



First Light

The Newsletter of the Cape Cod Astronomical Society



October, 2012

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Next Monthly Meeting: is Thursday, October 4th at 7:30pm in the D-Y Library. Dr. Michael Hunter, President of CCAS and Director of our Observatory will present "A Tour of Southern Skies". Public welcome. Please join us.

Reminder: The next "Half-Moon Saturday" Star Party is scheduled for October 20th. More information on page 3.

In this issue: New Members /Dan Burbank / "Walking on Air" / Outreach Opportunity / Star Party Dates and Time / Very Special Comet? / Targets for Oct. 20 SP / Jupiter Season / Blue Planets / Moon Strongmen / Asteroids / Meteor Showers

Bright New Stars:

We are pleased to announce that six Cape Codders have joined CCAS since July 1. Here's some introductory information on the most recent three folks.

We wish to welcome Jim Coelho of Harwich, James Rogers of South Dennis, and Gus Romano of Harwich to membership in CCAS. All three joined us at the September meeting.

Jim has been interested in Astronomy for many years. He noted in an email that he has learned many fascinating facts from "the friendly and knowledgeable members" in just two visits and is looking "forward (and upward) to an exciting, learning and sharing experience." Jim also offered these very positive bits of philosophy about our hobby in his note to *First Light*:

"It's awesome just to be able to glimpse the galaxies, nebulae, and planets of the Night Sky."

"We are only here for a Blip of a Nano Second (a new unit of time) and we have discovered many wonderful ideas about this vast and miraculous universe!"

Welcome aboard, Jim!

Gus Romano is recently retired from a career managing IT customer support for a company in the pharmaceutical industry, and moved recently with his wife to permanent residence on the Cape. He "always had an interest in technology and built a 10 inch Dobsonian in the early 80s that, unfortunately, has been collecting dust for the last 15 years." Interests other than astro include bird photography. He has an old B&L/Criterion mirror lens, which he converted to a spotting scope: "pretty mediocre but manages

60x which is okay for birds." He is looking forward to getting back into astronomy. Welcome aboard, Gus!

Special thanks to Jim Coelho who, in response to an email we sent out asking for help, has volunteered to drive a prospective new member to CCAS meetings beginning in October. Thank you, Jim! And thanks to Charles Burke who also volunteered.

Jim Rogers: please send some information about yourself to info@ccas.ws so we can become better acquainted in a future issue of *First Light*. Thanks.

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:

Many thanks to Dr. Dana Levy of the NY State R&D

Authority for his excellent presentation, “Biomimicry: How Advice from Nature’s Success Stories can Expedite Innovation” at our meeting on 6 September. Biomimicry, a problem-solving approach at the intersection of biology and engineering, is now coming of age. It refocuses us from thinking about what we can extract from Nature, to what we can learn from and value in Nature. Biomimicry seeks to copy time-proven streamlined shapes, materials, or processes found in Nature. It is a rapidly growing “brainstorming” process that inventors are using to create new technologies. It has given us efficient windmill blades shaped like whale flippers, new anti-microbial/disinfectant-free materials for sanitizing based on the texture of shark skin, and specially constructed wetlands that filter and purify water using processes that Nature has already perfected. See this link for more information: <http://www.asknature.org/>

Dr. Michael Hunter, President of CCAS and Director of our Observatory, will present “**A Tour of Southern Skies**” at our meeting on October 4th. Besides having skill in developing “virtual” presentations of the sky and its targets, Mike knows whereof he speaks having visited family in Australia several times. Mike will present a review of some of the largest and easiest to observe viewing targets in the southern hemisphere using color images from professional astrophotographers. This should be a most informative and interesting presentation for fans of the evening sky.

At our meeting on November 1st, Stan Rivers, Vice President of CCAS will present “**Electrical Power for the Amateur Astronomer**.”

Dan Burbank, Lifetime Member of CCAS and former editor of *First Light*, former Coast Guard Rescue team member at Air Station Cape Cod, former two-time Shuttle Astronaut and Commander of a recent mission on the International Space Station, has agreed to present a talk, “**Life and Science Aboard the International Space Station**” at our meeting on December 6th (severe winter weather alternate date: January 3rd.)

Dan will describe his experiences aboard the ISS, with emphasis on earth and astronomical photography. (Most of us remember the photo of Comet Lovejoy “over thunderstorms” he sent *First Light* from the ISS several months ago.)

Special arrangements are being made with the D-Y high school administration to accommodate a good audience at this special event.

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 home observatory.

Most of you have seen the Dan Burbank photo in an earlier issue of *First Light* showing Comet Lovejoy over Tasmanian thunderstorms from the ISS. Well, just recently,

Lee Labarre found a NASA video of many more shots and videos taken from that same ISS mission, Expedition 30. Here’s the link to the video and an overview Lee sent us: http://www.nasa.gov/multimedia/videogallery/index.html?media_id=141042671

Walking On Air

This video features a series of time-lapse sequences photographed by the Expedition 30 crew aboard the International Space Station. Set to the song “Walking in the Air,” by Howard Blake, the video takes viewers around the world, through auroras, and over dazzling lightning displays: Some of the images: Stars over the southern United States / US west coast to Canada / Central Europe to the Middle East / Aurora Australis over the Indian Ocean / Storms over Africa / Central United States / Midwest United States / United Kingdom to Baltic Sea / Moonset / Northern United States to Eastern Canada / Aurora Australis over the Indian Ocean / Comet Lovejoy / Aurora Borealis over Hudson Bay / United Kingdom to Central Europe

Thanks to Mike Hunter, our Program Chair, for lining up these very special topics and speakers and to Mike, Stan, Dan, and Lee 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!

Outreach Opportunity:

Susan M. Griffin, Activity Coordinator at the Barnstable Senior Center sent an email to info@ccas.ws inquiring:

Might some CCAS members volunteer to speak at the Senior Center in Hyannis about CCAS and/or astronomy topics?

MEMBERS, PLEASE CONTACT Susan and volunteer to give a talk. She can be contacted at 508-862-4761 or susan.griffin@town.barnstable.ma.us. The Senior Center is located at 825 Falmouth Rd. (Rt.28) in Hyannis. Please let *First Light* know if you schedule a talk with them. 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/ccasminutes090612.pdf>

From the Dome:

Restatement of Dates for “off-season” Star Parties
 (correcting the date for November and starting time for all):
 “Quarter-Moon Saturdays” (Saturday each month closest to
 the first quarter moon*); **7:30pm**; as follows:

Sept. 22	Oct. 20
Nov. 17	No SP in December
Jan. 19	Feb. 16
Mar. 16	April 20
May 18	June 15

**DON'T MISS OUR STAR PARTY ON
 OCTOBER 20TH. SEE THE COLUMN TO
 THE RIGHT FOR A SUMMARY OF SOME
 OF THE GREAT VIEWING TARGETS
 WE'LL HAVE THAT NIGHT.**

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

2013 MAY BRING A VERY SPECIAL COMET!

Brian Ventudo, creator of the regular online feature “One Minute Astronomer”, reported recently that we may be able to look forward to a **spectacular comet**, maybe even better than 1996’s Hale-Bopp, toward the end of next year. For sure, something to look forward to.

The comet, C/2012 S1 (ISON), was discovered by a Russian team of astronomers at the International Scientific Optical Network (ISON). At magnitude +18, the comet is currently beyond the reach of amateur telescopes. But the orbital elements have been calculated, and they show the comet will come amazingly close to the Sun— just 2 million km— on November 28, 2013. In mid-November through December 2013 and into January 2014, the comet may reach negative magnitudes, possibly as bright as -11 to -16, which means it might be visible during the day!

Because the composition is not exactly known, each comet is unpredictable. So no one can know for sure how bright this comet will become, or if it will survive its close encounter with the Sun. Still, this is promising news. And this comet, unlike many recent bright comets, should be visible at mid-northern latitudes.

So get your binoculars, telescopes, and cameras ready. Next year should be a good one for bright comets, perhaps the best year since 1996 when Comets Hyakutake and Hale-Bopp graced our skies.

October Observing:

SPECIAL TARGETS FOR OCTOBER 20TH STAR PARTY!

Besides viewing Jupiter and its moons, Uranus and Neptune, favorite deep sky fuzzies or a special asterism, participants at CCAS’ October “Half-moon Saturday” Star Party at 7:30pm on October 20th can watch the mag 0.7 Ariane rocket body cross the entire sky over four minutes from east to west (starts at 8:29:28 EDT,) see meteors from either the Orion or Taurid radiant, view the “strong men” craters on the near half moon and take in our second largest asteroid, Pallas, that same night. More on these phenomena follows.

OBSERVING HIGHLIGHTS FOR OCTOBER, 2012 AT CAPE COD:

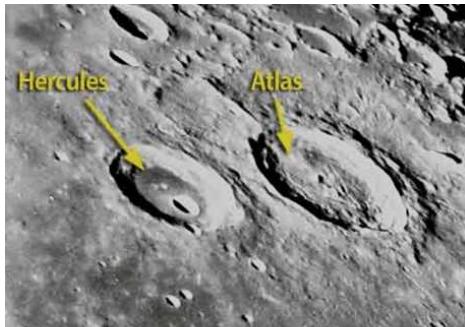
Please consult the October issues of *Sky and Telescope* (pp 43-58), *Astronomy Magazine* (pp 36-43), and *Astronomy Magazine Online* (See Ref 5) for more information on these highlight topics and others.

PLANETS:

Jupiter season begins in earnest this month with the planet rising at 9:30pm EDT on October 1 and as early as 7:26pm on the 31st. The planet is big (43” diameter) and bright (mag -2.5) and nicely positioned not far from Aldabaron, the Hyades, and the Pleiades. Viewing the big planet and its moons gets even better next month when it is even higher in the sky during prime time viewing.

Both **Neptune** (mag 7.9) and a bit to its east, **Uranus** (mag 5.7) are nicely positioned in our southern sky for evening viewing in October; both sit below Pegasus near or above 30° altitude for us at Cape Cod from 9pm until midnight most of the month. Don’t miss the blue planets this month! Uranus is bright enough to see easily with binoculars (can you see the blue? blue-green?) and on a dark night might be visible to the naked eye.

MOON TARGETS:



Hercules and Atlas with “sunset” sidelighting. On Oct 20, we will see them with “sunrise” sidelighting; (shadows on the right or west side.)

Since our “off-season” monthly star parties are scheduled for Saturdays near the “1st quarter moon” each month, it is more than appropriate for us to highlight special targets in the terminator (sunrise side-lighting) for our waxing half moon this month on October 20th. Our targets of choice are Atlas and Hercules, or, as a brief in the October *Astronomy Magazine* notes, the two mythological strongmen. Hercules sports a dark lava-filled floor punctured by a modest-sized crater (Hercules G) with cleanly sharp edges. The older Atlas has a wrinkled floor and a jumble of central peaks typical of larger craters. On October 20th, sunrise time on the moon, we will see shadows on the east side of the central peaks in Atlas, and deep shadows on the east side of the main and subcraters in both targets.

ASTEROIDS:

9.7-magnitude Parthenope sits a bit west of τ-Aquarii all during October. It is moving almost directly away from us diminishing in brightness to 10.5 at months end. It should be easy to view at altitude above 30° from 8pm to about 11pm each night this month. Curious how it “sits still.”



Path of Pallas in October. Bright star at top is τ-ceti

Maybe the best asteroid target in prime time in October is our second largest major asteroid, mag 8.3 Pallas. Pallas sits in the same part of the sky as targets Uranus and Neptune at about 30° altitude at 10pm for much of October. More specifically, Pallas sits just west of the whale’s tail. Pallas is our #2 asteroid, 325 miles wide making it a bit larger than #4, the brighter Vesta. Pallas is not as reflective as Vesta, but, because of its size, is easy to see in almost any telescope.

Both Ceres, mag 8.5 and Vesta, mag 7.7 live a bit west of Gemini this month, rising a bit after prime viewing time. Look forward to better viewing of these two in November and beyond, as each month raises them higher above the horizon at prime time with Gemini and Orion. See the article and finder charts on page 51 of October’s *S&T* if you wish to try this month or next.

Mooncussor's Almanac and Monthly Alert ¹ October 2012			
Object	Oct. 1 (EDT)	Oct. 15 (EDT)	Oct. 31 (EDT)
Sun	R: 06:38 S: 18:21	06:53 17:58	07:12 17:36
Moon	R: 18:51 S: 08:30	07:24 17:51	18:39 09:11
Mercury (evening)	R: 07:59 S: 18:54	08:52 18:43	09:22 18:29
Venus (predawn)	R: 03:10 S: 16:47	03:38 16:35	04:12 16:18
Mars (evening)	R: 10:43 S: 20:19	10:39 19:57	10:33 19:36
Jupiter (evening)	R: 21:30 S: 12:25	20:34 11:29	19:27 10:21
Saturn (evening)	R: 08:19 S: 19:20	07:32 18:29	06:39 17:31
Uranus (evening)	R: 18:11 S: 06:31	17:15 05:33	16:10 04:27
Neptune (evening)	R: 16:48 S: 03:30	15:52 02:33	14:48 01:29
Pluto (evening)	R: 13:36 S: 23:16	12:42 22:21	11:40 21:19

Resources for the moons of Saturn and Jupiter:

The October *S&T*, page 52, gives the positions of Jupiter's main moons at any date and time during the month. *Astronomy Magazine* for October provides similar information on page 40. A chart on page 53 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.

METEOR SHOWERS:

The **Orionid meteor shower** peaks the night of October 20/21, that is, the night of our October Star Party. This annual shower typically produces up to 25 meteors/hour at peak.

A second meteor shower event takes place over several days beginning end October. Will there be a return of the **Taurid "swarm"** this year? Will it be humdrum or spectacular? The Taurid "swarm" is predicted to take place every 61 years and 2012 is the 61st year since the last. Bright meteors could appear from 10/28 to 11/11. The last Taurid "swarm" took place in 1951 and produced *many fireballs brighter than Venus!* Take a minute and "look up" at night toward the end of the month.

Minima of Algol: What better way to introduce yourself to the wonder and fun of observing variations in the brightness of "variable" stars than 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 8:21pm EDT on Tuesday, October 9th; a minimum also occurs in prime time at 10:03pm EDT on Monday, October 29th. 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.

Moon Phases, October, 2012

Last QTR Monday, October 8th at 3:33am EDT

New Moon Monday, October 15th at 8:03am EDT

[Moon also near perigee; High Tides!]

First QTR Sunday, October 21st at 11:32pm EDT

Full Moon Monday, October 29th at 3:49pm 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

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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.
- 4) One Minute Astronomer on Comet C/2012 S1 (ISON) <http://www.oneminuteastronomer.com/6713/c2012-s1-isom/>
- 5) Here is the web address for Astronomy Magazine's online "The Sky This Month" online for October:
<http://www.astronomy.com/News-Observing/Sky this Month/2012/08/Jupiter grabs the Bulls horns.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>