



First Light

The Newsletter of the Cape Cod Astronomical Society



July, 2012

Vol.23 No.7

"With My Own Eyes in This Lifetime..."

CAPE COD ASTRONOMICAL SOCIETY HOSTS VIEWINGS OF THE JUNE 5 TRANSIT OF THE SUN BY THE PLANET VENUS;
VIEWING TOOK PLACE AT TWO LOCATIONS ON CAPE.

These pictures document that in spite of on-again / off-again pesky clouds, about 30 people gathered at the Werner Schmidt Observatory saw the June 5 Transit of Venus with their own eyes! See page 5 for the full story on how this was accomplished.



Some Participants at the WSO Just Before Viewing the ToV



View thru 15x70 Binoculars;
Arrow Points to ToV as seen at 6:30pm

Next Monthly Meeting: is Thursday, July 12th [Second Thursday of the month!!!] at 7:30pm in the D-Y Library. Professor Larry Marschall of Gettysburg College will present: "**The Supernova at the End of the Universe:** How Astronomers Discovered Dark Energy" Public welcome. Please join us.

Reminder: Summer star parties: June 28 and these Thursdays in July: 5, 19, and 26 at 8:30pm. More info later in this issue.

In this issue: Harbormaster / July Meeting: 2012 Dues; Election of Officers / First Summer Star Party / Astrophotography Opportunity / Pluto in a Star Cluster / Comet Machholz / Transit of Venus: How the Game Should be Played.

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).

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

CCAS News Items and Current Events:

CCAS Meetings:

Thanks to Mike Hunter, Tom Leach, and Charlie Burke for their entertaining and informative overview of “**Pretty Astronomy Pictures: Learning By Mistakes**” at our meeting on June 7th. All meeting participants came away with a new and clearer understanding of how easily one can begin the hobby of amateur astrophotography, how quickly successful photos can be accomplished, and how one can accomplish a lot without the need for big cash outlays.

Mike Hunter presented the 2nd edition of “The Sky This Month” at our June meeting. “The Sky This Month” is a 10-minute presentation on highlights in the present 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 presentations.*

July 12th Meeting:

Please be reminded that the July CCAS meeting will be held the 2nd Thursday of the month, July 12th, rather than the 1st 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 2nd Meeting: David Kraft, Professor of Mathematics & Physics, University of Bridgeport, Bridgeport, CT, will present **Albert Einstein. Person of the Century** at our August meeting.

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!

SPECIAL ANNOUNCEMENTS:

Special Congratulations to Tom Leach:

On behalf of all CCAS members and friends, *First Light* congratulates our President, Tom Leach, on retirement from nearly 40 years in the position of Harbormaster for the town of Harwich. Congratulations and best wishes, Tom!



The caption reads: “Harbormaster Tom Leach, last full day of work, launching Harbormaster's boat COMMANDER, Saquatucket Harbor, June 21, 2012”

For more information on Tom and his retirement, please see the article by Doug Fraser on page A3 of the June 26 *Cape Cod Times* also available at:

<http://www.capecodononline.com/apps/pbcs.dll/article?AID=/20120626/NEWS/206260323>

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 indeed take place on “first” Thursday, July 5th, there will be no Star Party on July 12 unless the Dome is opened impromptu.

Upcoming Election of Officers

The annual election of officers will take place at our July 12th Meeting. Please consider communicating your ideas about nominations to members of the Nominating Committee (Joel Burnett, Gail Smith, or Ed Swiniarski) before the meeting or bring last minute ideas with you.

New Cycle for Payment of CCAS Dues:

Please be prepared to make payment for the 2012-2013 Membership Year at our meeting on July 12th.

Please bring your check or mail to the Treasurer, A.P. Kurtz, at 34 Ridgewood Rd., Orleans, MA 02653. Charlie Burke and Robert Cabeza won a special prize (a “Thank you” from the Treasurer!) for paying their 2012 dues at our last meeting. We hope to issue many such prizes at the July meeting. Everyone please get in the July-to-July dues cycle!

Minutes:

The minutes of our June meeting are on our website; click on the “Minutes” button at www.ccas.ws or go to <http://www.ccas.ws/minutes/ccasminutes060712.pdf>

From the Dome:

Please see the feature story beginning on page 5 summarizing the challenges CCAS members and guests had observing the June 5 Transit of Venus from both the Schmidt Observatory and also First Encounter Beach.

Thanks to Mike Hunter, Observatory Director for sending these comments on the Transit of Venus day and also the first regular Thursday night summer star party of the season which took place 21 June:

The June 5 transit of Venus was pretty much a cloud-out for CCAS. The First Encounter Beach viewing program, organized by Jon Greenberg, was ended early due to fog. The Bernie Young and Mike Hunter research effort at Scargo Hill was cancelled. Observing at The Schmidt Observatory took place outside and inside (see Feature Story, p5.) The skies were over 95% cloudy with tantalizing gaps in the clouds every now and then. Joel

Burnett led the staff team of eight, including staff from the two cancelled sites. The twenty-five guests and staff spent most of the time in the warm room watching the transit on the large flat screen television. It was very crowded except during those infrequent times when a gap in the clouds moved close to the sun. Sometimes we could even see the sun; but, the clouds never thinned enough to spot Venus.

The first star party of the season was held at the Schmidt on June 21 with dark, hazy skies. The haze did stabilize the atmosphere yielding very nice images of Saturn. The Double-Double and various other double stars were split. However, the haze prevented the viewing of an 8.6 billion light year distant quasar. The quasar is 14.4 magnitude while the dimmest objects seen were in the 13 magnitude range. At least the 15 guests and 5 staff had a good time viewing the brighter objects.

The next star party will be June 28 and will feature lunar occultations along with Saturn and Mars. July 5 will be a star party night because the next monthly meeting will be on July 12.

Will summer star parties be cancelled if the weather is less than favorable? Since some earlier notices in *First Light* suggested *nearly all events* would take place in spite of unfavorable weather, here is a revised policy:

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 uncertain, 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 is a strong indication 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.

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 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

July Observing:

Observing Highlights for July, 2012 at Cape Cod:

Please consult the July issues of *Sky and Telescope* (pp 44-58), *Astronomy Magazine* (pp 36-43), and *Astronomy Magazine Online* (See Ref 5) for more information on these highlight topics and others.

Photograph this Cluster! We don't usually highlight pre-dawn events in *First Light* because there just are not that many of us that enjoy getting up before dawn (unless it is to go fishing!)... but **Jupiter**, **Venus** (close to its brightest this year), **crescent moon**, **Aldabaron**, and **The Hyades** will form a 10°-wide cluster to be viewed or photographed about one hour before sunrise on July 15th; allow a 15° diameter circle and you can include the **Pleiades**! Watch versions of this grouping during preceding and following predawns.

Dazzling: **Venus** is at its greatest brilliancy this year, mag 4.7 at noon EDT, on Thursday, July 12. View at 3am before dawn that day (the half moon will have set at 2:42am on the 12th) and see if Venus can cast a shadow! It is sufficiently bright then to do so if you have dark skies and a clear atmosphere.

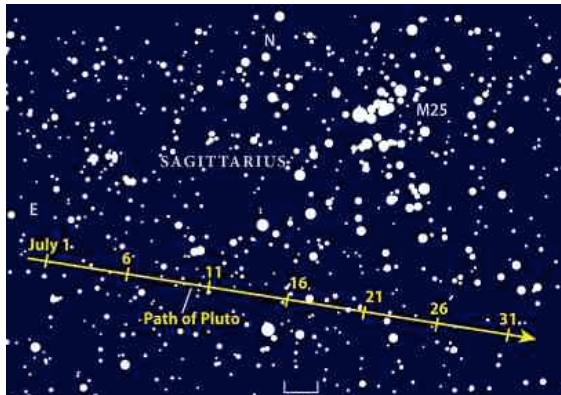
Another Photo-op: this one, in Prime Time:

Saturn, **Spica**, a **crescent moon** and **Mars** form a nice trapezoid a little more than 10° wide, and situated about 20° above the horizon in the southwestern sky at 9pm on July 24. The triangle formed by the two planets and Spica endures for much of the month.

Don't forget to study **Saturn** and its moons this month. We have July and August left this season to study Saturn before it gets too low in the west at dusk to be a good observing target. *Tempus fugit!*

Mag 14 **Pluto** is nicely placed above Sagittarius in the evening sky in July. During the month, it runs (albeit very slowly) east to west along the underside of magnitude 5

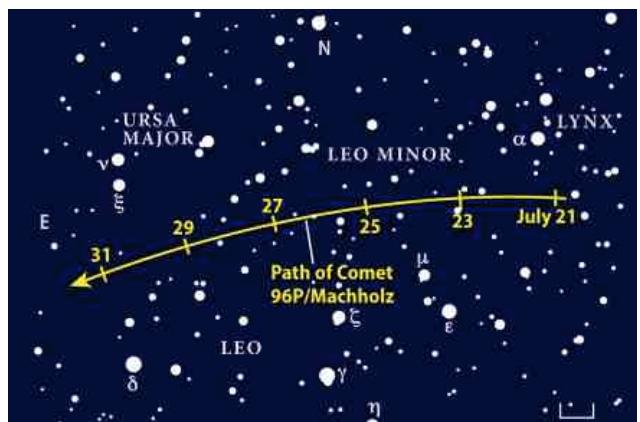
open cluster M25 (ball of stars in chart.) Everyone having a dark sky should take more than one look at this phenomenon during July, particularly mid-to-late-month



when the moon is either near new or rises late in the evening.

Finally, if you are interested in Pluto for the rest of the year, check out the May to December finder chart in the June issue of *S&T*, p 52;

Be ready to catch **Comet 96P/Machholz** as it comes out of the sun for a brief but possibly spectacular appearance in



late July. Machholz could come out of the sun into the evening sky as bright as magnitude 7 beginning about July 21. It then slides quickly through Leo and Leo Minor. Try with binoculars and small telescopes

The Southern Delta Aquarids peak July 30, when observers could see 20 meteors in the hour before twilight begins. The second half of July also sees early **Perseids**, the **Alpha Capricornids** and **Delta Aquarids** spread out over the period.

Bottom line: if you look, you will see meteors in July.

Mooncussuer's Almanac and Monthly Alert¹
July 2012

Object	July 1 (EDT)	July 15 (EDT)	July 31 (EDT)
Sun	R: 05:10 S: 20:19	05:20 20:13	05:35 19:59
Moon	R: 18:18 S: 03:35	02:40 17:27	18:45 04:36
Mercury (evening)	R: 07:19 S: 21:47	07:05 20:54	05:24 19:19
Venus (predawn)	R: 03:17 S: 17:35	02:43 17:03	02:21 16:52
Mars (evening)	R: 11:50 S: 00:02	11:34 23:23	11:19 22:40
Jupiter (predawn)	R: 02:49 S: 17:30	02:03 16:49	01:11 16:00
Saturn (evening)	R: 13:47 S: 01:07	12:53 00:13	11:54 23:11
Uranus (late night)	R: 00:18 S: 12:44	23:23 11:49	22:20 10:46
Neptune (late night)	R: 22:55 S: 09:43	22:00 08:47	20:56 07:42
Pluto (evening)	R: 19:42 S: 05:25	18:46 04:28	17:41 03:23

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**² during this month please contact your editor for information or sources.

There will be one **minimum of Algol**^{1,3} in Prime Time for Cape Codders this month: 11:12pm on July 12. 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, July, 2012

Full Moon Tuesday, July 3 rd at 2:52pm EDT
Last QTR Tuesday, July 10 th , at 69:48pm EDT
New Moon Thursday, July 19 th , at 12:24am EDT
First QTR Thursday, July 26th, at 4:56pm EDT

FEATURE STORY:

CCAS Members and Guests Observe the June 5th Transit of Venus:

The photos on page 1 provide a glimpse of how some 30 CCAS members and guests did indeed observe the Transit of Venus "in their lifetimes" at our Observatory on June 5th. Here's the whole story:

Non-Encounter at First Encounter :

By Jon Greenberg

I thought that I would write a short account about (the observing experience on June 5th) at First Encounter Beach while the (painful) events are fresh in my memory.

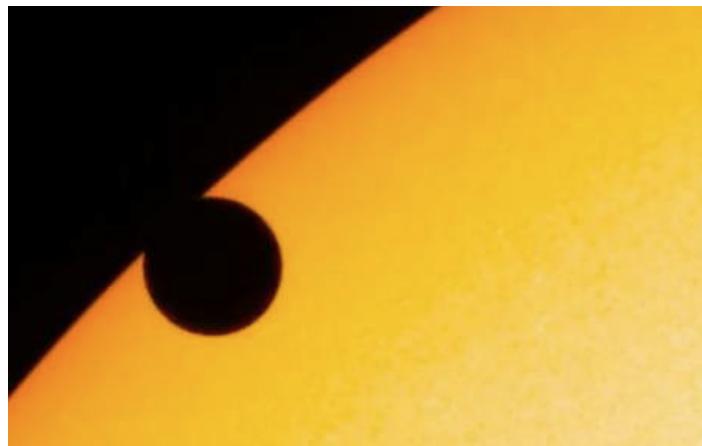
There was an occasional peek at the sun through heavy clouds in the western sky around 5:00 P.M. on Tuesday, June 5, when Peter and Marie Kurtz stopped by my house to drop off some CCAS brochures for me to distribute at First Encounter Beach. I arrived there about 5:30 P.M. and dutifully hung up two signs warning folks not to view the sun through their binoculars or telescopes without special solar filters. By the time that I arrived the cloud cover had gotten worse – not even a peek of sun to observe.

I was joined by Gary Derman who set up his Celestron NexStar 6se with his homemade solar filter and by Bill Boyd who had kindly agreed to man one of my two telescopes. These were my trusty Coulter Odyssey 8 Dobsonian which I bought in 1984 and used to view Halley's Comet in 1986 and a Bushnell Voyager 4.5" reflector, both equipped with super-safe aluminum-coated mylar filters.

From 5:30 P.M. to about 6:40 P.M. when I abandoned all hope of a peek at the sun, about 50 or 60 cars came to First Encounter Beach. Gary, Bill and I had a chance to talk with some nice folks about the transit, our equipment and CCAS. The visitors took about 40 of our club brochures and several expressed an interest in attending our meetings. Particularly appreciated were some nice people who thanked us for making the effort to bring and set up our equipment despite the gloomy weather prospects.

Humbling, was a pretty young lady of about 12 who showed me an excellent-real time image of the Venus transit on her iPhone. It made me feel like a dinosaur for not having a wireless computer. I arrived home about 6:50 P.M. just in time to catch the end of Brian William's NBC Nightly News. The folks at Griffith Observatory in Los Angeles were observing the transit in bright sunlight and having a blast!

With the interests of our club always in mind, I have just written a letter to Sheila Vanderhoef, Town Administrator for Eastham, thanking the Town for letting us use First Encounter Beach on June 5 and expressing the hope that the Town would let us use the beach again for the next Venus transit on December 11, 2117!



A clip from a very excellent high definition NASA video at: <http://www.youtube.com/watch?v=4Z9rM8ChTjY>

Indoor and Outdoor at the Schmidt Observatory :

By Peter Kurtz

While observers at our observatory did not quite get the view shown in the photo above, some 35 guests and members did watch parts of the transit "in their lifetimes" and "through their very own eyes." For sure we could readily imagine what the transit should look like while looking up at cloud cover that for about a whole 10 seconds did let us see the sun using sun-filtered 15 x 70 binoculars. Too bad that those 10 seconds took place at about 6:01pm which was several minutes before the actual transit began!

But the group at the observatory DID have access not only to the cloudy sky imaged in the photo on page 1 but also could view, in real time, the progress on the transit from internet transmission to the big screen TV in the lower Dome room. So, the group at the Dome did see the actual transit. We're glad the dauntless team at First Encounter Beach also saw it by one means or another... either on the young lady's cell phone or on TV or internet at home.

Jon may feel that there was a Non-Encounter with the transit at First Encounter Beach... but, for sure, there did take place there a most successful outreach to curious folks who arrived in the "50 to 60" cars, received CCAS brochures and got to talk briefly with knowledgeable representatives of CCAS for a moment or two. And, thanks to Jon's pretty young lady, he did indeed see the Transit of Venus!... much in the same way we did at the WSO!

The groups at both sites experienced the thrill of sharing the challenge of trying to see a very rare cosmic phenomenon. There was at both sites a unique spirit of camaraderie and excitement even though the observing could not be quite as "direct" as all wished for. But when someone shouted, "There's a break in the clouds coming!" and folks rushed outside, the feeling and scene taking place were reminiscent of little kids on an Easter egg hunt. It was wonderful to see how gazing into clouds could bring such childish wonder and joy to all.

Consider the old adage: "It doesn't really matter who wins or loses; rather what really is important is how well you try to play the game." Kudos to everyone who participated so well in this game: everyone's once in a lifetime chance to observe the Transit of Venus. Depending on your point of view, maybe we didn't really win the game. But all played exceptionally well.

CCAS Members APOM:

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

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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 mimima 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/en/News-Observing/Sky this Month/2012/05/Brilliant planets gather at dawn.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>
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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
