

April 2007

HAC's 25th  
Anniversary Year!



**HAC web page <http://hacastronomy.com>**

**++++ HAC MEETING: THIS *Saturday*, April 7, 2007 +++++**

**Speaker: Scott Schneeweis, LCDR/USN**

**Title: "A History of U.S. Space Exploration Through Artifacts"**

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

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

**The Meade 125 ETX will be Auctioned at this month's meeting!**

### Star Party Corner

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

*Participation is the Lifblood of the Club!* "NO MORE, NO-GO"

Did things warm in March or what?! We started off the month with a visit to Huachuca Oaks Camp on the 1<sup>st</sup> for an evening with 60+ kids from the Phoenix area delighting them with their first sights of Saturn, the Moon and the Great Nebula in Orion. On the 10<sup>th</sup> Dave opened up JBO for a highly successful Public Star Party. We had over a dozen members of the public attend along with another dozen or so HAC members who stayed passed 11:00 pm. Now on the 17<sup>th</sup>, things started Smoke'n when 30+ members and several guests converged on RGO for a combined Member Star Party, Messier Marathon and a Saint Patrick's Day corned beef potluck dinner. We all ate green stuff until we couldn't eat any more, then we went out back to find a sky full of clouds that were unrelenting until nearly 10:30 pm. By this time we had lost all but 7 hearty souls and Doug—who was back and forth between Palominas Star Haven Observatory and RGO. getting readying for the Pluto Occultation which was going to happen over a two hour period early Sunday morning. I feel I must mention that a new force has risen out of the HAC ranks, it is Barry Nelson, and he just wouldn't give up. I was ready to call the Marathon off and finish the night as a Saint Patrick's Day party, but Barry stood by his scope until nearly 11:00 pm when the skies finally cleared. The seven remaining members were Barry Nelson, Tony Selover, Rich Swanson, Judy Sukol, Del Gordon, a guest named Scott Turner, me and Doug (bouncing back and forth). We all kept looking for those Messier objects until the sun came up and we just couldn't look any more. We had found nearly 100 of the Messier Objects and were rewarded by a real home cooked breakfast by Teresa with Judy's help. These seven will receive a certificate of Participation from the Messier Marathon Committee. It pays to stick with it!

We showed up at Pueblo Del Sol Elementary School on the 26<sup>th</sup> with 8 scopes which was barely enough as it seemed that the entire school with parents were there, at least a couple hundred. Views of the Moon, Saturn and Orion were the big hits of the evening as the clouds were a little pesky. Many thanks to Rich, Doug, Jeanne, Steve, Andrew, Del, Tim, Hans and Dave who made it too. Wayne came by later to help with crowd control. Lots of fun! If you haven't done an outreach Star Party give one a try!

We (that's me, Doug, Del and Rich) landed at Our Lady of the Mountains on Wednesday the 28<sup>th</sup> we were confronted by almost winter temperatures and a very bright Moon.

Thursday the 29<sup>th</sup> found us (me, Doug, Rich, the Sherwood's, Bob, Dave & Cheryl and Wayne) at General Myers School on Post where we had over 100 kids and parents viewing mostly the Moon, Saturn and Orion.

### April Star Party Schedule

Saturday, April 14<sup>th</sup> – Will see our first trip to Jim McCaw's Wind Spirit Observatory in Benson for the Member SP. We will have a map on the HAC Web Page before the event. Let's give Jim and Diane a full house for their First Star Party.

Saturday, April 21<sup>st</sup>– Astronomy Day, "Telescopes in the Park"—our sixth event on the ball field at Veterans Memorial Park. The event starts at 3 pm lasting until 11:00 pm. Read more about this event on page 3.

**PRESIDENT'S PERSPECTIVE - Wayne Johnson**

Many thanks to Keith and Teresa Mullen for hosting a successful party that attempted to highlight the Messier Marathon! And thanks to the thirty people who attended the event. It's great to see such a large percentage of the club participating in our events. I understand that not many, if any, observers made triple digit observations of the catalog. At least the sky cleared up after midnight and those magnificent seven who stayed and enjoyed the rest of the night were able to salvage what was left of Messier's list. It wasn't any better in Benson, where my guests for the night at the Astronomers Inn decided to cancel.

Our next big club event is Astronomy Day, April 21, at Veteran's Memorial Park. We expect all of Sierra Vista and surrounding communities to converge on the park to observe through members' telescopes at the wonders of the universe. Saturn and the fat crescent moon should be the highlights of the night, plus whatever else the sky has to offer that evening. The event is a lot of fun and is, in fact, how I got exposed to the Huachuca Astronomy Club a few years ago. Look where it got me!!

Planning continues for our 25<sup>th</sup> Anniversary Dinner to be held on the very special date of 7/7/7. Helen Patterson has been busy making arrangements at the Arizona Folklore Preserve in Ramsey Canyon.

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**Dollar\$ & Cent\$ - Tim Doyle**

The Club has a checkbook balance (mid March) of \$3,353.31. We still have club T-shirts in sizes XXL & medium for \$10. Sweatshirts, hooded and non-hooded, in sizes M, XL, XXL, for \$15 & \$25 (these are below our cost).

**Welcome to new members ...**

**David Reinert and Dale & Carolyn Willey.** All are currently taking David Tannemaum's Astronomy class.

**Thanks to all of you...**

who got their dues paid in a timely manner. We now have an official membership of 65 for 2007.

**Reminder:** To all of you who subscribe to Sky & Telescope or Astronomy Magazines. The club can get you a \$10 discount on the subscriptions if you pay for the renewal through the club. Just make out the check to the magazine as usual and send it to me (Bring it to a meeting) with the renewal or your address tag off the magazine.

**Editor's Notes... ♪ HAPPY EASTER EVERYONE! ♪**

Our readers want to be in the know! So let's read what you have to say! Get your Astronomical Articles to the Editor by April 23rd. Don't delay.

**Outreach Biz- Jeanne Herbert**

The Pueblo del Sol and General Myer school events were a huge success -- the lines were long, the viewing was good, the ooohs and aaaahs were numerous! The success of these events is very much dependent upon your help. Thank you.

Of course, there are more events coming up ...

**April 26** -- a group of PDS 2nd graders at Huachuca Oaks Baptist Camp.

**May 3** and **May 10** -- a group of Phoenix area students at Huachuca Oaks Baptist Camp for a Science Camp sponsored by Fred Stahl.

**May 11** -- a group of 3rd graders from Bisbee at RepoGazer Observatory.

Mark your calendars to come to these events to share your love of the night sky with youngsters eager to learn. Who knows? You may be the one to spark an interest in astronomy in a child.

Huachuca Astronomy Club P.O. Box 922 Sierra Vista, AZ 85636 <http://hacastronomy.com> , email: [mrgalaxy@juno.com](mailto:mrgalaxy@juno.com)

Yearly Membership: Individual: \$25; Family: \$35; Military: \$20; student:\$10 (with restrictions) ,

President: Wayne Johnson, [mrgalaxy@juno.com](mailto:mrgalaxy@juno.com) ; Vice President: Keith Mullen, 520.366.0049;

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**About the Speaker ...**

LCDR Scott Schneeweis is an active duty Naval Officer assigned to the Joint Interoperability Test Command at Fort Huachuca. His off duty specialty is US Space Program artifacts identification and documentation of liquid rocket propulsion and spacecraft systems. He has been collecting actively for 10 years and has been interviewed by a number of national publications, including the Smithsonian's Air and Space Magazine, Wall Street Journal and the LA Times.

Topic: A broad discussion of the US Space Program with a special emphasis on the 60's and 70's time frame; presented in the context of the technical challenges and technologies developed to enable robotic and manned exploration of orbital, lunar and interstellar space. Programs addressed will include Mercury, Gemini, Apollo, Hubble Telescope. Multiple artifacts - both flown and unflown relics of the space program will be displayed for discussion and information will be provided on the hobby of space artifacts/memorabilia collecting to include sources and methods for obtaining them.

## **Astronomy Day "Telescopes in the Park"** **Saturday April 21<sup>st</sup>, 2007**

**This year HAC will participate in Astronomy Day being celebrated across the nation on April 21<sup>st</sup>. The event we have come to know as T-4-T over the past 6 years has taken on a new theme! Proceeds of the event will stay within the club instead of being donated to an outside organization. The structure of the event will remain the same as in previous years with everything happening on the ball field in Veterans Memorial Park. This year we have scheduled the time for 3 to 11 PM with admission of the public beginning at 5 PM. At the time of this writing we are still in need of several volunteers with telescopes to ensure this event is a complete success. Keep in mind this is a Club Fundraiser and benefits us all. We are asking you to contact Keith Mullen, the event coordinator, at 366-0049 to volunteer yourself and a scope or your services to help in the set-up and tear down on the field.**

**For the second time we will be conducting a raffle of a new NexStar 114 GT telescope donated by Celestron. The raffle ticket prices will be \$1.00 each or 6 for \$5.00. Bring a couple of greenbacks and take a shot at winning this fully computerized GO-TO Newtonian reflector. You don't need to be present to win. You can purchase tickets at the general meeting on Saturday April 7<sup>th</sup>.**

**Time is growing short and we need YOU to Volunteer, so give Keith a call at 366-0049 and set this evening aside to help HAC firm up the old club checkbook and have some FUN doing it!**

**Keith Mullen, Event Coordinator**

### **"Vintage Telescopes For Sale"**

An astronomer in Bisbee is selling two vintage telescopes and he is very eager to get these telescopes to a 'caring' home, preferably local. There are photographs of these two telescopes on the home page of the club's website. One of the telescopes is an early 80's version Celestron C8 with pristine optics and a working tracking drive. This scope is an 8", f/10 Orange Tube model and comes with an 'AccuTrack' Drive Speed Control. Also included are several Celestron eyepieces (Kellner's) and of course the tripod as well as the original storage trunk for the telescope. The second telescope is a 5", f/15 Singlet Lens Refractor which features a stainless steel OTA. The length of this tube is about 6 ft. It comes with a high pier and best of all, a Byers 58 German Equatorial Mount (dual axis). This Bisbee astronomer also has numerous other items for sale, including a rolling wood cabinet used to store all of the associated refractor parts. Serious offers can be presented to either Keith Mullen or Doug Snyder (520-366-5788)



**Backyard Astronomer- Neal Galt**

What's Up? Don't miss out on seeing Venus get REAL close to the Pleiades cluster on the evening of 4/11/2007. That should be a really nice view in a pair of binoculars.

Venus is starting to get bright...but, it will get even brighter. Venus is up for about 3 1/2 hours after sunset in the western sky in April. You can't miss it! There's nothing brighter in the sky other than the sun and the moon.

Saturn is still the highlight of the sky. In April it is high in the south-southwest at sunset. The rings are wide open right now, but will start to close shortly. Saturn won't be this nice to view again for about 7 years.

Jupiter starts to rise just before midnight this month. In a telescope the disc will start to appear a little larger as it gets closer to the Earth.

Mars is still too far from the Earth for useful observations. But, it is starting to improve as it closes in on a closer encounter with the Earth in late summer/fall.

Mercury is not a good object for viewing this month.

Observers might get treated to a good Lyrid meteor shower this year. The moon is almost non-existent. The members of this shower are usually swift, fairly bright, and some leave persistent trains that last for up to several minutes.

It's Spring.....get out in your yard and look up at night. Report all UFO's to Doug for verification.

Cheers...Neal



**A Quick Look At The StellaCam 3 Video Imaging Camera - Doug Snyder**

After a wait of a couple of months, my SC III has arrived and has made a brief debut. It is touted as 3 cameras in one and it certainly is. In the regular imaging mode, it will work as well as the SC II for imaging deep sky, integrating the incoming video signal up to 8.5 seconds. A new mode that is featured on this camera is an unlimited exposure setting (only for deep sky), although I have not tried that setting for very long due to the weather. This setting will allow one to go very deep into the deep sky.....but your mount has to be accurately polar aligned! The instructions state that allowing a one minute exposure will reveal a superb amount of detail.

The third mode is 'planetary' where you have very short exposure times to allow imaging of planets, the moon and the sun (with proper filter), but not at the same time! These short settable exposure times are 1/60, 1/125, 1/250, 1/500, 1/1000, and 1/2000 second. I was able to use this mode to image Saturn and I was very impressed. In spite of rather poor 'Seeing', I was able to see considerable detail, including the Cassini Division and some of the planetary equatorial belts. Since the imaging field was so small, it can be very difficult to center the object!

For all of these modes there is also an adjustable GAIN control and switchable GAMMA setting (OFF, LO, HI). For the deep sky images, you need to use a focal reducer (f/3.3 recommended) and for the planetary mode, you substitute a 1.25" Barlow lens. My TeleVue 'BIG' Barlow (2.5X) worked well, although I am going to try others.

The camera that is used in this system is a slightly different model than what is used with the SC II. The SC III utilizes a Watec model WAT-120N+ with a minimum illumination of 0.00002 Lux at f/1.4. There was some discrepancy in the minimum illumination specs between the SC II and the SC III, but according to AstroVid, this problem was due to 'typos'. I finally had the opportunity to compare the two models using the SC II mode, which is a common mode between the two cameras and which performs video integrating for a maximum of 8.5 seconds. In this comparison, I imaged a couple of deep sky objects, including Messier 83, which is a galaxy in Hydra, and compared the spiral structure in detail. Both cameras displayed the same amount of amazing detail, so my initial fears that the SC III was less sensitive were unfounded. The noise level in the signal is quite low too and I was very pleased to see that the 1/2 inch CCD chip was virtually free of 'hot' or defective pixels.

The camera was shipped from Adirondack Video with all necessary adapters, the camera mount being of the "CS-mount" type and AC adapter for me to hook up immediately. But as usual with AC adapters, the power cable is never long enough to run between your outlet and where you install the equipment (in this case, the camera hanging off the rear end of a telescope). But that problem was solved by splicing in an extra length of power cable. I plan on using the camera on a suitable telescope during HAC's upcoming ASTRONOMY DAY event on April 21st out at Veterans Memorial Park, so be sure to sign up to help out and participate. I'll be glad to answer any questions about the camera or you can visit Adirondack's web site at [www.astrovid.com](http://www.astrovid.com). Clear Skies & Cold Pixels!



## Leo, the Lion - Bob Kepple

April is the beginning of galaxy season for telescope users and the objects in Leo rise first. Leo, the Lion has one of the most conspicuous and distinctive constellation patterns. Few constellations look like their namesake, however, Scorpius, Orion, and Leo are among the few exceptions. The sickle asterism marks the Lion's head and the triangle to its east the beast's hindquarters. In Greek mythology the slaying of the celestial Lion was the first of Hercules' twelve labors.

Leo, as is typical of constellations lying away from the Milky Way, is well-provisioned with galaxies. Many of these stellar cities are large and bright since they lie relatively nearby to us in space. Charles Messier added five of these to his famous list: M65, M66, M95, M96, and M105. Several other Leo denizens would not have been out of place in the Messier Catalog. Regulus (Alpha Leonis), the brightest star in Leo, is a wide double (mag. 1.4 & 7.7), with the primary shining like a brilliant blue-white diamond attended by a tiny yellowish star some 177 seconds away. However, Gamma Leonis which is part of the sickle asterism and the second star north of Regulus is a far more attractive pair with deep and pale yellow stars shining at magnitudes 2.2 and 3.5. *Objects are rated from one to five asterisks; the more asterisks the brighter and more interesting the object.*

**\*\*\*\*NGC 2903 Galaxy Type SABbc dia. 12.0'x5.6' Mag. 9.0v 09h32.2m +21°30'**

NGC 2903 is one of the few nearby galaxies unattached to any of the local galaxy groups. It lies around 31 million light years away and its absolute magnitude is -20.9 with a luminosity of 19 billion suns. It spans a distance of 110,000 light years from edge to edge. This is one of the better objects missed by Charles Messier. It is visible in small scopes (4 to 6-inches) as a fairly bright 8'x4' oval lying just SW of the end of Leo's sickle and due south of Lambda Leonis. Medium-sized instruments (8 to 10-inches) may discern a bright stellar nucleus embedded in a large, extended core surrounded by a mottled halo elongated 9'x4' halo having diffuse edges. Larger telescope users may see bright and dark patches against a large mottled halo.

**\*\*\*\*NGC 3351 M95 Galaxy Type SBb dia. 7.8'x4.6' Mag. 9.7v 10h44.0m +11°42'**

M95 and M96 were discovered by P. Mechain in 1781 and are members of a subgroup attached to the Leo I Galaxy Cloud that also contains M65 and M66. The Leo I Group averages 31 million light years distant with M95 having a diameter of 70,000 light years at that distance. Small scopes show a fairly bright, circular 3' diameter halo with a bright core and a prominent stellar nucleus. It is slightly fainter than M96 lying 40' west. Low power is needed to see both in the same eyepiece. In 16-inch and larger scopes M95 is seen as unevenly illuminated with darker zones north and south of a NW-SE bar that contains a bright oval core. The halo is extended 5'x4' ESE-WNW.

**\*\*\*\*NGC 3368 M96 Galaxy Type SABab dia. 6.9'x4.6' Mag. 9.2v 10h46.8m +11°49'**

M96 is the brighter and eastern component of a fine 40' wide galaxy discovered by Mechain in 1781. It has a true diameter of 62,000 light years at a distance of 31 million light years. In small telescopes at M95, M96, and M105 may be viewed in the same field of view at 50x. M96 has a bright extended core with a stellar nucleus embedded in a halo elongated 4'x3' NW-SE. 16-inch and larger telescopes show a bright 6'x4' NW-SE oval containing a brilliant 2'x1' oval core with a nonstellar nucleus. The periphery is irregular both in brightness and in shape, bulging noticeably more toward the SE.

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It's a beautiful location and if you haven't been there yet this dinner is a good excuse to see what the place looks like. In case that isn't enough of an incentive, our featured guest speaker is David Levy, who was one of the very first speakers when HAC was first established by David Patterson. Save the date; it's easy to remember and we hope to see you there! There is room for only 70 people. We will start taking reservations soon.

One of the best ways to support our club is to participate in the Outreach events coordinated by Jeanne Herbert. Telescopes and/or people are always welcome to show students, scouts, and other interested individuals the wonders of the sky. Don't worry about your experience level; it's definitely OJT (on the job training!), and those looking through your telescope cannot help but be impressed by what they see.

As always, if you have suggestions or questions about HAC feel free to contact me (email: mrgalaxy@juno.com or home phone: 520-586-2244) or talk to any of our board members. Clear Skies! Wayne (aka Mr. Galaxy), your resident president

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**\*\*\*\*NGC 3379 M105 Galaxy Type E1 dia. 3.9'x3.9' Mag. 9.3v 10h47.8m +12°35'**

M105, discovered by Mechain in 1781, is the brightest and westernmost of a fine 8' wide triangle of galaxies that includes NGC 3384 (mag. 9.9v) and NGC 3389 (mag. 11.9). This trio is part of the M96 Galaxy Group, the western half of the 31 million light year distant Leo I Galaxy Cloud. M105 has a luminosity of 15 billion suns and a true diameter of over 35,000 light years.

6 & 8-inch scopes show M105 as a bright, circular 2' diameter object with a homogeneous center and diffuse edges. The northernmost galaxy, NGC 3384, is noticeably fainter than M105. It is elongated 3'x1' NE-SW with a bright circular core and a stellar nucleus. NGC 3389, the easternmost galaxy of the trio, is the smallest and faintest object with a uniformly faint halo elongated 2'x1' ESE-WNW.

16-inch and larger telescopes give a nice view with M105 being bright and well concentrated, its halo elongated 4'x3' ENE-WSW with a brighter center and a tiny nucleus. NGC 3384 displays a fairly bright 5'x2' halo with diffuse edges. Its center brightens suddenly to a circular core which has a stellar nucleus. NGC 3389 remains moderately faint and is elongated 2.5'x1' ESE-WNW. The center is much brighter and is slightly mottled.

**\*\*\*\*NGC 3623 M65 Galaxy Type SABa dia. 8.7'x2.2' Mag. 9.3v 11h18.9m +13°05'**

M65, along with M66 were discovered by Mechain in 1780. They are part of the "Leo Trio" along with NGC 3628 lying to the NE. M65 and M66 are easy to see in binoculars as two distinct smudges while NGC 3628 is more challenging. These three objects are the core members of the 31 million light year distant Leo I Galaxy Cloud. Other members include NGCs 3489, 3593, 3596, and 3666. M65, the westernmost of the trio, has a luminosity of 15 billion suns and a true diameter of over 80,000 light years. Small telescopes will show a bright halo elongated 6'x2' N-S with a bright core occupying half the halo. Medium scopes will bring out an unevenly bright halo with a mottled texture and a bulging core. In large instruments it is an exquisite object showing a dark lane along the eastern flank of its 8'x2' halo. Low power is needed to view all members of the "Leo Trio" but you should use as much magnification as seeing conditions will allow to discern details within each object.

**\*\*\*\*NGC 3627 M66 Galaxy Type SABb dia. 8.2'x3.9' Mag. 8.9v 11h20.2m +12°59'**

The comet of 1773 passed directly through the field of the "Leo Trio" on November 1773 but in his preoccupation with the comet, Messier apparently failed to notice the galaxies. M66 is the brightest and southernmost member of the "Leo Trio", lying 21 minutes from M65, the separation corresponding to 190,000 light years in actual distance with the objects being 31 million light years from us. In small scopes it has a bright 5'x2' halo elongated N-S with a bright, extended core. A row of three stars runs past the western side of the halo and curves toward the NW, where it connects to a triangle. Medium-size instruments reveal a bright, comma-shaped halo with a pointed tip at the south edge and a 30" diameter nucleus. In 16-inch and larger scopes it is a beautiful unevenly bright object with hints of spiral structure and dark areas just NE and SE of a bright oval core.

**\*\*\*\*NGC 3628 Galaxy Type Sb pec dia. 14.0'x4.0' Mag. 9.5v 11h20.3m +13°36'**

NGC 3628 is the largest but faintest of the beautiful trio with M65 and M66. Through small telescopes, it is a fairly faint edge-on spiral galaxy elongated 9'x1' E-W with a nearly uniform surface brightness except for a slight central brightening. Medium-sized scopes will reveal a thin 3' long core embedded within a 10'x1.5' diameter halo. It is fine sight in 16-inch and larger instruments with an indistinct dark lane passing along the southern flank of a 13' long envelope which is full of knots and mottling.

**Other galaxies worthy of attention for small and medium-size telescopes are:**

**Pairs & Groups:**

NGC 2911 (m11.5v), 2914 (m13.2v), and 2919 (m12.8v) form a nice trio.

NGC 2964 (m11.3v) and NGC 2968 (m11.7v) form a nice pair.

NGCs 3185 (m12.1v), 3187 (m13.4v), 3190 (m11.2v), and 3193 (m10.9v) lie in an interesting star field.

NGC 3226 (m11.4v) and 3227 (m10.3v) form an interesting exclamation mark.

3607 (m9.9v), 3605 (m12.3v), and 2608 (m10.8v) make a fine trio.

**Single, bright galaxies:**

3681 (m11.2v), 3684 (m11.4v), 3686 (m11.3v), 3691 (m11.8v), form a loose but fine group.

NGC 3338 (m11.1v), NGC 3377 (m10.4v), NGC 3495 (m11.9v), NGC 3507 (m10.9v), NGC 3521 (m9.0v), NGC 3640, (m10.4v), NGC 3646 (m11.1v), NGC 3666 (m12.0v), 3705 (m11.1v),

**Challenge objects for large telescopes:**

Abell 1367 Faint Galaxy Cluster (3842 (m11.8v) is the brightest of the group.)

(Copeland's Septet) 3745, 3746, 3748, 3750, 3751, 3753, 3754. (Very faint group, see how many you can find.)