, I don't plan on doing a dome any time soon. Besides, during the day, the deck doubles as a regular outside deck in the landscape plan, the centerpiece for my garden.

**Clayton:** You stated in your Bio that you own and use a Celestron C-11. How is the optical quality of that scope? How is it versus your 14 1/2" Dob?

**Scott:** The C-11 is a fine scope. It has a Losmandy mount, whose clockwork turning mechanism lets you keep the object in the eyepiece indefinitely while you sketch it. The optics are great - no need for collimation. The 14 and 1/2 inch Dob is my workhorse for deep sky objects, and remains my weapon of choice for West Texas and HAS site observing.

**Clayton:** Looking back as a past president of HAS, what accomplishments are you most proud of from that era?

**Scott:** The speaker program. We developed a committee that rounded up some good speakers for our monthly meetings -- no person can do all this by himself or herself.

**Clayton:** You mentioned observing in the southern hemisphere earlier, did you know your way around the night sky there or were you a bit lost? I often wonder how I might have problems when down there.

**Scott:** It can be disorientating at first -- most of the constellations are unknown, and those

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that you do recognize from the northern hemisphere are upside down (imagine seeing Scorpio with the tail up). And of course there is no helpful equivalent of Polaris down there to get you pointed to true South - you have to extrapolate the position. But all those problems are more than compensated by a host of new objects.

**Clayton:** I've seen you at the Texas Star Party several times in the past. Do you attend other parties around the country?

**Scott:** I went to Okie-Tex a couple of times. It would be fun to make a circuit.

**Clayton:** How do you envision amateur astronomy in the next 10 to 25 years?

**Scott:** The technology seems to be driving it. Even I'm succumbing to the temptation - I talked to the good folks at Land Sea and Sky last weekend about getting a "go-to" mechanism for the C-11.

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

**Scott:** Forget the technology. Get a basic dobsonian scope -- HAS has several in our loaner program. Try to find the object on your own, using the Telrad sighting device. Observe it for a minimum of fifteen minutes, using all sorts of observing techniques -- averted vision, tapping the scope, different eyepieces. Sketch the object. If you resolve to \*own\* that object by serious observing, it will be yours forever, and the next time you observe it, it will be like coming back to an old friend.

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

**Scott:** Sure, same as on the HAS website in the members section: [starscm@aol.com](mailto:starscm@aol.com)

**Clayton:** Thanks Scott for taking the time to share your interest in astronomy here within our HAS newsletter, 'The Guide Star'. This was a lot of fun for me. Thanks too for serving our society in the past. You did an outstanding job. We wish you luck with all of your future astronomy. See you soon...

Clear skies always!

# Observatory Corner

By Bob Rogers, Observatory Chairman



Hello everyone.

We had an All Clubs March Madness Star Party at the site on the weekend of the 13<sup>th</sup>. There were around 60 people in attendance for a great time under the stars. Thanks goes to Mike Edstrom, Don Selle and Dale Morningstar for the hamburgers, hot dogs and setting everything up for all to enjoy.

**Remember: Fill out the log reports when you use the HAS Observing site. This document is needed to provide the land owner with proof that the site is being used by HAS members.**

On the weekend of February 26 – 28<sup>th</sup>, I had Cub and Boy Scouts from Troop 404 out at the site for work and fun. In the morning, all the Scouts helped fill in holes in the road and spread sand around all the pads. I want to thank Ed Fraini and Lee and Ginger Gibson for having a load of sand delivered to the site to be spread around the pads and to fill in some of the ruts and operating the tractor. Below is a list of all the Adults/Scouts that came out to the site. A big thank you to all 51 of them.

## T/C 404 SCOUT'S

**Scouts** - Emily Amick, Vincent Cade, Jonnathan Delgado, Lucas Harper, Sarah Haviland, Ethan Hopp, Matt King, Maverick King, Henry Lewis, Jerry Marvel, CJ Morgan, Ethan Pounds, Matt Rohren and Scott Rohren.

**Siblings** - Calvin King, Chrisann King, Joanna Morgan, Jackson Rohren and William Rohren

**Adults** - Phil Amick, Rosemary Epperson, Mike Guthrie, Susan Harper, David Haviland, Annette Hedrick, Michael Hedrick, Torsten Hopp, Chris King, Keri King, Garrett Lewis, Jessica Morgan, Christy Rohren, Faith Stapleton and Paul Stapleton.

## PACK 404 SCOUT'S

**Scouts** - David McKnight and Joshua Schurtz.

**Adults** - Doug Schurtz.

## PACK 416 SCOUT'S

**Scouts** - Christian Aleman, John Aleman, Caleb Kelley, Reid Kraus, Nathan Lewis, Diego Lopez, Marcos Lopez, Jeremy Rincones and Xavier Trevino.

**Adults** - John Aleman, Cliff Kraus, Onesimo Lopez, Julio Rincones and Daniel Trevino.

I **do 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 members spend at Randalls. Randalls totals up the amount spent each quarter and will send us a check if the amount goes over \$2,500.00, otherwise the total roles over to the next quarter or zeros out at the end of the calendar year. So please link your Randalls card to the Houston Astronomical Society so that the society can benefit from this Randalls program. Our number is #6618. This is very easy to do, just go to the Courtesy Booth and tell the person there what you want to do.

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

*Bob Rogers*

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

# Photos from HAS Observatory

*By Bob Rogers, Observatory Chairman*

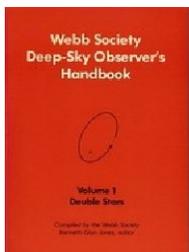
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# Webb Society: Double Stars

*Book Review by Jim Wessel*

Living within the greater Houston light dome, forces us local astronomers to pursue one of two choices. They are either a distant trip to a remote dark site, or a concentration on celestial objects that effectively combat light pollution. About 99% of the time I have to do the latter. Double stars certainly fill the niche of observing 'bright objects' and you can learn an awful lot of astronomy and stellar physics in the meantime, if will you apply yourself a little bit. Having just recently finished off the Astronomy League's Double Star Observing List, I started pursuing this topic in a little more detail. The Webb Society Deep-Sky Observer's Handbook, Volume 1 – Double Stars, is the oldest, by publication date, of the three books I currently own on double stars.



While Kenneth Glyn Jones gets the credit for editing this book, it doesn't honor the person that truly did the majority of the writing. Robert Argyle, who is still an active double star observer 30 plus years later, actually wrote about 80% of the book. His writing style is easy to follow for the

most part, although you get the typical English spellings (colours, centre, etc.) and the sentence structuring is decidedly different in flavor from typical contemporary American writing.

The first chapter of the book is entitled "A Brief History of Double Star Observing". I have to tell you, there is an amazing amount of information in these 7 pages. I want to share a couple of quick notes that I thought were particularly interesting when taken as a whole. First, Huygens discovered the relatively obscure and tight Theta Orionis (a.k.a. the Trapezium) to be a triple star in 1656, while the far brighter and much more obvious pair (to me, at least) Beta Cygni (a.k.a. Albireo) was not discovered until 1755. Second, William Herschel's important treatise on double stars was published in 1804, nearly 150 years after Huygens' observations, and this tome saw the real advent of double star observing. The historical section covers every major double star astronomer, his contributions concurrent with an implied timeline, and usually describes the telescope or optics and the observatory. Quite an accomplishment in so few pages, and it's not too terribly disjoint.

The second chapter deals with the types of double stars, which can be broken down into two major categories, those that can be detected at the eyepiece, and those that cannot. Under the former, the book covers Visual Binaries (these form the bulk of any amateur double star observing list) and Optical Doubles where two or more stars are aligned to our viewing perspective but are not gravitationally linked. Concerning stars that cannot be visually detected, there are again two categories. They are Spectroscopic Binaries, which are examined through the use of the like-named device, and Astrometric Binaries that are deduced by their varying proper motion.

Chapter three is covers seeing, the definition and appearance of the Airy disk, the Rayleigh Limit, and the Dawes's Limit. It also discusses the three major ways to conduct observations on double stars (visually, photographically, and through the use of a micrometer). The fourth chapter tells how to find a given double star and what sort of informa-

tion should be recorded in an observer's logbook. Among the topics covered here are Separation, Magnitude, Color, Position Angle, and a brief section on how to how to draw them.

Chapter five provides the unique and most valuable section of this book in my opinion. "Micrometers and Double Star Measurements" alone was worth the cost of purchase. Here, Argyle goes through the use and design of several kinds of micrometers, ranging from the tried and true bifilar micrometer to the binocular micrometer to the interferometer and several variants in between. Sketches showing separation measurements, theta angle, and position angle and others demonstrate how the measurements are made. Yet more sketches of the actual design of a few micrometers are real assets to do-it-yourselfers that possess a little engineering or fabrication background.

The next chapter on photography of double stars is obviously outdated as the use of digital cameras and CCDs has rendered photographic film largely extinct. That said, the conceptual value remains intact and I, for one, would be eager to try measuring double stars with the assistance of one or more of JSCAS' talented astrophotographers.

Chapter seven is a series of comprehensive biographies, in alphabetical order, of the prominent double star observers and researchers. The chapter is a fascinating read and I got a real appreciation for effort and dedication these men had for their chosen field of astronomy. I can only imagine the amount of time that was put into delving into background searches and for writing this section. There's way too much information contained within for me to provide a succinct account here. If you have a particular interest in history of astronomy, the purchase is even more worthwhile.

Chapter eight is a double star catalog, using the J2000 epoch, so it is not outdated by any means, and is still of value to the dedicated amateur observer. In flipping through the pages, I was immediately struck by the overwhelming number of STF (F.G.W. Struve, or sometimes designated  $\Sigma$ ) and STT (Otto Struve, or  $O\Sigma$ ) double stars. There are many others, to be sure, but these two account for the vast majority of double stars in this particular catalog. If you want an observing list to keep you busy for a LONG time to come, even under light polluted

*(Continued on page 11)*

*(Continued from page 10)*

skies, here's a viable candidate.

Finally, the appendix includes the references and bibliography. I did not examine this in detail, but I would imagine a more recent and up to date book would better serve as a source for information.

Typically book reviews have a number of stars, or a number out of 10 rating. I'm not going to go there. My reading time is valuable to the point that if the book doesn't pass muster in short order, I don't finish reading it. Thus, any book review I might provide should be taken as a strong endorsement of the quality of the material. As you have probably discerned by now through this lengthy review, I found this book on double stars to be entirely worth the time it took read it. The section on micrometers is top shelf and I would like to personally put it to first hand use. The two historical sections were entirely enjoyable and have provided me with additional ideas for future presentations at our meetings. The only shortcoming that readily comes to my attention is a lack of sketches showing what some of the more noteworthy double and multiple star arrangements look like through a telescope. In closing, I would suggest that if you can find this book, and that's a reasonably big if, and if you are like me and interested in double stars, you probably ought to consider picking it up for your personal collection.

*(Continued from page 13)*

There remains a bit of a mystery associated with M3, however.

A careful evaluation of M3 shows that there are some main sequence, high luminosity stars remaining in the cluster. These mid life stars are the ones that should have bid a fond farewell to mid life a long time ago based on our understanding of how globulars evolve.

These outliers are called 'Blue Stragglers'. Originally identified by Allan Sandage in the early 1950's, astronomers do not have a good explanation for their continued existence. The most commonly accepted explanation for these rogue stars is that they may have come about when two smaller stars in the cluster collided and combined to make a 'new' high mass star.

# ADVANTAGE

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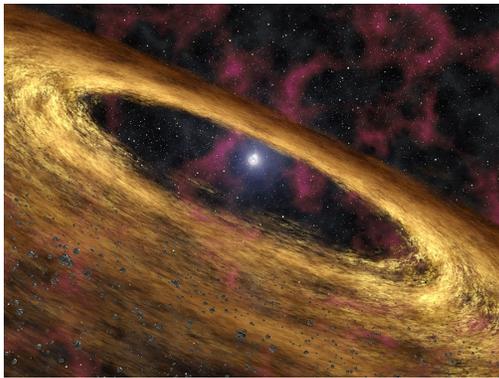
# Deadly Planets

*By Patrick L. Barry and Dr. Tony Phillips*

About 900 light years from here is a rocky planet not much bigger than Earth. It goes around its star once every hundred days, a trifle fast, but not too different from a standard Earth-year. At least two and possibly three other planets circle the same star, forming a complete solar system.

Interested? Don't be. Going there would be the last thing you ever do.

The star is a pulsar, PSR 1257+12, the seething-hot core of a supernova that exploded millions of years ago. Its planets are bathed not in gentle, life-giving sunshine but instead a blistering torrent of X-rays and high-energy particles.



*Artist's concept of a pulsar and surrounding disk of rubble called a "fallback" disk, out of which new planets could form.*

"It would be like trying to live next to Chernobyl," says Charles Beichman, a scientist at JPL and director of

the Michelson Science Center at Caltech.

Our own Sun emits small amounts of pulsar-like X-rays and high energy particles, but the amount of such radiation coming from a pulsar is "orders of magnitude more," he says. Even for a planet orbiting as far out as the Earth, this radiation could blow away the planet's atmosphere, and even vaporize sand right off the planet's surface.

Astronomer Alex Wolszczan discovered planets around PSR 1257+12 in the 1990s using Puerto Rico's giant Arecibo radio telescope. At first, no one believed worlds could form around pulsars—it was too bizarre. Supernovas were supposed to destroy planets, not create them. Where did these worlds come from?

NASA's Spitzer Space Telescope may have found the solution. In 2005, a group of astronomers led by Deepto Chakrabarty of MIT pointed the infrared telescope toward pulsar 4U 0142+61. Data revealed a disk of gas and dust surrounding the central star, probably wreckage from the supernova. It was just the sort of disk that could coalesce to form planets!

## NASA Space Place

As deadly as pulsar planets are, they might also be hauntingly beautiful. The vaporized matter rising from the planets' surfaces could be ionized by the incoming radiation, creating colorful auroras across the sky. And though the pulsar would only appear as a tiny dot in the sky (the pulsar itself is only 20-40 km across), it would be enshrouded in a hazy glow of light emitted by radiation particles as they curve in the pulsar's strong magnetic field.

Wasted beauty? Maybe. Beichman points out the positive: "It's an awful place to try and form planets, but if you can do it there, you can do it anywhere."

Find more news and images from Spitzer at <http://www.spitzer.caltech.edu/>. In addition, The Space Place Web site features several games related to Spitzer and infrared astronomy, as well as a storybook about a girl who dreamed of finding another Earth. Go to <http://tiny.cc/lucv208>.

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

# M3 — An Evolving Cluster

By Bill Pellerin, GuideStar Editor

**Object:** M3  
**Class:** Globular Cluster  
**Magnitude:** 6.3  
**R.A.:** 13h, 42m, 11s  
**Dec:** 28 deg, 22 m, 34 s  
**Constellation:** CVn  
**Size/Spectral:** 18 arc min  
**Distance:** 33,900 ly  
**Optics needed:** Small telescope

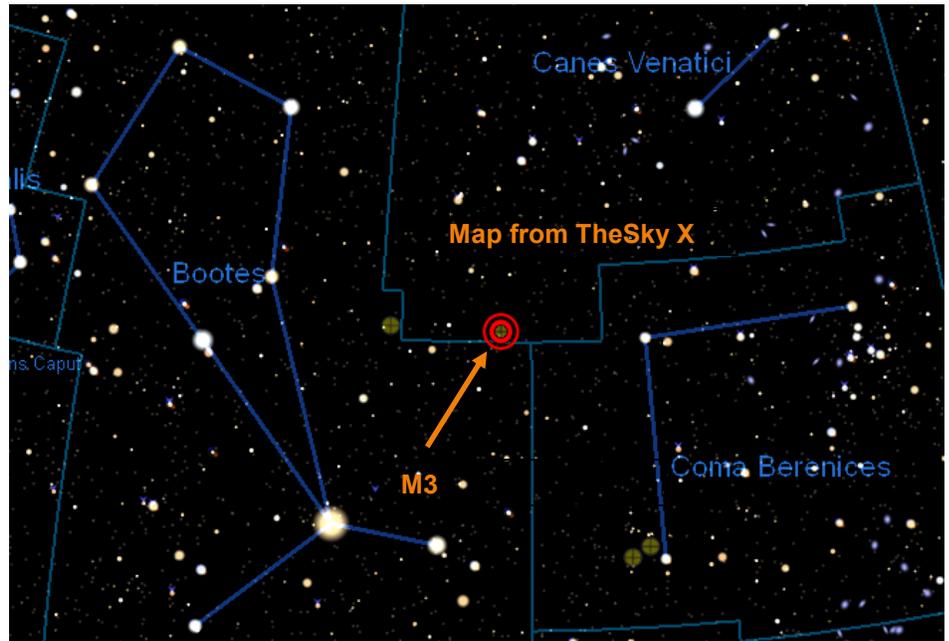
## Why this object is interesting.

Globular clusters are known to have begun their life early in the history of the universe and are, therefore, by class, some of the oldest objects in the galaxy. (At one time, there was a problem that globular clusters were deemed to be older than the universe!!)

What we can say about the stars in globular clusters is that they all seem to have 'turned on' at the same time. Of course some are more massive than others, and since massive stars live fast and die young, we can use this information to determine the age of the cluster.

Because the cluster is old, all of the high mass stars will (or should have) died out by now. And, in fact, that's what we see. Most of the high mass stars have moved to the retirement home of stars and become red giants, horizontal branch stars, AGB stars, or they have died out altogether. The mass and color (temperature) of the stars that are just leaving midlife (just now leaving the 'main sequence') give us the information we need to determine the age of the cluster. Since the distance from the Earth to each of the stars in the cluster is, for all practical purposes, the same, we can determine the relative luminosity of the stars in the cluster. (Luminosity is the word astronomers use for intrinsic brightness.) The stars that are just now moving out of mid life have exhausted most of their hydrogen. Since we can determine the age of the star based on the star's mass, this age equals the age of the cluster itself.

M3 is an excellent example of this. Considered to be one of the most colorful globular clusters in the sky, Can you see colors in the stars of M3?



M3

From Wikimedia Commons

By Hunter Wilson, May, 2009

(Continued on page 11)

# Houston Astronomical Society

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

## 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.

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 Houston Chronicle office, downtown. 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.

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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.
- 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, April 2

**7:00 Novice & Site Orientation**

**8:00 General Meeting**

## University of Houston

### Directions to meeting:

#### From I-45 going south (from downtown)

- exit at Cullen Boulevard
- turn right on Cullen
- turn right into the parking lot (by the stadium)
- 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 into the parking lot (by the stadium)
- Science and Research is across the street (2nd building back)

### Parking:

There is Free Parking, **BUT DO NOT PARK IN ANY RESERVED PARKING SPACES AT ANY TIME.**  
U of H parking enforcement will ticket your vehicle.