SIDEREAL TIMES

The Official Publication of the
Amateur Astronomers Association of Princeton

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Program Chairman: Ken Kremer

Assistant Director: John Miller

Secretary: Ludy D'Angelo

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From the Director

Summer Break for AAAP! Summer vacation is here for AAAP, as we drop back and relax as the temperatures heat up and vacations become obsessions to get away from it all! Our AAAP regular season program concluded with an outstanding Jersey StarQuest in early June followed by our final meeting of the season. Among trips to the Jersey shore, baseball, barbeques, and gardening, perhaps your summer plans include a getaway to dark sky environs where you'll have a chance to apply your astronomy know-how. Don't forget to pack your binox (or telescope) and a star chart.

July and August are excellent times to come out to the AAAP Observatory at Washington Crossing Park. All members are welcome, so long as Keyholders are present on-site to run the equipment (phone 737-2575). Why not bring the kids or your summer guests from out of town to the Observatory- they'll be impressed with your connections to the universe through our own and high tech telescopes. Among many deep sky phenomena you'll be able to observe visually through the club's two major telescopes, the Dumbbell Nebula, M27, is one of my favorites. The photograph of M27 on page 2 was taken in late June with my C11 at f/6.3 and SBIG ST-10XME CCD camera. This planetary nebula is one of a handful of remarkable objects visible this summer in small telescopes. A remnant of the late stages of evolution of a massive star which ejected much of its outer layers of gases about 3500 years, M27 is about 1000 light years distant and shines by fluorescence from the central star's core, and is strikingly beautiful visually in OIII or deep sky narrow band filters at medium magnification.

Jersey StarQuest-- Present and Future. We had a great weekend at Jersey StarQuest in early June up in Hope, NJ. On behalf of AAAP I want to offer our profound thanks for a job well done to several of our members for making this event happen— first among them, Don and Anthony Monticello for excellence in organizing and executing. Big thanks go to Ron Mittelstaedt and Brian Van Liew (great job on the hardware for the "auction" and

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Simpson Observatory (609) 737-2575

Congrats to Our Past Program Chair and a Loving Bye-Bye

Our own Michele and her new husband Matt Droll are busy setting up a new nest near York, PA and though she will be sorely missed we all wish her the best. In a lovely garden cerimony she and Matt exchanged vows on June 25, at their new digs in Dover, a few miles Northwest of York.

In attendance were AAAP members Vic Belanger, Ron Mittlestaedt, Ralph Marantino, Saul Moroz, Lisa Yeh, and their spouses. The cerimony was followed by a catered garden reception and dinner complete with a DJ and dancing. A geat time was shared by all meeting many of the new couples friends and family.

Best Wishes to Matt and Michele from all of their AAAP friends.

From the Program Chair

The upcoming lecture season is taking shape and currently features Steven Gorevan: Honeybee Robotics, Mars Rover Drill on Sep 13, Craig Couvalt: Aviation Week and Space Technology Magazine, Senior Editor and Journalist on Oct 11 and Mario Livio: Space

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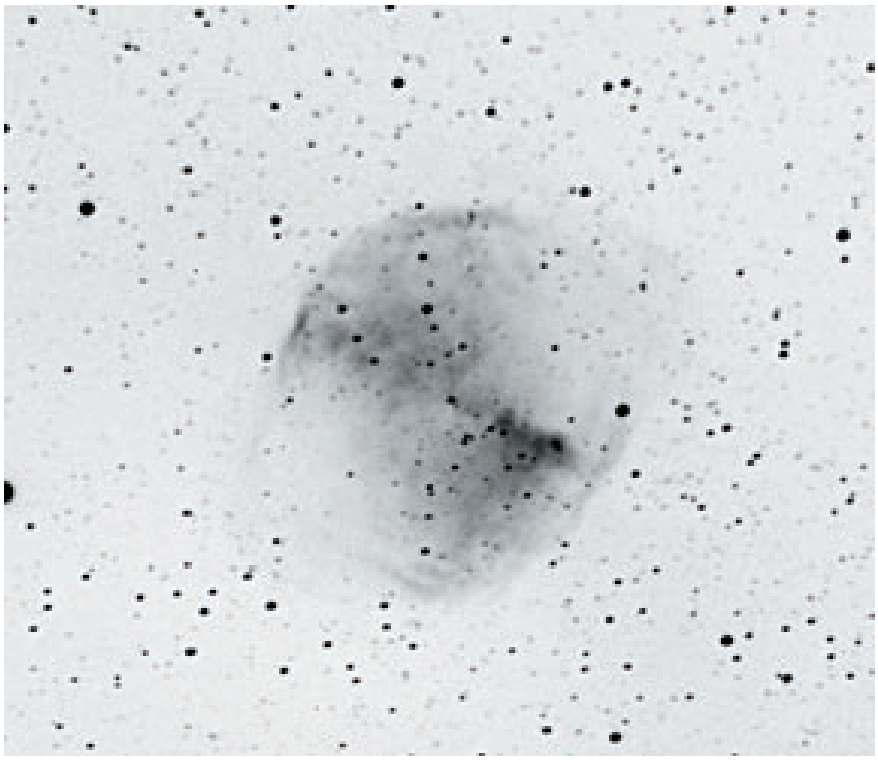
generally making this SQ a success), Ludy D'Angelo (contributing in many ways), Bill Murray (an enjoyable though difficult Deep Sky Challenge), Barlow Bob and Gene Ramsey (solar observing), and Bob Vanderbei and Ken Kremer (highly colorful and absorbing presentations on CCD techniques, and on Planetary



Exploration and the NASA probes). Many other AAAP members pitched in to make this an outstanding event which drew nearly 80 attendees. Our StarQuest keynote speaker, Dr. Carles Badenes of Rutgers Univ. gave us a fascinating talk on X-ray astronomy and supernovae remnants. We went from rain on Friday night to completely clear on Saturday night, and several of us stayed out till about 4:00 AM when the fog finally rolled in.

A proposal to relocate the StarQuest event next to a new location farther northwest was carefully considered at the June regular meeting. The idea was to find a location farther away from the ever-encroaching light pollution in central and northern Jersey. While such a place was identified, the facilities there were not as capable as the current Hope Center venue, and after considered discussion it has been recommended that StarQuest remain at the Hope site for next year. It is certainly the case that Hope has been a very good and accommodating place for us, and we all appreciate the facility for its excellent accommodations and multiple attractions.

Don't forget to contact Program Chair Ken Kremer or other Board members (see masthead of this issue for contact info) with your ideas for programs for the upcoming season.

Wishing you all a fine summer vacation, and dark skies! -- Rex

Have a wWonderful Summer!

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Telescope Science Institute, Senior Scientist on Nov 8.

I encourage everyone to please send me your suggestions for speakers, with contact/topic information, and consider volunteering to help on the program committee.

Email:

Ken Kremer

Science Outreach and Exploration Update

Jersey Starquest: Hope, NJ, June 3-5, 2005, Attendee's enjoyed my afternoon presentations on *"Deep Impact at Comet Temple 1", "Mars and Saturn in 3D" and the "Solar Sail".* It was like back to the 1950's as the group donned 3D glasses and marveled at multiple worlds becoming real via 3D. Especially popular were the Mars rover drill hole, tracking along Bonneville Crater, the steep cliffs of the saturnian moon Phoebe and of course the "Face on Mars". Naturally the "Face" generated some controversy and required a special instant vote to decide which side was up !! A detailed mission overview of the impending July 4 collision of the Deep Impact spacecraft with Comet Temple 1 was also presented and at night we viewed the comet thru telescopes. An engaging talk on CCD imaging was given by Rex Parker and Bob Vanderbei.

Lawrence Intermediate School: Lawrenceville**,** June 9, 2005. *"Mars, Comets and the Search for Life"* was the topic of my astronomy presentation to 6th grade classes. The kids truly enjoyed the animated presentation *"Birth of a Martian Robot"*, experiencing details of the Twin Rovers and Deep Impact Mission and especially wearing 3D glasses for *"Mars and Saturn in 3D".* They peppered me with many excellent questions, some thought out with the teachers beforehand. Questions about Mars included what is the temperature, length of a year, rotation period and atmospheric composition, are the pictures real, size compared to other planets, will the rovers meet, how long will they last, how do they communicate with earth. They enjoyed handling a demonstration piece of the Mars Rovers, obtained from JPL staff.

The kids thought it was cool to smash into a comet, wondered if it would hit earth, and why pick July 4. All were given simple star maps with location/info about the Deep Impact mission. Other handouts included copies of "Night Sky Magazine", "Getting Started in Astronomy", info/coloring sheets on Mars, Deep Impact and Cassini, bookmarks, postcards and stickers from NASA/JPL and The Planetary Society.

AAAP Monthly Meeting: June 14, 2005. At the conclusion of

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For sale, "The Sky, Version 6" Serious Astronomer Edition by Software Bisque, new and unopened, $75.00. This is the latest version of the software (Version 5) which we also use at the Simpson Observatory for driving our 14-inch telescope. Contact Vic Belanger (609) 448-8598.

(Outreach, continued from page 2)

our last meeting of the season, I gave a short update on the Deep Impact Mission (with brand new animation). We pondered the beauty of *"Gusev at Sunset"* and viewed movie clips of *"Dust Devils on Mars"* and *"Free at Last: Opportunity Escapes the Sand Trap"*.

Simpson Observatory: Titusville, NJ**,** June 24, 2005. Clear NJ skies combined with the expert targeting abilities of John Church and Vic Belanger enabled the crowd at the AAAP public night to view the dim glow of Comet Temple 1. Info about its impending collision with the Deep Impact spacecraft on July 4 was shared with the crowd along with simple star maps and mission handouts/ souvenirs from NASA/JPL.

The wonders of astronomy and space exploration were shared with many first time visitors to our AAAP observatory. All were invited to attend future public viewing nights and AAAP monthly club meetings in the fall.

Please contact me for schools, museums or community groups interested in science outreach presentations.

Email**:**

Robotic Mission Exploration Update

Deep Impact: A Smashing Success on July 4. A direct hit onto Comet Temple 1 at 23,000 MPH, created man-made Fireworks in Space as "one bullet was hit by another bullet while observed by a third bullet", which transmitted the scientific pictures and spectra back to Earth in the spectacular climax to the Deep Impact Mission. The crater blasted into the comet by the 820 pound Impactor and the spewing ejecta cone were larger than expected, as revealed in real time pictures relayed via the Flyby spacecraft, just 300 miles away.

The comet was still belching an enormous cloud of gas and dust, 18 hours after impact from this first of its kind mission. The magnitude increased two to three times and the outgassing may continue for weeks. As this report is being written, the best ever comet pictures and science data were still streaming in and the actual crater size had not yet been determined.

To maximize the scientific output and collect data across many different wavelengths of the electromagnetic spectrum, a worldwide array of ground based telescopes were pointed at the comet, combined with an armada of space based science observatories including Hubble, Spitzer, Chandra, Swift, Rosetta (ESA comet chaser), XMM-Newton, and even the just reactivated SWAS (Submillimeter Wave Spacecraft).

The mission goal was to analyze the composition of the pristine inner portion of a comet for the first time, as this material is unchanged since the formation of the solar system some 4.5 billion years ago. Comets may be the source of the earth's water and the chemical building blocks of life.

Over 625,000 names were carried on a CD placed on the Impactor, as part of the "Send your name to a Comet" campaign organized by NASA/JPL, and were almost certainly vaporized in the collision. The comet is only one-half the size of Manhattan Island, which required precise targeting. Just days before impact, spectacular ejecta clouds were photographed by Hubble and The Flyby as the comet rotated.

Spirit and Opportunity on Mars: ***Now well over 1000 total Sols of Exploration !!!*** After completing scientific exploration of the "Methuselah" layered bedrock, Spirit is heading south as it attempts a final ascent to the summit of Husband Hill. Along the way, it transmitted a strikingly beautiful panorama of the hills and plains of *"Gusev Crater at Sunset"*. While we were at Starquest, the Mars rover team finally extricated Opportunity from the sand dune trap. She is free at last!! After studying the aptly named "Purgatory Dune" for clues, Opportunity is now on the way to the Erebus Highway leading to Erebus crater about ¼ mile to the south.

Cassini/Huygens (NASA/ESA): ***Celebrating the 1 Year Anniversary of Exploring the Saturnian System !!!*** Exciting discoveries continue to roll in. Long sought but previously unseen, a hydrocarbon lake may at last have been discovered in the south polar region of Titan. A newly released picture reveals a dark lake-like feature (45 mi x 145 mi) with what looks like a curved, eroded shoreline, and is about the size of Lake Ontario. Elsewhere on Titan, a 19 mile wide cryovolcano may have been discovered near to the Huygens landing site and could be the source for atmospheric methane.

The next moon encounters occur at Enceledus on July 14 and at Titan on Aug 22 and Sept 7. Check the website for a remarkable picture entitled "One View, Multiple Worlds" of 3 moons; Titan, Tethys, and Epimethus just outside the rings.

Mars Reconnaissance Orbiter (MRO): Final assembly and testing of the spacecraft components and of the Atlas 5 rocket is proceeding, prior to integrated testing, closeout and mating. Launch from the Kennedy Space Center is scheduled for August 10.

Mars Express (ESA): Deployment of the last two booms of the MARSIS radar experiment was completed in mid-June. Unfurling of the two 20 meter long booms and one 7 meter long boom had been delayed for a year due to concern that the unfolding antennae would strike and damage the spacecraft. After instrument testing and calibration, the twin scientific goals of searching for water to a depth of 5 kilometers below the surface and studying the ionosphere will commence around July 4.

Messenger (Mercury Orbiter): The spacecraft is on target to flyby Earth, 1458 miles over Asia, on Aug 2 for its 1st major course correction since launch one year ago. Multiple slingshots past Venus and Mercury are planned before finally achieving Mercury orbit in 2011. The camera imaging system was successfully tested by taking approach shots of Earth and the Moon.

New Horizons (Pluto/Charon Flyby): The first mission to study Pluto and the Kuiper Belt has arrived at the Goddard Spaceflight Center for preflight testing. Launch is scheduled for January 2006.

Solar Sail (Planetary Society): The launch from a submerged Russian submarine occurred on June 21 for the world's first solar sail spacecraft. Sadly, the 1st stage of the Volna ICBM failed and probably doomed the mission before the spacecraft could reach orbit and unfurl the sails.

Websites for daily updates/perspectives:

http://marsrovers.jpl.nasa.gov/home/index.html

http://www.esa.int/export/SPECIALS/Mars_Express/index.html

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http://saturn.jpl.nasa.gov/home/index.cfm

http://www.esa.int/SPECIALS/Cassini-Huygens/

http://deepimpact.jpl.nasa.gov/

http://www.planetary.org/

http://pluto.jhuapl.edu/

Email:

Outreach for AAAP, JPL and The Planetary Society

Ken Kremer

Minutes of the General Meeting

Amateur Astronomers Association of Princeton

June 14, 2005

Director Rex Parker called meeting to order at 8 PM.

Rex Parker opened with general comments and review of StarQuest 2005. He made reference to Carlos Cadenas presentation and paper on the Supernova he discussed at StarQuest.

Secretary Ludy D'Angelo announced that the voting for the changes to the by laws could now be finalized. A motion to close the voting was requested. Ralph Marantino made the motion to close voting and was seconded by Vic Belanger. Of the 111 members, 59 voted for the changes, and 52 members did not respond. Since a simple majority of the membership was required, the changes to the AAAP By-Laws are now passed.

When calling Sky and Telescope to renew or get a subscription, members of the club need to mention club code #215 in order to get the subscription discount. The member list is sent to them quarterly in order for them to verify current eligible members.

Ron Mittlestaedt gave out a handout of the income and expenses for StarQuest. StarQuest profit for this year was XXXXX, XXX was in raffle tickets. There were 75 total in attendance of which 12 were children age six and older and 5 were under age six. Families with children represented ~21% of attendance. Brian Van Liew and Ron Mittlestaedt were recognized for their efforts on procuring donated items for the raffle at StarQuest.

Don Monticello gave his report on StarQuest and indicated that we should have a designated clean up crew next year to facilitate the clean up of the facility. He also commented that there were not enough drinks available for the Saturday night dinner and that would need to be corrected next year. Extra drinks from this year that were not opened will be used for the AAAP picnic.

A general discussion of StarQuest and consideration for a new site at Montclair State College of Conservation facility were discussed at length. Ron presented pictures from the proposed new site. Pros and cons were discussed. An idea was presented that the club have an outing to Montclair in October to try it out for observing. This would be a member only event and to check out the facilities. More discussions on this issue were anticipated to continue through the summer.

Ken Kremer (Program Chair) discussed the possible speakers for the fall. Some confirmed and not confirmed include: Steve Gorvan (September), Craig Koval (October), Hubble Space Telescope science (November) and Mary Lou West (February 2006). More suggestions are always welcome.

Ken also gave a presentation on the Deep Impact Mission and the Solar Sail project of the Planetary Society.

Meeting was adjourned about 10 PM

Respectfully Submitted,
Ludovico D'Angelo
Secretary

From the Treasurer

StarQuest boosted the treasury by XXXXX to a total of; XXXX. Of the XXXX, XXXX was made from the sale of door prize tickets. Only XXXXX was outlaid from the treasury to buy additional prizes, mostly for the children that attended the event. I'm not tooting my own horn, but Brian Van Liew and I put some time in talking, writing and e-mailing many vendors for donations. We now give the members who take this position next year a challenge to top the amount of prizes we obtained this year. I would also like to thank member Saul Moroz for his generous donation of Burgess eyepieces for door prizes and a Binoviewer for the Simpson observatory.

Ron Mittelstaedt

Letters to the Editor

Hello, my name is Rob Nelson. I am an amateur astronomer and REALTOR® with Long Realty Company in Tucson, AZ.

I have recently listed a property that I think you and your organization/members will be interested in; Skywatcher's Inn & Vega/Bray Observatory in Benson. AZ.

To learn more about this truly amazing property, visit my website at:

www.longrealty.com/RNelson

Sincerely,
Rob Nelson

Fall Star Party

A group of AAAP members are organizing another event primarily for members and their guests.

It is planned for the weekend of September 30, through Oct 2, at the NJ School of Conservation Camp. The camp is in Stokes Forest off Route 206 and provides the darkest skies to be found in New Jersey.

Cost of the event will be $7.00 per night, providing only a bed, showers, and no food service. Camping in tents or RV's with the use of camp stoves is also acceptable.

If you are interested in participating in this new opportunity or for more information, contact Don Monticello at:

Don

Deadline for the
September Issue of the
Sidereal Times
Friday, August 26, 2005

The best way to get to the observatory is to take Interstate 95 South towards Pennsylvania. Then take Scotch road at Exit 3 and proceed north (this amounts to right). Then, at the third traffic light take a left onto the Washington Crossing-Pennington road (County Route 546). Take this road to the first traffic light and take a right onto Trenton-Harbourton road (County Route 579). Take this road to the first driveway on the left, this is the Phillips Farm/Soccer Field entrance to the park. There is a series of three gates with club combination locks. If the gates are not open, you will need the lock combination to open the gate or be accompanied by a Keyholder member.

See us on the Web: www.princetonastronomy.org

Midsummer 2005

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