

SIDEREAL TIMES

The Official Publication of the
Amateur Astronomers Association of Princeton

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From the Director

AAAP Regular Meeting April 13 (8:00 PM). Our next regular meeting will focus on real-life astronomical observing and telescopes used by club members. AAAP member Doug Braun who will show us the design and construction of his remarkable hand-made 10 inch Newtonian/Dobsonian telescope will give the main presentation. We'll have a chance to talk about what kind of equipment AAAP members are using to enhance their observing experiences, and discuss what lies ahead in club members' observing dossiers. For more information please turn to Program Chair Mark Lopez's section in this issue.

Sedna Discovery by Michael Brown announced days after lecture at AAAP.

Here is another example of the cutting-edge science and world-class astrophysics we in the AAAP are privileged to witness first-hand. On March 15, 2004, only days after his AAAP presentation on Quaoar at Peyton Hall, Michael Brown from Caltech and his colleagues C Trujillo from Gemini Observatory, and D. Rabinowitz from Yale announced the discovery of the most distant object known to orbit the sun. **Sedna** is found at a distance of 90 AU's, about 3 times further than Pluto. The discovery was made on the Oschin Telescope at Palomar Observatory (which we heard about in his talk). The scientific paper will appear in *ApJ Letters*, abstract follows:

Discovery of a candidate inner Oort cloud planetoid

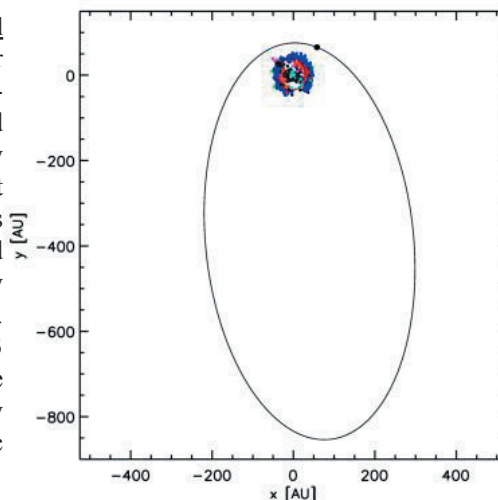
Michael E. Brown, Chadwick Trujillo, David Rabinowitz

ABSTRACT

We report the discovery of the minor planet 2003 VB12 (popularly named Sedna), the most distant object ever seen in the solar system. Pre-discovery images from 2001, 2002, and 2003 have allowed us to refine the orbit sufficiently to conclude that 2003 VB12 is on a highly eccentric orbit which permanently resides well beyond the Kuiper belt with a semimajor axis of 480₋₄₀ AU and a perihelion of 76₋₄AU. Such an orbit is unexpected in

our current understanding of the solar system, but could be the result of scattering by a yet-to-be-discovered planet, perturbation by an anomalously close stellar encounter, or formation of the solar system within a cluster of stars. In all of these cases a significant additional population is likely present, and in the two most likely cases 2003 VB12 is best considered a member of the inner Oort cloud, which then extends to much smaller semimajor axes than previously expected. Continued discovery and orbital characterization of objects in this inner Oort cloud will verify the genesis of this unexpected population.

The drawing at the left is from Dr. Brown's website (see AAAP website for link) shows the elliptical orbit of Sedna with the solar system represented by the cluster near the top.



Candidates for 2004 AAAP

Board of Trustees election. Our Constitution states that "The officers of this Association shall be as follows: Director, Assistant Director, Secretary, Treasurer, and Program Chairman. They shall collectively constitute the Board of Trustees. Their term of office shall be one year."

The slate of candidates for the Board positions will be announced

at the April regular. Anyone interested in becoming an Officer should plan to attend the meeting.

From the By-Laws,

Section 2: Nominations and Elections

- A. Nominating Committee. The Committee shall report its nominations for officers at the April general membership meeting.
- B. Election of Officers. Officers shall be elected at the Annual Meeting of the Association in May. Subject to the quorum requirement, a simple majority of votes cast shall be sufficient

Simpson Observatory (609) 737-2575

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for election. Newly elected officers shall assume office at the end of the Annual Meeting.

NEAF 2004 April 17, 18. The largest astronomy forum and astronomy equipment show in the Northeast, hosted by the Rockland (NY) Astronomy Club and Sky & Telescope, will take place in Suffern NY (about 2 hr drive from Princeton). See the website <http://www.rocklandastronomy.com/neaf>. Among the many enticements, our friend, member of AAAP, and esteemed solar enthusiast Barlow Bob will be spearheading the "1st Annual Solar Star Party ("A Test Drive for the Transit of Venus"). Featuring world-class Coronado Hydrogen-alpha filter instrumentation and Televue refractors, this will be a great chance to see solar prominences and have a hands-on tutorial on observing the sun.

Opportunities for AAAP Members. The AAAP has a three-fold mission of supporting hands-on astronomical observing and imaging, cutting-edge lectures by professional astronomers and physicists, and public outreach and education in astronomy. To reach our potential requires energy, effort, and commitment of the membership. We have evolved a structure to develop and coordinate the activities in the club (**see Table in the January Sidereal Times**), and are seeking input and participation in all facets of the club's activities. Please think about how you can "give back" to the AAAP, your peers, and to amateur astronomy by contacting me or other Board members or committee chairs to help build on our foundation.

Dark Skies! -- Rex

Minutes of the
AAAP Membership Meeting
March 9, 2004

Treasurer's Report There is \$XXXXX in the treasury.

We have no insurance on the Simpson Observatory. While the current bill has been paid, the future is in doubt, so anyone with ideas concerning obtaining affordable insurance for the observatory, should contact Treasurer Ron Mittelstaedt.

Vic Belanger pointed out that insurance companies lowball quotes for the first year and then audit the risk in order to raise the premium.

StarQuest Preparations Members with concerns about the food served, should forward constructive comments to Larry Smith

Observatory

Program Chair In lieu of the absence of the Program Chair, the Rex Parker, the Director gave the report of the speaker for next month's talk. Next month-Doug Braun will discuss his homebuilt 10in Dobsonian & John Miller, AAAP Assistant Director, will talk about his visit to the Mount Palomar Observatory.

Website John Miller, the AAAP web-master, will add an activities list for local events. One event mentioned was one to be held at Princeton's Forrestal Campus by the Princeton Plasma Physics Lab.

Sidereal Times Vic Belanger, Sidereal Times Editor, announced that April 2 is due date for submitting articles for the next issue. Brian Hubbard volunteered to help with ST circulation

Observatory Observatory Co-Chair, Gene Ramsey stated that the

structure had some freezing and water problems. He advised that the club should look for a professional to look at the foundation to determine the extent of damage from the freezing and come up with recommendations for repairs.

Gene also suggested that we need to extend the roof over the back of the structure and add gutters on the movable roof. He recommended that we seek the advice of a hydrologist to fix the drainage problem. John Church thought that at some point in the past, a drain was put in around the building and this helped with a problem that existed at that time. It was suggested that these ideas could be raised and discussed at the next AAAP board meeting on April 8, 2004. Gene said that he would contact some professionals to get some ideas/estimates before the board meeting.

Gene also stated that he had replaced the front door seal because it had water damage.

Brian Van Liew, Observatory Co-Chair announced that he needed two experienced key-holders for key-holder training on Friday, March 12.

Brian requested that the AAAP run a star party on the 23d of March from 6:30-8:30 at Johnson Park elementary school in Princeton Township. Those interested in attending and, perhaps, bringing some equipment, should contact Brian.

Brian announced that we are on the Night Sky network.

The new mount for the 14" S/C is working well. It was used at the session held for key-holder trainers a couple weeks ago.

Membership There are 124 members according to Membership Chair Saul Moroz. He stated that the club needs a new brochure. It was thought that former Director, Kirk Alexander may have the file used to produce the last brochure.

The meeting was adjourned at 10:15 pm.

Respectfully Submitted, Larry Kane

Barlow Bob's Corner

Easter Most holidays are celebrated the same day each year like New Years Day, and Christmas. However, the dates of Easter and Passover are on different dates from year to year. How do religious leaders determine when these holidays occur?

Divide the number 19 into the current year 2004. In this case, $2004 / 19 = 105$ with a remainder 9. The Full Moon following the Vernal Equinox (March 20th) is April 4th (Palm Sunday). The closest Sunday, nine days after the Full Moon is Easter Sunday April 11th.

Passover should fall on the Full Moon (April 4th) following the New Moon after the Vernal Equinox. The New Moon is on the Vernal Equinox (March 20th). Passover 2004 is April 5th to 13th. The word equinox means equal night. It is the date when the Sun crosses the equator going north, on the first day of Spring (Vernal Equinox) or going south on the first day of Fall (Autumnal Equinox). On these dates, the hours of day and night are equal. Equinox means equal night.

During the Renaissance, magnificent cathedrals were built in Europe, particularly in Florence, Italy. These cathedrals were not

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(Barlow Bob's Corner, continued from page 2)

built as churches, but as solar observatories. The Roman Catholic Church needed to know when the equinox would occur to plan their elaborate Easter ceremonies. These Renaissance cathedrals were aligned with the Sun. Small round windows were built into the ceiling of these churches. The Sun would shine on the floor of the church in different places during the year. This is called the Analemma. This is the path that the Sun takes in the sky. In a year the Sun makes a figure eight in the sky. This appears on the side of older world globes in school classrooms. There is a line of gold, called a meridian, inlaid in the marble floor of these churches. The gold line is marked where the sun appears on the Summer solstice, Winter solstice and on the Equinox.

The solstice is the point where the Sun appears highest in the sky in Summer and lowest at in Winter. The Catholic clergy would observe where the Sun appeared on the church floor along the meridian. They could see when the Sun was getting closer to the equinox mark on the gold line in the floor. They could now know when to plan their Easter celebrations. There is a book called The Sun In The Church written by J.L. Heilbron that tells the story of these cathedrals.

Religious calendars are based on the Moon. Thousands of years ago, religious leaders could not learn the dates of the phases of the Moon, or date of the equinox, from newspapers, the six o'clock news or on the internet.

Tall towers of a Muslim Mosque are called minarets, from which a Muzzin calls the faithful to prayer. The word minaret comes from the Arabic word manarah (lighthouse). A Muzzin in the tall minaret looks out over the desert to observe the first smallest Crescent Moon in the sky, when the Moon reappears in the sky at sunset, after passing in front of the Sun at the New Moon.

In ancient times Jewish astronomers would climb high mountains to observe the Crescent Moon. The religious holidays begin, when the smallest crescent Moon first appears in the evening sky.

Jewish holidays begin at sunset. Religious leaders thousands of years ago could not get the time of sunset from the media. They obtained this information the old fashioned way. A religious leader would stand outside of the Jewish temple and observe the sky. Sunset would begin when this leader observed three states in the evening sky. What if the sky was cloudy? This religious leader would observe a blue and white string. When this leader could no longer distinguish the difference between the colors of the two strings, it was sunset. When is sunrise? Jewish men have threads sewn into their pants. One thread is blue and the others white. When a Jewish man wakes up in the morning he observes the blue and white threads in his pants. When he can distinguish the difference in the colors of the two threads it is sunrise.

Observe The Sun With Attitude Informal solar observing has been a tradition for many years at NEAF the Northeast Astronomy Forum. Solar observing has now been included as an activity at NEAF 2004. NEAF attendees are invited to observe the Sun with attitude, through a variety of Hydrogen-alpha and sunspot solar filters.

The Rockland Astronomy Club is proud to present the:
2004 FIRST ANNUAL NEAF SOLAR STAR PARTY.
"Test Drive For The Transit Of Venus"

Join Coronado Technology Group and other amateur astronomers, for two days of solar observing at NEAF 2004. No star party entrance fee or registration required.

Bring A Piece Of Clear Sky To Share With Fellow Photon-Deprived Amateur Astronomers.

SSP AT SSP The 2004 First Annual NEAF Solar Star Party will continue at the Rockland Astronomy Club Summer Star Party and Family Camping Vacation. The Summer Star Party is held from From July 9th to July 18th, at the private Shady Pines Campground in Savoy, MA.

For further information check our web site: www.rocklandastronomy.com, call 201-768-6575, or send email to SummerStarParty@RocklandAstronomy.com

Barlow Bob

From the Editor

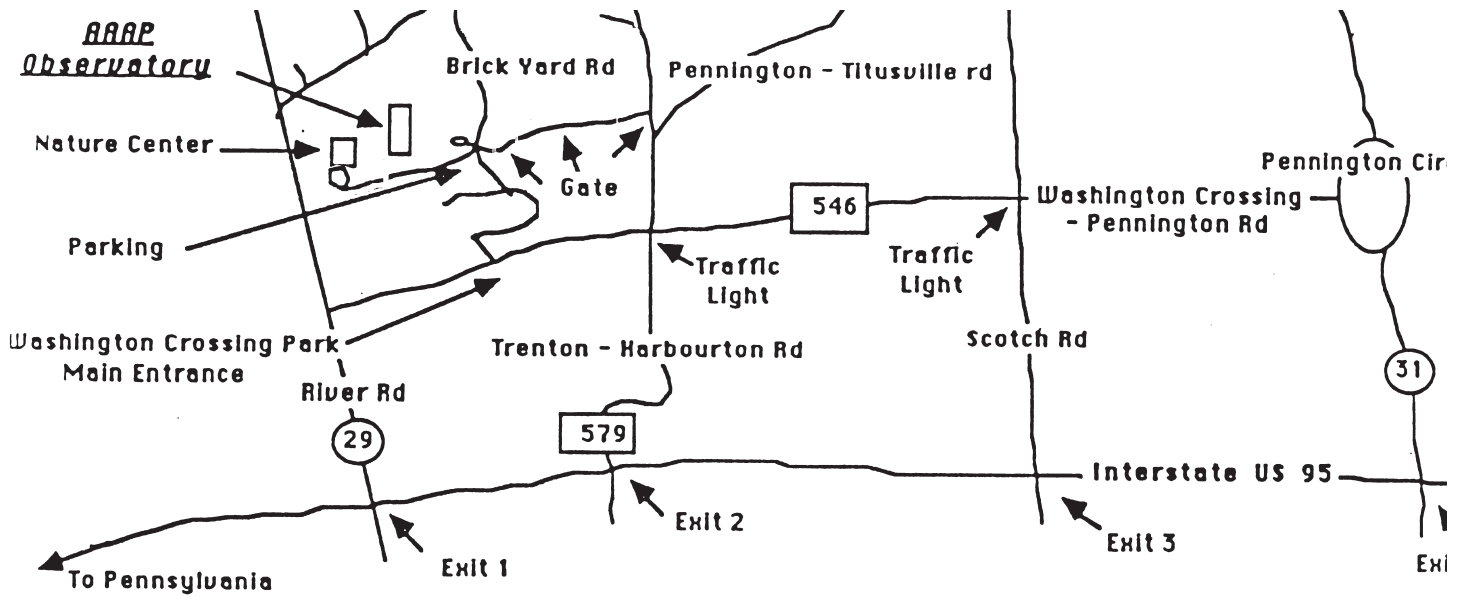
Astronomy Magazine As we have written in past issues, AAAP will no longer be handling the magazine subscriptions as had been the policy for many years. We have also made arrangements with Sky and Telescope that will still allow members to subscribe at a reduced rate. Though Astronomy magazine does not offer a similar program, Ron Mittlestaedt has found a website that offers the magazine at a significantly reduced price of \$24.95 per year. This is actually lower than the club rate that we received in the past. Go to: <http://www.magazineline.com/Public/Astronomy.htm?source=goog&keyword=astronomy%20magazine>

Sidereal Times Some members have reported that their copies of the newsletter arrived in the mail in a severely damaged condition. Bryan Hubbard, our new publisher, discussed this problem with the Post Office and received a suggestion that we place the staple at the top instead of the bottom. So with this issue you will find that the address page appears upside down enabling the stapling to be at the top. We hope this solves the problem.

The deadline for the May issue will be Friday, April 30, 2004.

Clear Skies, Vic

Deadline for the
May Edition of the
Sidereal Times
Friday, April 30, 2004



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.princetonastromy.org

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