

# SIDEREAL TIMES

*The Official Publication of the  
Amateur Astronomers Association of Princeton*

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*John Miller*

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*Michael Mitrano*

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*Larry Kane*

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*Bryan Hubbard and Ira Polans*

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## From the Director

Random thoughts. Generally, that's how this column begins (like now...can't you tell?). Particularly when our hardworking, schedule-commanded Sidereal Times Editors rightfully remind you at

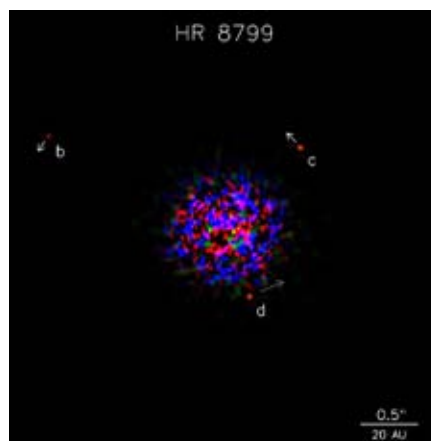


the twelfth (thirteenth hour) that the presses are waiting for you. Speaking of time, humans began calendars and time-keeping by watching the perceived motion of the sky. In our contemporary lives, most people rarely take a few minutes to really look at the evening sky. I regularly schedule a jun (jog run) around Princeton University,

always starting at a parking lot across from the football stadium. About a month ago, I spotted Venus very low in the West, using the roof of old Guyot Hall as a reference. Simultaneously, I drew a mental picture of the ecliptic over to Jupiter, at the time, sitting high above Peyton Hall. It's been great fun (I'm easily amused) watching Venus run like a rabbit toward greatest eastern elongation using the same vantage point in that parking lot. Two beautiful beacons in the evening sky, no? About ten days ago (using the scientific "fist at

arm's length" guide) the two planets had a rough apparent angular separation of about 20 degrees. Last night about 15.

Yesterday I received updated news that the Fitz Randolph Observatory on the Princeton University campus, is not immediately scheduled for dismantling. That the ol' girl will stay put for a while is



pleasant to hear. The University is expanding, following a long-term plan, and that area of the campus is part of that expansion, as I understand it. If you've never seen the 36 inch (actually 0.9 M) Boller & Chivens Cassegrain, perhaps we can secure permission to coordinate a visit. Another observatory—slightly newer and better

equipped than Fitz Randolph—has been used to produce a second-order set of images (following the Hubble data interpretation of Fomalhaut b last week) of extra solar planets. The Keck Observatory used adaptive optics to directly capture images of multi-Jupiter mass planets orbiting HR8799 a young star in the constellation. "HR" stands for "Harvard Revised", one of the scores of stellar catalogs referenced by astronomers. HR8799 is a main sequence A5 star, with a distance of ~129 LY, in the constellation Pegasus. With an apparent magnitude of 5.8, it is an easy visual target in any small telescope. Now there's some terrific cocktail party conversation: tell your friends you were looking at that very star system through your SCT. Better yet, have them put down their martinis and go out and discover it for themselves through your scope. Perhaps, in the not too distant future, AAAP astrophotographers will be capturing these images using backyard AO. Coordinates for HR8799 are: RA 23h 07m 28.715s and DEC +21d 08m 03.302s. After enjoying Venus and Jupiter in your 14mm Televue Radian, why not swing your scope over to those coordinates? I'll bet Al Nagler wouldn't flinch a

**The deadline for the January issue is:**

**Friday January 2, 2009**

**Send your submissions to:**

**[editors@princetonastronomy.org](mailto:editors@princetonastronomy.org)**

millimeter if you told him you believed his optics could pick up those planets. Not a millimeter.

No scope? As a AAAP member (you *have* paid your 2008-2009 dues, haven't you?), you have access to the Simpson Observatory with the help of a club observatory keyholder. You are welcome to phone or email a keyholder and ask to go out to the observatory. Keyholders are listed on the AAAP web site.

**Cheers**—John Miller, Director

## Membership Meeting Minutes November 11, 2008

1. Director John Miller called the meeting to order.
2. StarQuest: Debriefing
  - A. IT RAINED...A LOT, until StarQuest ended.
  - B. Herb Johnson reported on the donated astro stuff sale. The 10" mirror sold for \$125.00, the 6" off-axis mirror sold for \$50.00 and Herb bought the collection of magazines for \$75. He donated a copy of "How to Build your Own Observatory" to the AAAP Library/Archives.  
The remaining equipment that did not sell will be put up for sale in the Spring.
3. Program Chair
  - A. Director John Miller gave the report on behalf of Ludy D'Angelo. He requested that active members send the names of anyone of interest seen on the web to the Program Chair to line up future speakers.
  - B. The question of whether or not to hold a June meeting was opened to discussion. Bill Murray reported that the Trenton State Museum would not likely open the planetarium by then. We need three speakers, for March, April and May.
4. Treasurer's Report
  - A. StarQuest resulted in \$750 of intake over costs. Because of the weather, we had lower occupancy costs in the bunk houses.
  - B. We are still awaiting dues payments from some members. Slightly more than 50% of the membership has renewed at this time.
5. Secretary's report
  - A. Kane discussed the email addresses that came back as undeliverable and provided Director Miller with the corrections to be made to the membership roster.
6. Outreach Report
  - A. Jeff Bernardis reported that requests have been slow. We still have only the Riverside School. We have four or five volunteers for that event.
  - B. The request for Sandy Hook has been withdrawn.
  - C. A Girl Scout troop may make a request for a public night, next season. J. Miller raised the question of what to do if constant rain is guaranteed. It was decided that the event should be held, rain or shine.
  - D. For the 22nd November, a Cub Scout troop leader requested an event at the Simpson Observatory for about twelve scouts and ten parents.

- E. Brian Van Lieu suggested that we put a sign on the post that says "No Authorized Vehicles, Beyond This Point" Gene Ramsey will contact Wayne of the Park staff to get authorization.
- F. Gene Ramsey suggested that on-duty keyholders, upon arriving at the observatory, should contact any campers that may be there, and inform them of the public night.
- G. Member Ken Levy suggested that we hold an event at the observatory for children with cancer from "Guilda's Club".
- H. A discussion was held on whether we have enough keyholders to continue the public open house schedule of every Friday night. The consensus was that it is more convenient and easier for the public to understand, to be open every Friday.
7. Sidereal Times
  - A. Next deadline is November 21, a week early because of Thanksgiving.
8. **Guest Speakers:** Program Chair Ludy D "Angelo noted that the January speaker will be AAAP member Ken Kremer. Several suggestions were made for future speakers.
9. John Miller adjourned the meeting.

Larry Kane, Secretary

## Treasurer's Report-November 19, 2008

The AAAP has thus far received \$2,587 in dues for the current fiscal year, bringing us more than half-way to our \$4,300 budget.

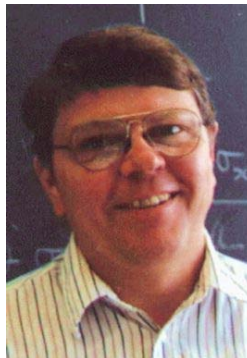
StarQuest was a financial success notwithstanding the poor weather. Revenue from attendance and the raffle of astro items was only \$1,930 or \$770 less than budgeted. However, costs were \$894 less than budget as well, with spending lower than planned on food, location charges, and prizes. The event therefore generated a \$774 surplus which is \$124 more than budgeted.

Other expenses are as usual. For the fiscal year to date, the AAAP shows a surplus of \$3,077. Cumulative reserves are \$18,020.

Michael Mitrano, Treasurer

## From the Program Chair

I hope everyone enjoyed Jonathan Mitchell's talk last month on Titan. Unfortunately, I was not able to attend since I was feeling ill and contagious.



On December 9th, our guest speaker will be Jerry Sellwood of Rutgers University. Last February this talk was cancelled because of a snow-storm. So with luck, this time around, the weather will cooperate. His talk is titled "The Dark Side of The Uni-verse". Jerry Sellwood completed his PhD in Astronomy at Manchester University, England in 1977. He has held positions at the European Southern Observatory, Groningen University (The Netherlands), Cambridge University (England), and

the Space Telescope Science Institute in Baltimore. He has been on the Faculty at Rutgers University since 1991. He is a member of the International Astronomical Union and of the American Astronomical Society. He is also a Life Member of Clare Hall Cambridge and recipient of the 1999 Graduate Teaching Award from Rutgers Graduate School. His main interests are structure and evolution of galaxies, their formation and their dark matter content. He has published over 90 papers, edited three volumes of conference proceedings, and delivered more than 40 invited lectures at international conferences.

Please join us in Peyton Hall on December 9th. 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

*Ludovico D'Angelo, Program Chair*

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## Observatory News

On November 19 members Gene Ramsey and John Church winterized the plumbing at the Washington Crossing observatory. Gene also removed the trash for disposal. Thank you!

*The Editors*

### Interested in keyholder training?

**Contact:** \_\_\_\_\_ **or by**  
                   cell phone \_\_\_\_\_

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## Community Outreach

Our first outreach event of the year is in just a few days. December 4<sup>th</sup>, weather permitting, will find several of us in the yard surrounding Riverside School in Princeton (the rain dates are 12/5 and 12/8). We have 4 volunteers signed up for this event, but there is always room for more; if you're interested, contact me.

We are currently in discussion regarding the following upcoming events:

- December 17 (a Wednesday) at Millstone River School in the West Windsor-Plainsboro school district. Time details and rain dates are not yet determined. This one is soon, and we currently only have one volunteer – if you are interested, please let me know ASAP
- March 28, 2009-Plainsboro Township Earth Hour. No details about this one yet and it's much too early to accept volunteers. I will be reminding everyone about this as the date approaches.

As usual, we are always looking for more people to help us out here. If you think this is something you want to do, please contact me at

*Jeff Bernardis, Outreach Coordinator*

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## Picture This—NGC 6888

NGC 6888 or Crescent Nebula is a rare planetary nebula surrounding a Wolf-Rayet star. Located in the constellation Cygnus, its size is some 25 ly across and 5000 ly distant. The egg shape nebula is formed by the strong stellar winds coming from the dying star as they interact with material that has been ejected from its outer layers of gas. This object is not actually visible but appears during long exposures. The image taken was exclusively through an H-alpha filter (black and white image) but processed later to create the color version shown. Note that there are faint emission clouds that are nearby in the background.

The telescope used was an Orion ED80 refractor and a Starlight Express camera model SXVF-H9 through an Astronomik H-alpha filter.



*Brian Van Liew*

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## NASA News

*Hubble Directly Observes a Planet Orbiting Another Star*

**Nov. 13, 2008:** NASA's Hubble Space Telescope has taken the first visible-light snapshot of a planet circling another star.

Estimated to be no more than three times Jupiter's mass, the planet, called Fomalhaut b, orbits the bright southern star Fomalhaut, located 25 light-years away in the constellation Piscis Australis, or the "Southern Fish."

Fomalhaut has been a candidate for planet hunting ever since an excess of dust (a telltale sign of planet formation) was discovered around the star in the early 1980s by NASA's Infrared Astronomy Satellite, IRAS.

In 2004, the coronagraph in the High Resolution Camera on Hubble's Advanced Camera for Surveys produced the first-ever resolved visible-light image of the region around Fomalhaut. (Note: A coronagraph is a device that can block the bright light of a central star to reveal faint objects around it.) It clearly showed a ring of protoplanetary debris approximately 21.5 billion miles across and having a sharp inner edge.

*(Continued on Page 5)*

## 20 Years Ago In Sidereal Times...

# SIDEREAL TIMES

Newsletter of the Amateur Astronomers Association of Princeton, Inc.

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**Director:** Jay Albert

**Editor:** Chip Yuill

December, 1988

**AAAP Calendar**

Tues. 12/13 - Meeting at 8:00 pm in Peyton Hall. Noan Levy has arranged a special treat that you shouldn't miss! Anthony Cannello of G.E. Astro will present a program titled "Return to the Red Planet" which will provide details of the forthcoming Mars Probe.

Tues. 1/10/89 - Meeting at 8:00 pm in Peyton hall. This will be a Members' Night program. This is your opportunity to discuss your particular astronomical activities. We have a couple of members lined up for presentations so far, but there is plenty of room for more. Contact Noan Levy and let him know what you'd like to present and what special audio-visual equipment you might need.

Sat. 1/21 & Sun. 1/22 - Super Science Weekend at the New Jersey State Museum in Trenton. Officially, the hours are 9:00 am - 5:00 pm Sat. and 12:00 - 5:00 pm Sunday. Unofficially, it shouldn't be necessary for anyone to show up before 10:00 am Saturday. As we have for the past few years, the AAAP will participate. We'll need volunteers to provide and tend our exhibits. Please contact Jay Albert for more info and to volunteer for all or a portion of either or both days. In the past, this has proved to be an enjoyable opportunity for the AAAP to meet an interested public.

NOTE: Pre-meeting dinners will be held at 5:45 pm at the Tigers' Tale Restaurant on Rt. 206 just north of the Rt. 518 intersection.

**FROM THE DIRECTOR**

From where I stand during the regular monthly meeting, it is hard to avoid noticing members and guests fleeing for the exits when we have our break at the conclusion of the speaker's program. Since our business meetings have often run until after 10:30, this disappearing act is understandable. I am pleased to report that we have been making some progress lately on remedying that problem. The October business meeting was over at 10:10 and we actually broke that 10 o'clock barrier with a 9:50 adjournment in November. So next time you start to panic in fear of being trapped in a long, boring business meeting after the break, relax and stick around. Chances are it won't be that bad.

Special thanks to member Vic Belanger who wrote an article for the West Windsor/Plainsboro Chronicle describing the War of the Worlds Program at W. Windsor High and Grovers Mill Park. I would also like to thank the half dozen other members who brought telescopes for the observing session at Grovers Mill. Although the cold scared away many of our potential customers, we did get about twenty hardy souls after the lectures at the highschool. The air was fairly steady that night and there was no wind. We actually had better views of Mars than we did at Sprout Observatory (not to mention the Naval Observatory). Even in my undriven C90 spotting scope, the south polar cap and surface markings were easily seen at 160x. Beautiful views of Jupiter and the moon were also enjoyed by those participating.

**FROM THE TREASURER**


The Royal Canadian Astronomical Society's Handbook for 1989 is now available. Those wishing to order a copy at an AAAP discount should contact Larry Smith. Orders for AAAP T shirts now being taken on a cash in advance basis.

Please remember that our dues structure was increased by \$1.50 (because of a subscription increase by SKY & TEL) and new dues have been in effect since the Sept. vote;

FAMILY \$36.50; SINGLE \$31.50; STUDENT & SENIOR, \$22.50

Those of you who have recently sent a renewal check using old dues structures should send the balance (to Larry) so that your subscription to SKY & TELESCOPE does not lapse.

Members coming up for renewal; please remember that you should renew at least a month in advance of your anniversary date so that the check can be sent to SKY & TEL and assure continued delivery. Thank you.



The lunar photos below were taken with the club's 6" refractor almost 36 years ago by member John Church. They were used as part of the club's exhibits.



*Apennines and Archimedes with A-15 site (Crosshairs at lower left).*



*Copernicus and Eratosthenes detail.*



*Ptolemaeus to Straight Wall.*

*(Continued from Page 3)*

This large debris disk is similar to the Kuiper Belt, which encircles the solar system and contains a range of icy bodies from dust grains to objects the size of dwarf planets, such as Pluto.

Hubble astronomer Paul Kalas, of the University of California at Berkeley, and team members proposed in 2005 that the ring was being gravitationally modified or "shepherded" by a planet lying between the star and the ring's inner edge.

Now, Hubble has actually photographed a point source of light lying 1.8 billion miles inside the ring's inner edge. The results are being reported in the November 14 issue of *Science* magazine.

"Our Hubble observations were incredibly demanding. Fomalhaut b is 1 billion times fainter than the star. We began this program in 2001, and our persistence finally paid off," Kalas says.

Observations taken 21 months apart by Hubble's Advanced Camera for Surveys' coronagraph show that the object is moving along a path around the star, and is therefore gravitationally bound to it. The planet is 10.7 billion miles from the star, or about 10 times the distance of the planet Saturn from our sun.

The planet is brighter than expected for an object of three Jupiter masses. One possibility is that it has a Saturn-like ring of ice and dust reflecting starlight. The ring might eventually coalesce to form moons. The ring's estimated size is comparable to the region around Jupiter and its four largest orbiting satellites.

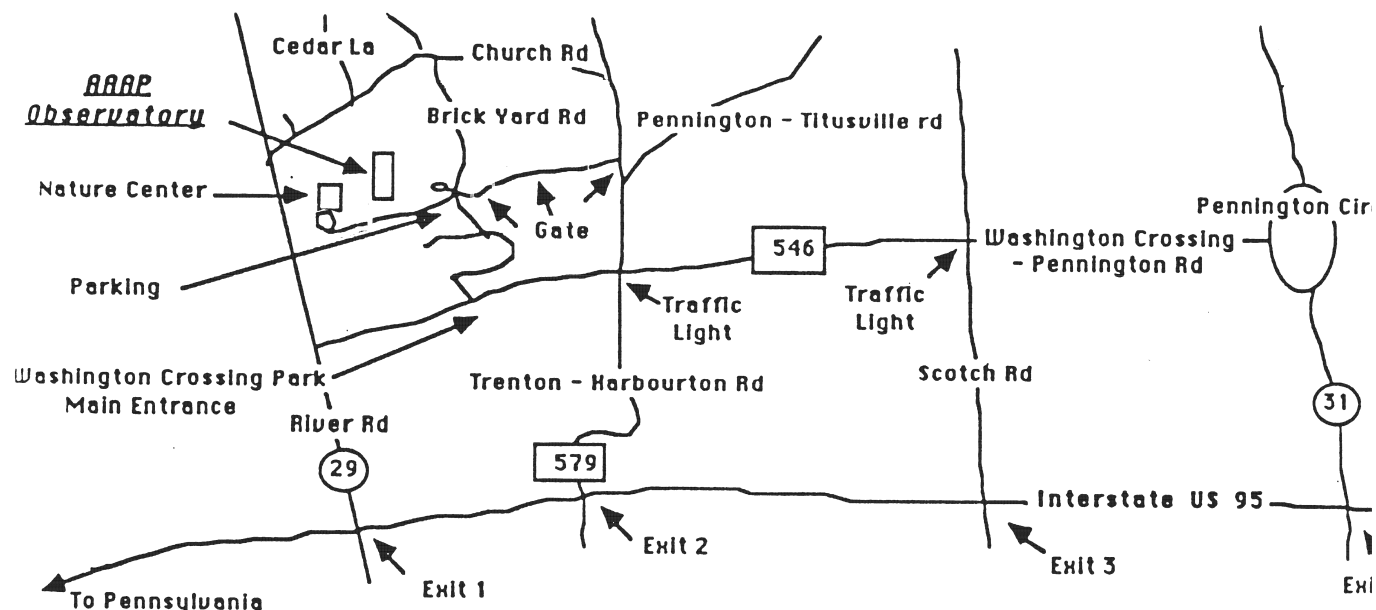
Kalas and his team first used Hubble to photograph Fomalhaut in 2004, and made the unexpected discovery of its debris disk. At the time they noted a few bright sources in the image as planet candidates. A follow-up image in 2006 showed that one of the objects had changed position since the 2004 exposure. The amount of displacement between the two exposures corresponds to an 872-year-long orbit as calculated from Kepler's laws of planetary motion.

Future observations will attempt to see the planet in infrared light and will look for evidence of water vapor clouds in the atmosphere. This would yield clues to the evolution of a comparatively newborn 100-million-year-old planet. Astrometric measurements of the planet's orbit will provide enough precision to yield an accurate mass.

NASA's James Webb Space Telescope, scheduled to launch in 2013 will be able to make coronagraphic observations of Fomalhaut in the near- and mid-infrared. Webb will be able to hunt for other planets in the system and probe the region interior to the dust ring for structures such as an inner asteroid belt.

For more information about this story and the Hubble Space Telescope, visit: <http://www.nasa.gov/hubble>

Credit: [Science@NASA](http://Science@NASA)



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](http://www.princetonastronomy.org)