



First Light

The Newsletter of the Cape Cod Astronomical Society



June, 2010 **Vol.21 No. 6**

- **Next Monthly Meeting:** is Thursday, June 3rd at the DY Library. Program notes below. If we are blessed with a clear night, and interest is sufficient, observing from the Schmidt will follow the meeting. Please see the moving banner and the tail of the rocket on our website's home page for upcoming speakers and topics.
- **Star Parties** open to all members and the public will resume on Thursdays *this month*. See the story on page 1 of the April First Light or consult the "Green Box" on our website for further information. Contact info@ccas.ws or Mike Hunter, Observatory Director, if you wish to set up a special Star Party for your group during the winter or spring months. MEMBERS, particularly newly joined: we would like to provide you an opportunity to observe. If you would like to schedule an evening at the Schmidt, contact us and we will try to schedule something for you soon.
- **CCAS in Print:** See the writeup on our Society in "Making Friends" by Joan Harrison on page 7 of the June edition of *Prime Time Cape Cod*.
- **Astro Question of the Month; maybe of the Year!:**
 - See page 4.

Bright New Stars:

We like to welcome new members to 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).

Thank You! :

Thanks to Charlie Burke, our Secretary, for his overview of Hugh Blair-Smith's presentation at our May meeting. Extract below.

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

If you are a regular contributor, thank you very much!

CCAS Events

"Star" Gazing with Girl Scouts at Camp Favorite:
Mike Hunter, Jon Greenberg and your editor visited a gathering of Brewster Girl Scouts (and visiting scouts from New Hampshire) at the Girl Scouts' Camp Favorite in

Brewster on Friday evening, May 22. Because we had faint haze rather than clear skies, what was intended to be a "Star Party" with visits to Saturn, Venus, and Mars and favorite star targets turned out to be limited to "Wow" looks at the for the most part hazy quarter moon through two small Dobsonian telescopes and 15x70 binoculars. Maybe we were disappointed but apparently not the 100 or so Girl Scouts as nearly each resulted in a new "Wow". Even though it was "just the moon" for this night, interest was strong. One girl asked a most remarkable question. (See page 4.) Each of us was also rewarded with *two boxes of Girl Scout Cookies!* Thanks to Jane Hargreaves and her colleagues and a most interesting and well-behaved group of Scouts for a great evening. Thanks also to Jon and Mike for their contribution.

The **Boy Scouts** will get their big chance on Friday, June 10th at the **Werner Schmidt Observatory**. That night Ed Swiniarski and members of the Observatory Staff will host an evening of observing for some 20 scouts coming down from their encampment in Eastham.

Many thanks to **Hugh Blair-Smith** for his presentation at our May 6th meeting. From where he left off last July, Hugh continued the story of his career in science and computer programming in support of NASA programs. Beginning with programming work for the Apollo Guidance Computer, Hugh was a player in many aspects of the fascinating story of the evolution of the United States space

program from its humble beginnings after World War II to the successes of the Apollo programs and the space shuttle, key to building the International Space Station and sending up the Hubble Telescope. Detailed accounts of Sputnik, Apollo-Soyuz and Sky Lab were given. It was interesting to follow remarkable advances in technology, from six transistor circuit boards to today's electronic devices. Finally, Hugh gave us some insight into possible future space projects, including the Space Station, Mars projects and a possible rendezvous with an asteroid. Thank you, Hugh, for an excellent presentation. Please come see us again soon.

On June 3rd, AAVSO and CCAS member **Jim Carlson** will update us on the topic: “**Studying Variable Stars**”. Jim served as CCAS Observatory Director from its inception until 2007. Jim has worked closely with The American Association of Variable Star Observers (AAVSO). AAVSO provides data for basic research. Individuals are assigned personal observing codes and make daily, even hourly, reports regarding the activity of stars as they brighten and fade. Jim will reintroduce us to this activity and review some of his past work. Jim hopes to revivify activities at our Observatory in this area in the coming months.

Dr. Larry Marschall of the Department of Physics of Gettysburg College will present an update on the search for extrasolar system planets: “**PLANET-EATING STARS AND STYROFOAM WORLDS**” at our July 1 meeting.

Until 1995, we knew of no solar systems like our own in the universe. Yet in the past few years over 400 planets have been discovered orbiting stars other than our Sun. Larry will review how this sudden flood of discoveries came about, explore some of the odd new worlds that have been studied so far, and review what we have learned about the structure and history of our own planetary system from observing these far more distant planets. 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.

At our meeting on August 5th, amateur astronomer, CCAS president, and CCAS program chairman Tom Leach will discuss helioseismology: the science studying wave oscillations in the Sun. Temperature, composition, and motions deep in the Sun influence the oscillation periods and yield insights into conditions in the solar interior. Sunspots form in areas of magnetic activity during the period surrounding solar maxima. In between these strong activity cycles, times known as solar minima, the sun's surface has very little magnetic activity.

Thanks again to Tom who continues to put together great programs for our monthly meetings. If you wish to look ahead beyond the August program, go to our website and look at the gray box just below the base of the rocket; there

you will see our “Speaker’s Bureau”: profiles on speakers and topics from now through November 4th.

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 President and Program Chairman. For sure he will follow up.

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

Giant Telescope arrives in Harwich:

Tom Leach informs us that Dr. Timothy Barker, Professor of Astronomy of Wheaton College, has donated a 32” diameter Obsession Dobsonian Telescope to the Harwich Public School System. Tom, Director of Natural Resources and Harbormaster for Harwich (as well as CCAS president!) and Larry Brookhart, CCAS member and technology teacher in the Harwich system worked together earlier this year to achieve approval by the Harwich School Committee for receipt of this donation and for housing the mammoth telescope in a vacant storage garage located in the east wall of the Elementary School. The location will be a convenient home and offer a dark area within the school grounds for use of the scope. The Harwich School’s interest in accepting the Tim Barker telescope will open a new path for students and visitors to view the dark skies over Harwich and begin to understand these wonders. The scope is presently located at the Harbormasters shop on Bank Street and will be delivered to the school early in June. Kudos to Tom and Larry for creating this opportunity for astronomy outreach for the Town of Harwich. See the complete article on Harwich’s new scope at the CCAS website at <http://www.ccas.ws/harwichtelelescope.html>

The minutes of our May meeting prepared by Charlie Burke, our Secretary, are on our website; click on the “Minutes” button at www.ccas.ws or go to <http://www.ccas.ws/minutes/ccasminutes050410.pdf>

[Please note the actual meeting date was 5/6/10. For now, this web address works. A date correction to 050610 may take place in the future.]

Executive Corner

The Executive Board exchanges ideas by email and phone on a continuous basis and now and then formally meets by conference call. Anyone wishing to offer an item to the agenda, please contact Tom, Paul, Peter or Charlie.

2010-2011 Dues are Due June 30, 2010

Members: Please plan to make your payment either by bringing to the June or July meeting or mailing directly to CCAS at PO Box 297 Harwich Port MA 02646. Thank you. .

From the Dome...

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!
Promote this objective by asking for time at the Dome!

CCAS has both 8” and 14” Dobsonian telescopes for loan to members. Currently Tom Leach is using the 14” for outreach in Harwich. Robert Tobin has the 8”. If you wish to borrow one of these ‘scopes, contact info@ccas.ws

June Observing:

SUMMER SOLSTICE:

June 21 marks the first day of summer in the Northern Hemisphere. This places the Sun at its highest point in the sky at local noon. Conversely, the ecliptic - the apparent path of the Sun and planets across the sky - hangs lowest in the sky at local midnight. The solstice marks the northernmost movement of the sun and the longest day of the year for us at Cape Cod: 15 hours 12 minutes.

Another COMET:

We talked a bit about Comet 81P/Wild, an evening comet, last month. This month let’s get up early and find naked eye (magnitude 7.9) **Comet C/2009 R1 McNaught**, worth a look predawn early in this month only. This McNaught comet will appear in the predawn NE sky on June 1 (49° alt; 82° az) below Andromeda and above Perseus; it rises at 1am. During the month it moves lower and east toward Perseus: On the 15th at 6am it is at 39° altitude, 56° azimuth; earlier in the evening it is nearer the horizon; by the 30th, it has dived down below Perseus through Auriga almost to Gemini at 6am only 14° above the horizon at az 50°.

PLANETS:

- Wait until later in the year to view **Mercury**.
- **Venus** is again available in the western sky all month: this month it will average magnitude -4.05, with 81 to later only 70% of its surface sunlit (no longer “round”) and growing in size as it catches earth on the inside track (diameter 13” at month’s beginning; 23% “larger” by month’s end.)
Venus “touches” the top edge of the Beehive star cluster, M44, in Cancer, June 19 and 21.
- **Pluto** and our largest asteroid, **Ceres**, offer finding challenges low in the southern sky during June. The

dwarf planet reaches opposition and best visibility June 25. See References 8 and 9 for more information.

Mooncusser’s Almanac and Monthly Alert¹ **By Peter Kurtz** **June, 2010**

Object	June 1 (DST)	June 15 (DST)	June 30 (DST)
Sun	R 05:08 S: 20:08	05:05 20:17	05:09 20:19
Moon	R: 23:44 S: 09:55	09:06 22:53	22:37 09:45
Mercury (dawn)	R: 04:08 S: 17:59	04:15 19:04	05:19 20:37
Venus (evening)	R: 07:27 S: 22:46	07:56 22:49	08:28 22:39
Mars (evening)	R: 11:05 S: 00:52	10:48 00:14	10:32 23:33
Jupiter (predawn)	R: 01:59 S: 13:57	01:09 13:11	00:13 12:19
Saturn (evening)	R: 13:40 S: 02:09	12:46 01:14	11:50 00:16
Uranus (midnite)	R: 01:59 S: 14:02	01:05 13:08	00:06 12:09
Neptune (midnite)	R: 00:44 S: 11:21	23:48 10:26	22:49 09:26
Pluto (evening)	R: 21:22 S: 07:14	20:26 06:17	19:25 05:17

- **Saturn** continues to star. It is visible until about midnight most of the month. As was true last month, *now* is the time to study Saturn’s moons. Consult a Saturn moon chart (reference 6) to see where the main moons will be at any date, at any time.
- If you don’t mind staying up late or getting up early to look, brilliant **Jupiter** guides you to **Uranus** early this month. The two appear closest around their June 6 conjunction, but they remain close neighbors for a couple of weeks. Jupiter blazes at magnitude -2.4, making it the brightest point of light in the morning sky; Uranus glows at magnitude 5.9. The pair should show up in one binocular or low power telescope field during the first two weeks of June (separation less than 1°; 0.5° on June 6th); Jupiter should appear about 10 times larger than Uranus.
- Really good viewing of Jupiter begins next month as Earth, on its inside orbital track, begins to catch the big planet. Of special interest: recent observations note a very significant lightening in color of the orange belt just below the equator¹⁰; something to watch over the next month or so. But even now, if you are going to

look at Jupiter, try to see the locations of its **moons**. A good finder utility is available at reference 6.

- A partial eclipse of the moon will be visible in North America on June 26th but, unless one is travelling, the event takes place too close to sunrise EDT to be of much interest to us at the Cape.

METEOR SHOWER:

In 1998 and 2004, the Boötids Meteor showers were spectacular. Because the Boötids' parent comet, 7P/Pons-Winnecke, has a 6-year period, the shower could shine again in 2010. Even though the display will be attenuated by a nearly full moon at its peak 7pm-until-midnight on June 23/24, take a look. You may be rewarded. And remember, if you can't get out at peak, keep your eye to the sky: *earth passes through some debris for a few days before and after peak.*

Once again, all of us have access to excellent summaries of interesting sky objects to be seen in the upcoming month in the print editions of both [Astronomy Magazine](#) and [Sky & Telescope](#). The websites for both magazines also offer a

wealth of information on "what's in the sky this month"^{4,5}. Both outfits also offer weekly or monthly email newsletters to help you keep abreast of what's happening. Look also on the CCAS website for other good observing guides.

Anyone having an interest in monthly [Libration and Declination Tables for the Moon](#)² or [Dates and Times for the Minima of Algol](#)^{1,3} during this month please contact your editor for information or sources.

Moon Phases, June, 2010

Last QTR	Friday, June 4 th at 6:13pm DST
New Moon	Saturday, June 12 th at 7:15am DST
First QTR	Saturday, June 19 th at 12:29am DST
Full Moon	Saturday, June 26 th at 7:30am DST

Astro Question of the Month:

During discussions on the hazy moon with Girl Scouts at Camp Favorite on May 22 (please see page 1), we talked a bit about one idea for how the moon was made eons ago: a Mars-sized object may have collided with the young earth knocking off a big chunk and the debris from earth together with debris from the colliding object coalesced, over time, to form the moon. At which point one astute young girl asked:

"So how did the hole in the earth fill in?"

If you know the answer, please email it to info@ccas.ws and we will publish the explanation in an upcoming First Light.

Got Any Local Photos Showing Light Pollution or "Good" Lighting?

Reminder: Please think about the opportunity to take photos documenting light pollution or "good" lighting as requested in last month's story "Local astronomers Aim to Limit Light Pollution". Tom Leach, our President, is working on a video portrait on the local light pollution situation⁷. Once again, Tom requests that *All interested persons send him photos which might be useful in this video story; again, local photos of GOOD light situations and, more importantly, BAD light situations. Please notify Tom directly if you have photos or let us know at info@ccas.ws.* Thank you.

Feature Articles:

No Feature Articles this Month. Get outside and look at the sky! Come to one of our Thursday Summer Star Parties this month. You might see something worth writing about for our July issue!

Coming Soon:

If more pressing matters do not intervene, we hope to soon bring you the following story promised earlier:

Most of us know that Mizar, one of the double star system Mizar-Alcor in Ursa Major, is itself a double system. There is also an unrelated field star named Sidus Ludoviciana that lurks nearby. New study has found that *Alcor* is not a single but in fact also has a partner. Next month we will review current study which uses an ancient technique Galileo used to determine that the newcomer is indeed part of the Alcor/Mizar system rather than merely an unrelated far distant star that only “looks” nearby.

Also, we are planning a story for the July issue that recounts your editor’s personal learning experience from March through May in making multiple observations of the location of the asteroid Vesta as it circled around in Leo during that period. Finding an asteroid night after night in binoculars, Dobsonian, or Schmidt-Cassegrain 8” or 16” Go To scopes (all four were used for at least one observation) presents interesting challenges and some of the highlights of “How to Do It “ will be presented.

**A PORTION OF THIS PAGE IS
INTENTIONALLY LEFT BLANK TO REMIND
ALL MEMBERS (**and FRIENDS!**) 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.



Reference Information:

- 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 2007*, and other sources. The *Observer's Handbook, 2007 and 2008*, 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 December-January 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) *Astronomy Magazine's* online The Sky This Month online feature; you can access this month and past months; <http://www.astronomy.com/asy/default.aspx?c=ss&id=84>
- 5) Current week's *Sky and Telescope* "Sky at a Glance" <http://www.skyandtelescope.com/observing/ata glance>
- 6) There is a special story on Saturn's "Amateur" Moons beginning on page 61 of the June *S & T* magazine. Full charts for Saturn's main moons in June are given on on page 62. **ALL DATES AND TIMES UTILITY FOR SATURN'S MOONS:** <http://www.skyandtelescope.com/observing/objects/planets/3308506.html>; a similar utility is available for the moons of Jupiter: <http://www.skyandtelescope.com/observing/objects/planets/3307071.html>
- 7) Tom Leach's draft video on light pollution: <http://www.youtube.com/watch?v=AkwLyD1YKzM>
- 8) Pluto: <http://www.skyandtelescope.com/skytel/beyondthepage/89002802.html>
- 9) Ceres: <http://www.skyandtelescope.com/community/skyblog/observingblog/94737944.html>
- 10) Orange band on Jupiter disappearing? <http://www.skyandtelescope.com/observing/highlights/94107139.html>