



First Light

The Newsletter of the Cape Cod Astronomical Society



December, 2012

Vol.23 No.12



The Christmas Tree Cluster (from www.utahskies.org)

Dear Members and Friends,

We are sorry to inform you that former President of CCAS and Astronomy Teacher Extraordinaire Jon Greenberg passed away Thursday, November 15th. Our condolences to his wife, family, and friends.

We understand Jon had been hospitalized for pneumonia.

We hope to have more information on Jon and his contributions to amateur astronomy in upcoming *First Light* issues.

If you wish, please Google "Nickerson Funeral Home Orleans MA", go to the Nickerson homepage, and click on the name of the deceased to make entry in the online guest book. Jon's obituary can be accessed online at Reference 7, page 6. Thank you.

[SPECIAL NOTICE: The Visit of Astronaut Dan Burbank to CCAS had to be postponed until sometime in 2013.](#)

Next Monthly Meeting: is Thursday, December 6th at 7:30pm in the D-Y Library. Special Two Part Program: Part 1: Hugh Blair-Smith will present "Historical Errors of Navigational Chronometry in Patrick O'Brian's Sea Stories". Part 2: Bernie Young will present "The 21st Century at the Werner Schmidt Observatory." Please join us.

Reminder: NO "Half-Moon Saturday" Star Party this month. The next event is scheduled for 1/19/13.

In this issue: Jon Greenberg / New Member / Dues and Donations / New Director of Observatory / November Star Party Highlights / Update on Comet C/2012 S1 (ISON) / Winter Solstice / Dawn Lineup / a Six Month Asteroid Show / Best Meteor Show of the year / Minima of Algol

Bright New Stars:

We wish to welcome Chris Dumas to membership in the Cape Cod Astronomical Society. Chris lives in Sandwich and joined us at our November meeting. Welcome, Chris.

Chris is the ninth new member to join CCAS since July 1!

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).

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

CCAS News Items and Current Events:

CCAS Meetings:

Many thanks to CCAS Vice President Stan Rivers for his excellent presentation “**Electrical Power for the Amateur Astronomer in the Field**” at our meeting on November 1. Stan is a retired engineer and spent considerable time researching products available to amateur astronomers. Stan reviewed peripheral equipment needing power in the field such as dew zappers, focusing devices, video cameras, etc. He emphasized the need for clean and stable power and proper grounding since often we operate outside in a damp environment. Stan reviewed battery types and the importance of making sure you have the correct power supply for each application.

We will have a two-part program at our meeting on December 6th.

Part I. Cape Cod's Hugh Blair-Smith will present "Historical Errors of Navigational Chronometry in Patrick O'Brian's Sea Stories". While this is not precisely an astronomical topic, it does focus on aspects of time, technology, and celestial navigation. Hugh says his talk contains assertions "of which he is fairly confident but also quite prepared to hear disputed." Hugh has given excellent presentations and discussions at CCAS meetings twice before and we look forward to his return. Many of us have read some or all of Mr. O'Brian's twenty-plus novels on early nineteenth century British naval heroes Aubrey and his sidekick Maturin; it will be great fun to learn what Hugh has to say about "navigational chronometry" in those stories.

Part II. Our own Bernie Young will present a first installment on "The 21st Century at the Werner Schmidt Observatory." In recent months, Bernie and colleagues at The Schmidt have acquired equipment and developed special techniques providing new research and science capabilities for our Observatory and our Society. We look

forward to hearing more about this at our meeting.

Lee Labarre, recently joined CCAS member and active CCAS Star Party participant, will present “**Designing, Building, and Using a Home Observatory**” at our meeting on January 3rd (February 7th should Burbank need to move his talk to January from December.) Lee has built his own home observatory.

Peter Kurtz, Treasurer of CCAS, *First Light* editor, and member of the Observatory Staff will present “**How to Enjoy Fast and Slow Variable Stars**” at our February meeting. We will review the basics of recording magnitude estimates from naked eye and binocular observations of variable stars and (if you wish) reporting same to AAVSO (American Association of Variable Star Observers.) Main classes and favorite VS targets will be reviewed.

For the March meeting, former CCAS president, Gary Derman, will present a program called “**Where is that star?**” If you ever wondered how today's go-to telescopes know where to point to find a sky object or how planetariums can present the sky as it appeared from 2,000 years ago to 2,000 years from now, this talk is for you. Don't worry. You will not have to deal with complex equations. We will talk about what the mathematics is doing, but only in terms that everyone will understand.

Thanks to Mike Hunter, our Program Chair, for lining up these very special topics and speakers and to, Stan, Hugh, Bernie, Lee, Peter, and Gary, 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 Hunter, our Program Chairman. For sure he will follow up.

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

CCAS DUES **DONATIONS TO CCAF**

Thanks to all members who are up-to-date on payment of their 2012-2013 dues. 33 (68%) of 44 dues-liable members are paid up; (some 14 lifetime, spouse, and certain student members need not pay dues.)

If you are one of those who has overlooked the matter, please make your payment either by bringing to the December meeting or mailing directly to CCAS (Kurtz) at 34 Ridgewood Rd., Orleans, MA 02653. Checks should be payable to “CCAS”.

Thank you.

**WOULD YOU LIKE TO DIVERT MONEY
OTHERWISE PAYABLE TO UNCLE SAM TO
HELP PAY CAPITAL AND RESEARCH COSTS
OF THE WERNER SCHMIDT OBSERVATORY?**

IF SO, PLEASE SEND YOUR CHECK, MADE OUT TO
THE CAPE COD ASTRONOMICAL FOUNDATION, TO
THE ADDRESS CITED JUST ABOVE.

Thank you.

Minutes:

The minutes of our August meeting are on our website;
click on the “Minutes” button at www.ccas.ws or go to
<http://www.ccas.ws/minutes/ccasminutes110112.pdf>

From the Dome:

ANNOUNCEMENT: At its meeting on October 17th, the
Cape Cod Astronomical Foundation appointed Joel Burnett
as new Director of The Werner Schmidt Observatory. Mike
Hunter, Director since 2007, happily relinquished the post.
Joel had been serving as Assistant Director since August.
Kudos and congratulations to Joel on the occasion of this
appointment. Best wishes to him for many years of
satisfaction in accomplishment in that position.

Many thanks to Mike Hunter for his five years of service
serving as Director. The Observatory and its staff have
indeed grown in capability and accomplishment under his
leadership. Mike can now devote full time to his duties as
President of the Society.

We are happy to provide here reports on TWO successful
November Star Party events:

The first was a special “teaching” Star Party organized by
DYHS teacher Jim Mitchell and Observatory Research
Director Bernie Young for Jim’s DY Earth and Science
class students on Monday, November 5th. Nine students



Some Participants in the Student Star Party Nov 5th

and Jim worked with five Observatory Staff Members.
Thanks to Peter, Gail, Ed, and Joel for helping Bernie with
this event.

Here is some of what Jim had to say in a “thank you” email:
"Thanks for a great program Monday night at the
Observatory. Nine students and I loved seeing Jupiter and
its 4 moons, a planetary nebula in Lyra (M57), and several
constellations in spite of significant cloud cover. It was a
great idea to photograph the fleeting view of "Jupiter and
moons" as seen through the large telescope, then send the
image downstairs for all to see on the large flat-screen TV.
The recorded image definitely "grabbed" our attention and
“sparked discussion.”"

Jim also commented favorably on Bernie's brief slideshow
of night sky targets along with an overview of the
capabilities of the Observatory. He showed recorded images
of the last summer’s Transit of Venus, and, with Joel’s
participation, a recorded video of an occultation of a
possible binary star by the moon. Peter presented a short
introduction to variable stars.

We all look forward to the next session with Jim and his
group of intelligent and engaging students.

A second successful evening in November at The Dome
took place at our regular “First-Quarter-Moon-Saturday”
Star Party on November 17. Thanks to Joel Burnett for this
overview:

Several shooting stars cut across the night sky as the
Leonids made a final appearance. Crystal clear skies drew
about 15 people to the observatory to brave nearly freezing
temperatures. The Celestron 8” saw action outside the
observatory and performed admirably; a guest brought his
8” Dobsonian reflector to share sharp views of Jupiter, the
Orion Nebula and the Ring Nebula. The warm room inside
the dome hosted discussions and planning on lunar
occultations amongst staff and guests; configuration work
on the Losmondy/Gemini mount coupled with the Ritchey-
Chretien telescope was also accomplished. We saw many
popular deep sky targets on our 16” Meade, especially
Jupiter and his moons, and a walk through some open
clusters in Cassiopeia. If you are interested in duplicating
these efforts at home, take a look at the December 2012 *Sky
and Telescope* article “The Laconian Key” beginning on
page 56 by Sue French. We enjoyed M103, which we
dubbed the “Question Mark” cluster, and continued through
much of the listing with NGC 559, NGC 637, NGC, 609.
Had our feet stayed warm I think we might have stayed
even longer to see “just a couple-more targets”!

Reminder: NO “Half-Moon Saturday” Star Party this
month. The next event is scheduled for 1/19/13.

Here's the schedule for January – June (7:30 pm each nite.)

Jan. 19	Feb. 16
Mar. 16	April 20
May 18	June 15

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

December Observing:

OBSERVING HIGHLIGHTS FOR DECEMBER, 2012 AT CAPE COD:

2013 MAY BRING A VERY SPECIAL COMET!

We may have a very special Christmas present... *next* year! Back in the October issue we mentioned the possibility that a new comet, C/2012 S1 (ISON), had been discovered that *could*, maybe late next year, become a very special event possibly brightening to magnitudes -11 to -16 which means it might get almost as bright as our own moon.

Well, now at the end of November, 2012, our expectations about ISON should certainly *not* diminish based on information in a clip in December's *Astronomy Magazine*, (Astro News column, p 16.) The clip states that "**about a year from now (it) may well become the brightest comet anyone alive has ever seen.**" The comet, available now in comet listings in SkySafari and other sky simulator systems, is now in Cancer and already bright enough (mag 19) to see in large telescopes in dark sky areas. Now 690 million km from the sun, it is expected to get as close as 1.8 million km. It is expected to be visible in medium sized scopes in dark sky areas by mid summer 2013 and naked-eye visible in late October. It might get as bright as the full moon by end year. A bonus for us: the comet is expected to be best viewable by northern hemisphere observers late next year.

We will continue updates on ISON on a regular basis in 2013.

As you will see shortly, December, 2012 provides a cornu-

copa of goodies for night sky enthusiasts.

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

EARTH'S WINTER SOLSTICE

arrives at 6:12 a.m. EST on December 21. This marks the moment when the Sun lies farthest south in the sky and appears lowest at local noon for Northern Hemisphere observers. From this date on you can begin to look forward to longer and eventually warmer days.

PLANETS and ASTEROIDS:

- **Jupiter** reaches opposition on December 2nd, the midpoint of its reign over the sky this season. Nicely high in the sky for much of the night, the king of planets will appear at its largest (49") and brightest (mag -2.8) on that date. Don't forget the Galilean moons; see our resource listings below for moon locations for any date and time.
- Dim **Mars** is moving eastward right now and so appears "stationary" at roughly the same altitude every night and sets about two hours after the sun all month (see uniform setting times in our Mooncusser's Almanac table below.)
- **Neptune** and **Uranus** continue to be good telescope and (Uranus) binocular targets this month. If you have an interest, look now; by end month, the two set at 8:32 and 11:24 respectively so will be "in the sun" before too much longer. Neptune is mag 7.9 at midmonth, Uranus is a brighter 5.9 (try binoculars!)
- **Saturn, Venus, and Mercury** lie visually "near" each other all this month. *The three line up in especially spectacular fashion* 45 minutes before sunrise on December 11. As shown in this photo from *Astronomy Magazine*, all three then line up with Venus clipping a 27.3day old sliver crescent moon.



This month is a special time for viewing **Mercury** just before dawn; at greatest western elongation (“sideways” distance from the sun) on December 4th, Mercury lies 21° separated from our star and rises almost two hours earlier. By months end it rises only 37 minutes before the sun.

- As shown in the sky map on page 6 of this *First Light*, big asteroids **Ceres** (diameter 590 mi.) and **Vesta** (diameter 355 mi.) are nicely positioned in the sky in constellations Gemini, Auriga, and Taurus from now through *at least early April!* Through this period the two are bright enough for small scopes and even good binoculars showing at magnitudes from 6.7 to 8.2 through the period. Ceres is at opposition on December 18th (in the sky “all night”); Vesta at opposition on December 9th. Do make these your evening companions for these some five months and watch them move through the sky from night to night and week to week.

BEST METEOR SHOWER OF THE YEAR

The Geminid meteor shower peaks the night of December 13/14, when observers could see up to 120 meteors per hour. With such an expected meteor count, the moon being new that night, and the radiant (near Castor) high in the sky as early as early as 10pm, this could be a most spectacular evening. If, perchance, you cannot observe on peak night,

look to the sky for “shooting stars” anytime between December 4th and 17th; the debris field causing the shower is quite deep and meteors can show up anytime during those 13 days.

Resources for the moons of Saturn and Jupiter:

The December *S&T*, page 52, gives the positions of Jupiter’s main moons at any date and time during the month. *Astronomy Magazine* for December provides similar information on page 40. A chart on page 51 of the *S&T* issue lists the times and dates during the month for special phenomena of the moons such as occultations behind the planet, reappearances, etc.

ONLINE: 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.

Minima of Algol: What better way to introduce yourself to the wonder and fun of observing variations in the brightness of “variable” stars that watching the dimming or re-brightening of the star Algol during a prime time occurrence of its dimming about once every three days.

This month, a minimum of brightness is reached at 9:18pm EST on Tuesday, December 11th; a minimum also occurs in prime time at 6:07pm EST on Friday, December 14th. There is minimal moonlight both nights. Please see the text in Reference 3 for more information.

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.

Mooncusser’s Almanac and Monthly Alert¹ **DECEMBER 2012**

Object	Dec. 1 (EST)	Dec. 15 (EST)	Dec. 31 (EST)
Sun	R: 06:49 S: 16:11	07:01 16:11	07:07 16:20
Moon	R: 18:56 S: 09:15	09:00 19:07	19:45 08:59
Mercury (dawn)	R: 05:02 S: 15:17	05:33 15:08	06:30 15:30
Venus (predawn)	R: 04:24 S: 14:50	04:58 14:45	05:34 14:51
Mars (early evening)	R: 09:14 S: 18:16	09:00 18:13	08:39 18:14
Jupiter (all nite)	R: 16:10 S: 07:01	15:08 05:57	13:58 04:45
Saturn (predawn)	R: 03:55 S: 14:38	03:07 13:46	02:10 12:47
Uranus (evening)	R: 13:06 S: 01:22	12:11 00:26	11:08 23:24
Neptune (early evening)	R: 11:46 S: 22:27	10:51 21:33	09:49 20:32
Pluto (early evening)	R: 08:41 S: 18:20	07:48 17:27	06:47 16:26

Moon Phases, December, 2012

Last QTR Thursday, December 6th, at 10:31am EST

New Moon Thursday, December 13th, at 3:42am EST

Note: Moon at perigee Dec 12. **HIGH TIDES**

First QTR Thursday, December 20th, at 12:19am EST

Full Moon Friday, December 28th, at 5:21am EST

**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**

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
First Light Editor	Peter Kurtz	508-255-0415

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

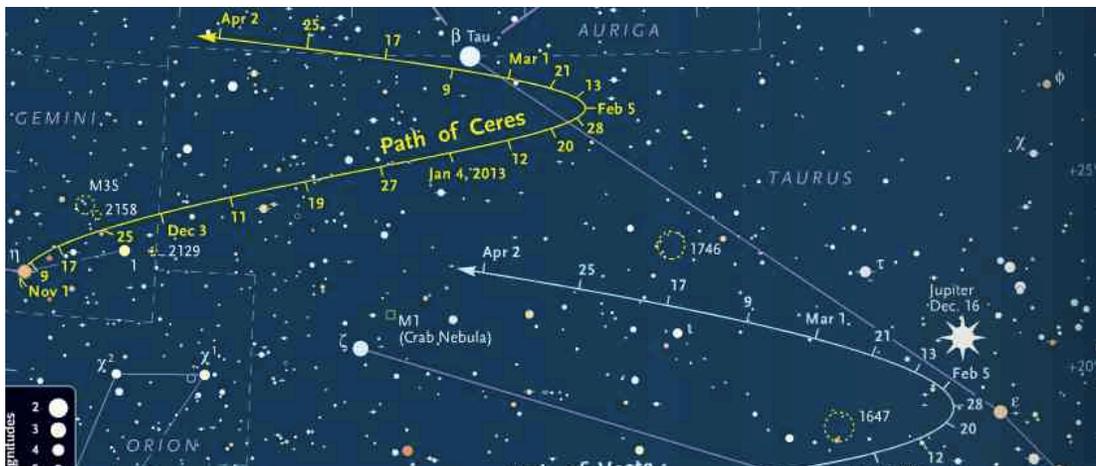
Cape Cod Astronomical Foundation

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.
- 4) One Minute Astronomer on Comet C/2012 S1 (ISON) <http://www.oneminuteastronomer.com/6713/c2012-s1-ison/>
- 5) Here is the web address for Astronomy Magazine's online "The Sky This Month" online for December: <http://www.astronomy.com/News-Observing/Sky%20this%20Month/2012/10/Jupiter%20dazzles%20all%20night.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) Jon Greenberg's obit, Cape Cod Times (11/26/12):
<http://www.capecodonline.com/apps/pbcs.dll/article?AID=20121126/OBITS02/211260304>



Ceres & Vesta in Gemini, Auriga, Taurus, Nov 2012 thru April 2013

Magnitudes 6.4 to 8.6 during period.

Clear copy of map in December S&T, page 50