



First Light

The Newsletter of the Cape Cod Astronomical Society



April, 2014

Vol. 25 No. 4

Berklee School of Music Students Visit our Werner Schmidt Observatory



Thanks to Student Angelina Park for working with us to set up a visit of her "Astronomy Club at the Berklee College of Music" student group to The Schmidt on March 17. More than 12 students met with six members of our Observatory Staff and shared discussion and observing on a night that, for a change, had very clear skies. On a *very* cold night, the students also enjoyed viewing videos of past observations and various items in our collection of goodies in our "warm" room. We look forward to visiting with this dynamic student group again as soon as possible.

Kudos to student Mandy Kowara for taking this remarkable cell phone photo of Jupiter and four of its moons lined up lower left (three) to upper right (one).

Next Monthly Meeting: is Thursday, April 3rd, at 7:30pm: CCAS members Larry Brookhart, (Harwich Observatory Director), and Gus Romano will present "**Harwich Observatory**" bringing us up to date on developments at the school over the past year. Public welcome. Please join us.

Reminder: The next once-a-month "Quarter-Moon-Saturday" Star Party takes place on April 5th at 7:30pm.

In this issue: / Berklee Music Student Visit / New Member / Relief at the Dome! / Lunar Eclipse / Hyades Occultations / Mars and big Asteroids at Opposition / Lyrids / What is Astronomy to Me? / Stargazing Simplified /

Bright New Stars:

We are pleased to welcome Kevin Hocker of West Yarmouth and North Andover to CCAS membership. Kevin gets down to the Cape when his life on the mainland permits. Kevin volunteered: "I have been an amateur astronomer as long as I can remember. I grew up on the south shore of Massachusetts and spent the summers on Cape Cod with my cousins in South Yarmouth. My family now has a home in West Yarmouth but I don't get down there that often - maybe only two or three times each summer. I have two telescopes - a 12" dob and a 6" -Cassegrain. I am a member of two astronomy clubs north of Boston: NSAAC (North Shore Astronomy Club) and GAAC (Glouster Area Astronomy Club.)

Kevin has already volunteered a list of good speakers from meetings at his clubs on the mainland and has offered to give CCAS a presentation on those clubs and their activities. Hopefully that can be scheduled for one of his visits to the Cape this summer. Welcome aboard, Kevin.

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 Observatory Director Joel Burnett for his excellent presentation, "State of the Observatory", at our March 6th meeting in the D-Y library. We learned a lot about many different things from Joel that night: his quest to photograph auroras in Greenland, a history of our Observatory, efforts he and the Observatory Staff make to reach out to schools, scouts, etc., and scientific work going on at the Dome. A highlight for the night was a physics lesson: "What is a Star?". Joel covered many subjects including brightness, magnitude, color and luminosity. He taught us something of distance calculation, blackbody radiation, spectra, mass, how stars generate energy, and how they are born and die. He ended with an update on upcoming events at the Schmidt.

CCAS members Larry Brookhart, (Harwich Observatory Director), and Gus Romano will present "**Harwich Observatory**" at our April 4th meeting. Larry has been

developing an observatory at the Harwich elementary school (now part of the Monomoy Regional School District) for several years; Larry and Gus will update us on capabilities and activities.

At our May 1 meeting, Peter Kurtz will present "**Highlight Capabilities of the (\$2.99!) Sky Simulation Program and Telescope Control Program ,Sky Safari**"; Mike Hunter will discuss a special aspect of using this powerful app: "**The Use of Sky Safari Pro and SkyFi in the Acquisition and Evaluation of Astrophotographs**". As always, public welcome.

Thanks to Mike Hunter, our Program Chair, for lining up these special topics and speakers; we also thank the Observatory Staff, Mike, Larry and Gus 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 or to info@ccas.ws . For sure he will follow up.

We are looking for speakers for August and later meetings in 2014. Please let us know if you have any leads...

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

Reminder: The 2013 Dues Cycle began July 1. As of now 45 of 62 members (72%) are paid up (does not include 16 active members who are "permanent", spouses, students, etc.)

If you have not yet participated in this cycle, please bring your check to the April meeting or mail to CCAS, 34 Ridgewood Rd. Orleans MA 02653. Thank you.

Relief Comes to The Schmidt Observatory!

Arrangements are nearly complete for observers at the Werner Schmidt Observatory to have access to a restroom! Thanks to Sandy Cashen, Facilities Administrator at D-Y, and Joel Burnett, our Observatory Director, for working this out. The facility we will use is located in the D-Y Maintenance Building near our Dome. Procedures to deal with the security system in that building are being worked out.

Minutes:

The minutes of our March meeting are on our website; click on the "Minutes" button at www.ccas.ws or go to <http://www.ccas.ws/minutes/ccasminutes030614.pdf>

From the Dome:

The next "Quarter Moon Saturday" Star Party takes place at The Schmidt on April 5th, at 7:30pm. Future dates are: May 3rd and June 7th. [Star Parties in May and June](#) will begin at 8:30pm rather than 7:30pm because of later and later sunsets.

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

April Observing:

Mooncusser's Almanac and Monthly Alert ¹			
APRIL 2014			
Object	APRIL 1 (EDT)	APRIL 15 (EDT)	APRIL 30 (EDT)
Sun	R: 06:23 S: 19:05	06:00 19:21	05:38 19:37
Moon	R: 07:31 S: 21:09	19:39 06:20	06:46 20:58
Mercury (dawn then sun)	R: 05:47 S: 17:10	05:44 18:20	05:52 20:05
Venus (morning)	R: 04:31 S: 15:10	04:19 15:30	04:03 15:54
Mars (evening)	R: 19:42 S: 07:06	18:21 05:57	16:58 04:43
Jupiter (evening)	R: 11:17 S: 02:24	10:28 01:35	09:39 00:43
Saturn (late night)	R: 22:19 S: 08:28	21:20 07:31	20:15 06:28
Uranus (sun then dawn)	R: 06:28 S: 19:06	05:35 18:15	04:38 17:20
Neptune (pre dawn)	R: 05:06 S: 16:02	04:11 15:09	03:13 14:12
Pluto (late nite)	R: 02:10 S: 11:46	01:15 10:51	00:15 09:52

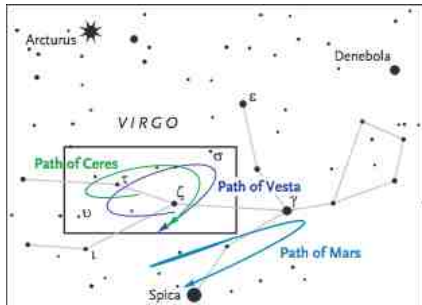
Please see resources in April's *Astronomy Magazine*, pp 36-43 and *Sky and Telescope*, pp 43-58, and Reference 5 for good guides to the April sky. See p 41 in *Astronomy*, and pp 52 in *Sky and Telescope*, and also reference 6 for positions of the moons of Jupiter for April; timings for special phenomena of the moons of Jupiter (shadow transits, occultations, etc.) and timings for "the great Red Spot" of Jupiter can also be found on pp 51-52 in the *S&T*.

Here are observing highlights for April at Cape Cod:

- **A very new crescent moon will pass over (ocult) three of the northernmost bright stars in the Hyades open cluster in Taurus** the night of April 3. This event will take place in Prime Time, beginning just a bit after 10pm, and if the sky is clear, will be easily visible without optical aid; for sure with binoculars or better. Mag 3.7 δ 1-Tauri will wink out about 10:07pm; its eastward cousin, mag 4.8 δ 2 will be snuffed out about 10:47pm, and more-to-the-north δ 3, mag 4.3 may (depends on your exact location) be put out about 11:33pm. This last may be a close miss; will be interesting to see. If you have binoculars, you will be able to see the moon occult other dimmer Hyades stars farther to the east after the δ 3 event. See the story in April's *S&T*, p 50, and also <http://www.lunar-occultations.com/iota/bstar/bstar.htm> for more information
- There will be a **total eclipse of the full moon** for Cape Codders in the hours after midnight April 14-15. You will see the first hint of a penumbral shadow at 1:20am, and the first shadow of the umbra, at 1:58am. Totality begins at 3:07am and ends at 4:25am. Don't miss it! Grab your camera!
- **Mars** is at its season's best this April; at opposition on April 8. Six days later it is as close to the earth as it will get this cycle. It will appear 15.2" in diameter then and stay close to that most of the month. You should be able to see many features in a good telescope on a good seeing night... for sure the polar cap.
- **Jupiter and its Moons** continue to star in prime time in April.
- Big asteroid season: **Vesta** is at opposition on April 13th as is **Ceres** on April 15th, at which time these asteroids shine in Virgo at magnitude 5.8 and 7.0, respectively, - their brightest for 2014. Although Vesta is just 60% Ceres's diameter, it appears much brighter because it's 40 million miles closer to Earth and the Sun, and because its surface

reflects more of the light that falls on it. A detailed finder chart can be found at:

http://media.skyandtelescope.com/documents/Web_Ceres_Vesta_2014.pdf - page=1&zoom=auto.0.544



Ceres and Vesta wander in Virgo January-July, 2014

- There will be a weak Lyrid meteor shower during the period 16-25 April peaking at about 18/hour on the 22nd. We say “weak” because the moon will be nearly full. Keep the shower in mind during the whole period; you never know when a really noteworthy “shooting star” will occur.

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

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 are four evening, or mid night occurrences of the Minima of Algol at Cape Cod during April: Tuesday, April 1, at 7:04pm; Sunday, April 6, at 10:43pm, Friday, April 18, at 10pm; and Monday, April 21, at 10:49pm.

Using binoculars or a small telescope, try to begin viewing two to three hours before the minima to watch the dimming and up to two to three hours after the minima to watch the brightening.

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

Moon Phases, April, 2014

First QTR Monday, April 7th at 4:31am EDT

Full Moon Tuesday, April 15th at 3:42am EDT (eclipse)

Last QTR Tuesday, April 22nd at 3:52am EDT

New Moon Tuesday, April 29th at 2:14am EDT

What Is Astronomy to Me?

The enthusiasm for our hobby demonstrated by our visitors from Berklee School of Music on March 17 prompts the inclusion in this issue of some quotes about astronomy collected by the One Minute Astronomer** some months ago.

Some of us love the beauty of the sky. Some love the science and discovery. For some gazing at the stars is a spiritual experience. Some of us cherish an opportunity to tinker with equipment or conquer new horizons in elaborate astrophotography techniques.

Why are you an astronomy buff?

Maybe you will identify with one or another of these points of view from several famous practitioners....

ONE MINUTE ASTRONOMER** FAVORITE ASTRONOMY QUOTES (12/31/13):

Astronomy compels the soul to look upwards and leads us from this world to another. - Plato

To confine our attention to terrestrial matters would be to limit the human spirit. - Stephen Hawking

I have... a terrible need... shall I say the word? ... of religion. Then I go out at night and paint the stars.

- Vincent van Gogh

Astronomy is useful because it raises us above ourselves; it is useful because it is grand. It shows us how small is man's body, how great his mind, since his intelligence can embrace the whole of this dazzling immensity, where his body is only an obscure point, and enjoy its silent harmony. - Henri Poincare

We live in a changing universe and few things are changing faster than our conception of it. - Timothy Ferris

If there is anything that can bind the heavenly mind of man to this dreary exile of our earthly home and can reconcile us with our fate so that one can enjoy living, then it is verily the enjoyment of the mathematical sciences and astronomy. - Johannes Kepler

The good thing about science is that it's true whether or not you believe in it. — Neil deGrasse Tyson

Every atom in your body came from a star that exploded. And, the atoms in your left hand probably came from a different star than your right hand. It really is the most poetic thing I know about physics: You are all stardust. - Lawrence Krauss

We had the sky, up there, all speckled with stars, and we used to lay on our backs and look up at them, and discuss about whether they was made, or only just happened. -Mark Twain, *Huckleberry Finn* [We saw this one in *First Light* a few years ago!]

It is far better to grasp the universe as it really is than to persist in delusion, however satisfying and reassuring. - Carl Sagan

We are all in the gutter, but some of us are looking at the stars.- Oscar Wilde

**See more at: <http://oneminuteastronomer.com/9380/great-astronomy-quotes/#sthash.kQZGqP6k.dpuf>

Stargazing Simplified

Along lines not that far removed from several of the ideas preceding, we wish to introduce a wonderful little article printed in April's *Sky and Telescope*, p39, "Stargazing Simplified" by James Mullaney. Mullaney does most of his observing through a simple 3" achromatic spotting scope, which, as he says, "is intended for nature study such as bird watching. It has a fixed magnification of 30x – no fiddling with eyepieces in the dark or deciding which to use" and so on.

Mullaney provides an overview of the many observing targets in the night sky that are most beautiful at 30x. If you are a binocular observer or do astrophotography with smallish telephoto lenses, you will enjoy perusing the author's selection of targets. His list is also a very excellent "starter list" for people new at amateur observing.

If I am correct, Gus Romano is one of our members who enjoys using a spotter scope for observation. Gus, if I have that right, take a look at this article in *S&T* and maybe send us ideas on your favorite spotter scope targets.

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 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 April:

<http://www.astronomy.com/magazine/sky-this-month/2014/02/mars-reaches-its-peak>

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>
