

September  
2007

# NIGHTFALL

Huachuca Astronomy Club of Southeastern Arizona



**HAC Web Page <http://hacastronomy.com>**

## ***HAC MEETING: Friday, September 28, 2007***

**7 pm, Cochise College, Sierra Vista, Rm. 305A/B**

**PLUS our monthly Show-N-Tells, upcoming event details, refreshments & NEW Exciting Door Prizes!**

**Speaker: Dr. Trevor Weekes,  
Senior Researcher, Harvard-Smithsonian Center for Astrophysics  
Topic: "The Discovery of the Spiral Nebula"**

### **Star Party Corner**

Keith Mullen, Star Party Coordinator (520) 366-0049 email: [repogazer@msn.com](mailto:repogazer@msn.com)

***Participation is the Lifeblood of the Club!***

It seems that HAC has endured another August without melting away, although some of its members almost got washed away, so we had to move the member star party over to RGO just to play it safe. Earlier in the month over at JBO we saw only a handful of members and one public individual brave what started out as cloudy but cleared into a nice evening. The No More "No-Go" policy was in full effect at RGO for the member star party where more than 2 dozen members and a Herald reporter gathered for a pot luck and pizza dinner by the time we had finished the pizza the skies were clearing. We opened up the observatory and were getting some good views in Sagittarius and Scorpius in the now low in the sky Summer Milky Way. We had on display some of the new outreach tools the Board has chosen to let me purchase, a new Alt-Az tracking mount for the Coronado PST this will be a nice touch at daytime events where the consistent re-aligning of the scope was a real hassle, now just align it and view old Sol all day. The other displayed item was the new Celestron Sky Scout the club received from Celestron sitting on a new parallelogram and tripod; another outreach jewel for the younger and inquiring minds we find at some of our outreach star parties. We have decided that both these items would be made available to HAC members for short loan periods, more on this in future newsletters. The moral of this story is that when we get together as a group, even under cloudy skies, good things can happen. It's all about participation; nothing happens when you don't come out to these events!

### **September Star Party Schedule**

**Saturday, September 8<sup>th</sup>** Finds us back at RGO for what is the traditional "end of the Monsoon" Star Party. It promises to be a real lively event with a birthday thrown in for good measure. So plan to come out for a slice of birthday cake and maybe a slice of clear skies. Whatever the weather looks like, It's ON, so mark it on your "must attend" calendar. That's next Saturday, September 8<sup>th</sup>. Now for those who want more action there is also DUTS (Dine Out Under the Stars) at the U of A South campus, where several HAC members are needed to set up their scopes for the annual fundraiser. Call Wayne 520-586-2244 to volunteer. You can come to the member star party afterwards; we'll save you a slice of cake!

**Friday, September 14<sup>th</sup>** is the scheduled public star party at JBO. Dave will have Big Blue ready to thrill those who dare to look into its eyepiece. We need scopes here too, so don't put them away after the members star party, just leave them in the trunk and bring them to Dave's on the 14<sup>th</sup> for another great evening of participating with other HAC members. The public can see the enthusiasm when we all get together.

## President's Perspective

Since July-August is a good time to get out of Arizona, I took advantage of the situation to attend the annual Astronomical League Convention (ALCon) in Portland, OR, from Aug 1-5. Though the weather was dreary flying there and back, miraculously the skies cooperated and we had nice, clear skies for the one observing session of the conference in downtown Portland under magnitude 4 skies. Despite the bright skies, about 100 people looked through the dozen telescopes set up on Portland State University's concrete tennis courts. Being from Buffalo, NY, which has a similar latitude to Portland, it was interesting seeing the Big Dipper that high up in the sky again! I attended the usual day-long Board Meeting previous to convention activities where it was confirmed that next year's ALCon will be held in Des Moines, IA (get your bags packed!) and the decision was made to hold our 2009 ALCon on Long Island, NY, close to NYC. The year 2009 is a special year, being the International Year of Astronomy and the 400th Anniversary of the recognized Invention of the Telescope. I'm sure we (HAC) will do some extra-special outreach activities to celebrate this special occasion.

I was very pleased to see nearly two dozen people at Keith and Teresa Mullen's RG Observatory for our monthly member star party. It was a relief to see Doug Snyder, who is recovering well from his recent stroke, and his wife, Jean, in attendance. Even Gary Myers made it despite his washed out road in the High Knoll area, though Neal and Butch Galt still aren't wandering out yet. We had several visitors from out of state, who, if not impressed with the skies that night, were certainly impressed by the camaraderie of the club members. Thanks to all who attended! The nights will only continue to improve as we get out of monsoon season. Please take advantage of one of the great benefits of the club: its membership under dark skies!  
Clear skies, Wayne (aka Mr. Galaxy), your resident president

## Dollar\$ & Cent\$

Tim Doyle

The Club has a checkbook balance (mid Aug.) of \$4612.64. Let me remind everyone that Your Sky & Telescope (Astronomy magazine still comes to me) renewals do not have to come through me any more if you are already receiving the club discount. If you are a new member or are not enjoying the \$10 discount we get as a club, you must sign up through the treasurer (that's me). We still have club T-shirts XXL & medium (\$10) sweatshirts Hooded and non-hooded. XL, XXL, available at \$10 & \$20. (this is below our cost).

## Outreach Biz

Jeanne Herbert

At this time there are no outreach events planned. However, schools are back in session so requests will be coming in soon. In the meantime, enjoy the quiet.

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This issue of Nightfall can also be found on-line at <http://hacastronomy.com>. Click 'Newsletter' link. There is much more information about astronomy and our HAC activities on our club web site. \*To join the HAC-LIST, send an email to [hacilist-subscribe@yahoogroups.com](mailto:hacilist-subscribe@yahoogroups.com).

**About the 9/28 Speaker ...**Dr. Trevor Weekes

**Synopsis:** The Third Earl of Rosse, William Parsons, was not the typical Ninteenth Century Irish Lord. He spent a large portion of his family's fortune on the construction of a telescope that was to be the largest in the world for 75 years (2 meters, or 72-inch). The Leviathan of Parsonstown, as it was called, is still an engineering marvel and was designed and built by the Third Earl using his local farm workers. Its outstanding achievement was the discovery of the "spiral nebula" in 1845, which are spiral galaxies as we know them now. The story of the discovery will be described, as well as the current reconstruction of the telescope at Birr Castle, Ireland.

**Biography:** Dr. Trevor Weekes is a leader of the branch of astrophysics devoted to the study of very high-energy gamma rays, or TeV gamma rays. A senior researcher at the Harvard-Smithsonian Center for Astrophysics, Dr. Weekes pioneered the techniques that the Very Energetic Radiation Imaging Telescope Array System (**VERITAS**) telescope uses to detect TeV gamma rays. The VERITAS, located at the Fred Lawrence Whipple Observatory near Amado, Arizona, is an observatory built to study gamma rays from extreme astrophysical phenomena in the Universe. VERITAS is now scanning the night sky searching for remnants of exploded stars, distant active galaxies, powerful gamma ray bursts, and evidence of mysterious Dark Matter particles.



## Aquarius

By Bob Kepple & Glen Sanner

Aquarius, 11<sup>th</sup> sign of the Zodiac, represents a man pouring water from an urn. Aquarius is only one of several constellations with watery associations. Surrounding Aquarius we find Pisces, the fishes, Capricornius, the Goat-Fish, Piscis Austrinus, the Southern Fish, and Eridanus, the River. Culmination takes place at 9pm on October 9<sup>th</sup>. With Sagittarius advancing westward this month, the autumn constellations are now coming into view. East of Sagittarius is the triangular formation of Capricornus. Part of Aquarius extends just north of Capricornus and westward and north of the bright star Fomalhaut. The most prominent star pattern in Aquarius is the Y-shaped asterism at its northernmost point which the ancients called the "Water Jar." Aquarius contains a variety of interesting deep-sky objects and is well-placed for observation during autumn evenings.

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## How To Post a News Article to the HAC Web Site Del Gordon

It's your turn to share astronomy club news! Calling all aspiring journalists, astronomers, and anybody that wants to share club news; this is news about the News interface on the club's Web site. You may have noticed the Huachuca Astronomy Club (HAC) Web site ([www.hacastronomy.com](http://www.hacastronomy.com)) has had a new look and feel for a few months. Part of this transition is to let you, the club member, have more control and participation in sharing information. The Web site has some new features that let you participate in the club's Web site without the wait of having a webmaster post your information. Some of these features include classifieds ads, a discussion forum, and news articles. *Nightfall* will occasionally include an article describing these features, to get you going on the Web site.

The News feature on the Web site allows club members to become "star" journalists, add news content, or just update their own observatory pages. All you need is an Internet connection, and a recent Web browser, such as Internet Explorer, Netscape, Safari, Firefox, and so on, to start adding content to the HAC Web site.

If you are interested, or would like to manage your observatory page on your own, we can get you started. You will first need a *login* name and *password*. A detailed user's guide is available that describes step-by-step how to add a news article, and it includes annotated diagrams and screen shots. Don't worry if you have problems, we can also support you over the phone, or provide a short training session to get you comfortable with the procedures.

The following general steps briefly explain the procedure to upload a news article to the HAC Web site. If you need more detailed procedures, please send e-mail to: [webmgr@hacastronomy.com](mailto:webmgr@hacastronomy.com) and request the document, "How To Post a News Article to the HAC Web Site." A Portable Document Format (PDF) file that contains detailed steps with annotated images will be sent to you. This PDF file will not be posted on the Web site for security reasons.

**Step 1. News Account.** First, you need an account name (also known as "Username") and password. If you are a HAC member, you may request a News account by sending e-mail to: [webmgr@hacastronomy.com](mailto:webmgr@hacastronomy.com). Send your name and your street address (only used for member verification purposes).

**Step 2. Log On.** Once you have your account name and password, access the following URL with your Internet browser: <http://hacastronomy.com/news>

The news "Login" page will be displayed. You will see a page with a Username and Password prompt, such as the following (see Figure 1).

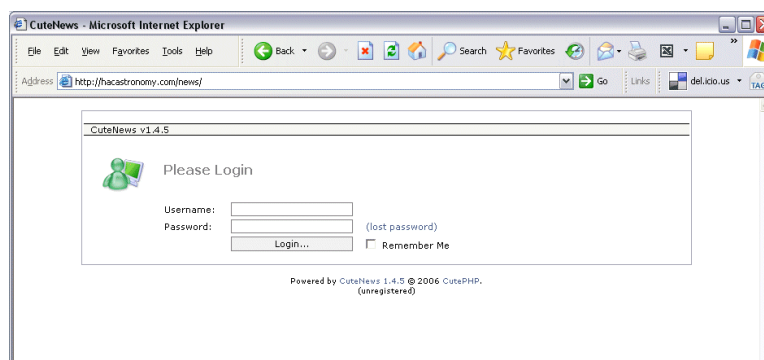


Figure 1. The HAC News Login Screen.

Enter your *username* and *password* into the text fields, and then select the **Login...** button. The "Welcome" home page then appears, similar to the following (see Figure 2).

**Note:** Do not use the "Remember Me" checkbox on public computers, or computers to which other people have access. This is a security precaution that helps prevent non-authorized user access.

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**Messier 72 NGC 6981 Globular Cluster Dia. 5.9' Mag. 9.3v RA 20<sup>h</sup>53.5<sup>m</sup> -12° 32'**

M72 was discovered in August 1780 by Mechain. It is a Class IX globular cluster lying about 56,000 light years from us. 4 to 6-inch telescopes will show a fairly bright fuzz ball with a broad core. An 8-inch scope will resolve a few of the periphery stars while a 12-inch scope may resolve a dozen or more on a steady night.

**NGC 7009 Planetary Nebula "Saturn Nebula" Dia. 25' Mag. 8.3v 21<sup>h</sup>04.2<sup>m</sup> -11°22'**

NGC 7009 lies three degrees ENE of M72 and one degree west of 4.5 magnitude star Nu Aquarii. It was first seen in 1782 by William Herschel but was given the name *Saturn Nebula* by Lord Rosse in 1850 when he saw extensions projecting from its disk. Its disk is quite bright and visible in small telescopes but at least a 12-inch at 200x is needed to discern the very faint antenna. A 16-inch shows a bluish-green 40"x30" E-W disk with a faint outer shell and two very faint projections. The 12.8 magnitude central star is obvious.

**Messier 2 NGC 7089 Globular Cluster Dia. 12.9' Mag. 6.4v 21<sup>h</sup>33.5<sup>m</sup> -00°49'**

Messier 2 was discovered by Maroldi in 1746 and Messier added it to his list in 1760. It is a class II globular cluster lying 36,800 light years away. 4 to 6-inch scopes will show an unresolved 5' diameter disk with a much brighter center. A 12-inch scope will resolve outer stars up to the core while 16-inch and larger instruments will resolve at least a hundred stars across an 8' diameter disk. The center has a well-concentrated core with star chains meandering out to a diameter of 12'. Several dark lanes are visible, the most prominent located in the NE portion.

**NGC 7293 Planetary Nebula "Helix Nebula" Dia. >769" Mag. 7.3v 22<sup>h</sup>29.6<sup>m</sup> -20°48'**

The Helix Nebula, only 300 light years away, may be the nearest planetary nebula to our solar system. It is the largest planetary in apparent size, its diameter being one-half that of the full moon, however its disk is extremely faint and its ring structure, so conspicuous in photos, is not easy to detect visually. 4 to 6-inch scopes with a UHC filter at 75x to 100x will show a faint smoke ring with a plainly darker center. Averted vision without the filter is needed to detect the 13.6 magnitude central star. 8 to 12-inch scopes at 100x may discern two slightly brighter spots in its wreath. The annularity is more pronounced and three 10<sup>th</sup> mag. stars are visible within the center. In 16-inch and larger telescopes the Helix becomes more impressive with the use of either a UHC or an O-III filter. 100x shows a glowing 15' diameter disk with a darker center. An increase to 150x or 200x will show mottling and bright patches within the wreath. At least ten stars are embedded in the nebulosity along with the central star and a close pair on the southern side. In 20-inch and larger instruments, the Helix becomes a showpiece.

**NGC 7606 Galaxy Type SB:(rs)b II Dia. 4.4'x2.0' Mag. 10.8v 23<sup>h</sup>19.1<sup>m</sup> -08°29'**

NGC 7606 is probably the brightest among a host of faint galaxies residing in Aquarius. 6 and 8-inch scopes will show a faint but obvious 3'x1' diameter halo elongated NW-SE with a

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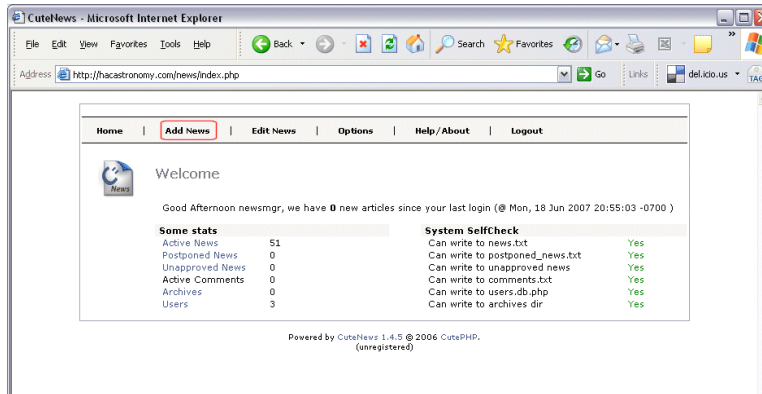


Figure 2. The “Welcome” Home Page for the HAC News Web Interface.

**Step 3. Add News Text.** At the top of the News page, you will see several options: *Home*, *Add News*, *Edit News*, *Logout*, and so on. To add a news article, select the **Add News** option. The Add News screen will be displayed.

**Step 4. Add Pictures.** (Optional) Adding pictures is optional. If you want to add pictures to a news article, select the **[insert image]** link on the right side.

**Step 5. Edit the Article.** (Optional) You may need to further edit the text to correct typos, move any image thumbnails, add smiley icons, and so on.

**Step 6. Upload the News Article.** When finished editing, select the **Add News** button. This function saves the news article to the Web server.

**Step 7. View the Article.** You can now view the news article on the Web. Select the appropriate URL with your Internet browser to view the updated Web page. Most news pages have predefined links. Usually, a specific news category has a specific page, or URL. For example, the following URL displays the “Club News” category:

<http://www.hacastronomy.com/newsfeed.php>

The observatories each have their own news feed page. For example, to access the JBO news, use the following URL:

<http://hacastronomy.com/jbofeed.php>

Or, use the HAC Web site’s menu system to view a news category: From the main menu, select, for example:

**Observatories → Junk Bond Observatory**

You may access the “Club News” by selecting from the main menu:


**News & Events → Club News**

**Step 8. Update an Existing Article.** (Optional) Many times, you may need to update an article later. Use your Internet browser and navigate back to the News interface URL:

<http://www.hacastronomy.com/news/index.php>

Select the “Edit News” link at the top of the page. The “Edit News” page will be displayed.

Note that you may need to select the “Refresh” or “Reload” function on your Internet browser to see any changes. Select the

“Refresh” button (  ) to ensure the Web page displays the latest data. From the browser’s main menu, you can also select the option:

**View → Refresh**

**Step 9. Log Out.** When you have finished using HAC News, please log out. Select the **Logout** button from the News home page to log out.

This ends the basic procedures for posting news articles on the HAC Web Site. Please remember that there is a detailed procedure with annotated diagrams available. If you have any questions or comments, please send e-mail to: [hacmgr@hacastronomy.com](mailto:hacmgr@hacastronomy.com). Now dust off your keyboard and get your HAC journalist fingers typing.

## Cosmic Cockroaches

By Dr. Tony Phillips

Cockroaches are supposed to be tough, able to survive anything from a good stomping to a nuclear blast. But roaches are wimps compared to a little molecule that has recently caught the eye of biologists and astronomers—the polycyclic aromatic hydrocarbon.

Polycyclic aromatic hydrocarbons (PAHs for short) are ring-shaped molecules made of carbon and hydrogen. “They’re all around us,” says Achim Tappe of the Harvard Center for Astrophysics. “PAHs are present in mineral oils, coal, tar, tobacco smoke and automobile exhaust.” Aromatic, ring-shaped molecules structurally akin to PAHs are found in DNA itself!

That’s why Tappe’s recent discovery may be so important. “PAHs are so tough, they can survive a supernova.”

The story begins a few thousand years ago when a massive star in the Large Magellanic Cloud exploded, blasting nearby star systems and interstellar clouds with hot gas and deadly radiation. The expanding shell, still visible from Earth after all these years and catalogued by astronomers as “N132D,” spans 80 light years and has swept up some 600 Suns worth of mass.

Last year “we observed N132D using NASA’s Spitzer Space Telescope,” says Tappe. Spitzer is an infrared (IR) telescope, and it has a spectrometer onboard sensitive to the IR emissions of PAHs. One look at N132D revealed “PAHs all around the supernova’s expanding shell. They appear to be swept up by a shock wave of 8 million degree gas. This is causing some damage to the molecules, but many of the PAHs are surviving.”

Astronomers have long known that PAHs are abundant not only on Earth but throughout the cosmos—they’ve been found in comet dust, meteorites and many cold interstellar clouds—but who knew they were so tough? “This is our first evidence that PAHs can withstand a supernova blast,” he says.

Their ability to survive may be key to life on Earth. Many astronomers are convinced that a supernova exploded in our corner of the galaxy 4-to-5 billion years ago just as the solar system was coalescing from primitive interstellar gas. In one scenario of life’s origins, PAHs survived and made their way to our planet. It turns out that stacks of PAHs can form in water—think, primordial seas—and provide a scaffold for nucleic acids with architectural properties akin to RNA and DNA. PAHs may be just tough enough for genesis.

Cockroaches, eat your hearts out.

Find out about other Spitzer discoveries at [www.spitzer.caltech.edu](http://www.spitzer.caltech.edu).

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

**Caption:**  
*Using the IR spectrometer on the Spitzer Space Telescope, scientists found organic molecules in supernova remnant N132D.*

*Note to editors:*

*This image can be downloaded from [http://spaceplace.nasa.gov/news\\_images/N132D.jpg](http://spaceplace.nasa.gov/news_images/N132D.jpg)*





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slightly brighter center. Stepping up to a 16-inch telescope will show a mottled 4'x1.5' NNW-SSE halo with a broad core containing a stellar nucleus.

**NGC 7727 Galaxy Type SAB:(S?)0/a pec Dia. 5.6'x4.0' Mag. 10.6v 23<sup>h</sup>39.9<sup>m</sup> -12°18'**  
Using 8 to 10-inch scopes, NGC 7727 is a fairly faint, circular 2.5' diameter glow with some brightening toward center to a stellar nucleus. 16-inch telescopes will show a bright 45" diameter core with a nonstellar nucleus surrounded by a faint oval-shaped 5'x3' ENE-WSW halo. The galaxy lies within an 8' diameter circlet of 12.5 to 13<sup>th</sup> mag. Stars.

The Monsoon rains should be ending by mid-September so take advantage of any clear night without moonlight to locate the fine assortment of deep-sky objects in Aquarius. Part of this material was taken from *The Night Sky Observer's Guide* by the authors with permission from the publisher Willmann-Bell, Inc.