



First Light

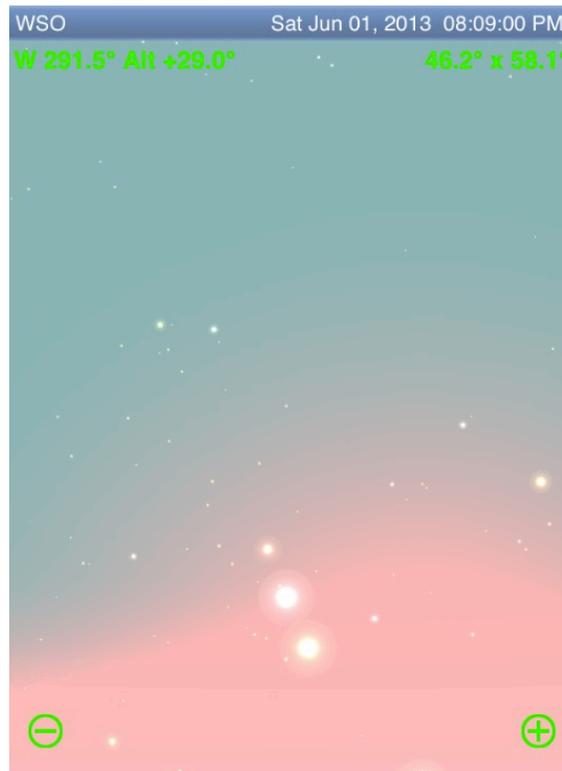
The Newsletter of the Cape Cod Astronomical Society



June, 2013

Vol.24 No. 6

When Planets Line up, something special happens...



...please see our story on page 5 to discover what it is!!...

Next Monthly Meeting: is Thursday, June 6th, at 7:30pm. Hans Moritz Günther, a Post-Doctoral Researcher at the Harvard-Smithsonian Center for Astrophysics, will present "**Star and Planet Formation and How We Found Out What We Know Today.**" Public welcome. Please join us.

Reminder: The last "Half-Moon Saturday" Star Party is scheduled for June 15th beginning at 8:30pm; Summer Thursday evening Star Parties begin on June 20th. Please see page 3 for more information.

In this issue: Planet lineup / Summer Star Parties and Open House / D-Y 9th Graders Visit WSO / Upcoming CCAS Election / Girl Scouts Coming / Book Announcement /

Bright New Stars:

Welcome to new member Bethany Gibbons of Orleans who joined CCAS at our May meeting. Bethany, please tell us a bit about yourself in an email so we can provide more information on you to members in this space next month. Meanwhile, welcome aboard!

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

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

CCAS News Items and Current Events:

D-Y Ninth Grade Students Visit the WSO May 17, 2013: Julia Sigalovsky, Ph.D. ("Dr. S"), Chemistry Teacher at D-Y High School brought ten of her 9th grade students to the Werner Schmidt Observatory on May 17th. Many thanks to Joel Burnett for sending in the story about the visit; please see page 6.

Please see the clip below in "**From the Dome**" about planned visits by Massachusetts Girl Scouts to the WSO on May 31 and also June 25.

The 2013 CCAS election of Officers will take place at our June 6th meeting. If you wish to make a nomination or offer yourself as a candidate, please contact a member of the nominating committee: Bernie Young, Lee Labarre, or Chair, Ed Swinarski.

Reminder: the 2013-2014 dues cycle begins July 1, 2013. Please start thinking now about bringing a check to meeting.

Please see page 3 for details on the last Quarter Moon Saturday Star Party for this season (Saturday, June 15,) startup of our weekly Summer Thursday Star Parties (begin Thursday, June 20th), and extraordinary "no Star Party" dates and meeting dates.

A special opportunity exists at The Dome on June 29th, the night of the Dennis-Yarmouth Independence Day Fireworks. Please plan to come to participate in an Open House at the WSO before the fireworks. When we know the specifics, start times for both the Open House and the fireworks will be published in an email to members and also on our website ("Star Parties and Activities Info" button.) What better place to watch the show than from

the lawn outside the Dome!

CAS Meetings:

Many thanks to recently joined CCAS member and former professional astronomer Harvey Patashnick who presented at our May meeting an excellent overview of his home domed observatory and how he built it "from scratch" using simple and relatively inexpensive materials. Harvey began by telling us of the many advantages of having a reliable and versatile home observatory. He built an aluminum rotating dome on an octagonal 14' diameter framed building located in his backyard. He designed and built both the main structure and the shuttered dome on top almost entirely by himself. He operated the dome "manually" (rotation of the dome as needed by the pointing of the telescope) for almost ten years. He then motorized the structure and later built technology to have it "follow the scope" automatically. The last step was setting up for complete remote control of both dome and scope (and later astrophotography equipment) from the comfort of his living room. He described such remote observing sessions as "The Ultimate Computer Game."

Hans Moritz Günther, a Post-Doctoral Researcher at the Harvard-Smithsonian Center for Astrophysics will present "**Star and Planet Formation and How We Found Out What We Know Today**" at our meeting on June 6th. Moritz promises to highlight some of his own research work and to overview how HSCfA folks use the Hubble Space telescope and process data therefrom to extract information of scientific value. He received his PhD in Physics from the Hamburger Sternwarte (Hamburg Observatory) located at the University of Hamburg in northern Germany. His primary research is on young, low mass stars using X-ray and UV spectroscopy data from telescopes like Chandra, XMM-Newton and Hubble. Dr. Günther has focused on processes of accretion, high-energy emission, and other aspects of outflows, winds and jets involved in star and planetary system formation.

Mark your calendars: Larry Marschall, Professor of Physics associated with Gettysburg College, will speak on "**Wrong Way Planets and Other Strange Solar Systems**" at our meeting on July 11th. Dr. Marschall is the author of two books on astronomy: *GALILEO'S NEW UNIVERSE* and *PLUTO CONFIDENTIAL* and has taught courses in astronomy, physics, and science writing at Gettysburg. Whatever Dr. Marschall brings to CCAS is always interesting and informative.

Dr. Colin Bischoff, also a post-doctoral fellow at the Harvard-Smithsonian Center for Astrophysics, will speak on "Observing the Origin of the Universe from the South Pole" at our meeting on August 1st. Colin received a PhD in physics from the University of Chicago in

2010, under advisor Bruce Winstein, for work on QUIET, a Cosmic Microwave Background polarization experiment based in the Atacama desert of Chile. He currently works at HSCfA on studies of the universe primarily with the Keck Array microwave polarimeter which operates at the South Pole. At our meeting, he will present this work and its contributions to our understanding of the origins of the universe.

Planning is in progress to find and confirm speakers and topics for our meetings in September and thereafter.

Thanks to Mike Hunter, our Program Chair, and special efforts by our VP, Stan Rivers, for lining up these special topics and speakers; we also thank all speakers noted above for agreeing to present.

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 Mike. For sure he will follow up.

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

Minutes:

The minutes of our May meeting are on our website; click on the “Minutes” button at www.ccas.ws or go to <http://www.ccas.ws/minutes/ccasminutes050213.pdf>

From the Dome:

We are very pleased to announce that the Werner Schmidt Observatory will host a group of Girl Scouts from the Hudson Service Unit of Eastern Massachusetts on Friday, May 31, at the Werner Schmidt Observatory. Another group is scheduled for June 25. We hope to have stories about those visits in upcoming issues of *First Light*.

The last “Quarter Moon Saturday Star Party for this season takes place on June 15 at 8:30pm.

Summer Star Parties begin Thursday June 20th at 8:30pm and continue every Thursday until end August except July 4th and CCAS Meetings’ Thursdays: July 11th, and August 1st.

Please note our July meeting date is July 11th, not 4th.

Please see the notice on page 2 about the Open House to be held at our observatory preceding the Dennis-Yarmouth Fireworks show on June 29th. More details when we know them.

As always, “Private” group or individual observing sessions at the Werner Schmidt Observatory may be scheduled by contacting Observatory Director Joel Burnett at Joelburnett@comcast.net or sending an email to 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. If you wish to borrow one of these ‘scopes, contact info@ccas.ws

June Observing:

Please see resources at *Astronomy Magazine*, June, pp 36-43 and *Sky and Telescope*, May, pp 43-58, and Reference 5 for good guides to the June sky.

Observing Highlights for the Month:

- By far, the best show this month is a planet lineup at dusk. Please see the story on page 5.
- **Mercury** is having one of its best showings in 2013 early this month. As June begins, it is heading toward its peak evening altitude for the year: on June 12th, it is separated from the sun (maximum elongation) by a full 24°. That day it sets almost two hours later than the sun. **Venus** continues as Mercury’s companion up to and including that day and climbs higher than Mercury during the rest of the month as the latter moves back toward the sun.
- **Saturn** and its moons continue their nearly all night show during June.
- The summer solstice takes place on June 21 at 1:04am EDT, the day when the sun is as high in the sky and as far north as it gets each year and when the shortest night of the year takes place.
- Comet C2011/L4 (PANSTARRS) is now only a fuzzball in a 4” ‘scope but travels south from Polaris along Ursa Minor during June. Take a look. The comet is getting pretty faint so, if you have ambient lights near your scope (as for sure

we do at the Schmidt Observatory) try putting a hood over your head as you look.

CCAS; the article spotlights a lunar occultation of κ -Librae at about 1:25am on June 21. If we want to observe the occultation at the WSO, we'll need to use a scope out on the lawn since the target star is only at altitude 17° at occultation.

Mooncusser's Almanac and Monthly Alert¹			
JUNE 2013			
Object	June 1 (EDT)	June 15 (EDT)	June 30 (EDT)
Sun	R: 05:08 S: 20:08	05:05 20:17	05:09 20:19
Moon	R: 01:20 S: 13:32	11:50 00:07	00:25 13:29
Mercury <i>(early evening)</i>	R: 06:24 S: 21:54	06:54 21:57	06:26 20:52
Venus <i>(evening)</i>	R: 06:13 S: 21:31	06:35 21:48	07:07 21:53
Mars <i>(predawn)</i>	R: 04:33 S: 19:15	04:11 19:10	03:51 19:02
Jupiter <i>(eve then in sun)</i>	R: 06:01 S: 21:08	05:19 20:27	04:35 19:43
Saturn <i>(most of nite)</i>	R: 16:52 S: 03:40	15:54 02:43	14:53 01:43
Uranus <i>(after midnite)</i>	R: 02:25 S: 15:00	01:31 14:07	00:32 13:10
Neptune <i>(late nite)</i>	R: 01:01 S: 11:55	00:06 11:00	23:07 10:00
Pluto <i>(evening)</i>	R: 21:56 S: 07:35	20:59 06:38	19:59 05:37

Anyone having an interest in monthly **Libration and Declination Tables for the Moon²** during this month please contact your editor for information or sources.

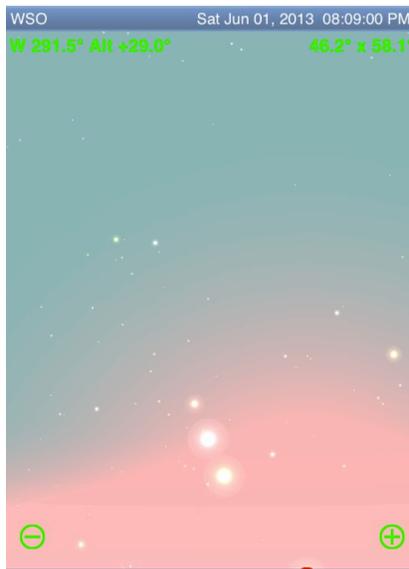
Moon Phases, June, 2013

New Moon Saturday, June 8th at 11:56am EDT
First QTR Sunday, June 16th, at 1:24pm EDT
Full Moon Sunday, June 23rd, at 7:32am EDT
Note: Perigee also on June 23rd: High Tides!
Last QTR Sunday, June 30th, at 12:54am EDT

- A short article in the June issue of *S&T*, p 53, may be of interest to “occultationistas” in

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

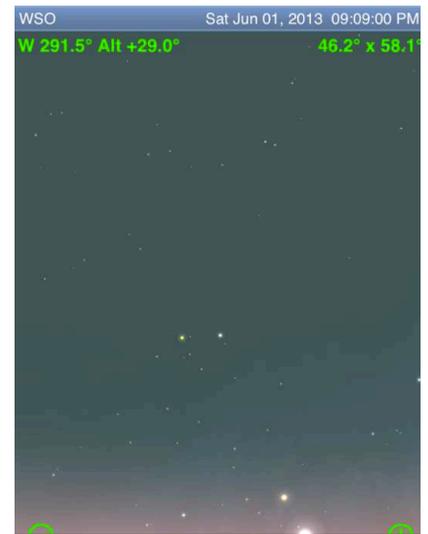
When Planets Line up, something special happens...



Sunset, June 1, 2013 looking W NW
(Horizon at bottom)



30 Minutes after Sunset
(Horizon at bottom)



60 Minutes after Sunset
(Horizon at bottom)

In former times, an alignment of two planets made people a bit nervous; for many, such a line up suggested something dramatic, oftentimes quite unpleasant, might be about to happen. When *three* planets lined up one could be very sure something really bad was coming.... maybe an earthquake or a tornado, or a catastrophe of some other kind.

In our era, a line up of planets means something dramatic *is* happening; but *the drama is in the viewing of the lineup itself!!* What a wonder in the sky!! We invite you to enjoy this one.

In last month's *First Light*, we noted an assembling of the trio of planets **Mercury, Venus, and Jupiter** a bit after sunset. We noted that at month's end the three would begin to form a line.

Take a beach chair to Skaket Beach or any other west-facing Cape Cod beach well before sunset on June 1 or even a day or so earlier or later if you can, and watch the show unfold. Bring a camera and maybe binoculars (avoid the binoculars until the sun is *fully* below the horizon.) This lineup will be available to you well into June but if you procrastinate Jupiter will get too close to the sun to be a full participant as dusk proceeds.

The images above were all generated for the times indicated using the app Sky Safari Pro on an iPhone. As shown, the fun will be in watching the lineup descend toward the horizon and for you to see the *one-by-one appearance* of the main performers in this spectacle as dusk gradually gives way to darkness. In the beginning, you won't see any part of the lineup. The first object you should be able to see even before sunset will likely be the brightest of the three planets in the lineup, the middle of the line, Venus, mag -3.9. After sunset, Jupiter, mag -1.9 and then Mercury, mag -0.2 will appear below and above Venus, respectively. Continue your discoveries as time goes along; soon you should be able to see bright Capella (mag 0.1) to the right of Mercury; then Pollux (mag 1.2) and then Castor (mag 2) will pop out above and a bit to the left of the planet lineup; finally you will be able to see the other stars of the constellation Auriga to the right of Mercury.

While it is true that Jupiter bids farewell to the spectacle soon after the beginning of June, Venus and Mercury dance together during dusk well into June moving higher in the sky and toward the north relative to the background stars for several days but also, of course, eventually lower in the sky as the season moves along. However, you can watch those two *in daylight!* The June issue of *Sky & Telescope* has a wonderful article (p 51, including position charts for one hour before sunset,) on how to find these two in daylight for the period May 30 through June 23 using a telescope or good binoculars. You can use the chart in *S&T* to record where *you* saw each on late afternoons. Venus should be visible without optical aid and you can use the relative positions shown in the *S&T* chart to "hop" to Mercury.

Caution! You don't want even a chance of looking at the sun with a telescope or binoculars! So, follow MacRobert's advice and set yourself and your equipment in the shadow of a building so contact with the sun (low and to the right) becomes impossible.

D-Y Ninth Grade Students Visit the WSO May 17, 2013

Thanks to Joel Burnett for sending us this story and photos

The night of Friday, May 17, 2013, a mostly clear sky graced the Werner Schmidt Observatory as Dr. Julia Sigalovsky's 9th grade D-Y science class arrived at the lawn. Students' energy brimmed with laughter and excited chatter as they began looking through the Obsession 18" telescope at Jupiter and its moons. Soon after, they poured into the observatory's anteroom leading to the open-air dome, to begin the night's work.

Bernie Young, longtime Cape Cod Astronomical Society member and current Director of Research for the Observatory, had prepared the students for the evening's data-capturing by giving a lecture earlier in May in their classroom at Dennis-Yarmouth Regional High School. Dr. Sigalovsky's goals for her students included an introduction to:

- *Occultations of stars by the Moon: why do we observe them?*
- *How to observe: data collecting and processing;*
- *The occultation observations bank: how the data are collected, processed and used.*

The night's work had been carefully planned by Bernie with predictions from Occult 4 software to show the locations and timing of the four occultations upcoming this evening; this information was printed and posted on the bulletin board for the students.

The first occultation event came at 8:31:56, the students counted down the seconds and cheered wildly when the Moon occulted star SAO 117861, a type K0 star, of 8.9 visual magnitude as scheduled.

Joel Burnett asked ninth grader Mackenzie Gray to read off the time of the next event, and plant a push pin on a map of the moon at the lunar location nearest the star at time of snuff-out. We observed an additional occultation a short time later.

Outside we went for general sky gazing! WSO staff members Gail Smith, Ed Swiniarski, Lee LeBarre and Joel Burnett gave the students a tour of the night sky's constellations, a look at Saturn and its moons during the interludes between occultations.

Sandy Cashen, Dennis-Yarmouth Regional School District Maintenance Manager, and Werner Schmidt visited the observatory to see the action and tell the story of the construction and purpose of the Werner Schmidt Observatory.

What a splendid experience to see the realization of Werner's dream of educating students in a scientific environment! The students counted down the next lunar occultation and shouted in unison a big "Thank You, Werner Schmidt!"



D-Y 9th Grade Students with Werner Schmidt



Staff Member Lee Labarre and student Mackenzie Gray set up 18" Scope

Dr. Julia Sigalovsky wrote, "Thank you so much for the great experience on Friday!! The kids had a great time and learned a lot! I was very pleasantly surprised by the turn out (10 out of 14!) and by the interest (they wanted to come back before the year is out!). This is all thanks to you and other great people from CCAS who were there to do the observations!"

I am also happy that Sandy [Cashen] could come and bring Mr. [Werner] Schmidt to see us at work! I am sending a couple of pictures.

Bernie - would it be possible to have a class on Wednesday (10:35 am) when you would come and process the data with the students? We will download the program tomorrow.

Thank you very much again!

Julia

On behalf of the staff at the Werner Schmidt Observatory, I would like to say how rewarding these experiences are. When I look to give back to the community, thank the mentors I've had, and express gratitude to teachers who gave me similar moments of growth; this is the mechanism I find to pass it forward.

If you would like to join in any upcoming events, please contact me at joelburnett@comcast.net. We have Girl Scouts visiting on May 31st and June 25th. Public star parties every Thursday night begin June 20th, as well as the night of Yarmouth's fireworks on Jun 29th, when we will be open for the public to come in and see the observatory. We would love to have you join us! [Editor: Please see elsewhere in this issue of *First Light* for more info on Star Party Schedules.]

Warm Regards,

Joel Burnett

Director, Werner Schmidt Observatory

BOOK ANNOUNCEMENT:

Harold A. McAlister, Regents' Professor Emeritus of Astronomy at Georgia State University and Director of the Mount Wilson Observatory sent this announcement in to info@ccas.ws :

Members of the Cape Cod Astronomical Society might be interested in a new astronomy-themed novel I've written entitled [Sunward Passage](#). I really enjoyed doing it and have recently released it as an Amazon Kindle book. It would be categorized, I suppose, as an "astronomical thriller," and folks who have read it so far seem to like it.

The protagonist is a professor at a fictional college in western North Carolina who is enlisted by federal authorities to solve the murder of an astronomer at a German observatory. The story launches onward from there. You can find the book at Amazon.com by searching on 'Sunward Passage.' Amazon has a nice "click to look inside" feature that lets you read the first few chapters by clicking on the book cover to avoid shopper's remorse.

I invite your members to take a look at the book and read the reviews of it at Amazon.com, keeping in mind that you don't have to have a Kindle to read it and can instead download a Kindle reader application for any laptop or handheld device. The price is \$3.99, and a portion of the royalties goes to support Mount Wilson Observatory.

I also have another Kindle book called [Diary of a Fire](#) about the 2009 Station Fire threat to Mount Wilson. Proceeds from that go to the Observatory as well.

Here's the link to both books:

http://www.amazon.com/s/ref=sr_nr_seeall_1?rh=k%3AHarold+A.+McAlister,i%3Adigital-text&keywords=Harold+A.+McAlister&ie=UTF8&qid=1363309912

I'd appreciate hearing comments on the book - good or bad - and invite readers to submit reviews to Amazon. My email address is hal@chara.gsu.edu.

Cape Cod Astronomical Society

President	Michael Hunter	508-385-9846
Vice President	Stanley Rivers	508-945-6126
Secretary	Charles Burke	508-394-9128
Treasurer	Peter Kurtz	508-255-0415
Observatory Director	Joel Burnett	508-221-7380
<i>First Light</i> Editor	Peter Kurtz	508-255-0415

Mailing Address: A. P. Kurtz, CCAS Treasurer, 34 Ridgewood Rd,
Orleans MA 02653

Cape Cod Astronomical Foundation

Chairman	Werner Schmidt	508-362-9301
Vice Chairman	Michael Hunter	508-385-9846
Director of R&D	Bernie Young	508-394-1960
Secretary	Ed Swiniarski	508-896-5973
Treasurer	Pio Petrocchi	508-362-1213
Observatory Director	Joel Burnett	508-221-7380
Observatory Phone Line		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.

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 γ -Andromedae to Algol's west, mag 2.1, and ϵ -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%20this%20Month/2013/04/A%20trio%20of%20evening%20planets.aspx>
See also S&T resources online at <http://www.skyandtelescope.com/>

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>