



# First Light

The Newsletter of the Cape Cod Astronomical Society



July, 2010

Vol.21 No. 7

*When I heard the learned astronomer,  
When the proofs, the figures, were ranged in columns  
before me,  
When I was shown the charts and diagrams, to add,  
divide, and measure them,  
When I sitting heard the astronomer where he lectured  
with much applause in the lecture-room,  
How soon unaccountable I became tired and sick,  
Till rising and gliding out I wandered off by myself,  
In the mystical moist night-air, and from time to time,  
Looked up in perfect silence at the stars.*

*...by Walt Whitman*

Found in *The Friendly Stars* by Martha Evans Martin, a Star Guide published more than 100 years ago.  
[Please see story on page 6]

- **Next Monthly Meeting:** is Thursday, July 1<sup>st</sup> at the DY Library. Speaker: Dr. Laurence Marschall, Professor of Astronomy at Gettysburg College. More program notes below. In order to leave plenty of time for discussion of the presentation topic, no star party is planned for July 1. (Please see the moving banner and the tail of the rocket on our website's home page for upcoming speakers and topics.)
- **Election of Officers:** will take place at our July 1 meeting. Please be sure to attend and participate.
- **Star Parties** open to all members and the public resumed on Thursdays in June, 2010. Please consult the "green box" on the home page of our website ([www.ccas.ws](http://www.ccas.ws)) for more information.
- **How do I find out if a Star Party is cancelled?** Formerly, we asked you, on the afternoon of each event, to go to our website and check to see if the green box (info on star parties) had been turned red. We are discontinuing the "turning the box red" protocol. If you want to know "Go" or "No Go" for a star party:  

For the summer season: If you see clouds on the afternoon of a star party or expect a cloudy evening, please call the observatory after 7:45 at 508-398-4765. No answer after 8 rings suggests cancellation because of clouds.
- Contact [info@ccas.ws](mailto: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.
- **Astro Question of the Month:**
  - Is every star part of a galaxy? Are there any "rogue" stars? See page 7. Find also the answer for last month's question.

## **Bright New Stars:**

Please welcome Joel Burnette to the Society. Joel is a Computer Systems Engineer living in West Yarmouth and currently a network manager for BAE Systems. At one time he lived in Titusville FL seeing, from across the river, many a space shuttle launch from the Kennedy Space Center. In 2009 he took Astronomy 101 at Cape Cod Community College with Professor Jay O'Leary to learn some basics. Joel's first discovered "us" at a star party some time ago. Joel says he enjoys Astronomy for its beauty and its ability to "trigger philosophy" (true of many of us.) "The science and math boggle my mind, but it's still fun to learn what people understand," he says. Joel is one of many of our members who are "in astronomy" not just for themselves but to introduce the wonders of the sky to children. He likes to tell the story about his daughter Amelia's first encounter with Saturn through a telescope: She was very surprised, actually gasped, and called to (his) wife Barbara, "Mama, mama...it's Saturn!" Joel attends CCAS Star Parties and Meetings and also observes through his own Orion SkyQuest 8" Dobsonian or Celestron 15x70 binoculars. Joel is looking forward to exploring the skies and sharing time with CCAS members and has expressed an interest in "helping" now and then at the Observatory. Welcome aboard, Joel, Barbara, and Amelia!

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](mailto:info@ccas.ws)).

## **Thank You! :**

Thanks to Charlie Burke, our Secretary, for his input to our overview of Jim Carlson's presentation last month. Also to Werner Schmidt for his update on progress with our 4" Televue and SBIG camera on the Losmandy mount, to Gail Smith for her report on a visit of Boy Scouts to The Schmidt, and to Mike Hunter for input "from the Dome."

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

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

## **CCAS Events**

Don't miss the opportunity to pick up the free June issue of the "alerting" magazine *Prime Time Cape Cod* available in lobbies and stores all over Cape Cod. On pages 7 and 11 you will find the story "[Cape Cod Astronomical Society;](#)

[Learn about the Stars and maybe make a friend](#)" by Joan Harrison. Thanks to Tom Leach for providing information to Joan for this article. And thanks to [Prime Time](#) and Joan for running the story. Good publicity for sure.

Following hard on the heels of CCAS members visiting a Girl Scout assembly at Camp Favorite in May, Ed Swiniarski, Gail Smith, Bernie Young and Mike Hunter introduced a **dozen Boy Scouts** and two of their leaders to the night sky **at The Schmidt** on the evening of Friday, June 11. Saturn was an early star of the show and showed well enough in both the 16" and 18" for the shadow of the rings to be clearly visible on the planet and for several moons to be seen. According to the report Gail Smith sent in: "The kids really loved it. To a person, every kid did his version of an "ooh" or "ahh". One kid called it "sick"! Two kids said it looked like a drawing. (I remember that being my impression the first time I saw Saturn... Imagine... You see pictures of Saturn your whole life and when you finally get a chance to see the real thing... it looks fake!)" Gail also reported that the kids enjoyed her laser-pointer-guided introduction to the constellations. Thanks, Ed, Gail, Bernie, and Mike for a good outreach event.

Many thanks to AAVSO and CCAS member **Jim Carlson** for his most informative presentation on variable stars and their observation at our meeting on June 3. Jim, a former Director of The Schmidt, reviewed the history of variable star observing, and provided detailed explanations of the terminology and methods used by both professional and amateur observers. Jim spoke about CCAS's former active involvement with observing variable stars with the 16 inch Meade telescope including the use of MaxImDL software ([www.cyanogen.com/maxim\\_main.php](http://www.cyanogen.com/maxim_main.php)). Information regarding light curves and reporting was given. Please visit [www.aavso.org](http://www.aavso.org) for additional information regarding variable star observing. Jim hopes to revivify activities at our Observatory in this area in the coming months.

**Dr. Laurence 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 meeting on July 1. 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 5<sup>th</sup>, 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.

On September 2nd, Werner Schmidt Observatory Director Dr. Mike Hunter will discuss building and use of innovative personal observatories. Needing an alternative to repeatedly setting up one's small or medium sized telescope on a nightly basis has prompted amateur astronomers to find ways of protecting equipment short of building a major observatory structure. A permanent dome or equivalent can be cost prohibitive, or too demanding of space. A major structure also may be prohibited by zoning regulations or at the very least require a building permit. Mike will provide examples of the many approaches a growing number of amateur astronomers have taken to protect their telescopes from the elements alternative to the building of a major structure.

Thanks again to Tom Leach, who continues to put together great programs now set up through the end of the year. If you wish to look ahead beyond the September program, go to our website and look at the gray box in the middle of the rocket; there you will see our "CCAS Lecture Series": profiles on speakers and topics from now through the end of the year.

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!

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The minutes of our May meeting prepared by Charlie Burke, our Secretary, are on our website; click on on the "Minutes" button at [www.ccas.ws](http://www.ccas.ws) or go to <http://www.ccas.ws/minutes/ccasminutes060310.pdf>

## **Executive Corner**

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

## **Election of Officers takes place at our July 1 Meeting**

### **2010-2011 Dues are Due June 30, 2010**

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

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## **Foundation News...**

Thanks to Werner Schmidt for the following update on progress that has been made in lining out the new configuration for our Televue 4" scope, the SBIG CCD camera, and our new Losmandy equatorial mount. This assembly will become our main imaging resource.

Bill McDonough, for many years Director of R&D for the Cape Cod Astronomical Foundation and a Foundation Trustee, had to resign because of the press of other activities. The Foundation asked Bernie Young to consider accepting that position through the end of the current term. Bernie accepted the nomination, and the Society membership approved his election to the position for the rest of the current term at our meeting on June 3. We will miss Bill very much and wish him luck with all his many diverse activities. We are fortunate that Bernie has agreed to take on leadership of the imaging project.

We had a fair number of problems with the electronics of the Losmandy Gemini box and the GPS attachments. Mike Renzi (a former member who uses a similar setup) and the Losmandy people have been very helpful.

While Jim Carlson has been absent from CCAF for personal reasons for some time, he now has become active in working with Bernie on the current approach to imaging. Jim's background in astronomy and imaging is of course outstanding and he will be a tremendous asset.

Our plans are to initially use the conventional SBIG Track & Accumulate Technique and then move to the potentially more precise method using a guide star.

We are now thinking of adding a small shed adjacent to the observatory to hold the Losmandy mount and some of the ancillary equipment. This might be a good project for the Cape Cod Technical High School. Something to think about.

## **From the Dome**

...From Mike Hunter, Director of The Schmidt

Summer Star Parties open to the public are scheduled for Thursdays in June, July, and August beginning at 8:30pm.

Star Parties are not scheduled for the *first* Thursday of each month which is CCAS meeting night. The Dome may be opened up after CCAS meetings when interest and weather warrant.

The first two summer star parties, 6/10 and 6/17, were clouded out. Bummer. However, the third time was charmed. Thursday, 6/24, saw thirteen guests, four observatory staff members, and no CCAS members in attendance. [Ed.: Check out the poem on page 1. Just attending meetings doesn't get it.]

The 16" behaved itself on the 24th, providing great views of Saturn and other objects in the humidity stabilized air. Two first timers, Peter Kurtz and yours truly, successfully aligned the 18" in about five minutes using only the written words of Bernie Young's operating manual. It was so easy even an Observatory Director could do it.

Bernie and Jim Carlson are making very good progress on getting the 4" TeleVue/Losmandy mount/SBIG camera setup working. They have only the last step of getting the right length of camera adapter. The mount aligns rather easily, GOTO's are quite good. I'm ready to take some pretty pictures. How about you?

We were successful in hosting a Star Party with clear skies for Boy Scouts on June 11. More information on page 2.

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**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](mailto:mamhunter@yahoo.com) or sending an email to [info@ccas.ws](mailto: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](mailto:info@ccas.ws)**

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### **July Observing:**

#### **THE MOON:**

Please check out the list of "**top 10" Lunar targets** published in the July issue of *Astronomy Magazine*, p. 58. Excellent photos and descriptions are available for the 10. This is the second such article published in *AM*. The first, an overview of 12 additional great lunar targets, was published

in October of last year and is now available online as a pdf file (at our reference 8.)

Check out the very interesting crater Aristoteles, best viewed around the 16<sup>th</sup> -17<sup>th</sup> of the month (waxing crescent about 24 hours before first quarter). Aristoteles is just above Mare Serenatis in the northeast central part of the moon. Descriptive info from Astronomy online can be found at reference 9.)

#### **PLANETS and ASTEROIDS:**

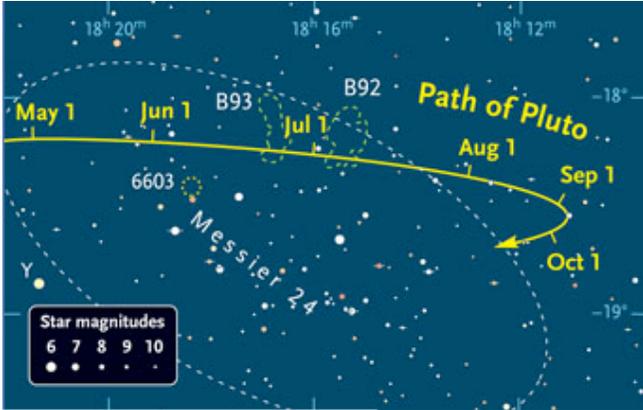
- On July 15<sup>th</sup>, about one hour after sunset, Regulus, **Venus, Mars, and Saturn** will form a pretty line over a 22% waxing crescent moon. Worth a look.
- **Venus** is growing. Venus "grows" (diameter 16" to 20") for us dramatically during July as it catches earth on the inside orbital track: 100 million miles away July 1 it is only 78 million miles away end month. At the same time, the planet becomes almost "half": during the month: the illuminated portion wanes from 71% lit to 58%.
- **Saturn** continues to star. It is visible until late evening most of the month. As was true again last month, *now* is the time to study Saturn's moons; (next month it starts to be a little low in the sky for good seeing.) Consult a Saturn moon chart (July Issue of *S&T Magazine*, p 47; also online at reference 6) to see where the main moons will be at any date, at any time.

Look for opportunities to see conjunctions among Saturn's moons. One of this month's best occurs July 11 when Rhea and Dione approach within 1" of each other. In small scopes, the two will appear to merge. Look for the same two moons about 3" apart July 17.

On July 27, Titan, Dione, Rhea (all visible in a 4" scope or better), and Enceladus (8" scope or better) all lie within 30" (less than the rings' apparent diameter) of one another. And one night later, Enceladus and Tethys sit 10" apart near the western edge of the rings while Titan lies 10" due north of Dione on the opposite side.

- **Jupiter Season Begins!** Jupiter finally makes its entrance in the eastern sky before midnight on the evening after the 4<sup>th</sup> of July. It will rise even more conveniently beginning in August. See page 47 in the July issue of *S&T Magazine* for position charts for the **Galilean moons** for each day and hour of July.
- **Jupiter and Uranus** are close neighbors during July, separated by only 4° to 6°. Both begin retrograde movement (toward the west day to day rather than the more usual eastern movement) during July: Jupiter on July 24, and Uranus on July 6. *Do you know what causes retrograde motion in the movements of planets?*
- July and August will be the best months for viewing **Pluto** from our location this year. The S&T online article found at reference 10 offers important suggestions on how to try to see this elusive planet.

You need a good 8-inch scope (or better), access to dark skies (which also means no or minimum moon,)

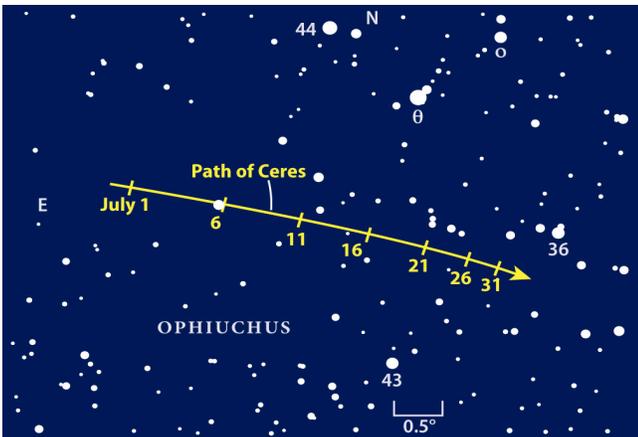


lots of persistence, and excellent star charts. If you don't have your own charts, a detailed position chart for July through October, much more detailed than given here, may be found in the July issue of *S&T Magazine*, pp 60-61.

July 1 to 17 offer a special opportunity: during that period Pluto crosses a nearly blank dark sky caused by Barnard 92 ( a dark nebula); in addition to this good luck, the sky is sparsely populated on either side of B92.

Finally, here are periods from July thru October having reasonably limited moonlight:

- July 2-19 from nightfall to 1 am;
- Aug. 1-15 from nightfall to 11:30 pm;
- Aug. 29 – Sept. 11 from nightfall to 9:30 pm;
- Sept. 27 – Oct. 9 at nightfall (all night)
- Our largest asteroid **Ceres**, mag 7.8, moves across a short dark patch of sky east of Antares during July, passing in front of a relatively starless void known as B78, the Pipe Nebula, a dark cloud of dust and gas which blots out most background stars.



It isn't often that nature paints the sky almost black behind an asteroid of interest and we shouldn't miss a look.

July 6<sup>th</sup> is the only date in July where you might mistake a background star for Ceres or vice versa. That night, the asteroid lies "on top of" a 6th-magnitude star. See if you can split the pair.

### Mooncusser's Almanac and Monthly Alert<sup>1</sup> By Peter Kurtz [July, 2010](#)

Object	July 1 (DST)	July 15 (DST)	July 31 (DST)
<b>Sun</b>	R: 05:10 S: 20:19	05:19 20:13	05:34 19:59
<b>Moon</b>	R: 22:52 S: 10:29	10:20 22:19	22:04 11:16
<b>Mercury (dawn)</b>	R: 05:24 S: 20:41	06:48 21:18	07:53 21:06
<b>Venus (evening)</b>	R: 08:30 S: 22:38	08:58 22:20	09:26 21:52
<b>Mars (evening)</b>	R: 10:32 S: 23:31	10:18 22:53	10:04 22:11
<b>Jupiter (predawn)</b>	R: 00:10 S: 12:16	23:16 11:24	22:14 10:20
<b>Saturn (evening)</b>	R: 11:47 S: 00:13	10:56 23:19	10:00 22:19
<b>Uranus (midnite)</b>	R: 00:03 S: 12:06	23:07 11:11	22:04 10:07
<b>Neptune (midnite)</b>	R: 22:46 S: 09:22	21:50 08:26	20:46 07:21
<b>Pluto (evening)</b>	R: 19:22 S: 05:13	18:25 04:16	17:21 03:12

### Summer Observing Targets for Small Telescopes

Finally, now and then Michael Bakich assembles a list of targets for small telescopes and a list for this summer is now available at Astronomy.com online at reference 11. In this context "small telescope" is 4" or better. The online overview includes details on each object including star hopping guidance. Highlight items:

- M13, the Great Hercules Globular Cluster
- M57, the Ring Nebula in Lyre
- M11, the Wild Duck Cluster above Sagittarius
- M27, the Dumbbell Nebula in Vulpecula southwest of Cygnus
- NGC7000, the North American nebula (you need at least a 2° field of view to see it all at once)

- The beautiful double star Albireo, head of the swan
- M8, the Lagoon nebula, above Sagittarius
- M20, the Trifid nebula, also above Sagittarius
- M22, our third brightest globular cluster, also above the teapot.

If you like greater challenges, there is also available a listing of summer targets for *large* telescopes (12" and larger) put together by David Eicher of the Astronomy online staff. See reference 12.

Note: you must be an *Astronomy Magazine* subscriber to see some *Astronomy online* listings. Anyone not a subscriber having an interest please contact your editor for assistance. Or better, subscribe to AM!

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"<sup>4,5</sup>. 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**<sup>2</sup> or **Dates and Times for the Minima of Algol**<sup>1,3</sup> during this month please contact your editor for information or sources.

### **Moon Phases, July, 2010**

<b>Last QTR</b>	Sunday, July 4 <sup>th</sup> at 10:35am DST
<b>New Moon</b>	Sunday, July 11 <sup>th</sup> at 3:40pm DST
<b>First QTR</b>	Sunday, July 18 <sup>th</sup> at 5:11am DST
<b>Full Moon</b>	Sunday, July 25 <sup>th</sup> at 9:36pm DST

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## **What We Thought 100 Years Ago:**

In the July 2010 issue of *Astronomy Magazine*, Glenn Chaple offers a perspective on old guides to the stars: "Classic Guides penned at least a century ago can greatly enhance your astronomy library." In that article, Glenn introduces several Astronomy Guides written more than a century ago, a time when we had really no accurate concept of galaxy or that the universe was much more than our own Milky Way. Examples like *The Friendly Stars* by Martha Evans Martin (1901), *Astronomy with the Naked Eye* by Garrett P. Serviss (1908) and *Astronomy with an Opera Glass* (1888), also by Serviss, might give you a very comfortable feeling you are viewing the sky with a simpler approach than we have now in 2010. Since most of the old guides he mentions are very much past copyright, scans of the text and illustration of many are available online at sources like [http://books.google.com/advanced\\_book\\_search](http://books.google.com/advanced_book_search). Chaple's article is also available online; see reference 13.

I was so taken by the simple sky charts and the artistic and lyrical descriptions of the wonder and beauty of the night sky that one finds in these old guides, that I decided to create a new continuing series in issues of First Light highlighting excerpts. The poem by Walt Whitman on page 1 contains our first example (from *The Friendly Stars* by Martha Evans Martin, c 1901.) More **What We Thought 100 Years Ago** to come in future issues of First Light

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## **Would You Like to Use the 60" Reflector installed by George Ellery Hale on Mount Wilson in 1908?**

You can reserve the 60" scope at Mount Wilson for a price. See <http://www.mtwilson.edu/60in.php>

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## **Do You REALLY Want to See the Total Solar Eclipse in the South Pacific on July 11?**

If you make reservations right away, and have about \$5000 you don't otherwise need, you likely still have time to get to the eclipse which will be visible in the south Pacific, (Easter Island, Tahiti) on July 11<sup>th</sup>. SkyandTelescopeTours.com is organizing a trip if you are interested. See <http://www.astronomicaltours.net/2010/2010Eclipse/itinerary.shtml>

## Astro Question of the Month:

Question for the month: **Is every star part of a galaxy? Are there any “rogue” stars?** (from “Ask Astro” in the July *AstronomyMagazine*, p. 50)

The answer: While most stars must at least have parent galaxies, a very few manage to escape and enter intergalactic space.

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Last month’s question: If the moon was formed in a collision between earth and a Mars-sized object, **how did the hole in the earth fill in?** (source: a Girl Scout at a Star Party at The Schmidt, May 22). Here are answers submitted by two CCAS members:

- **Mike Renzi** (former member): The heat from the impact was so great that it caused the Earth's crust to liquefy which allowed gravity to pull the molten mass back into a sphere.
- **Bernie Young** sent us a reference to a pdf file, “On Being Round” by Neil de Grasse Tyson, Director of the Rose Center for Earth and Space at the Museum of Natural History in New York, which deals broadly with the subject of roundness in the universe and answers our question with this sentence: “Mount Everest is about as tall as a mountain on Earth can grow before the lower rock layers succumb to their own plasticity under the mountain's weight.” You can find the pdf file at: <http://www.haydenplanetarium.org/tyson/read/1997/03/01/on-being-round>

So the “filling-in” of the hole in the earth could have been fairly quick if the surface was made molten by the collision and maybe finished off more slowly over the eons by gradual settling as, according to Tysen, “the lower rock layers succumb to their own plasticity under the mountain's weight.” Thanks, Mike and Bernie! And thanks to our precocious Girl Scout for the query!

If you have an interesting Astro Question, please send it with or without an answer to [info@ccas.ws](mailto:info@ccas.ws)

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### 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 situation<sup>7</sup>. 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](mailto:info@ccas.ws).* Thank you.

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**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

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Vice President	Paul Cezanne	508-487-1456
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Treasurer	Peter Kurtz	508-255-0415
Observatory Director	Michael Hunter	508-385-9846
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## Cape Cod Astronomical Foundation

Chairman	Werner Schmidt	508-362-9301
Vice Chairman	Michael Hunter	508-385-9846
Director R&D	Bernie Young	508-394-1960
Secretary	Ed Swiniarski	508-896-5973
Treasurer	Pio Petrocchi	508-362-1213
Observatory Director	Michael Hunter	508-385-9846
Observatory		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.

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### 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 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  $\gamma$ -Andromedae to Algol's west, mag 2.1, and  $\epsilon$ -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 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) 12 lunar targets:

[http://www.astronomy.com/asy/default.aspx?c=a&id=9875&utm\\_source=SilverpopMailing&utm\\_medium=email&utm\\_campaign=ASY\\_NEWS\\_SUB\\_100604\\_final&utm\\_content=](http://www.astronomy.com/asy/default.aspx?c=a&id=9875&utm_source=SilverpopMailing&utm_medium=email&utm_campaign=ASY_NEWS_SUB_100604_final&utm_content=)

9) Aristoteles:

[http://www.astronomy.com/asy/default.aspx?c=a&id=9767&utm\\_source=SilverpopMailing&utm\\_medium=email&utm\\_campaign=ASY\\_NEWS\\_SUB\\_100604\\_final&utm\\_content=](http://www.astronomy.com/asy/default.aspx?c=a&id=9767&utm_source=SilverpopMailing&utm_medium=email&utm_campaign=ASY_NEWS_SUB_100604_final&utm_content=)

10) Overview of viewing Pluto: <http://www.skyandtelescope.com/skytel/beyondthepage/89002802.html>

11) "Bakich: Summer Targets for Small Telescopes"

[http://www.astronomy.com/asy/default.aspx?c=a&id=8381&utm\\_source=SilverpopMailing&utm\\_medium=email&utm\\_campaign=ASY\\_SUB\\_100611\\_final&utm\\_content=](http://www.astronomy.com/asy/default.aspx?c=a&id=8381&utm_source=SilverpopMailing&utm_medium=email&utm_campaign=ASY_SUB_100611_final&utm_content=)

12) "Eicher: Summer Targets for Large Telescopes"

[http://www.astronomy.com/asy/default.aspx?c=a&id=8343&utm\\_source=SilverpopMailing&utm\\_medium=email&utm\\_campaign=ASY\\_NEWS\\_SUB\\_100618\\_final&utm\\_content=](http://www.astronomy.com/asy/default.aspx?c=a&id=8343&utm_source=SilverpopMailing&utm_medium=email&utm_campaign=ASY_NEWS_SUB_100618_final&utm_content=)

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13) *The Friendly Stars* available for perusal online:

[http://books.google.com/books?id=fY4XAAAAAYAAJ&printsec=frontcover&dq=The+Friendly+Stars&hl=en&ei=VsjTMziD4P\\_8AbQm7STBQ&sa=X&oi=book\\_result&ct=result&resnum=1&ved=0CCgQ6AEwAA-v=onepage&q&f=false](http://books.google.com/books?id=fY4XAAAAAYAAJ&printsec=frontcover&dq=The+Friendly+Stars&hl=en&ei=VsjTMziD4P_8AbQm7STBQ&sa=X&oi=book_result&ct=result&resnum=1&ved=0CCgQ6AEwAA-v=onepage&q&f=false)