SIDEREAL TIMES

The Official Publication of the
Amateur Astronomers Association of Princeton

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From the Director

"Where have all the clear skies gone…"(sing to the tune of the old Pete Seeger ditty, but in a much cheerier spirit please). March came in like a lion, and has remained a lion. I predict, with certainty, however, that the evening sky will settle into crystal clear, pristine darkness from a deep azure blue on Friday, April 4. How can I forecast with the assuredness of a Global Warmist? Well, that Friday is the first public open house of our Simpson Observatory season. Escape the Hillary, Obama, McCain blather and come relax under the stars with your fellow AAAP astronomers and some curious public. Visit the AAAP website for details and directions.

How often have you been in the field with your binoculars, Dob, SCT or CCD array, and glanced at your reference map or book to identify a particular object? In the case of stellar identification (is this beginning to get too dry?), different catalog names are used by various authors, depending on, who knows? One maddening example is the otherwise terrific software package we use to operate the C14 at the Simpson Observatory. With book in hand, you open a search window in the software interface, only to find they list any number of catalog designations – except the one in your book! Arrg. and, like many practices in astronomy, nomenclature can be ancient; carried forward in time by countless generations, yet added to and edited along the way. It can be daunting. I thought it would be fun to choose one star and show how that one object is designated by the more popular catalogues. Here goes. Our example is Aldebaran.

- Aldebaran — The traditional Arabic name.
- Alpha Tauri — The Bayer Catalog.
- 87 Tauri — The Flamsteed Catalog (our software likes Mr. Flamsteed).
- HR 1457 — Harvard Revised Photometry–Yale Bright Star Catalog
- SAO 94027 — Smithsonian Astrophysical Observatory
- HD 29139 — Henry Draper Catalog (of spectral types)
- GSC 1266 1416 1 — Hubble Guide Star Catalog
- HIP 21421 — Hipparcos Catalog

Got a phone call the other day from an old friend of the family. Hadn't heard from him in ages, and the call came from out of the blue. He was all excited about "scientific" evidence pointing to (another) worldly apocalypse sometime in 2012. Now, this fellow admittedly, knows as much about things astronomical as The Man In The Moon. Well, perhaps that's a bad example. Regardless, this was the first I'd heard about this version of our demise, so I asked for details. His source, as I'm finding for flying saucers, was the History Channel. Apparently, the ancient Maya calculated (many thousands of years ago) that Earth's time runs out during December, 2012 (frankly, I think it's going to be a lot sooner than that, judging by these three characters running for the US presidency).

I began somewhat amused, but grew a bit apprehensive when this guy seemed to take the History Channel, and the story seriously. Pressing for details, he went on to exclaim that the "Sun will line up with the center of the galaxy," and, paraphrasing, will focus the energy of the center of the Milky Way onto Earth. You can't make this stuff up boys and girls, it's just too good. No wonder Arthur C. Clarke ran off to Sri Lanka. I asked this fellow, since the Sun is *always* in that vicinity at the Winter Solstice (sans precession effects which are negligible in our lifetimes), why is our undoing waiting for 2012? Answer: The planets (our solar system) are in alignment at December 21, 2012. After some discussion, he remained unconvinced. So, I told him that he, his wife, kids and the cat should do their best to prepare for the end.

Now here's your homework assignment: just what is the Sun's position relative to the background stars at the 2012 Winter Solstice? And, what is the position of the eight planets (yes, Pluto too), relative to each other, the Earth and Sun, at the WS? There'll be a test at the next meeting.

Cheers—*John Miller, Director*

The deadline for the May issue is:

May 2, 2008

Send your submissions to:

editors@princetonastronomy.org

Report of the AAAP Nomination Committee

After the last meeting of the AAAP on March 11, Director John Miller asked if we would act as the Nominating Committee and recommend a slate of Officers for the coming year. With some trepidation, we agreed.

We decided first to ask the current incumbents if they would like to continue in their roles. We both feel that the current Officers have served the club with distinction this past year and should be given the opportunity to continue to do so if they wished.

Four of the five current Officers agreed to continue and Ron Mittelstaedt, current Secretary, graciously offered to continue in the role if we were unable to secure a successor. A recommended successor has been found and we wish to thank Ron for his service as Secretary this last year.

Now, therefore, your Nominating Committee hereby presents to the membership, for vote at the May meeting, its recommended slate of Officers for the 2008-2009 season of the AAAP:

- Director – John Miller
- Assistant Director – John Church
- Secretary – Larry Kane
- Treasurer – Michael Mitrano
- Program Chairman – Ludy D'Angelo

We wish to thank these volunteers who have offered to stand for election.

We also wish to thank everyone who gave us suggestions and, in particular, thank John Miller, who provided support and guidance as we undertook the process.

If you have any questions, please do not hesitate to ask either of us.

Georgette and Bob North

Membership Meeting Minutes March 11, 2008

Observatory: Dedicated AAAP member Gene Ramsey will relinquish has position as Observatory Co-Chairman for health reasons. He, along with Larry Kane and Ron Mittelstaedt has been maintaining the observatory for the past few years. Gene's observatory duties consisted of performing small repairs to the building and grounds. Larry Kane maintained the key holder training and duty assignments. Ron Mittelstaedt duties consist of maintenance of equipment and help with key holder training. Gene would transport his personal lawnmower and mow the grass around the observatory. His labors were unseen from the majority of the membership who thought the park was mowing the grass. Thanks were given to all Gene's efforts. This position must be filled to display our observatory at it's finest for the upcoming observing season. Suggestion was made to purchase a lawnmower and erect a shed to house it. The shed could also be used to house other items that could make more room in the observatory.

The back roof of the observatory was approved last year for replacing and repair and should be addresses in the near future.

A key holder list is published on the AAAP website and the schedule of duty dates will be revised. The Simpson observatory open house starts on April 4th and will be manned by team One and then in consecutive order every Friday thereafter. Director John Miller stated that more emphasis should be placed on learning the sky. Key holders should be able to point out major stars, constellations, planets and answer visitors simple questions.

Ron Mittelstaedt was asked to order the Tele Vue 13mm Ethos eyepiece, which has been done , and should be at the observatory in time for the first public observing session on April 4th.

On Saturday March 15th cabinets and a closet were purchased at Home Depot and delivered to the observatory. The next day Ludy D'Angelo, Brian Van Liew, Michael Mitrano and Ron Mittelstaedt assembled the new furniture and moved out the old. Items in the old cabinets were organized and stored in the new cabinets.

Meeting Programs: Program Chairman, Ludy D'Angelo announced the rest of the year's speakers. For April is Argyro Tasitsiomi of Princeton University; May, David Hogg of Columbia University. June at the moment is open but can be filled by a graduate student of Princeton U.

Public Outreach: Outreach Chairman Jeff Bernardis announced the upcoming public outreach events. March 14th, the Upper Freehold public schools. This event was clouded out and activities were held indoors.

Princyclopedia 2008 will be held on March 29th at Dillion Gym. Lastly the NJ State Museum Super Science Weekend will be held on May 17th and 18th. The AAAP has participated in this event for the past twenty years.

Starquest: Bryan Hubbard displayed some of his designs for Starquest. These designs could be incorporated into t-shirts or any other fund raising items.

John Miller will contact the Hope Conference Center to firm the dates for Starquest. Dates are for the beginning of October or the end of that month depending which weekends are open.

I talked to Gene Ramsey on the phone on March 15th. He said he was doing fine and that he still wants to be an active member of the club and observatory, but no lawn mowing!

Ron Mittelstaedt, Secretary

Treasurer's Report

Recent member renewals and a new member have brought total dues for the fiscal year to $4,040 (101 members). Outreach contribution income has also risen, to $450.

Expenses during the last month included replacement of some Simpson Observatory furniture costing $375. Since the beginning of our fiscal year on July 1, our surplus is $2,653.

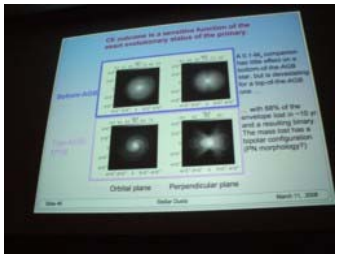
The Association's cumulative surplus is $15,100.

Michael Mitrano, Treasurer

From the Program Chair

Our March meeting was a great success as Orsola DeMarco gave us a wonderful lecture on binary stars and their possible influence in planetary nebulas. If only New Jersey Transit would change their schedule a little so that our guests can relax and not have to rush to catch a train home. I'm sure

many of you had more questions to ask. The pre-meeting dinner was also an engaging time of conversation and questions.



On April 8th, our guest speaker will be Argyro (Iro) Tasitsiomi of Princeton University. The title of her talk is **"Cosmology: current status and remarks on the Dark Side of the Universe"**

Argyro (Iro) Tasitsiomi received her Ph.D. in Astrophysics (2005) from the University of Chicago. Her thesis focused on cosmology, and more specifically on topics relating to supersymmetric dark matter, large-scale structure formation, as well as the evolution of the Universe and how this can be observed via Lyman-alpha emitters. Her work has been published in journals such as the Astrophysical Journal and Monthly Notices of the Royal Astronomical Society. She has received awards for outstanding graduate work from the Enrico Fermi Institute and the Alexander Onassis Public Benefit Foundation. At Princeton, where she holds a Lyman Spitzer Jr. Fellowship with the Department of Astrophysical Sciences and a Cotsen Lectureship with the Princeton Society of Fellows, she continues investigations along the lines of her previous research as well as in new directions, such as the dark matter halo/galaxy connection. In 2006-2007 she taught a graduate seminar on current issues in cosmology, while this semester she teaches an undergraduate course on cosmology for science majors.

Please join us in Peyton Hall on April 8th. Prior to the meeting, as always, there will be a pre-meeting dinner at Sotto's Restaurant. Please contact me to reserve a spot and as always send any comments and suggestions to me at Ludy@princetonastronomy.org or Ldangelo106@comcast.net.

Ludovico D'Angelo, Program Chair

AAAP May and June Meeting Location Change

The May 13 and June 10 AAAP meeting *will not be held in Peyton Hall.*

At the moment we cannot provide either venue, but check your email and the AAAP website, nearer those dates, for reassigned locations.

Picture This—Beginners Imaging

About this time two years ago I was offering a SIG (Special Interest Group) for astrophotography to AAAP members. This month I decided to put together some of the beginner's images that came out of those meetings. We would meet once a month or so and discuss ways of taking pictures through scopes, equipment and some image enhancing techniques to help bring out the most of what was taken. After several meeting at my home everyone was anxious to try their luck at capturing something special for the first time. So the next meeting we met at the Washington Crossing Simpson Observatory. Some brought digital cameras, which would be held up to an eyepiece instead of your eye. This type of astrophotography is known as afocal imaging. This is about the easiest way to get started into astrophotagraphy. It is how I started out and is what got me hooked. We used the C14 and slewed it to M42, which is about the most famous and photographed DSO around. We also went to the moon and Saturn with the scope. Each took their turn snapping several images at each target hoping one of their shots would be in sync with a moment of still air to get a clear snapshot. So after the dust settled from the frenzy of shutters clicking we viewed what each had on the camera's LCD display. Some images looked promising but alas most were destined for deletion. Holding the camera perfectly still while getting the settings and focus right for imaging nighttime objects can be about the biggest obstacle in getting any image afocally. Going back through some old folders on my computer I found a couple of shots which Ludy had taken that night and had emailed to me a few days later. I have worked a bit on them using Photoshop to help enhance these single snapshots into works of art. One is of the Trapezium area, which is the brightest part of the Orion Nebula and the other is a quadrant of the sunlit side of the moon boasting one of its larger craters.

Maybe someday down the road, if there is enough interest, we can rekindle this SIG again.

Brian Van Liew

Interested in keyholder training?

Contact: kane@princetonastronomy.org or by cell phone (609-273-1456)

Community Outreach

We had two events on our calendar this past month.

- On Friday March 14, we were at the Upper Freehold Regional School in Allentown. Ron Mittelstaedt, Mike Wright, Rich Fabbri, Linda Papetti and myself were there. The outdoor activities were clouded out, but we were able to set up indoors.
- Saturday March 29th, was the Princyclopedia event sponsored by the Princeton Cotsen Children's Library. This was a daytime indoor event The team this year consisted of myself, Larry Kane, John Miller, and Brian Van Liew with moral support (and some photography) provided by Brian's daughter. I estimate that there were about 150 to 175 families stopping by our table.

AAAP Members (back row) John Miller, Jeff Bernardis, and Brian Van Liew, and (front row) Larry Kane covering the booth at Princyclopedia.

We currently have 1 event on our upcoming calendar:

- May 17th and 18th (Saturday and Sunday) from 11AM to 4PM each day, is the New Jersey State Museum's Super Science Weekend. This has become a staple event for us. This is a daytime outdoor event for solar observing. Because it is two days, and because each day is 5 hours long, we really need your help with this one; if we have enough volunteers, we can break each day into 2 shifts.

If you are at all interested in helping out with this, or other future events, please let me know as soon as possible at jbernardis@princetonastronomy.org or 609-466-4238.

As other events are scheduled, you can find out about them here, or on the calendar that is on our web site.

Jeff Bernardis

Other News…

Launching DAWN (and Phoenix) For those who may be interested, member Ken Kremer will be presenting a lecture on his eyewitness account and media reporting for the NASA DAWN Asteroid mission from the Kennedy Space Center Press Site and Launch Pad at the Raritan Valley Community College (RVCC) Planetarium on Wed 2 April 2008 at 730 PM in Somerville, NJ. Titled: **Launching DAWN (and Phoenix): From Behind the Scenes at Kennedy Space Center Press Site**.

Detailed Info/directions online here, (scroll down)

http://www.raritanval.edu/planetarium/planetarium.htm
http://blog.nj.com/reporter/2008/03/insider_talks_space_programs.html
http://www.bis-spaceflight.com/sitesia.aspx/page/183/id/1678/l/en-us

Ken will also be giving a talk:

MARS, SATURN, ASTEROIDS AND BEYOND (IN 3-D): Saturday April 12, 1:00 p.m. at Washington Crossing Nature Center, Titusville, NJ.

Submitted by Ken Kremer

Editorial: So Just How Big is the Universe?

At the risk of being called naïve, and as a comparative newcomer to astronomy, I realize that I have tended to confuse the age of the Universe, 13.6 billion light years, with its size, and could not agree with the assumption that that was the limit. After all I thought, if we were on a planet within M31, presumably, we would be able to see the same distance from there. Therefore, assuming we were looking in the same direction, we would be able to view galaxies at a distance from our system of 13.6 billion light years plus 2.6 million light years; the distance M31 is from us. Taking this to the next step, would a viewer in one of the Abel 2218 cluster of galaxies, be able to see another 3 billion light years farther than us. Assuming once again he, she or it were looking in the same direction.

So since we needed an additional article for this month, I thought why not see what the Internet has to offer. Well, I opened a can of worms, there is much conjecture in this regard, the 156 billion light years proposed by Neil Cornish, an astrophysicist at Montana State University, the infinite size proposed by Tom Murphy, and Wikipedia's arguments which at times do not agree with anyone. So, I invite you to read the words of wisdom presented on the following sites. It is great reading, I learned a lot and you may too.

Bryan Hubbard

Neil Cornish http://www.space.com/scienceastronomy/mystery_Monday_040524.html
Tom Murphy - http://physics.ucsd.edu/~tmurphy/phys10/universe.pdf
Wikipedia - http://en.wikipedia.org/wiki/Observable_universe

Telescopes (or not) for the Beginning Stargazer (Part I)

The launch of the satellite Sputnik I in October, 1957 ushered in many changes in space science. It also heralded the enormous growth of "backyard" or amateur astronomy. Throughout the 1960s and 1970s, amateur astronomers who wanted use of portable, quality telescopes had little choice among commercial manufacturers. Many amateurs solved the problem by designing and building their own instruments.

Today, luckily (for those of us who have trouble building a peanut butter & jelly sandwich), there are a myriad of choices of high quality, portable telescopes.

Now, that said, here comes the disclaimer:

If you have some degree of confidence identifying constellations and finding your way around the night sky, a telescope might be the right choice for you at this point. However, if you are completely new to the sky, buying a telescope is probably a bad idea. Sound paradoxical? Experience proves otherwise!

Let's say you develop an interest in boating. Let's assume don't know how to read a nautical chart, recognize channel buoys or tie a marine knot. But there's that magnificent 45 foot cabin cruiser in the showroom. 401Ks cashed in, you've got the boat in the water and away you go with the family! Needless to say it wouldn't be long before frustration and confusion (or worse) set in.

Astronomy can be a life long joy, with something new to learn every day. Start with the basics. Get to know the sky a little. Get on a first-name basis with some of the constellations and brighter stars. Begin to read about the easily observable planets in our Solar System. Explore articles describing "star clusters," and a few of the brighter "deep sky" objects.

OK. No scope at the moment. Then what equipment DO we acquire to learn the night sky??

- Lawn chair
- A Planisphere (a what??)
- A good pair of binoculars
- Your eyes
- An open field, away from lights (if at all possible)

Once twilight has ended relax in your lawn chair and start to examine the stars. Don't worry about what's where and what's what. Just enjoy the view. Really *look* at the stars. You will notice they vary widely in brightness, and some differ in color. Occasionally you might spot a dim point of light moving steadily, in a straight line, across the sky. That's an Earth-orbiting satellite.

It takes your eyes about 20 minutes to become fully dark adapted (although this will not happen if there is any ambient light in the vicinity). You'll be amazed how much more of the celestial show you'll see.

PLANISPHERE

A **Planisphere** is also known as a "star finder." Consider it an essential.

This tool allows you to see what constellations (and associated bright stars) are in the sky at a particular time of day for a given month. During early Spring through late Summer, the "Big Dipper" is easy to recognize and terrific guidepost to learn right away.

BINOCULARS

Another item on the list above is **binoculars.** Most everyone is familiar with this optical instrument, and many have used them at sports events, boating, and, yes, even to look at the Universe! I consider a good pair of binoculars another essential.

A standard binocular (7 X 50, for example) will gather over fifty times more light than your eye. And, (*this is really important*) it is the light-gathering ability, not the magnification of a telescope or binocular that's critical for sharp viewing. When you see telescope advertisements touting high magnification, run in the opposite direction.

Binoculars offer many advantages to amateur astronomers. They're easy to transport. They allow you to see many more stars than your unaided eyes. You can begin to explore star clusters and glowing nebula in detail. Unlike telescopes, binoculars allow you to see a larger area of the sky – this is called a greater "field of view."

All quality binoculars will have a set of numbers printed somewhere on them. These usually appear as "7 X 50" or "10 X 50." What does this mean? The first number indicates the magnification. 7 X 50 binoculars magnify objects seven times. The second number tells you the diameter of the "objective" lenses, that is, the two main lenses in the front of the binocs. The number "50" indicates fifty millimeters in diameter (about 2 inches).

For general use, including exploring the night sky, 7 X 50's or 10 X 50's are very popular.

YOUR EYES

Since the beginning of recorded human history, until the end of the 16th Century, we know these were the only optical instruments people used for astronomical discovery. And a heck of a lot was accomplished with them by the ancients! Please..go forth and do likewise!

If you wear prescription eyeglasses, it's generally better to leave them on when looking through binocs or a telescope. This is particularly true if you suffer from astigmatism.

When you need to illuminate something (like your Planisphere), after your eyes have dark adapted, don't use white light. Use **red** light. There are red flashlights you can buy. Or cover a small flashlight with red cellophane. This will help keep your night vision intact.

Your eyes present the largest field-of-view of the sky. Using your unaided eyes is the only way, really, to learn the patterns of the constellations and coordinates of the sky. And learning those patterns is a very important first step to enjoying astronomy.

John Miller

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. The Simpson (AAAP) Observatory's phone number is (609) 737-2575.

See us on the Web: www.princetonastronomy.org

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