

SEPTEMBER
2006

HAC Welcomes New Member
Anthony Maslanka

NIGHTFALL

Huachuca Astronomy Club of Southeastern Arizona



HAC MONTHLY MEETING: FRIDAY, SEPTEMBER 8, 2006
Guest Speaker: Mr. Rik Hill from the Catalina Sky Survey

Topic: **Near Earth Objects, Sky Discoveries and the CSS**
7 pm, Cochise College, Sierra Vista, Rm. 305

PLUS our monthly Show-N-Tells, a POP Quiz on (real) planets, and a neat Door Prize

An Observing Eye on Vulpecula, the Fox (a summer constellation) By Bob Kepple (HAC Chief Observer)

Vulpecula is an obscure constellation having no bright stars. However, its faint stars may easily be seen overhead in September using the accompanying star map and the bright stars of Cygnus, the Swan (also known as the Northern Cross) as a reference to zero in on the constellation's fainter stars. The most well-known objects in Vulpecula are the Dumbbell Nebula (M27) and The Coathanger (Collinder 399); however there are some other deep-sky objects worthy of the small telescope user's attention. The following descriptions were made using 4 to 8 inch telescopes:

Collinder 399 Open Cl. (Cluster), 40* (* = stars), dia. 60' (diameter in arc-minutes), mag. 3.6v (magnitude, with v meaning visual), 19h 25.4m, +20°11' (Right Ascension in hours and minutes; Declination in degrees and minutes north or south of the celestial equator [+ = north declination])

Well-known as The Coathanger, this object is an easy binocular target. There are 10 stars forming a 1.25 degree long asterism that forms a perfect shape of a coathanger. To see it in a telescope you need to use very low power.

NGC 6800 Open Cl. 20*, dia. 5', mag. ? 19h27.2m +25°08'

This cluster has two dozen 12th and 13th mag. stars loosely scattered over a 17'x12 E-W area. Its brightest star is only 10th mag.

NGC 6802 Open Cl. 50*, dia. 3.2' mag. 8.8v, 19h30.6m +20°16'

6802 lies at the east end of the Coathanger and within a keystone of four 9th to 11th mag. stars. The cluster appears as faint oval patch of haze. Small scopes will resolve seven stars.

Stock 1 Open Cl. 40*, dia. 60', mag. 5.3v, 19h35.8m +25°13'

Stock 1 is another binocular object, its 40 stars are spread over a degree of sky. You need very low power in a telescope for the best view. The cluster is split into two groups, the western part is larger and contains about 30 stars while the eastern section has only 10 stars but includes Struve 2548, and attractive 9" wide pair of 9th and 10th mag. stars.

NGC 6820 E Neb (emission nebula). & Open Cl. 30*, dia. 12' mag. 7.1v, 19h43.1m +23°18'

6820 appears rich with three dozen faint stars irregularly concentrated in a 6' area. The center contains a knot of six 9th and 10th mag. stars while the other members are much fainter. The cluster is immersed in a faint haze that needs larger scopes with an O-III (pronounced OH-three) or UHC (Ultra High Contrast) filter to see.

NGC 6830 Open Cl. 20*, dia. 12' mag. 7.9v, 19h51.0m +23°04'

6830 stands out fairly well as a rich patch of thirty 12th to 13th mag. stars scattered over 6' area. Outlying stars expand the diameter to 12' with a jagged chain of stars extending to the west then curving to the north.

(Continued on page two along with a sky chart)

Vulpecula, the Fox (continued)

NGC 6834 Open Cl. 50*, dia. 5' mag. 7.8v, 19h52.2m +29°25'

6834 is a faint but rich rectangular or somewhat triangular group of fifty 10th to 15th mag. stars concentrated in a 7' area. An 8th mag. star at the southern edge of the cluster lies at the center of an E-W row of five 10th mag. stars.

NGC 6853 M27 Planetary Neb. dia. 348" (arc-seconds), mag. 7.3v, 19h59.6m +22°43'

The showpiece object of the constellation is M27, the famous Dumbbell Nebula. Some observer's would rate this the finest planetary nebula in the entire sky. It certainly is a magnificent object with a bright 8'x6' hourglass-shaped disk with the bright lobes to the N and S and the pinch to the E and W. This object always gives me a three-dimensional illusion appearing as though it is suspended in front of the background stars. O-III, UHC, and Deep-sky filters will enhance it considerably but with larger scopes the view is just as good without filters especially since you may see more than a dozen stars embedded in the nebula which filters diminish.

Roslund 4 Open Cl. 30*, dia. 5' mag. 10.0v, 20h04.9m +29°13'

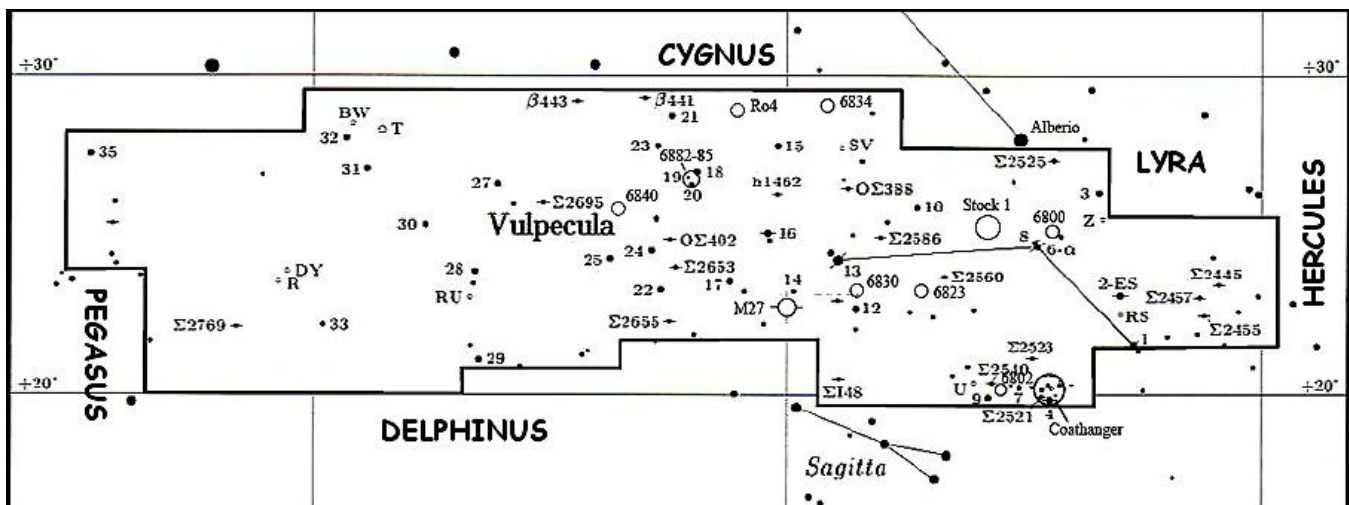
Roslund 4 is a small open cluster of three 10th and two dozen 11th mag. stars in two loose, irregular NNW-SSE concentrations. 4' NE of the cluster is a conspicuous 3-bladed propeller-shaped asterism. The cluster is embedded in the haze of the nebula IC 4954-55, but since it is a reflection nebula filter are of little help.

NGC 6882-85 Open Cl. 30*, dia. 18' mag. 5.7v, 20h12.0m +26°29'

6882 and 6885 are not readily distinguishable as separate entities. 6882 has some fifty 9th to 13th mag. stars in an 18' area, the majority forming a broad E-W stream across the northern portion of the cluster. The mag. 5.9 star 20 Vul. stands out near the group's SE edge. 6885 is plotted as centered on 20 Vul. but there is no concentration to be seen.

NGC 6940 Open Cl. 60*, dia. 31' mag. 6.3v, 20h34.6m +28°18'

6940 is a rich, uniformly concentrated cluster containing 75 stars in half a degree of sky. It is only moderately compressed at its center with the majority of its members irregularly bunched into knots, pairs, short rows and star chains, two of the longer chains run E-W through the center. Several starless voids are scattered here and there. The reddish-orange variable star FG Vul. lies near center. The cluster's brightest star at 9.3 mag. is located at the western corner of a trapezoid formed with three more of the group's brighter stars. The cluster's edge is fairly distinct except to the north where its outermost stars seem to blend into the surrounding Milky Way.



Huachuca Astronomy Club P.O. Box 922 Sierra Vista, AZ 85636 <http://c3po.cochise.edu/astro>; email hac@palominas.com
 Yearly Membership: Individual: \$25; Family: \$35; Military: \$20; student:\$10 (with restrictions)
 President: Doug Snyder (520) 366-5788 (starhaven@palominas.com); Vice President: Wayne Johnson; Treasurer: Tim Doyle 378-5121;
 Secretary: Jeanne Herbert; Star Party Coordinator: Keith Mullen 366-0049; repozazer@wavmax.com
 Public Events Coordinator: Jeanne Herbert (jeanne_hrbrt@yahoo.com) 366-5690 (early evenings)

This issue of NightFall can also be found on-line at <http://c3po.cochise.edu/astro>. Click on the '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 haclist-subscribe@yahoogroups.com.

Star Party Corner by Keith Mullen, Star Party Coordinator (520) 366-0049 email: repogazer@wavmax.com

August saw plenty of precipitation, too little observation, and a whole lot of participation!

Having been blessed with a successful star Party in July along with that week of clear weather we all had high hopes for August with the Road Trip to Starizona and a couple of scheduled star Parties. The trip to Starizona was a huge success, having 16 HAC members making the trip. Dean Koenig, owner of Starizona made sure everyone had an opportunity to grab a free poster or two, refreshments and some darn good deals to two members who went home with their first new scopes. Tony Maslanka our newest member brought home a new Orion 8" Dob and Judy Sukol finally came home with the new Celestron 8i-SE. The following week Doug and I had Judy over to RGO for first light ceremonies, we may hear more on this from Judy herself. Our monthly Public Star Party was a cloud out and so was the Members Star Party at Hans Clahsen's Alkira Observatory on the 25th.

September's Star Party schedule

Weather Permitting; You are encouraged to bring a telescope to these events, but if you can't, that's okay too! Come On, let's see you at these club functions! You know you've run out of excuses!

Saturday Sept. 9th

Dine under the Stars (DUTS) will again be held at the UA South Campus adjacent to the Patterson Observatory, we need some Scope volunteers for this event, call either Doug Snyder 366-5788 or Keith Mullen 366-0049 to volunteer. Additional information will be provided at the September meeting on the 8th.

Friday Sept. 15th

Public/Members Star Party at Dave Healy's JBO, the weather should be clear so get out and give Dave a hand. Let's supply some extra telescopes to complement Dave's 32" R-C! We're expecting a good public turnout.

Saturday Sept. 23rd

Member Star Party at Doug Snyder's Palominas Starhaven Observatory. Doug is looking forward to clear dark skies on this first day of Fall and lots of hearty and healthy 'astro' eats. Although he will have his 20" Obsession and the 14" Meade LX200R aimed at the skies, there will be plenty of room for other telescopes!

Buying My First Scope— By Judy Sukol (HAC Member)

After several months of poring through catalogs and Astronomy magazines, peppering HAC members with questions, and looking through every scope I could get my hands on, I finally took the plunge August 12th at the HAC gathering at Starizona and purchased my first scope (and various accessories, with more to come, I'm sure). It would not have been possible without the help of all the HAC members who patiently answered my questions and showed me the ropes (or more accurately, the ladders). The final journey to my scope purchase originated in the fertile brain of Keith Mullens, who came up with the ingenious idea of having a "full moon workshop" at Starizona. After the date for the trip was announced, the wait for August 12 to arrive seemed interminable. On the road trip to Dean's shop, I felt like a child going to shop for that first bicycle. I walked into Starizona in breathless anticipation, looking around the shop anxiously for the orange glow of the Celestron 8i that I had finally decided to purchase. At first I didn't see it, but then Keith crossed the room, and with a flourish, removed the protective covering, unveiling the scope of my dreams! Now if only the skies would clear so I could align on that first star, using Celestron's proprietary SkyAlign technology, which purportedly will allow even a liberal arts major like me to "start finding and tracking any of the objects in its 40,000 object database...." And the adventure begins!

(Ed.: We look forward to reading future reports from Judy as she progresses with her new telescope and in her 'astronomy' adventure!)

HAVE FUN WHILE SHARPENING YOUR OBSERVING SKILLS!—III

In the March issue of NIGHTFALL I introduced you to the Astronomical League's Observing Clubs. Each of the 28 clubs offers a structured observing program, upon completion of which, The League recognizes you by publishing your name in its quarterly, THE REFLECTOR, and awards you a personalized certificate of membership in the Club. The programs range from falling-off-a-log easy to almost impossible. In future issues of NIGHTFALL, I'll continue describing clubs I found most personally rewarding. This month, a quick look at the Binocular Messier Club.

For full information about the Clubs, visit www.astroleague.org and select Observing Clubs.

The Binocular Messier Club

Some plagiarism is called for, because Mike Benson's introduction to the Bino Messier club can't be improved upon:

"The Binocular Messier Club is for beginning observers as well as experienced amateurs. Beginning observers will find that it doesn't take an expensive telescope but only a simple pair of binoculars, no matter what size, cost or condition, to do serious astronomy. On the other hand, experienced amateurs, even though they may already have the A.L.'s telescopic Messier and Herschel certificates, will enjoy the new perspective binocular observing gives them as they pull back from an object and observe the area around that object as well as the object itself. Seeing the object and its relationship to the sky around it will put that object in its proper context in the sky."

In other words, the Binocular Messier Club (and the Binocular Deep Sky Club, if further therapy is needed) cures even advanced cases of "Monitoritis,"

The rules require that 50 of the 110 Messier objects be observed with binoculars, and that Mike be sent your set of observing notes for his approval.

Required:

1. One Card Table
2. One uncomfortable chair
3. One Star Atlas (I used Tirion/Skiff's "Bright Star Atlas")
4. One red flashlight.
5. A notebook and pencil
6. One pair of (almost any) binoculars
7. One semi-sentient observer.

A few partly clear nights.

Go for it!---**Dave Healy (HAC's ALCOR & Director/Owner of Junk Bond Observatory)**

Comments from Doug Snyder about the Astronomical League—I want to thank Dave for this continuing series of articles. The observing programs that the A. L. have put together over the years are truly diverse, fun and educational. I really encourage each member of HAC to learn about the various programs, select one or two to get started with and then, like Dave says, "GO for it!"

What I did on summer vacation. Well, I went to see my cousins in California. We went to Sequoia Kings Canyon and saw some giant trees, went to a cave, went to Yosemite and went tubing down part of the Kings River (that was fun). Yeah, that's nice but this is an astronomy club newsletter. Which brings me to what I brought back from California – lots of books (my family really likes to read), new t-shirts, new CD player, water from Soda Springs in Yosemite and a **Meade LXD55 8" telescope!** My aunt and uncle are letting us borrow the scope. They figure we'll get more use out of it than they will. That's probably true since they had it in the corner of a closet. My dad and I have been learning how it works and think we might have it figured out. We'll know for sure when the skies clear (hopefully soon). I'd use the scope to do the **Astronomical League's Universe Sampler** (I'm going to start working on that when it clears up) but you can't use a go-to scope so I'll have to stick with our 6" Dob.—ANDREW HERBERT (HAC Member)

....and from Andrew's mom Jeanne (HAC's Secretary & Public Events Coordinator)....

Fellow astronomers, when attending HAC events – member star parties, full moon workshops or public star parties, invite your spouses/significant others to come to these events with you – there is often another "party" going on in the kitchen. You might be surprised at what they learn! Hope to see you at the next event!

Star Names Influenced by Western Civilization History

Nightfall, Sierra Vista, AZ

By Larry Weatherwax (HAC member)

Think of the names of the most famous astronomers of the past. Which names come to mind? It is a pretty safe bet that the names Copernicus, Galileo, Kepler and Newton are among the first to come forward. These astronomers represent the contribution of the Polish, Italian, German, and English people to our understanding and appreciation of the universe viewed from the earth.

Those who are more versed in the subject will be able to include the Greeks; Eudonus, Aristotle, and Ptolemy to the list. Now name a famous Arabic astronomer. This is not so easy.

Think of the names of the most famous stars in our late summer sky. Which names come to mind? It is a pretty safe bet that the names Vega, Deneb, Altair, Aldebaran, Betelgeuse, and Rigel are among the first to come to mind. These star names represent a small sampling of the contribution of the Arabic people to our understanding and appreciation of the night sky as viewed from earth.

Those who are more versed in the subject will be able to include the Greek derived names Sirius, Capella, and the Pleiades in the list. Now name a famous star with a Polish, Italian, German, or English name. This is not so easy.

Why have these different people contributed to astronomy in such different ways? Astronomy is the combined result of the contributions of many people through time. The answer to the question lies in an understanding of the parallel history of astronomy with that of western civilization. ASTRONOMY is a science in western civilization because of the ancient Greeks. They were the first people to seek explanations of the night sky not based strictly in mythology. Eudonus, Aristotle, and Ptolemy attempted to construct intellectual models of the structure of the universe that would permit re-creations of the astronomical patterns. This in turn would enable predictions of the astronomical future. The early Greek influence can be seen in the names of some of the brighter night stars.

Greek astronomy was part of the booty collected by the Romans as a result of their rise to dominance in the Mediterranean. The Romans had interests in other areas and contributed little to the advancement of astronomy. With the near total conquest of the Mediterranean by the followers of Islam, astronomy passed to another people.

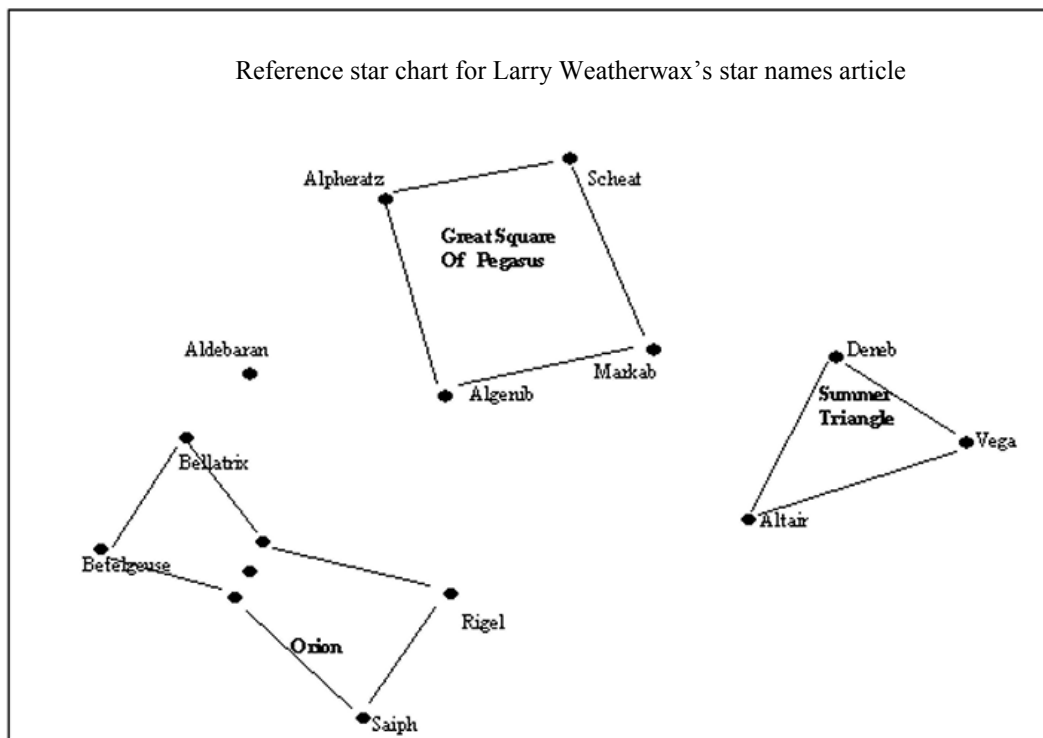
The Arabs preserved western civilization while Europe suffered through the dark ages. What we know of the ancient world and astronomy is largely due to their preservation of this information. Europe eventually recovered its lost heritage, and the Renaissance began when the Arabs in their turn were driven out of Europe.

Arabic Astronomers had little influence on astronomical theory. They mostly translated and studied the manuscripts of the conquered. But, astronomy was not returned intact. Arabic astronomers had a great influence on the language of astronomy. The names they gave to many of the stars have remained. These star names are a legacy derived from the almost one thousand year long period of time that the Islamic civilization controlled what was known of the universe.

(Referring to the chart on the following page), One has only to look at our late summer night sky (when clear) to appreciate the Arabic influence in star names. In the early evening overhead sky the three bright stars of the summer triangle can be seen. These stars Vega, Deneb, and Altair are all derived from Arabic words.

The evening eastern sky is dominated by the four bright stars of the autumn asterism known as the Great Square of Pegasus. These four stars Alpheratz, Scheat, Markab, and Algenib also have their origins in Arabic. Later in the night skies Aldebaran, the eye of Taurus the Bull and the very bright winter constellation of Orion the Hunter will rise in the East. The Orion rectangle is outlined by the stars Betelgeuse, Rigel, Bellatrix, and Saiph. The belt stars within the rectangle are named Alnitak, Alnilam, and Mintaka. We also owe Arabic credit for these names.

All of these stars with exotic names to the English Ear can be found in tonight's sky, Insha Allah. (God Willing)



PLUTO DEMOTED !!

The IAU members gathered at the 2006 General Assembly agreed that a "planet" is defined as a celestial body that (a) is in orbit around the Sun, (b) has sufficient mass for its self-gravity to overcome rigid body forces so that it assumes a hydrostatic equilibrium (nearly round) shape, and (c) has cleared the neighborhood around its orbit.

This means that the Solar System consists of eight "planets" Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune. A new distinct class of objects called "dwarf planets" was also decided. It was agreed that "planets" and "dwarf planets" are two distinct classes of objects. The first members of the "dwarf planet" category are Ceres, Pluto and 2003 UB313 (temporary name). More "dwarf planets" are expected to be announced by the IAU in the coming months and years. Currently a dozen candidate "dwarf planets" are listed on IAU's "dwarf planet" watchlist, which keeps changing as new objects are found and the physics of the existing candidates becomes better known. The "dwarf planet" Pluto is recognized as an important proto-type of a new class of trans-Neptunian objects. The IAU will set up a process to name these objects.

RESOLUTION 5A

The IAU therefore resolves that "planets" and other bodies in our Solar System, except satellites, be defined into three distinct categories in the following way:

- (1) A "planet" is a celestial body that (a) is in orbit around the Sun, (b) has sufficient mass for its self-gravity to overcome rigid body forces so that it assumes a hydrostatic equilibrium (nearly round) shape, and (c) has cleared the neighborhood around its orbit.
- (2) A "dwarf planet" is a celestial body that (a) is in orbit around the Sun, (b) has sufficient mass for its self-gravity to overcome rigid body forces so that it assumes a hydrostatic equilibrium (nearly round) shape, (c) has not cleared the neighborhood around its orbit, and (d) is not a satellite.
- (3) All other objects except satellites orbiting the Sun shall be referred to collectively as "Small Solar-System Bodies".

New Observatory! by Paul Dybvig (HAC member)

Starting from a kid of 12 years old back in 1967 in Dayton, Ohio with a 6" f/8 Dynascope to the 14" Mak-Newt I'm still working on today has been a long adventure in astronomy. In the past it was a few all too brief periods of time with a few telescopes punctuated with many years of astronomical inactivity. I don't remember what ever happened to that Dynascope, it probably went the way of my chemistry set and cast iron weight set which were sold at a yard sale while I was away in prep school in Connecticut. In the backyard in Kettering, Ohio (suburb of Dayton) I couldn't see too much due to incurable poor seeing, mainly due to city and local lights. I remember Jupiter and Saturn as being my favorite objects, followed by the moon, and Venus a distant 4th. Power pole transformers, capacitors, lightning arrestors, wires etc., and peering into rooms at the Kettering Memorial Hospital (bad, very bad) were daytime observing favorites.

When I transferred from Claremont Men's College (now Claremont McKenna) to the U of A, I once again had an opportunity to search the depths of starry space in quest of new and exciting objects. As a 21-year-old in Tucson, I was fortunate to live just NE of Campbell and Skyline in the foothills. At that time I acquired a Meade 12.5" f/6 Research Series reflector and a Unitron 4" folded refractor. Unfortunately, the city lights were directly south, making observing faint extended objects very difficult. I never could ferret out the Horse Head Nebula, but did catch M33, although it was heavily washed out. M13 and the Orion Nebula were delights. I tried my luck at photography at that time, using the venerable Pentax K1000 SLR camera and Tri-x and Kodak 2415 Technical Pan film. Polar alignment was hit or miss since I did not have a permanent pier. Rolling the large reflector out of the garage on suitable evenings onto the sidewalk by the house and relying heavily on the dual axis drive corrector was the best I could do. I distinctly remember one night where seeing was good, polar alignment was very good (had a 3" refractor for guiding) and shooting 20 or so images well into the night, expecting great results, only to find that the film was not advancing inside the camera. Talk about a let down. There was one night of exceptional viewing, though. I was fixated on the fantastic detail I was seeing in Jupiter's belts and zones, eddies and formations.

Alas, I got married in 1986 and the 12.5" reflector was sold around 1987 to fund a new hobby, amateur radio. The word was - funding for expensive new hobbies was not available, I would have to liquidate hardware from an old hobby to fund hardware for the new hobby. At that time I had seen all I could reasonably see from Tucson, and I vowed I would not get into astronomy again unless two conditions were met, namely superior equipment and a superior viewing location. That brings us to 2002 or so when I began getting the astronomical itch again. I had moved to Whetstone in 1988, the dark skies here were very evident so one condition was met. Next was the protracted process of telescope selection -- what size aperture, what design, what f ratio, what make, what mount, what cost, and so forth. During the process of resolving these often conflicting considerations, I became aware of the absolutely tremendous advances in digital cameras which had occurred in the prior 5-10 years. One article basically said that with these new marvels, one equipped with such a digital camera could compete his telescope with one of 10x aperture of 15 years ago using a traditional film camera. Thus, with a suitable 10" telescope and digital camera, you had a configuration comparable to a 100" telescope using emulsion film.

Armed with that information, and knowing that most of my telescope time would be digital imaging, I raised telescope resolving power to the top of the priority list, followed by aperture, with f ratio following that. Basically, if my camera had 6.8 micron pixels, I wanted the scope to resolve accordingly. I would have to write another article about more of that process, including back and forth communications with Mike Palermi over 4-5 years to do it justice. The end result of that long process (and still continuing) is an **Intes-Micro MN14, 14" f4.5 Maksutov Newtonian**. Not too surprisingly, it has an image spot size of 6.8 microns. I know, I know, there are a host/myriad of factors which conspire to alter this figure, but you have to start somewhere. Theoretical best is where I chose to start, and who knows, maybe every now and then conditions will permit coming close to that. It should be mounted by August 20th or so on a **Paramount ME mount**, permanent pier, inside a SkyShed roll-off roof observatory (another story maybe).

Deadly Planets

By Patrick L. Barry and Dr. Tony Phillips (Not HAC Members, but a worthwhile article for sure!)

About 900 light years from here, there's 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.

"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. Last year, 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!

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."

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



AND FINALLY, September's Notes From The HAC President: THANKS so much to the members who took the time to prepare and send in their newsletter contributions!! This is the best HAC newsletter ever! LET'S KEEP IT GOING! & support the newsletter! Next deadline is Sept. 29th. OUR 2006 T4T (Telescopes For Telethon) FUND RAISING CAMPAIGN FOR THE **MDA** HAS COME TO AN END and **our total contribution came to \$4776.00 !!** Many thanks to all who contributed time and \$\$, especially our club benefactor who did a 3x match of member donations. The September meeting POP QUIZ will deal with Planets and their satellites. Do you know your planet facts? Interested in a new design HAC SWEATSHIRT (not T-shirt). We're going to order new ones, so visit the HAC website and see what style you like! We're looking for a couple of Project Astro volunteers for this school year—Contact Frank Zizza at the meeting. Our club election will be in November, so we'll be choosing our Candidate Nominating Committee during this meeting. Our October 6th meeting will be all about Telescopes! FINALLY, FOR SURE: WE REALLY WANT TO SEE YOU AT OUR STAR PARTIES AND MEETINGS—DON'T BE A STRANGER! Clear Skies & Turn off an outside lightDoug