March Highlite:

Saturn & Rings

NIGHTFALL
Huachuca Astronomy Club of Southeastern Arizona

HAC MEETING: Friday, March 21, 2008

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

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

Speaker: John "Jack" Borden Newton Topic: Imaging with DSLR Cameras

Star Party Corner

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

Participation is the Lifeblood of the Club!

February wasn't a bad month as far as visual observations went. Our monthly Star Party held at RGO started out more on the social side but improved as the night went on. I'm only sorry that we lost some of our potential observers (Jim & Katie Taylor) before the skies cleared. Most of the regulars attended along with some first timers to RGO (Regina and Danny) under the cloak of Cindy Lund who has been showing up everywhere-a good thing though, keep it up Cindy! Anyway, several of us spent a couple of good hours of observing under Palominas skies. The following weekend was stellar for a February as the Public Star Party at JBO attracted several interested public inquirers along with Kim Rogalski and his astronomy class; they always liven things up with educated questions and raw enthusiasm. Thanks to those who brought out their scopes and gave Dave the time to concentrate on the top 20 request list on Big Blue. February blessed us with the last Total Lunar Eclipse visible to our neck of the woods until 2010 and we shared it with over 50 youth campers from Phoenix at the Huachuca Oaks Camp facility. Again thanks to those who volunteered to bring out a scope (Rich, Keith, Del, Dave, Jeanne and Andrew) and made this a memorable event for all. We ended the month with another Huachuca Oaks Camp Star Party with only three scopes; we can do better than this!

A note, social participation has carried us through these winter months; as spring beckons let's exchange that participation with some Observation.

March Star Party Schedule

Saturday, March 1st: Public Star Party at JBO, Dave and Big Blue await your requests as we share our Sierra Vista skies with our Public friends.

Saturday, March 8th : Members Star Party and Messier Marathon held this year at Desert Coyote Observatory. Gary and Jean Myers are inviting us all over for a dusk to dawn adventure attempting to catch as many Messier objects as time and darkness allows. Gary asks that we arrive no later than 6:00 pm to get positioned for the first early sightings just after sundown. A warm resting area and snacks will be provided and we are encouraged to help by bringing along additional snacks to get us through the long night. Please remember that it's still early in the year and night temperatures can fall to near freezing so dress in layers and wear your warmest socks and shoes, it's going to be a long night. Certificates will be awarded in several different categories. A map to DCO can be found on the HAC web sights home page. Who can be the first to sight that hard to find M-30 in the morning twilight! All members are welcome and those who wish only to stay for a couple of hours in the evening are also encouraged to attend. See YOU there!

President's Perspective

Wayne Johnson

Did you get a chance to enjoy February's lunar eclipse? A few of us who helped out at the Huachuca Oaks Outreach got lucky. The weather was awful the previous few days and it wasn't looking good that day, but somehow the clouds parted for a few hours and, though it was a bit windy, the moon was in the clear for the entire totality. It was a beautiful, light copper color with the one edge a bit brighter than the rest of the disk situated nicely between the star Regulus and the planet Saturn. We were entertaining about 40 6th-graders, which made things a bit lively, but we had wonderful dark skies at the site and after things settled down a bit Del Gordon and I examined a few galaxies and other deep sky objects, even Comet Holmes, while the moon was coming out of eclipse, through his binoculars.

Earlier in February we had a great time at Dave and Cheryl Healy's Junk Bond Observatory for the Public Star Party. Even though we were in the dead of winter (can you imagine doing something similar up north?) we enjoyed fairly comfortable weather with beautiful views of many celestial objects through instruments ranging from Dave's monster 32-inch to Del's 25x100 binoculars, which seems to be making the rounds, and gave wonderful wide-field views of the objects we observed. Thanks to all who brought their telescopes for us to enjoy.

One of our mantras has become "participation is the lifeblood of the club". Though it looks like both Keith and I will be gone for the first week of March, there will be a Public Star Party and the annual Messier Marathon (this year at Gary Myers' observatory) that I hope many of our club members will attend. Both should be a lot of fun! Take good notes and let me know how it went. I will be thinking of you while I'm in beautiful, downtown Buffalo, NY!

Clear skies, your resident president, Wayne (aka Mr. Galaxy)

Dollar$ & Cent$

Bob Kepple

The Club has a checkbook balance (mid January) of $4529.38, with $121.55 in petty cash.

MEMBERSHIP RENEWAL

April 1st is the cut off date to renew your membership. So mark your calendar and get those dues paid.

Huachuca Astronomy Club P.O. Box 922 Sierra Vista, AZ 85636 **http://hacastronomy.com** email:mrgalxy@juno.com
Yearly Membership: Individual: $25; Family: $35; Military: $20; student:$10 (with restrictions)
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This issue of Nightfall can also be found on-line at **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 ***haclist-subscribe@yahoogroups.com .***

Outreach Biz

Rich Swanson

Here it is the end of February and interest is definitely starting to show in astronomy by way of requests for support. At the time of this printing we will have already completed two science camps for Fred Stahl at the Huachuca Oaks campground. There are two more requests from Fred coming up at the end of April and beginning of May, but more on those in the next letter. We also have two other requests upcoming. The first being at the SV Library at what they are calling "Family Night" on the 5th of March starting at 7 PM. There are a total of 25 participants limited to this first event because of the uncertainty of the library personnel as to how this whole event is going to go down. If it turns out well, they may be asking us back later in the fall for a second go around. The second event is the annual book fair and telescope viewing at Myer School on Ft Huachuca, the 3rd of April beginning at sundown. This is usually a jam packed event so all support would be appreciated, especially since I will be out of town that evening. There is a map to the school posted in the files section of the HACLIST in case you don't know how to get there, and remember that you have to stop by the main gate for a visitors pass if you don't have tags for post on your vehicle. That's it from outreach central this month, and as always.

Keep 'em lookin' up!
Swanee

Backyard Astronomer

Neal Galt

What's UP...

Mercury, the speedster, tries to dance with Venus in March and will do a pretty good job. You'll need to get up early to see this dance over the eastern horizon just before dawn. The dance will go on from 3/18 - 3/28 with the tight slow dance on 3/23 - 3/25. You can't miss Venus....it's the brightest thing up there over the horizon. Now, you'll know you've seen Mercury. Go take a look.

Mars is moving across Gemini as it continues to fade. It'll be back in about two years....be patient!

Jupiter is now rising about three hours before the sun in the southeast in Sagittarius. That means Jupiter will be our main planet to view this summer.

Saturn is up almost the entire night....it's getting closer to Regulus in Leo.....nice sight.

Look at the moon skip by Mars on March 14th. On March 18th, the moon gets close to Regulus.

Get out and watch the "Greatest show from earth"! Neal

About the Speaker:

John "Jack" Borden Newton (b. 1942) is a Canadian amateur astronomer recognized worldwide for his publications and images in amateur astro photography, both in film and CCD. Newton took his first astro photograph when he was 13 years old and has been lecturing since 16. His ground-breaking work in deep sky imagery and CCD images of the sun places him among the great pioneers of modern day astro photographers.

While working at the head office for Sears Canada as a training manager and then later as store manager with Marks & Spencer, Newton pioneered and popularized "cold camera" astrophotography allowing for substantially longer exposures on film.

In 1991 Jack became the first amateur astro photographer to make full (RGB) color CCD images of celestial objects using a Santa Barbara Instruments Group ST-4 camera, making a full color CCD image of M57 "The Ring Nebula" and M27 "The Dumbbell Nebula". Jack took three separate black and white images, each taken with a separate filter in red, blue, and green, which were later combined in software that was being developed for amateur astrophotography by Richard Berry, then Editor of Astronomy Magazine. Richard published the first combined color CCD image of M27 as his magazine's cover.

In 2005, Carolyn S. Shoemaker and David H. Levy named an asteroid, 30840 Jackalice = 1991 GC2, in honor of Jack's astro photographic accomplishments and he and Alice's teamwork in astronomy outreach. Newton has published six books on amateur astronomy and astrophotography. His first book called "Astrophotography: From Film to Infinity", was published in 1974.

UK Connections Newton has had two books published by Cambridge University Press, The Cambridge Deep Sky Album and The Guide to Amateur Astronomy. He received the prestigious Queen Elizabeth Silver Jubilee Medal in 1977 for his contributions to science. He is honorary Patron of the Cotswold Astronomical Society.

The Astronomical League In 2006 Jack was selected by unanimous vote of the AL council for Honorary Membership in the Astronomical League, an association of 240+ local amateur astronomy societies dedicated to promoting the science of astronomy. **Advisor, Meade 4M Community (Astronomy Outreach)** Jack is on the Board of Advisors of the MEADE 4M Community Outreach program, which has been established to embrace and nurture its members and help them achieve a greater understanding of our universe. The four 'M's in the 4M Community have come to symbolize the Members being guided by these principles to explore, discover, image, and share.

Astronomical Society of the Pacific (the largest non-profit organization of its kind in the United States) In 2006 Jack was elected by Society membership to a 3rd term of office on its Board of Trustees. During an earlier term, he was instrumental in launching Project Astro (which partners astronomers and teachers in the classroom.) Newton was the recipient of the Amateur Achievement Award of Astronomical Society of the Pacific in 1988 for his work in Astrophotography. (This award “recognizes significant observational or technological contributions to astronomy or amateur astronomy by an individual not employed in the field of astronomy in a professional capacity”.)

Team Member, Puckett Observatory World Supernova Search Team Jack is credited with 24 co-discoveries to date.

International Space Station Amateur Telescope The Alpha telescope of the ISSAT is now housed at the Arizona Sky Village in a dome built by Jack where it can be used by persons interested in studying an astronomical object (including astronomy society club members and school groups.)

Lester B. Pearson College of the Pacific (Victoria, BC Canada) (is a United World College promoting living together as one world.) The first of ten United World Colleges, the United World College of the Atlantic is located in a 12th-Century castle in the Vale of Glamorgan in South Wales. Jack helped establish the astronomy program at “Pearson College” to whom he donated his 25-inch telescope. He and Alice are both honorary patrons of the college. Observatory B&B, Osoyoos The Observatory B&B is an astronomy-themed bed & breakfast owned and operated by Jack and Alice Newton. Guests all receive free tours of night and day skies and optional tutorial sessions are available. Guests have reported that hearing Jack

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speak has been "a life-changing experience." His great enthusiasm, knowledge and passion for astronomy has resulted in the Observatory B&B placing in the top 1% of B&B's in Canada.

Arizona Sky Village Jack and Alice are partners in the Arizona Sky Village, a property of some 85 four-acre parcels and a high-elevation site with spectacular dark skies.

Jack's Vision…"has been to "create an environment for discovery and learning; a place where nature reveals her treasures, and free-thinking people share their passions for life. Our Sky Village is the perfect community in which to relax, offering pristine dark skies, gorgeous surroundings, and the ultimate in tranquility. This dark, transparent oasis represents some of the best skies remaining in North America.

Our community welcome center provides a stimulating setting for interaction and discussion with others at the cutting edge of their field. A computer controlled 30" Starmaster f/4.3 telescope will soon be available. This will be the perfect location to optimize the performance of this superb instrument." The ASV is an ideal location for robotic telescopes. Just imagine having the ability to access these indescribable skies at any time from anywhere in the world. The sky conditions at the Village have exceeded our expectations in both the number of clear nights and the quality of the seeing. Since our arrival in October, we have enjoyed over 80% clear nights, many of which offered excellent seeing. Our daytime observers have not only enjoyed the sun in Hydrogen alpha, but have had the unusual opportunity of splitting the 6th magnitude double-double Epsilon Lyra by early afternoon with the 16" SCT. The outer nebulous regions of the Rosette Nebula are not only enjoyed visually through the telescope, but also recorded photographically by my 7" Meade® APO at f/9. The image is posted as our initial Photo of the Month as a testimonial to our dark transparent skies. The zodiacal light stands in the western sky as a pillar surpassing the brightness of the Milky Way. Since arriving, we have taken dozens of deep sky images using a variety of instruments ranging from a 300mm telephoto lens to a 16" SCT. I have also enjoyed solar imaging and visually seeing faint treasures for the first time Finally, I have eked-out time to blink thousands of images and discover/confirm two supernovae in remote galaxies (2003-J & 2003 AD).

Using his 16" Meade LX200 telescope, Jack can observe about 600 stars in the *daytime*!

I want to share this unique experience, and to this end invite you to realize YOUR dreams in the fun environment which is the Arizona Sky Village."

Royal Astronomical Society of Canada Jack has been past-president of 3 different centers (Winnipeg, Toronto, and Victoria (twice). He was elected as a Life Member in 1978. His photos appear on this year's cover of the 2007 Observer's Handbook, and in the RASC calendar. The Victoria Center recently created a "Newton/Ball" (Jack Newton/George Ball) award which it now gives annually as a service award.

Publications Jack's photographs and articles appear frequently in Astronomy Magazine and his images have a worldwide following in various magazines including Skynews (Canada) and Sterne und Weltraum (Max Plank Institute, Germany). His spectacular solar images appeared in National Geographic's 2004 special edition entitled "exploring SPACE - the universe in pictures", Time Inc's LIFE - the Year in Pictures (2003 & 2004), as well as Sky & Telescope's 2004 Beautiful Universe. Jack proudly ushered in 2007 with one of his solar images representing the lead-in to the science section in LIFE: Platinum Edition Anniversary Collection -- 70 Years of Extraordinary Photography.

Travels on the Celestial Sphere – March

By Glen Sanner & Bob Kepple

As spring progress, Ursa Major, the Great Bear, swings above Polaris allowing us a better view of its many wonderful galaxies. We thought you might enjoy viewing some of Ursa Major's fine spindle galaxies this month since they are also among our own favorite objects. Hopefully, after looking at these galaxies you will add them to your own observing lists too. These edge-on galaxies all reside in nearly the same area of the constellation. These galaxies are all visible with small telescopes, but, of course, the more aperture used, especially with galaxies, the better the view. Each size telescope offers a different perspective.

NGC 4013, Type Sb, Dia. 4.7'x1.0', Mag.11.2v, SB 12.8, $11^h58.5^m$ $+43^o57'$

Our first galaxy is NGC 4013, a 12th magnitude galaxy elongated 4' x 0.5' ENE-WSW with a bright 12.5 mag. star superimposed upon its halo that may be mistaken for a bright nucleus. You may notice a bulge near the center and with good skies, plenty of aperture, and averted vision you might see the dust lane that bisects its length. It lies at a distance of 55 million light years.

NGC 4026, Type SO, Dia. 4.6'x1.2', Mag. 10.8v, SB 12.5, $11^h59.4^m$ $+50^o58'$

Our next object is NGC 4026, a 12th magnitude edge-on galaxy located 7' SSW of a 9th mag. star. It has a sharply concentrated core containing a bright non-stellar nucleus surrounded by a 4' x 0.75' N-S halo. This galaxy is also 55 million light years distant.

NGC 4100, Type SAbc, Dia. 5.1'x1.8', Mag. 12.2v, SB 13.4, $12^h06.2^m$ $+49^o35'$

NGC 4100 is a fairly bright, uniformly illuminated sliver extending 5'x1.5' NNW-SSE with tapered ends. Examining its envelope at high power will reveal a mottled texture with light and dark areas. Its central area is bulged and displays a small oval core.

NGC 4144, Type SABcd, Dia. 6.3'x1.6', Mag. 11.6v, SB 14.0, $12^h10.0^m$ $+46^o27'$

NGC 4144 is an 11th magnitude edge-on galaxy elongated 5' x 0.75' WSW-ENE. Its core extends nearly half of the length of the halo's major axis, is thin and varied but brighter than the halo. A 13th magnitude star is just north of the of the galaxy's WNW elongation and a 13th mag. double lies just south of its ESE elongation forming an isosceles triangle with another 13th mag. star at the ESE tip. This galaxy is a member of the Canes II galaxy group at a distance of 30 million light years.

NGC 4157, Type SABb sp, Dia. 7.1'x1.2', Mag. 11.3v, SB 13.5, $12^h11.1^m$ $+50^o29'$

NGC 4157, centered 5' SSE of an 8th magnitude star, is elongated 6'x 0.75' ENE-WSW. This fine needle of light has a pronounced central bulge with tapered ends. With enough aperture, a dust lane extending nearly half the length of its major axis along its NW flank may be observed. This galaxy is nicely placed in a beautiful star field. It is 50 million light years away.

NGC 4605, Type SB pec, Dia. 6.4'x2.3', Mag. 10.3v, SB 13.1, $12^h40.0^m$ $+61^o37'$

NGC 4605 is a fine luminous streak extending 5.5'x2.0' NW-SE with a thin 3' long core. In medium-size telescopes at high power the halo shows some mottling but lacks a central nucleus.

We hope you enjoy this selection of the Great Bear's many fine treasures. Get out there and enjoy the night sky.

Space Place Astronomy Club Article

Invisible Spiral Arms

by Patrick Barry

At one time or another, we've all stared at beautiful images of spiral galaxies, daydreaming about the billions of stars and countless worlds they contain. What mysteries—and even life forms—must lurk within those vast disks?

Now consider this: many of the galaxies you've seen are actually much larger than they appear. NASA's Galaxy Evolution Explorer, a space telescope that "sees" invisible, ultraviolet light, has revealed that roughly 20 percent of nearby galaxies have spiral arms that extend far beyond the galaxies' apparent edges. Some of these galaxies are more than three times larger than they appear in images taken by ordinary visible-light telescopes.

"Astronomers have been observing some of these galaxies for many, many years, and all that time, there was a whole side to these galaxies that they simply couldn't see," says Patrick Morrissey, an astronomer at Caltech in Pasadena, California, who collaborates at JPL.

The extended arms of these galaxies are too dim in visible light for most telescopes to detect, but they emit a greater amount of UV light. Also, the cosmic background is much darker at UV wavelengths than it is for visible light. "Because the sky is essentially black in the UV, far-UV enables you to see these very faint arms around the outsides of galaxies," Morrissey explains.

These "invisible arms" are made of mostly young stars shining brightly at UV wavelengths. Why UV? Because the stars are so hot. Young stars burn their nuclear fuel with impetuous speed, making them hotter and bluer than older, cooler stars such as the sun. (Think of a candle: blue flames are hotter than red ones.) Ultraviolet is a sort of "ultra-blue" that reveals the youngest, hottest stars of all.

"That's the basic idea behind the Galaxy Evolution Explorer in the first place. By observing the UV glow of young stars, we can see where star formation is active," Morrissey says.

The discovery of these extended arms provides fresh clues for scientists about how some galaxies form and evolve, a hot question right now in astronomy. For example, a burst of star formation so far from the galaxies' denser centers may have started because of the gravity of neighboring galaxies that passed too close. But in many cases, the neighboring galaxies have not themselves sprouted extended arms, an observation that remains to be explained. The Galaxy Evolution Explorer reveals one mystery after another!

"How much else is out there that we don't know about?" Morrissey asks. "It makes you wonder."

Spread the wonder by seeing for yourself some of these UV images at www.galex.caltech.edu. Also, Chris Martin, principle scientist for Galaxy Evolution Explorer — or rather his cartoon alter-ego—gives kids a great introduction to ultraviolet astronomy at spaceplace.nasa.gov/en/kids/live#martin.

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