



First Light

The Newsletter of the Cape Cod Astronomical Society



August, 2015

Vol. 26 No. 8

Maybe One of the best Perseid Meteor Showers ?



... a 2013 Perseid fireball taken from Wugongshan Mountain in China. Luo Cheng (from Reference 5)

Conditions will be right the night of August 12/13 for possibly one of the best Perseid Meteor showers ever. The annual Perseid meteor shower peaks August 12/13 under ideal conditions. With the Moon essentially absent from the night sky, observers at dark sites can expect to see up to 100 “shooting stars” per hour. Start looking about 10pm on the 12th; the show goes on all night and also should be good the nights before and after peak night. Look for brilliant meteors known as fireballs, which the Perseids usually produce in relative abundance.

Our Next Monthly Meeting: is Thursday, August 6th, at 7:30pm. One of our own, Jim Lynch, will present **General Relativity and Cosmology: The Mathematics De-Mystified** at our meeting on August 6th. Jim will explain what Einstein’s math means. He promises “not too much math” ... but this IS Einstein, after all! As always, public welcome.

Reminder: “Every Thursday” Summer Season Star Parties continue in August (except August 6, meeting night); 8:30pm. Public welcome.

In this issue: Perseid Meteors / *eight* new members / Officers Elected / 2015-16 Dues Cycle Has Begun / Speakers and Topics schedules thru December / “Telescope Night” coming / “Lights Off” at The Schmidt / Equipment Donated to the Dome / Observing Resources / “Saturn Flies Solo”

Bright New Stars:

We are very pleased to welcome an additional *eight* new people into CCAS membership this month. One of our new eight is a student member!

First of all, last month we mentioned we had an inquiry from one Elaine Kearney about starting an Astronomy Club at Sturgis West High School. We welcome Elaine now as a Student member and look forward to supporting her effort at Sturgis. We are pleased to learn that Tim Kearney, Elaine's father, contacted us during July about "family" membership; we expect Tim will join us soon.

We are pleased to welcome John Carlisle, his mother, Nadeane, and his father, David, of Barnstable, to membership in CCAS. John joined CCAS at our July meeting. John is a longtime merchant marine officer having served on tankers and container ships; John has also sailed "tall ships" worldwide. He has taught marine navigation, specializing in celestial navigation, and, in the early 2000's, was a leader in his union school's planetarium, a Spitz A3. John has agreed to give a presentation on "Celestial Navigation" at the September CCAS meeting.

Please welcome Glenn Curtis and Brigitte Régnier, newly of Sandwich, formerly of Alexandria, VA, to membership in CCAS. Glenn and Brigitte "found us" during July, are now members, and plan to join us at our August 6th meeting. Glenn is retired from a long career in research at the Library of Congress. They have binoculars for birding and are looking to acquire a telescope.

Finally, we welcome Joseph and Marta Murphy of Arlington, MA, and Cape Cod, to membership in CCAS. The Murphy's spend summers at Cape Cod.

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 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).

CCAS welcomed *four* new members, two of whom are students, into CCAS in June. So, in two months, our ranks increased by *twelve*, including three students. Again, welcome to you all! We look forward to your early involvement in Society activities.

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

CCAS News Items and Current Events:

Officers Elected at our July Meeting:

The following officers for the Cape Cod Astronomical Society for 2015-16 were elected at our July meeting:

Mike Hunter, President
Ed Swiniarski, Vice-president
Secretary – Gus Romano
Treasurer – Peter Kurtz

With Werner Schmidt recently being named Chairman Emeritus of the Cape Cod Astronomical Foundation, Joel Burnett was elected to fill an open Trustee position. Joel is now Secretary of the Foundation Board.

Please see the names and phone numbers of all current officers of CCAS and the Board of the Cape Cod Astronomical Foundation listed at the top of the last page of this and all *First Light* issues

The 2015-2016 **Dues cycle** began at our July meeting. Dues for most folks are \$30/year. We need this money to pay our bills and support our Observatory! Please bring your check to the next meeting or mail right away to: CCAS, 34 Ridgewood Rd. Orleans MA 02653. Thank you.

We have several active members who are more than a year in arrears. Please, everyone, "get current" as soon as possible.

The Cape Cod Astronomical Foundation is now participating in the AmazonSmile program (<http://www.smile.amazon.com>); please go to this amazon login page and sign up. Going forward, 0.5% of the price of all your Amazon purchases will be donated to the Cape Cod Astronomical Foundation when you are a signed-up participant.

CCAS Meetings:

Many thanks to Joel Burnett for an excellent update on work that is going on at The Schmidt and to Bernie Young for his most informative talk on the "Leap Second" at our July meeting.

A *leap second* is a one-second adjustment that is occasionally applied to Coordinated Universal Time (UTC) in order to keep its time of day close to the mean solar time, or UT1.

The Leap Second was added to our systems at The Schmidt at 7:59:59 EDT on June 30th.

Please see Gus Romano's excellent overview of both Joel's and Bernie's presentations in the Minutes for our July meeting (web address is given below.)

Many thanks to Joel and Bernie for working up these presentations "on the spur of the moment." We discovered just before our meeting began that a scheduled speaker had been detained indefinitely by Cape Cod summer traffic.

One of our own, Jim Lynch, will present **General Relativity and Cosmology: The Mathematics De-**

Mystified at our meeting on August 6th. Jim sent us this introduction:

When asked by a reporter if it were true that only three people in the world understood Einstein's Theory of General Relativity, the famous astronomer Sir Arthur Eddington thought carefully and replied, "And who would the third one be?" This tongue-in-cheek reply only helped enhance the mystique of Einstein's theory, which, to most people, is shrouded by the forbidding appearance of tensor calculus. However, the underlying meaning of the math embodying Einstein's theories is NOT "rocket science", and can be understood by all in rather simple terms. In this talk, I will give a quick look "under the hood" of how General Relativity and cosmology work, based on the classical theory. I won't guarantee you can solve these famous equations after the talk, but I will try hard to make sure you know what they mean! But be prepared to look at a little maththis IS Einstein, after all!

New member John Carlisle will speak to us on "Celestial Navigation" at our meeting on September 3rd. John has an interesting background certainly qualifying him to speak on this topic: he is a long time merchant marine officer having served on tankers and container ships; John has also sailed tall ships worldwide. He has taught marine navigation, specializing in celestial navigation and, in the early 2000's, was a leader in his union school's planetarium, a Spitz A3.

"Telescope Night" at the CCAS October Meeting: As we have done in past years, every so often we have a "Telescope and Equipment Showcase" as the subject for a CCAS monthly meeting. This year we will have this "show and tell" session at our meeting on October 1. The session will include not only 'scopes and binoculars but other equipment of interest including special items for the astrophotography arena. Key CCAS telescopes, some available for loan from The Schmidt will be available for browsing. Members are invited to bring their own 'scopes or binoculars. Finally, you may also offer your own equipment for loan or sale at this session. Public is welcome. Y'all bring your 'scopes too!

Professor Tim Barker, Professor Emeritus of Astronomy at Wheaton College, has informed us that he hopes to be able to give a talk at our meeting on November 5th on the **Apollo program**. If all goes as planned, he will be able to bring some **actual samples from the moon**, on loan from NASA, to the meeting. Stay tuned.

We are pleased to announce that **Professor Larry Marschall** of Gettysburg College, astronomer, teacher and always an excellent speaker, has agreed to give us a presentation at our meeting on December 3rd. Information on Professor Marschall's topic will be published in the September *First Light* or when available.

Reminder:

Gus Romano (or his delegate) "hosts" a Dutch-treat dinner gathering for members and friends on each CCAS meeting night (before the meeting) at the South Yarmouth Hearth & Kettle restaurant at 5:45pm; (the meetings begin at 7:30 at D-Y.) The speaker for each meeting is always invited.

Please join the group to dine and talk about all things interesting, including astronomy! The H&K is at 1196 Rte 28, South Yarmouth, about a half mile west of the Station Avenue/Main Street intersection with Rt. 28 (traffic light).

Mike Hunter, CCAS President, is our Program Chairman. Please contact Mike or info@ccas.ws if you have any leads on speakers for upcoming meetings after July

Members, ***PLEASE*** participate in the effort to recruit good speakers to present programs in astronomy and related sciences at our meetings.

Please let us know if you have any leads...

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

Minutes:

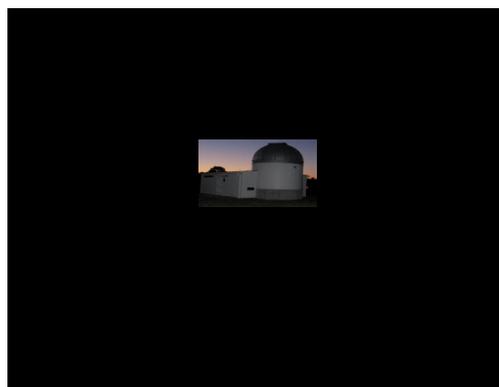
The minutes of the July meeting are on our website; click on the "Minutes" button at www.ccas.ws or go to <http://www.ccas.ws/minutes/ccasminutes070215.pdf>.

From the Dome:

A Special Advance Made Recently at The Schmidt:

Wow! THIS is a REALLY GOOD THING!

Joel Burnett announced at our July meeting that electrical work had been completed on the D-Y High School Grounds so that now, when we need dark skies at Star Parties, we



can, with the click of a button on a remote, temporarily turn

off Security Lights around the grounds near us to give wonderfully improved night sky seeing conditions. Many thanks to Joel Burnett, Schmidt Director, who chased this goal for well over a year, and to Sandy Cashen, DYHS administrator, the DYHS Principal, and the DY Electrical Department for making this “turn off” a real “turn on”!

Donations to Cape Cod Astronomical Foundation in July:

Many thanks to former member Robert Gunshor of Sandwich and “Friend of CCAS” Bill Meckel of Orleans for contacting info@ccas.ws about equipment donations. The following donations to operations at The Schmidt through the Cape Cod Astronomical Foundation have been made.

Bill Meckel contacted us on July 22nd, offering a vintage Meade 10” 2080 Schmidt-Cassegrain telescope and accessories. Bill reported he last used the ‘scope to photograph a lunar eclipse ten years ago. Mike Hunter picked up the ‘scope from Bill at the end of July. Thank you very much, Mr. Meckel.

Former member Robert Gunshor contacted us on July 27 offering the glass blanks and polishing grits to fabricate an 8-inch reflector telescope. Charlie Burke picked up these resources from Gunshor a few days ago. Thank you, Robert Gunshor!

Thanks to both Charlie (mirror blank) and Mike (10” ‘Scope) for quickly responding to these offers and arranging for and accomplishing pickup of both these valuable resources within days of our first alerts. Mike and Charlie will communicate plans to make these resources available to members and friends at the Dome or possibly as loaners after the new arrivals have been evaluated.

Beginning July 9th there is a Star Party open to the public at The Schmidt Observatory *every Thursday* beginning at 8:30pm.

Except NO STAR PARTY on Meeting Night, August 6th!

The last such event for this summer will take place on August 27.

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. Contact info@ccas.ws if you wish to borrow one.

Observing:

Observing Resources:

Please see resources in the August issue of *Astronomy Magazine*, pp 36-43, and *Sky and Telescope*, pp 41-56, and Reference 5 for good guides to the sky. See reference 6 for positions of the moons of Jupiter and Saturn.

There is an excellent story in August’s *S&T* magazine on this year’s Perseid Meteor Shower and how to watch it (page 48.)

Please also see “Fall Sky Targets for Binoculars” in the August *Astronomy*, pp 62-63.

Finally, please read the review “A Paper Atlas for the Digital Age” in August’s *S&T*, p 57. The article reviews a durable new Atlas of the Stars designed for use “at your ‘scope. Most of us use electronic Star Charts these days but a good dew-resistant “paper” Atlas that lies flat is an invaluable resource for “star hoppers”.

Highlights in the Night Sky for August:

Perseids to Sparkle!

...a bit more on our cover story...

The shower’s radiant — the point from which the meteors appear to originate — lies in the constellation Perseus near its border with Cassiopeia. This region appears in the northeast by 10 p.m. local daylight time and climbs highest as dawn approaches. All else being equal, the higher the radiant, the more meteors you’ll see. Finally, don’t limit your eye to the sky for meteors this month to just peak night: August 12/13. The nights before or after will be close to as good as peak night. Some observers recommend looking for Perseid meteors for the three week period from August 1 through about the 24th as the earth passes through thinner as well as thicker parts of the debris scatter that causes the meteors.

Saturn Flies Solo:

This month, the only bright planet not near or in the sun at prime time is **Saturn**. Do please visit Saturn and its moons as many times as you can before “Saturn Season” ends as it always does. Guaranteed to be a star performance observed with everything from good binoculars from your back deck to the array of equipment available at any one of our upcoming August Star Parties at The Schmidt Observatory.

While Saturn is the only bright planet performing for you in August, do seek to find and enjoy more distant and dimmer Uranus, Neptune, and tiny Pluto (of much note during July) this month. You should be able to acquire all three at various times in the night sky in August with a good telescope. And, indeed, we have good telescopes at CCAS Star Parties!

Mooncusser's Almanac and Monthly Alert¹
AUGUST 2015

Object	August 1 (EDT)	August 15 (EDT)	August 31 (EDT)
Sun	R: 05:35 S: 19:58	05:49 19:41	06:05 19:16
Moon	R: 20:34 S: 07:32	07:06 20:00	20:23 08:44
Mercury (evening-sun)	R: 06:22 S: 20:34	07:36 20:32	08:26 20:07
Venus (in sun)	R: 07:32 S: 20:26	06:07 19:01	04:26 17:38
Mars (predawn)	R: 04:22 S: 19:18	04:13 18:53	04:03 18:20
Jupiter (near sun)	R: 07:10 S: 20:52	06:31 20:05	05:46 19:10
Saturn (“all nite”)	R: 14:48 S: 00:43	13:54 23:48	12:54 22:46
Uranus (late night)	R: 22:46 S: 11:46	21:51 10:50	20:47 09:46
Neptune (evening)	R: 21:12 S: 08:16	20:16 07:19	19:12 06:13
Pluto (“all nite”)	R: 18:13 S: 03:43	17:17 02:46	16:13 01:42

Minima of Algol^{1,3}, July:

Algol, a variable double star in Perseus, shines normally at mag 2.1 but once every 2.87 days dims to mag 3.4. The dimming is caused by the dimmer of two self-orbiting stars eclipsing the brighter as viewed from earth.

There is one convenient evening occurrence of the Minima of Algol this month: Monday, August 10th, at 11:10pm.

Using binoculars or a small telescope, try to begin viewing two to three hours before the minima to watch the dimming (record magnitudes now and then by comparing Algol with neighboring constant magnitudes) and up to two to three hours after the minima to watch the brightening.

Moon Phases, August, 2015

Last QTR, Thursday, August 6th at 10:03pm EDT
New Moon, Friday, August 14th at 10:53am EDT
First QTR, Saturday, August 22nd at 3:31pm EDT
Full Moon, Saturday, August 29th at 2:35pm EDT

Declination Tables for the Moon² during this month please contact your editor for information or sources.

Upcoming Events:

STARLAB-2015, a planetarium in an air igloo, will visit the Cape Cod Museum of Natural History on Tuesday, August 4th. Show times are at 10:30, 11:45, and 1:30. Please see the following web address for information on reservations (necessary) and fees for CCMNH members and nonmembers:

<http://www.ccmnh.org/Events/STARLAB-2015>

CCAS Members Interviewed for Night Sky Article:

In case you missed it, Chris Kazarian of the Falmouth *Enterprise* wrote a nice article on summer Star Gazing for the Cape Cod Outdoors section of the July 3 edition of his newspaper.

Gathering information from several sources, Chris interviewed CCAS members Hank Ricci and Jim Lynch.

Since not all of us are subscribers to the *Enterprise*, you might enjoy reading the scanned version of this article made by Hank Ricci. Most of the information from Hank and Jim is located toward the end of the article.

Please contact either Hank or your Editor if you would like a copy of this scanned article.

NOTICE: NEW COPIES OF THE BROCHURE INTRODUCING CCAS AND ITS ACTIVITIES WERE PRINTED DURING FEBRUARY; INQUIRE AT info@ccas.ws IF YOU WISH COPIES.

Cape Cod Astronomical Society

President	Michael G. Hunter	5083643370(cell)
Vice President	Ed Swiniarski	5088965973
Secretary	Gus Romano	7819294770
Treasurer	Peter Kurtz	5082550415
Observatory Director	Joel Burnett	5082217380
<i>First Light</i> Editor	Peter Kurtz	5082550415

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

Cape Cod Astronomical Foundation

Chairman Emeritus	Werner Schmidt	5083629301
Chairman	Mike Hunter	5083859846
Vice Chairman	Ed Swiniarski	5088965973
Director of R&D	Bernie Young	5083941960
Secretary	Joel Burnett	5082217380
Treasurer	Gus Romano	7819294770
Observatory Director	Joel Burnett	5082217380
Observatory Phone Line		5083984765

The **Cape Cod Astronomical Society** meets at 7:30 pm on the first Thursday of every month in the library of the DennisYarmouth 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 K12 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 January2007/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 "The Sky This Month" online for August:
http://www.astronomy.com/magazine/sky-this-month/2015/06/perseids-reign-supreme?utm_source=SilverpopMailing&utm_medium=email&utm_campaign=ASY_News_Sub_150731_Final&utm_content
- 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>