



# *First Light*

The Newsletter of the Cape Cod Astronomical Society



June, 2012

Vol.23 No.6

## *“With My Own Eyes in This Lifetime...”*

### CAPE COD ASTRONOMICAL SOCIETY TO HOST VIEWINGS OF THE JUNE 5 TRANSIT OF THE SUN BY THE PLANET VENUS; VIEWING WILL TAKE PLACE AT TWO LOCATIONS ON CAPE.

Weather permitting, Cape Codders will have a last in their lifetime opportunity to view the transit of the planet Venus across the face of the sun on Tuesday, June 5. This rare astronomical event did not occur during the entire 20th century but did last take place on June 8, 2004. The next transit after our June 5 event will be on December 11, 2117!

For the June 5th event, at 6:03 P.M., Eastern Daylight Time, the black shadow of Venus will touch the sun's disk. At 6:21 P.M. the shadow will be completely inside the sun. Since the transit lasts about six and a half hours, Venus' shadow will still be visible crossing the sun's disk as it sets, for Cape Codders, at 8:12 P.M.

**Observing the sun directly through binoculars or telescopes that are not equipped with special solar filters is extremely hazardous and will result in permanent damage to the eye's retina and even blindness.** In order to provide safe viewing for the public, the Cape Cod Astronomical Society will host supervised viewing at two sites: The club's Werner Schmidt Observatory located behind the Dennis-Yarmouth Regional High School at 210 Station Avenue in South Yarmouth, and at First Encounter Beach at the end of Samoset Road in Eastham. *All telescopes operated by club members at both sites will be equipped with specialized solar filters that keep out 99.9% of the sun's harmful rays and allow safe viewing of this rare event.*

At the Werner Schmidt Observatory the public will be able to view the Venus transit through the club's 16 inch Meade LX-200GPS Schmidt-Cassegrain telescope as well as through several other large telescopes set up on the lawn outside the observatory building. The transit will be visible from 6:03 P.M. until about 6:45 P.M. when the sun will drop below the trees.

Tom Leach, president of Cape Cod Astronomical Society has named our second viewing site as "Last Encounter at First Encounter". At First Encounter Beach, club members will have set up for public viewing at least four telescopes/binoculars with safe solar filters. If western skies are clear, viewers will be able to clearly see the shadow of Venus from transit start until the sun sets "into the waters of Cape Cod Bay" at 8:12pm.

More information about the Venus transit and the Cape Cod Astronomical Society is available by visiting the club's website: <http://www.ccas.ws> and other references cited at Reference 7 on page 8 of this issue of *First Light*.

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**Next Monthly Meeting:** is Thursday, June 7th at 7:30pm in the D-Y Library. Mike Hunter, Tom Leach, and Charlie Burke will lead a discussion: "Pretty Astronomy Pictures: Learning By Mistakes." Public welcome. Please join us.

**Reminder:** Weekly summer star parties every begin Thursday, June 21, 2012 at 8:30pm. See page 2 for more information.

**In this issue:** CCAS to Host Viewing of the Transit of Venus / Summer Star Parties / Outreach / Elections; Dues / From the Dome / Upcoming Occultations / Venus at Mercury / Pluto Events / Bootids / LRO Photos / CCAS Photos including SETI

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## **Bright New Stars:**

We like to profile new members in our Society in this section of *First Light* each month. If you are a new member and have not yet been so recognized, or have new information for us (background, astro equipment preferred, interests, etc.) on yourself or someone else, please let us know (email [info@ccas.ws](mailto:info@ccas.ws)).

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**PLEASE CONSIDER SUBMITTING AN ITEM OR ARTICLE FOR PUBLICATION IN *FIRST LIGHT*.**

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## **CCAS News Items and Current Events:**

### **Transit of Venus:**

Please be sure to read the notice on page 1 and please *do* plan to join us the evening of June 5<sup>th</sup> at one of the viewing sites noted. Please see reference 7 on page 8 for references and background information on this special event.

### **Announcement on Summer Star Parties at the Schmidt Observatory:**

[This information was recently inserted into the “green box” on our website homepage; the green box provides updated info on Star Parties.]

Beginning Thursday, June 21, Star Parties at the Schmidt Observatory will be held every Thursday night through the end of August with the following two exceptions. No Star Party on the second Thursday in July (July 12) and no Star Party on the first Thursday in August (August 2), which are CCAS Meeting nights.

Each event begins at 8:30pm. All are welcome.

**Possible Cancellations:** Sometimes a solid forecast for overcast or rain or a storm will result in cancellation of a given Thursday star party. Alternatively, if the forecast is “iffy”, the Staff Leader for the night may elect not to cancel in spite of possible clouds. If clouds arrive after staff and guests have convened, a “virtual” star party may take place indoors to include overviews of the sky for that night using computer simulators with our big screen TV, videos of interesting sky events recorded previously, demonstrations and/or training on the use of scopes and other equipment, and consultation/discussions on things astronomical, etc.

IF IN DOUBT ABOUT THE WEATHER AND THE STATUS OF A STAR PARTY, CALL THE OBSERVATORY AT 508-398-4765 AFTER 7:45 pm. No answer means the event has been cancelled.

**“Special Event” Star Parties:** From time to time, in addition to the regularly scheduled events, a special event or project will be planned at The Schmidt for a specific date and time.

For example, we may meet to observe an occultation of a star by the moon (please see page 4). When such an event is planned which may be of interest to the CCAS membership and/or the public, a brief announcing email will be sent out in advance to CCAS members and/or all persons on our “Friends of CCAS” email list.

Our observatory is located behind the Dennis-Yarmouth High School. Check elsewhere on our website for more information on how to get to Dennis-Yarmouth High School and the Observatory.

**Request a Star Party for Your Group:** Now and then, Star Parties will be scheduled for specific groups requesting same. When this happens, if the organizers wish to make the event known to members of the society or the public, such events may be posted here or emails sent out. If you wish to schedule a Star Party for your group, please send a request email to [info@ccas.ws](mailto:info@ccas.ws)

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Thanks to Mike Hunter for sending us info on the summer star parties.

### **Outreach Opportunity:**

Late in April, [info@ccas.ws](mailto:info@ccas.ws) received an inquiry from one Joe Pappalardo asking if CCAS and its members might be able to help introduce scouts from Centerville Boy Scout Troop 54 to amateur astronomy and the night sky beginning this fall. On behalf of the Society and the Observatory Staff I responded enthusiastically in the affirmative. After a few email exchanges, it appears the opportunities might include the following, among others:

- Invite them to our regular summer star parties (done.)
- Planning one or more special Star Parties or tutoring evenings at the Dome specifically for the scouts. Such events could cover general topics or concentrate on narrower agendas.
- After initial contacts, some scouts may wish more in depth follow-up. There may be opportunities to work with individuals or smaller groups on the Astronomy Merit Badge.

We are very happy to report that Bernie Young has agreed to ramrod our interaction with Pappalardo and his scouts. He has also informed me that Mr. Pappalardo hopes to come to an upcoming CCAS meeting. Thank you, Bernie.

### **CCAS Meetings:**

Our May meeting, originally scheduled for the first Thursday in May, May 3, had to be cancelled because of a security scare at the high school that day. Thanks to good scrambling by several CCAS members and officers, the meeting was rescheduled for the library at Harwich Elementary School on Thursday, May 17. Thanks to Larry

Brookhart, teacher at Harwich, for making arrangements for our meeting there and for hosting a short tour of the Harwich Observatory after the meeting. Consult the website for current star party scheduling there:

<https://sites.google.com/a/harwich.edu/the-harwich-observatory/>

Many thanks to Bernie Young and Jon Greenberg for their excellent introduction to the ToV event at our May 17<sup>th</sup> meeting: **Understanding and Preparing For the Last (in our Lifetime!) Transit of Venus.** Jon's visit to "images of Venus" through the ages was more than entertaining and Bernie presented a very informative history of attempts to observe the transit beginning with the 1631 edition all the way to the present. Part of his presentation was a very helpful overview of the main approaches scientists took over the years to use parallax data from observations of the transit to calculate earth-venus and earth-sun distances.

Mike Hunter provided the first of what we hope will become a regular feature at CCAS meetings: "The Sky This Month" at our May meeting. "The Sky This Month" is a 10-minute presentation on highlights in the current month's sky as selected by the presenter. We are hoping that in time many members will volunteer to give this short presentation at one or more of our meetings: a great opportunity to talk about YOUR interests in the current month's sky. Thanks to Mike for the inaugural offering.

**June 7<sup>th</sup> Meeting:** Mike Hunter, Tom Leach, and Charlie Burke will present **Pretty Astronomy Pictures: Learning By Mistakes** at the CCAS meeting on June 7<sup>th</sup>. Whether you are new to astrophotography or an experienced veteran, you will enjoy this trip through the travails and learning curves to astrophotos of really remarkable quality.

**July 12<sup>th</sup> Meeting:**

*Please be reminded that the July CCAS meeting will be held the 2<sup>nd</sup> Thursday of the month, July 12<sup>th</sup>, rather than the 1<sup>st</sup> Thursday.*

Don't miss Professor Larry Marschall's presentation **The Supernova at the End of the Universe: How Astronomers Discovered Dark Energy** at the July meeting. Professor Marschall is a member of the Department of Physics of Gettysburg College. The story: The 2011 Nobel Prize in Physics was awarded to three young astronomers who, a decade ago, discovered a very peculiar and unexpected thing about the universe. Not only is it expanding---a fact known for three quarters of a century---but it is expanding at an increasing pace. Gravity pulls things together and slows down the expansion, so this discovery was startling---it implied a previously unknown cosmic force of repulsion that came to be known as "Dark Energy". Larry's talk will recount how astronomers discovered the acceleration of the universe and the presence of dark energy by studying exploding stars called

supernovas, and will reveal what we have learned about dark energy over the succeeding years.

Dr. Marschall is the author of two new books on astronomy: *Galileo's New Universe* and *Pluto Confidential*. He teaches courses in astronomy, physics, and science writing at Gettysburg. Whatever Dr. Marschall brings to CCAS is always interesting and informative.

**August 2<sup>nd</sup> Meeting:** David Kraft, Professor of Mathematics & Physics, University of Bridgeport, Bridgeport, CT, will present **Albert Einstein. Person of the Century** at our August meeting.

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Once more, thanks to Tom Leach who continues to put together great programs of speakers for our meetings.

Members, **PLEASE** participate in the effort to recruit good speakers to present programs in astronomy and related sciences at our meetings. Please send any ideas or contact information to Tom Leach, our Program Chairman. For sure he will follow up.

Or, even better, volunteer to give a talk yourself!

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**SPECIAL ANNOUNCEMENTS:**

**Date for the First July Star Party:**

With the July CCAS meeting scheduled for July 12, the regular weekly summer star party, usually suspended on "first Thursday" meeting nights, **will take place on "first" Thursday, July 5<sup>th</sup>; there will be no Star Party on July 12** unless the Dome is opened promptly.

**Upcoming Election of Officers**

The annual election of officers will take place at our July 12<sup>th</sup> Meeting. Please consider communicating your ideas about nominations to members of the Nominating Committee (Joel Burnett, Gail Smith, or Ed Swiniarski) between now and the beginning of July.

**New Cycle for Payment of CCAS Dues:**

Please be prepared to make payment for the 2012-2013 Membership Year at our meeting on July 12<sup>th</sup> or shortly thereafter. Please bring your check or mail to the Treasurer, A.P. Kurtz, at 34 Ridgewood Rd., Orleans, MA 02653.

**Minutes:**

The minutes of our May meeting are on our website; click on the "Minutes" button at [www.ccas.ws](http://www.ccas.ws) or go to <http://www.ccas.ws/minutes/ccasminutes051712.pdf>

**From the Dome:**

The last Dark Saturday Star Party of the fall-winter-spring season was held on May 19. An exception to most of the

Saturdays, the skies were clear and the stars were out. The five plus guests, both Society members and general public, received a lot of personalized attention ranging from gazing through their scope of choice to tutoring on the use of software to analysis of light curves collected during earlier occultations and much in between.

The summer weekly star parties... (Please see announcement on page 2.)

Contrary to the notice about summer star parties noted in the [May First Light](#), [star parties this summer may be cancelled if the weather is clearly unfavorable](#); details on page 2 of this issue of *First Light*.

There will be a special event at the Werner Schmidt Observatory, the viewing of the transit of the sun by Venus, on Tuesday June 5 from 5:45 to approximately 7:00 pm. The public is invited. The 16" and 8" scopes will be available for viewing the event, with proper safety protection of course. The 16" will be used to both record the event on video and to provide visual observation. The first and second contacts will be shown in real time on the large flat screen monitor so that everyone will have a chance to see those event; third and fourth contacts occur after local sunset. The 8" will be for visual use only. This event will provide everyone with an opportunity to see the transit safely and with great equipment.

Note added by editor: Please see the announcement on page 1; as stated there, CCAS will also host viewing at First Encounter Beach.

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**As always, "Private" group or individual observing sessions at the Werner Schmidt Observatory may be scheduled by contacting Observatory Director Mike Hunter at [mamhunter@yahoo.com](mailto:mamhunter@yahoo.com) or sending an email to [info@ccas.ws](mailto:info@ccas.ws)**

**Our Society exists to promote observing! Help us promote this objective by asking for time at the Dome!**

**CCAS has both 8" and 14" Dobsonian telescopes for loan to members. Currently, Tom Leach is using the 14" for outreach in Harwich. Robert Tobin has the 8". If you wish to borrow one of these 'scopes, contact [info@ccas.ws](mailto:info@ccas.ws)**

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## **June Observing:**

### **Observing Highlights for June, 2012 at Cape Cod:**

Please consult the June issues of *Sky and Telescope* (pp 47-58), *Astronomy Magazine* (pp 36-43), and *Astronomy Magazine Online* (See Ref 5) for more information on these highlight topics and others.

### **SPECIAL EVENT:**

- **Transit of Venus:** Please see page 1. One aspect needs special emphasis. Posters are being prepared for presentation at each properly filtered CCAS instrument to be used to view the Transit:

**WARNING! DO NOT VIEW THE SUN THROUGH YOUR BINOCULARS OR TELESCOPES! SERIOUS AND PERMANENT EYE DAMAGE WILL RESULT! ALL TELESCOPES OPERATED BY MEMBERS OF THE CAPE COD ASTRONOMICAL SOCIETY ARE EQUIPPED WITH SAFE SOLAR FILTERS SO THAT YOU CAN ENJOY THIS LAST IN A LIFETIME EVENT. LOOK ONLY THRU THE FILTERED INSTRUMENT... NOT WITH YOUR NAKED EYE!**

Come join us and enjoy the Transit!

### **SUMMER SOLSTICE:**

- The Summer Solstice occurs this year at precisely 7:09pm, Wednesday, June 20. This is the longest day of the year. If you wish, you can begin to enjoy the days getting shorter!

### **UPCOMING OCCULTATION OPPORTUNITIES:**

**>>>URGENT: the first of these is this Tues. May 29<sup>th</sup>!!!**

Weather permitting, Bernie Young will lead viewing and recording of these occultations, one date in [May](#) and one in June (with clear skies, the observatory will be opened at 7:30pm for both these events):

- **Two Occultations in Prime Time, Tuesday, May 29:**
  - The 4.8 magnitude 87 Leonis will be occulted by the dark side of a half moon at 8:52:48pm EDT; the edge of the moon near its equator (east of the crater Copernicus at the terminator) will snuff out the star.
  - (2) The 12.1 magnitude 2UCAC 39140702 will be occulted by the 78km asteroid 84 Klio at 9:34pm EDT.

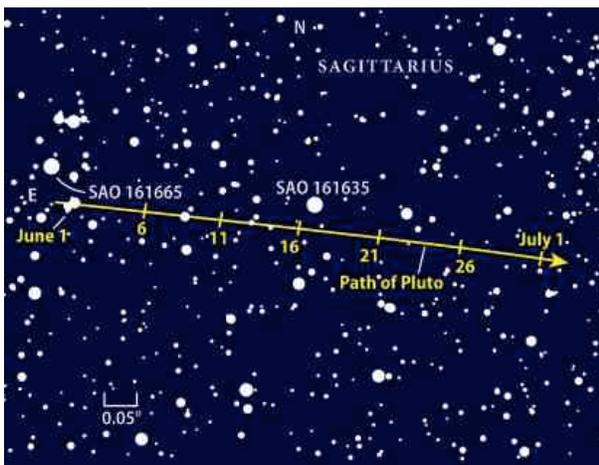
- Spectacular Occultation by the “Planet” Pluto:
  - If all goes well, we will see the trans-Neptunian object Pluto occult 13.8 magnitude star RIO 183548.6-191744 at 11:37pm EDT on Wednesday, June 13. Please see more about Pluto this month and this year just below. Pluto, at magnitude 14.1 these days, isn’t easy to see even in our best scope. Occultation of a mag 13.8 object by a mag 14.1 will indeed be an adventure! Lets’ see if we can do it!

Thanks to Bernie for notifying us about and planning for these events.

**PLANETS:**

- **Special Venus and Mercury Dance:** There is a visual and photographic challenge available early evening on Friday, June 1. If you check out the Mooncusser’s Almanac for June (to the right) you will see that Mercury and Venus rise and set almost on top of each other on that date; more specifically, Venus sets 1 minute ahead of Mercury (separation: 0.5°) and both set 36 minutes after the sun sinks below the horizon. It’s June 1, only; on May 31 Venus sets 3° after Mercury and on June 2, 3° earlier. Take your eyes, your viewing equipment, and your camera up to Cape Cod Bay and see what kind of fun you can have. If you get a good picture, please send to *First Light!* It is most interesting that, as viewed from earth, Venus *almost* occults Mercury four days before it crosses the sun.
- **The “Regulars” for June:** Along with Venus early in the evening, diminishing Mars and Saturn and its moons continue their regular showing this month.
- **A Special Time for Pluto:** While purists will object to us listing Pluto as a planet, some of us are stubborn and nostalgic and will continue to do so. Here’s some highlights for Pluto this June:

- Pluto reaches opposition June 29. On that date, the distant world lies opposite the Sun in our sky so it remains visible all night; Pluto also shines “brightest” at opposition.
- While it is true that Pluto moves very slowly, he does move deeper and deeper south as the summer progresses and lower in the sky means tougher to find and see, particularly for a mag 14 target. So look early as you can and when there is the least competition from the moon.
- Luckily for us, Pluto travels a line through some helpful marker stars in Sagittarius during June as shown in the finder chart below left. For example, on June 16, it is just below and left of a mag 7 star, SAO 161635.
- The Raleigh NC *News and Observer* noted in its 4/23/12 edition that there are indications that signals from extraterrestrial intelligence may have been received “in certain circles” from Pluto. See page 7.
- Finally, if you are interested in Pluto beyond this June, check out the full year (May-Dec) finder chart in the June issue of *S&T*, p 52; in July, Pluto begins to pass just beneath the beautiful open cluster M25.



Mooncusser’s Almanac and Monthly Alert <sup>1</sup> June 2012			
Object	June 1 (EDT)	June 15 (EDT)	June 30 (EDT)
<b>Sun</b>	R: 05:08 S: 20:09	05:05 20:17	05:10 20:19
<b>Moon</b>	R: 17:07 S: 03:12	02:36 16:52	17:12 02:38
<b>Mercury (evening)</b>	R: 05:28 S: 20:45	06:30 21:50	07:18 21:49
<b>Venus (evening)</b>	R: 05:28 S: 20:44	04:18 18:57	03:20 17:38
<b>Mars (evening)</b>	R: 12:36 S: 01:32	12:13 00:49	11:52 00:05
<b>Jupiter (predawn)</b>	R: 04:25 S: 18:55	03:40 18:16	02:52 17:33
<b>Saturn (evening)</b>	R: 15:47 S: 03:07	14:50 02:11	13:51 01:11
<b>Uranus (late night)</b>	R: 02:15 S: 14:40	01:21 13:46	00:22 12:48
<b>Neptune (late night)</b>	R: 00:54 S: 11:43	23:59 10:47	23:00 09:47
<b>Pluto (after ~10pm)</b>	R: 21:43 S: 07:27	20:47 06:30	19:46 05:29

- In June, we may get to see Pluto occult a star as noted earlier.

## OTHER EVENTS OF NOTE:

- **Sometimes, the Bootids are Really Good:**  
Spectacular in 1998 (100 meteors/hour), but much more moderate in 2004: with a first quarter moon setting just after midnight this month, serious consideration should be given to taking a midnight peek toward the radiant. Peak should be June 27. Bootids move very slowly entering earth at “only” 11 miles/second; so, what there is can be long-lived and quite spectacular.
- **An Asteroid that Should be Easy to Track:**  
Travelling through an area of Scutum relatively clear of many stars, mag 9.8 major asteroid **Melpomene** should be easy to track against the relatively small population of brighter 4 – 7 magnitude stars as shown in this finder chart:



Take a few looks latish in the evening during June as Scutum approaches transit a bit after midnight.

### **“Diamond Dust On Black Velvet”; “Sugarpiles in Moonlight”; Astounding New Photos of our Moon:**

We rarely talk about the moon in *First Light*. But this month we have to point our readers to the cover story in the June issue of *S&T Magazine*, p 18. See a flat mini-mare created

by the heat of a collision and surrounded by ejecta at the bottom of a young crater (p 18.) See the footsteps of astronauts and the left-behind lunar lander descent stages from the Apollo 12 and 17 missions... all compliments of the Lunar Reconnaissance Orbiter mission. More photos at <http://www.skyandtelescope.com/skytel/beyondthepage/Interview-with-Jim-Bell-147991025.html>.

### **Resources for the moons of Saturn and**

**Jupiter:** if you don't have *Gas Giants*, the iPod/iPad app for moons of Saturn and Jupiter discussed in the April, 2011 *First Light*, please see the interactive resources online at reference 6 for positions of Jupiter's or Saturn's moons for any date and time.

Anyone having an interest in monthly **Libration and Declination Tables for the Moon**<sup>2</sup> during this month please contact your editor for information or sources.

**One minima of Algol**<sup>1,3</sup> **occurs in Prime Time** for Cape Codders in June: at 9:31pm EDT on Friday, June 22. Begin observing 3 hours before or peek now and then during the 3 hours before and after the minium to watch the dimming and brightening.

### **Moon Phases, June, 2012**

**Full Moon Monday, June 4<sup>th</sup> at 7:12am EDT**

**Last QTR Monday, June 11<sup>th</sup>, at 6:41am EDT**

**New Moon SuTuesday, June 19<sup>th</sup>, at 11:02am EDT**

**First QTR MonTuesday, June 26<sup>th</sup>, at 11:30pm EDT**

**A PORTION OF THIS PAGE IS INTENTIONALLY LEFT BLANK TO REMIND ALL MEMBERS THAT THERE IS ALWAYS PLENTY OF ROOM IN *FIRST LIGHT* FOR YOUR CONTRIBUTIONS**

## CCAS Members APOM:

While neither of these images was taken by a CCAS member, given we could not see the eclipse at the Cape, this one is most worthy of note as a very good amateur shot of the May 20<sup>th</sup> annular eclipse of the sun taken in Arizona by Gail Smith's sister-in-law (Thank you "sister-in-law" and Gail!) ...



This image was found in the Raleigh NC newspaper *News and Observer* dated 4/23/12. We thought you all should see this picture given *First Light's* focus on Pluto this month and the significance of this image pointing to possibly a very early instance of intercepting signals from ET intelligence:



Please remember to send your astro-images in to [info@ccas.ws](mailto:info@ccas.ws) for consideration as posting as the CCAS AstroPhoto Of the Month in a future issue of *First Light*.

## Cape Cod Astronomical Society

President	Tom Leach	508-237-9291
Vice President	Michael Hunter	508-385-9846
Secretary	Charles Burke	508-394-9128
Treasurer	Peter Kurtz	508-255-0415
Observatory Director	Michael Hunter	508-385-9846
<i>First Light</i> Editor	Peter Kurtz	508-255-0415

Mailing Address: PO Box 207 Harwich Port MA 02646

## Cape Cod Astronomical Foundation

Chairman	Werner Schmidt	508-362-9301
Vice Chairman	Michael Hunter	508-385-9846
Director R&D	Bernie Young	508-394-1960
Secretary	Ed Swiniarski	508-896-5973
Treasurer	Pio Petrocchi	508-362-1213
Observatory Director	Michael Hunter	508-385-9846
Observatory		508-398-4765

The **Cape Cod Astronomical Society** meets at 7:30 pm on the first Thursday of every month in the library of the Dennis-Yarmouth Regional High School in Yarmouth, Massachusetts. Meetings are open to the public. Membership dues are \$30 for adults, \$15 for students in two year colleges and part year residents, and no charge for spouses or for students in K-12 schools.

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### References and Notes for this issue:

1) Information for The Mooncussers Almanac and Monthly Observing Alerts was extracted from Sky Events, Astronomy Magazine Online (Astronomy.com), Stargazing.net's Planet Rise/Transit/Set calculator (<http://www.stargazing.net/mas/planet2.htm>), *Astronomy Magazine*, *Sky & Telescope Magazine*, *Sky and Telescope Skywatch 2011*, and other sources. The *Observer's Handbook, 2010 and 2011*, published by The Royal Astronomical Society of Canada is also an important reference, particularly for information on lunar libration and declination and the minima of Algol.

2) Information on how Libration and Declination Maxima and Minima can make visible parts of the moon normally hidden was reviewed in the December2007-January2008 *First Light*. Quick recap: Max Long brings to view extra right side; Min Long, extra left side; Max Lat, extra north side; Min Lat, extra south side. Max Dec puts it high in our sky during its transit; Min Dec puts it low.

3) Algol is an eclipsing variable star in Perseus which has its brighter component eclipsed or covered by its companion once every 2.87 earth days. When the dimmer component is not eclipsing the brighter, Algol appears typically about magnitude 2.1; when eclipsed, magnitude 3.3 The minima usually lasts about two hours with two hours on either side to bring it back to mag 2.1. Good comparison stars are  $\gamma$ -Andromedae to Algol's west, mag 2.1, and  $\epsilon$ -Persei to its east, mag 2.9.

5) Here is the web address for Astronomy Magazine's online "The Sky This Month" online for June:  
[http://www.astronomy.com/News-Observing/Sky\\_this\\_Month/2012/04/A\\_tale\\_of\\_two\\_syzygies.aspx](http://www.astronomy.com/News-Observing/Sky_this_Month/2012/04/A_tale_of_two_syzygies.aspx)

6) *S&T's* interactive Java utility for showing the positions of Jupiter's main moons for any date and time:  
<http://www.skyandtelescope.com/observing/objects/planets/3307071.html> :  
for Saturn's moons: <http://www.skyandtelescope.com/observing/objects/planets/3308506.html>

7) References and Information on the Transit of Venus:

- Extensive information is given in the April issue of *First Light*.
  - There is a very nice intro to the ToV at: <http://www.oneminuteastronomer.com/5785/guide-transit-venus>
  - Excellent articles in the June issues of *Astronomy Magazine* and *S&T*, beginning p 50 in each.
  - If you are a history buff, see the article "Perilous Journeys: The 1761 Transit of Venus, June *S&T*, p. 28.
  - We received an email May 23 announcing a presentation on May 30<sup>th</sup> at Harvard's Arnold Arboretum in Boston by the author of a new book (*Chasing Venus*) on the history of the transit of Venus, one Andrea Wulf. While this notice on the presentation is too late to be useful to readers of *FL*, the book looks very interesting. To learn more, go to the review at: <http://www.andreawulf.com/andrea-wulf/about-chasing-venus-how-science-turned-global-in-the-eighteenth-century-to-be-published-in-the-uk-us.html> which also leads to purchase info.
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