



First Light

The Newsletter of the Cape Cod Astronomical Society



August, 2010

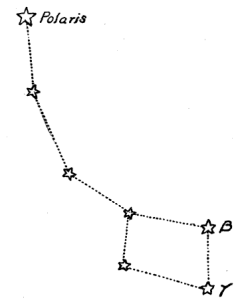
Vol.21 No. 8

What We Thought 100 Years Ago:

The stars are here marshaled before us in a new and engaging manner; not as austere unchanging beacons of the universe; not as mere material for vivifying the results of profound mathematical analysis; but rather as they must have seemed to herdsmen of old, and as they should appear to all who love the open air--- rising constellation after constellation, nature's kindly reminders of the seasons as they come and go.



This the author has accomplished without sacrifice of scientific accuracy; that the grace of attractive form has been attained the reader will himself perceive. This book will serve a useful purpose, and help to arouse a wholesome popular interest in the stars.



... *Harold Jacoby, Rutherford Professor of Astronomy. Columbia University, 1907*

Introductory Note to *The Friendly Stars* by Martha Evans Martin, a Star Guide published more than 100 years ago .
[Please see reference 12 to peruse this old book online.]

- **Next Monthly Meeting:** is Thursday, August 5th at the DY Library. CCAS President and Program Chairman Tom Leach will discuss helioseismology: the study of wave oscillations in the Sun. More program notes below. (Please see the moving banner and the tail of the rocket on our website's home page for upcoming speakers and topics.)
- **Dues:** If you haven't paid your 2010-2011 dues by August 1, you are now one month late. Please bring to next meeting or see the address on page 3. We need your participation!
- Summer **Star Parties** open to all members and the public resumed on Thursdays in June. Please consult the "green box" on the home page of our website (www.ccas.ws) for more information. Except for the first Thursday of the month, Star Parties are held on Thursdays at 8:30pm through the end of August.

NOTE: THE PERSEID METEORS PEAK AFTER 9PM AT OUR STAR PARTY 8/12. NO MOON!

- **How do I find out if a Star Party is cancelled?** If you want to know "Go" or "No Go" for a star party: If you see clouds on the afternoon of a star party or expect a cloudy evening, please call the observatory [after 7:45](tel:508-398-4765) at 508-398-4765. No answer after 8 rings suggests cancellation because of clouds.
- 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.

Bright New Stars:

Please welcome John Kraemer of Needham to the Society. We have asked John to tell us more about himself. If and when he does, we will share the information with you here.

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 input to our overview of Larry Marschall's presentation last month.

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

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

CCAS Events

With improving weather we had very successful star parties on three Thursdays in July. Please **DO** come to our Thursday Star Parties the last three Thursdays in August at 8:30pm

Many thanks to Dr. Larry Marschall for his most informative update on techniques for and progress in the discovery of extra-solar planets. "Planet Eating Stars (sometimes the planets are just too close) and Styrofoam Worlds (some of the planets have remarkably low density)" reviewed progress from the first extra-solar discovered, a planet at 51Pegasi, through the more than 460 extra-solars known today. The future of planet hunting includes new ground-based telescopes and further use of the Hubble Space Telescope. While many ESP's discovered so far have orbits very close to their stars (faster orbit times facilitate discovery) work in this area has now been going on long enough that more and more extra-solar planets having slower and bigger orbits are being documented. Planets not "too" close to their stars are of interest because, being farther out, such planets can more often have temperatures consistent with the existence of life.

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.

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.

ARE WE ALONE? On October 7th, Dr. Jon Greenberg will discuss the Search for Extraterrestrial Intelligence, a topic that raises many questions: Is there intelligent life elsewhere in the universe? Is there intelligent life on earth? What are the odds of finding intelligent life elsewhere? What is the (in)famous Drake equation? How is the search being conducted? What would happen if we received an authentic modulated signal from an extraterrestrial source? Should we answer it? Dr. Greenberg is a past president of CCAS and has a personal Observatory on a rooftop deck of his home in Eastham.

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 October 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!

The minutes of our July 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/ccasminutes070110.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.

2010-2011 Dues are Due June 30, 2010

Members: Please plan to make your payment either by bringing to the August meeting or mailing directly to CCAS at PO Box 207 Harwich Port MA 02646. Thank you. .

Foundation News...

...when we have input.

From the Dome

...From Your Editor and Mike Hunter,
Director of The Schmidt

Surprisingly, we had quite good skies for our Star Party on July 8th. Five staff members and five guests had a good look at many old favorites. Saturn showed at least five moons nicely arranged where they should have been; M12 and M13 globular clusters and the Ring Nebula all were beautiful and clear. Also Special this evening were a long stately pass of the ISS at mag -3 and later a mag -7 Iridium flare that fired more than a full 5 seconds. Thanks to Ed Swiniarski for having us all ready to see the flare when it fired.

Successful viewing also on the next two Thursdays!

Summer Star Parties open to the public continue on Thursdays in August beginning at 8:30pm. Star Parties are *not* scheduled for the *first* Thursday of each month, CCAS meeting night. The Dome may be opened up after CCAS meetings when interest and weather warrant.

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

August Observing:

[THE PERSEID METEORS PEAK AFTER 9PM AT OUR STAR PARTY 8/12. NO MOON!](#)

The main ingredients for a spectacular meteor show are lots of meteors (how about 50 to 100 per hour?) a dark sky (how about a two day old crescent moon that sets at 8:52) and multiple days of meteors (the earth passes through the debris from 109P/Swift-Tuttle for more than two days; last year, more than 8000 meteors were reported. If you want to see the best part of the show with horizon-to-horizon views, come to the Star Party at The Schmidt beginning at 8:30 the night of August 12th. But keep your eye to the sky the nights before and after; this meteor shower is an at least two-day event.

Do you know all the vocabulary you need to talk about meteors and meteor showers? See our Astro Question of the Month on page 5.

THE MOON:

Once again, a list of the "top 10" Lunar targets is published in the July issue of *Astronomy Magazine*, p. 58. See also information online at our reference 7.

PLANETS and ASTEROIDS:

- The evening dance of **Mars, Saturn and Venus** in the west pretty much ends during August so if you want to watch the show with these now old friends, don't procrastinate. Mars and Saturn (separated by only 2°) and Venus (below and west of the pair by about 7°) form a nice trio on the first day of August. By the 15th, Venus, which starts the month a 20" orb, catching up to earth on the inside track, has become a 23" orb, and now appears only 2° from Mars with Saturn now about 7° west of the new close pair. If you can see low in the west after 9pm each night, take a look. Quite a dramatic change over 15days: all the while the trio is getting closer and closer to the sun as we view them. By month's end all will have set by 9pm EDT and the group will soon be "morning stars". One other note: on **8/13**, the 5 day old **moon** makes a nice skinny diamond shape with the three planets near the horizon; you might capture a prize with a multi second exposure taken at the right moment.
- Were you with astronomer Johann Galle in Germany on the evening of September 23, 1846? Then and there is when Johann first glimpsed **Neptune**. The planet takes 164.8 years to complete one orbit around the sun. 8/15/10 represents 163.9 years since the first observation. The true "return" to the exact original spot thus won't take place until next year, but this month,

this year, Neptune, is within 1° of where it was when first discovered. (*Astronomy Magazine*, August issue, p 42.) On August 20, Neptune is at opposition at mag 8, rising at sunset, and on that date (and much of August) offers the best chance this year to see it “where it was” when Johann Galle first saw it. So. Make a point of trying to do what he did and see what he saw one Neptune cycle later. (Hopefully, with the better equipment available to us now, we will see it *better* than he did!

See our reference 8 for a pdf file giving detailed finder charts for both Neptune and Uranus for the rest of 2010.

- After you’ve studied Neptune in our August night sky, take a look at **Uranus**, which follows Neptune by about 90 minutes in the sky these days. Uranus is closely accompanied by **Jupiter** this season. While both rise earlier next month making them higher and clearer targets for mid-evening viewing, you can warm up for the September show by practicing this month. Now begins an excellent six-month’s evening viewing season for both: the former transits at 3am on August 15th, the latter at 3:18am. At end year, December 31, they transit together at 5:00pm as the two are then separated by less than 1°.

Jupiter is big and bold (a 46”orb) on August 1 and will grow to 50” at opposition on September 21. Jupiter season also invites us to watch the Galilean moons night-to-night and hour-to-hour. A position chart for Jupiter’s moons is published in the August issue of *Sky and Telescope*, page 47; see also reference 6 for an all-season dynamic model of the moment-to-moment positions of Jupiter’s moons.

- While Pluto will still be findable very low in the west come September, August is realistically the last good month to view it this time around. See the story, finder chart published in First Light last month, and our reference 9 here. Give it a try before it gets too low. Once again, a detailed position chart for July through October may be found in the July issue of *S&T Magazine*, pp 60-61.

Finally, we refer you again to the **Summer Observing Targets for Small Telescopes** mentioned in last month’s First Light. See last month’s story and reference 10. See also the listing of summer targets for large telescopes (12” and larger) at our reference 11.

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!

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

Object	August 1 (DST)	August 15 (DST)	August 31 (DST)
Sun	R 05:35 S: 19:58	05:49 19:40	06:05 19:16
Moon	R: 22:21 S: 12:00	12:39 22:19	22:00 12:57
Mercury (close to sun)	R: 07:55 S: 21:05	08:05 20:25	06:42 19:06
Venus (early eve)	R: 09:27 S: 21:50	09:47 21:21	10:03 20:44
Mars (early eve)	R: 10:04 S: 22:09	09:53 21:33	09:43 20:52
Jupiter (late eve)	R: 22:10 S: 10:17	21:14 09:18	20:08 08:07
Saturn (early eve)	R: 09:57 S: 22:16	09:09 21:24	08:15 20:25
Uranus (late eve)	R: 22:01 S: 10:03	21:05 09:06	20:00 08:01
Neptune (evening)	R: 20:43 S: 07:18	19:46 06:21	18:42 05:15
Pluto (evening)	R: 17:18 S: 03:08	16:22 02:12	15:18 01:08

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, August, 2010

Last QTR Tuesday, Aug 3rd at 12:59am DST
New Moon Monday, Aug 9th at 11:08pm DST
[High Tides August 9-10 (perigee: 2pm 8/10)]
First QTR Monday, Aug 16th at 2:14pm DST
Full Moon Tuesday, Aug 24th at 1:05pm DST

What We Thought 100 Years Ago:

We continue our series on how star guides more than 100 years old give us an important perspective on our hobby. Harold Jacoby, a Columbia University Astronomer, wrote an introduction to Martha Evans Martin's *The Friendly Stars* more than 100 years ago. That introduction is reprinted on page 1 of this First Light. Also reprinted from the book on page 1 here are star charts for Ursa Minor and Scorpius. See reference 12 if you'd like to see more from *The Friendly Stars* by Martha Evans Martin online. More excerpts from this book to come in future issues of 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 situation¹³. 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.

How you can do science from your backyard; Resources from Astronomy Magazine:

Author Brian Skiff mentions numerous amateur astronomer resources in his article in the August 2010 *Astronomy Magazine*, p 44, "How amateur astronomers are really doing science." If you have an interest in "doing Astro Science" start at the website references listed in an online companion article (at our reference 14 below.) Resources listed include web addresses for: AAVSO, The American Association of Variable Star Observers, The Society for Astronomical Sciences (members publish on asteroids and cataclysmic stars as well as variable stars), The Minor Planet Center (MPC, orbits of asteroids and comets), the *Minor Planet Bulletin* (a journal that ties together amateur and professional astronomers), the Minor Planet Mailing list, Goddard Space Flight Center's "Skyview" (a "virtual" observatory which includes a large database of images taken in astronomical sky surveys) and finally, VizieR, (a French site housing reams of data published in astronomical journals).

Astro Question of the Month:

Given August is the month for what promises to be a spectacular meteor shower, it is appropriate to refresh our knowledge of related vocabulary.

Questions for the month: **What is the difference between a meteor, a meteorite, and a meteoroid? What is a fireball? What is a bolide?**

Thanks to Mike Reynolds for helping us precise our vocabulary in this area in an article in "Ask Astro" in the August *Astronomy Magazine*, p 50. * Something in space that blazes when it passes through our atmosphere is called a meteoroid. * The streak of light you see is a meteor. * Very bright meteors are "fireballs" and * if a fireball breaks up during the meteoroid's passage through our atmosphere, it is called a "bolide." * Sometimes, a big chunk survives the fiery disintegration process and reaches the ground. Only then, cold and retrievable, does it qualify as a "meteorite".

Take a look at our shower in the period 8/11 through 8/13 and see if you can identify all these aspects. If you find a meteorite on the ground, please take a picture and send it in to First Light. It might look like this small meteorite your editor has at home and was retrieved from the Campo del Cielo field of meteorites in South America (our ref. 15.)



Cape Cod Astronomical Society

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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.

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 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) ALL DATES AND TIMES UTILITY FOR JUPITER'S MOONS:
<http://www.skyandtelescope.com/observing/objects/planets/3307071.html>
- 7) 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=
- 8) Finder charts for Neptune and Uranus for last half of 2010:
http://media.skyandtelescope.com/documents/Uranus_Neptune_2010.pdf
- 9) Overview of viewing Pluto: <http://www.skyandtelescope.com/skytel/beyondthepage/89002802.html>
- 10) "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=
- 11) "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=
- 12) *The Friendly Stars* available for perusal online:
http://books.google.com/books?id=fY4XAAAAAYAAJ&printsec=frontcover&dq=The+Friendly+Stars&hl=en&ei=VsjTMztD4P_8AbOm7STBQ&sa=X&oi=book_result&ct=result&resnum=1&ved=0CCgQ6AEwAA-v=onepage&q&f=false
- 13) Tom Leach's draft video on light pollution: <http://www.youtube.com/watch?v=AkwLyD1YKzM>
- 14) http://www.astronomy.com/asy/default.aspx?c=a&id=9975&utm_source=SilverpopMailing&utm_medium=email&utm_campaign=ASY_NEWS_SUB_100702_final&utm_content=
- 15) http://en.wikipedia.org/wiki/Campo_del_Cielo