



First Light

The Newsletter of the Cape Cod Astronomical Society



December, 2008

Vol.19 No. 11

Next CCAS General Meeting: Thursday December 4th at 7:30PM; D-Y Library. Find out how the Pilgrims used their knowledge of the Night Sky to draw reference direction lines on which land surveys could be based! More on the program just below.

Next Public “Dark Saturday” Star Party: (None in December) January 24th, 2009

Next Executive Board Meeting: (None in December) January 20th, 2009

Chris Cook has had a photo published in *Sky and Telescope*! Please see page 5.

Bright New Stars:

We welcome to our membership Dakota De Smet of Brewster and Jack Murphy of Eastham who joined CCAS during November.

As always, we invite recently joined members to send an email to info@ccas.ws letting us know a little more about themselves: background, astronomy equipment preferred if any, and interests.

Thoughts on First Light

Thanks to Hilda Whyte and Susie O’Brien for sending in a wonderful story and illustration to clarify the history of CCAS logos... and to Chris Cook for a spectacular photo that appears in a current issue of an international magazine... and to Jon Greenberg for a short story on his decision to “draw the curtain” on many years of giving his excellent course “Observational Astronomy for Beginners.”

Thank you, members!
“First Light wants YOU!”

CCAS Events

Thanks to Paul Cezanne for his informative and spirited talk on observing using binoculars. Of particular interest was his review of asterisms that are too small for visual observing, too big for telescope observing, and “just right” for binocular observing.

Looking ahead to the CCAS meeting on December 4th, Mike Farber will talk on the Morse Payne Cornerstone Project: research on how the Pilgrims used a sophisticated blend of surveying techniques to subdivide our lands. Our forefathers knew the importance of the night sky for navigation and getting a bearing. They used science to delineate division boundaries on Cape Cod. *One wrinkle in all of this of special interest to astronomy buffs is work our forebears did to establish the lines pointing to magnetic north in the 17th and 18th centuries. Quite a bit different from the 16° Compass Variation from True North we use in our century at Cape Cod.* The Cornerstone Project has drawn a lot of interest from local historians and archaeologists. It is likely that after hearing this talk, some members of CCAS may want to join Farber in work on this project.

On January 8th, Dr. John Huth will speak on Primitive Navigation. Among others, the Vikings and the Polynesians used the stars for navigation. Because the latitudes of voyaging for these two cultures differed substantially, their navigation techniques had significant differences. For example: the Polynesians created a “sidereal compass” that takes advantage of the fact that stars always rise and set at the same azimuth over the course of the year. The Vikings, on the other hand, voyaged mostly during the summer months and were much more dependent on the sun, which has its own special set of problems to be solved. John will describe a number of techniques used for navigation by ancient cultures. He will then jump to some “homespun” techniques we use in modern times such as

navigation using a wristwatch. Dr. Huth is a Donner Professor of Science and teaches in the Faculty of Arts and Sciences at Harvard University.

Thanks to Tom Leach, our Programs Chairman, for the good work he does to bring us informative speakers and topics; please be sure to contact Tom if you have ideas for upcoming speakers or programs; don't forget yourself!

“Dark Saturdays”: Information on November and December Winter Star Parties

One Star Party is scheduled each month at 7:30pm at the Werner Schmidt observatory; in winter, this is usually the Saturday evening closest to the timing of the New Moon.

However, there will be no “Dark Saturday” Star Party in December.

January 24th will be the next “Dark Saturday” event.

Outreach to Students

Special Star Party sessions were scheduled for evenings during the first two weeks of November for each of two of Mike Marks' Astro Classes at 4C's, and also for the newly formed D-Y High School Astronomy Club headed up by Adam Cutler.

Given how the weather turned out, this program in November was definitely a bad news / good news story.

Bad news: All three of these sessions had to be cancelled because of unfavorable weather. All three were rescheduled. Two of the three rescheduled dates had to be cancelled for the same reason.

Good news: We did have one very successful (even though very cold) evening on November 20th with Mike Marks' “Thursday class.” The other two missed sessions have been/will be scheduled for early December.

November 20th Highlights: Good naked eye survey of mid-November constellations; good “first time” experiences for twelve 4C's students seeing the beautiful double Albireo, the astonishing Andromeda Galaxy, the mysterious Orion Nebula and the “millions of stars” densely-packed globular cluster M15 through our 16” and 18” scopes. Mike Marks rewarded us with this email: “I'm sure I'll hear more from my class about this experience when we reconvene in two weeks. There was some great enthusiasm and interest during our session. Hopefully, we can do the same for the Tuesday group on the 2nd (of December)!” One other special note: two of the students got involved to the extent of wanting to stay “till closing” to learn how the shutdown procedures for the dome take place. Both were very helpful. Special thanks to Bernie Young and Ed Swiniarski for helping out with this “outreach” effort.

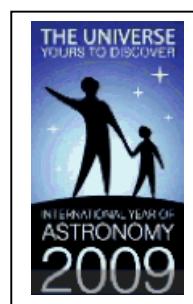
Any members wishing to become involved in these initiatives please contact Peter Kurtz.

Executive Corner

The Executive Board met on November 18.

We were sorry to learn that Betsy Young has relinquished her post as Secretary of CCAS. Many thanks, Betsy, for more than two years of good service. We were pleased to learn that Gary Derman had invited Stan Rivers to take on the role of Secretary for the rest of this term and that Stan has accepted the role. The membership will be asked to approve Stan's nomination at our meeting on December 4.

Tom Leach has found a really great little article written by the Astronomical League on ideas for improving and optimizing the planning and conduct of astro club meetings⁴. We will try to adopt some of the good ideas in this article soon and consider others for the future.



We have begun to plan activities for CCAS participation in the International Year of Astronomy-2009. Take a look at this website to see what this is all about both worldwide and in the US:
<http://astronomy2009.nasa.gov/>
Members: please email ideas to info@ccas.ws Thank you.

The next meeting of the Executive Board is scheduled for Tuesday evening Januaray 20th at Snow Library at 7pm; no meeting in December.

From the Dome

We are pleased to report that Bernie Young has been invited to join the Observatory Staff and has accepted the role. Bernie has already helped in many ways at club star parties, is repairing and upgrading our old 8" Dob, and is working with Mike Hunter and Ed Swiniarski on bringing “Go To” capabilities to our 18" Obsession Dob.

Although hampered by a lot of unfavorable weather and continuous rescheduling of the Dome during the month for student observing sessions, work continued during November on streamlining the installation and bringing online the SBIG CCD camera and accessories on the main 16" telescope at the observatory.

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.

Foundation News...

...when we have input from the Foundation...

Reminder: CCAS has both 8" and 14" Dobsonian telescopes for loan to members. Currently, Rich Kosinski has the 14" at his home for observing and Bernie Young has the 8". If you wish to borrow one of these 'scopes, contact your editor at info@ccas.ws

December Observing:

Mooncussuer's Almanac and Monthly Alert¹ By Peter Kurtz **DECEMBER 2008**

Object	Dec 01 (EST)	Dec 15 (EST)	Dec 31 (EST)
Sun	R: 06:49 S: 16:11	07:01 16:11	07:07 16:20
Moon	R: 10:09 S: 19:16	19:31 09:51	09:33 20:15
Mercury (>>evening)	R: 07:11 S: 16:16	08:00 16:49	08:24 17:45
Venus (evening)	R: 10:05 S: 19:08	10:01 19:37	09:44 20:10
Mars (--conj--)	R: 06:57 S: 16:12	06:51 15:56	06:42 15:43
Jupiter (evening)	R: 09:53 S: 19:13	09:08 18:33	08:17 17:48
Saturn (pre-dawn)	R: 00:03 S: 12:49	23:11 11:55	22:09 10:53
Uranus (evening)	R: 12:31 S: 00:01	11:36 23:07	10:34 22:05
Neptune (early eve)	R: 11:23 S: 21:43	10:28 20:50	09:26 19:49
Pluto (--conj--)	R: 07:59 S: 17:55	07:06 17:02	06:05 16:01

Moon Phases, December 2008¹

First QTR Friday, December 5 at 4:26pm EST

Full Moon Friday, December 12 at 11:37am EST

Because perigee occurs on the same day as the Full Moon this month, and because on this day, the moon is nearer (356566km) to the earth than it has been for 15 years, extremely high and low tides will occur on this day.

Last QTR Friday, December 19 at 5:29am EST

New Moon Saturday, December 27 at 7:22am EST

More on December Observing

The **winter solstice**, the time when the sun is as far south on our horizons at it gets all year and the time when there are more hours of night than any other takes place for us at 7 am on Sunday, December 21. Begin to celebrate: on the 22nd, the days begin to get longer again!

Two meteor showers peak in December, the **Geminids** (peak 6pm, Saturday the 13th) and the **Ursids** (peak 3am on Sunday the 21st.) The Geminids are usually a very strong shower but, unfortunately, this year take place pretty much simultaneously with the Full Moon. Geminids peak at 120 per hour with a flux rate (measure of frequency of very bright meteors) higher than any other shower of the year.

Little **Mercury** is "in the sun" until mid month when it sets 40 minutes after the sun. By month's end it sets an hour and a quarter after the sun for us and so presents interesting photo opportunities at that time. In particular, 45 minutes after sunset on December 28, blazing **Jupiter** and its moons are only 3° above **Mercury** which, in turn, is only 6° above a one day old **crescent moon** itself 2° above the horizon. Blazing **Venus** hangs well (28°) well above this tight collection for your "naked eye" viewing. Take a zoom camera on a tripod and binoculars for a special sundown show on any Bay beach. From the 28th, watch the infant moon creep day by day up to **Venus** and beyond: on the 31st, the two are only 3° apart well above much lower **Jupiter** and **Mercury**.

Don't dawdle trying to observe **Jupiter**, **Uranus**, and **Neptune**. The season for **Jupiter** and **Neptune** in our evening sky ends in mid January for **Jupiter** (conjunction with the sun on 1/24) and in mid **February** for **Neptune** (conjunction 2/13); **Uranus** remains a nice target through year end even though lower and lower in the sky at the end of astronomical twilight each evening.

The asteroid **Vesta**, brightest (albeit only 2nd largest, mean diameter 530km, after the largest, Ceres) is on a wonderful track easy to see in the evening sky from November well into next year. This year at magnitude



about 8.0 it is a great target for big binoculars or most small telescopes. Moving only very slowly away and then back toward the head of Cetus in vicinity of star α -pisces during December, it transits for us near altitude 51° in the south at 9pm on 12/1, at 8pm on 12/15, and at 7pm on New Year's eve. As shown on the map, since relative to the earth it is "making a turn" during December, its day-to-day motion relative to nearby stars is somewhat slow and best viewed this month with a telescope. During December it moves only from almost on top of α -pisces (separation 55') to 2° 13' away: pretty slow. But in January it starts to move much faster toward the head of Cetus, about 6°/month. Charting these two different speeds and positions through December and January and beyond would make a very instructive and entertaining observing project. Make a little sketch of Vesta's position in the surrounding star field. Then come back a night or two later, look again, and plot it on your sketch anew. Try this with good binoculars over several days. Easier to see through a telescope at medium to high magnification, Vesta's motion is obvious over much shorter time spans. The asteroid covers 0.6 arcminutes per hour, which is a substantial distance at 100x. So even "slow" is "fast"

⁵
when using a telescope!

Libration and Declination Tables for the Moon

DECEMBER	
Max Longitudinal	Min Longitudinal
12/18 (8°)	12/6 (-8°)
Max Latitudinal	Min Latitudinal
11/22 (7°)	12/10 (-7°)
Max Declination	Min Declination
12/12 (27°)	12/26 (-27°)

Minima of Algol visible after dark at Cape Cod:

[Only minima actually timed near or after sunset thru predawn at Cape Cod are noted.]

DECEMBER	
9:39 pm	Monday, Dec 1
6:28 pm	Thursday, Dec 4
5:45am	Tuesday, Dec 16
2:34am	Friday Dec 19
11:23pm	Sunday, Dec 21
8:12pm	Wednesday, Dec 24

Tools for Observers

We have an evaluation copy of a new observing guide by one Peter Birren who contacted us initially through info@ccas.ws. This book will be quickly overviewed at our December meeting and our copy passed around for membership browsing. My review suggests it to be one of the handiest observing aides ever put together. This little digest-sized book is wire bound with plastic (dew resistant) covers. It starts with 36 pages having a wealth of very efficient (mostly tables) reference information on such things as "How to use the Book", guideposts and hand scales, coordinate systems, telescope types, fields of view, seeing conditions scales, filters, major stars list, doubles, deep sky object types, Messier index, NGC favorites, solar system... distances and speeds, meteor showers, etc.

Then the meat: 75 pages of targets of all types (differentiated by symbols) in each constellation with constellations appearing in alphabetical order. Typically, one page is a list of items and one page a really good little map.

We can get copies for \$24.50 (includes shipping) if we place a Society order for 10 copies or more or individuals can order directly from Birren's website for \$27.45 (includes shipping.)

Items of Interest in Recent Astronomy News:

From time to time news items appear in current Astronomy media that are of special interest or significance. When this occurs, First Light will feature alerts to such news with starting references:

Not Likely That "The Phoenix will Rise Again."

As the Sun set slowly over the Martian polar plain, a dust storm robbed NASA's plucky lander of the sunlight it needs



An artist's rendering depicts the Phoenix lander as Martian winter approaches.

NASA / JPL / Corby Waste

for robot life. NASA had hoped to squeeze out a few more weeks of activity for Phoenix before full onset of the martian winter but the dust storm has ended the game. The craft's most recent and presumably final communication came on November 2nd.

Phoenix is a solidly successful mission. First of all, it landed successfully. It discovered extensive water ice underlying the landing site; it has provided some 25,000 images of the

surface and atmosphere, from macro to microscopic scales, a complete 5-month-long weather record, chemical analyses showing that the surrounding dirt is mildly alkaline, and compositional results revealing the presence of carbonates, clay minerals, salts, and perchlorate (substances used as an energy source by some primitive organisms on Earth) in the soil.⁶

CCAS ASTROPHOTO OF THE WEEK



This beautiful photo bears the caption "Celestial and Terrestrial Lights: Venus and the Moon formed a triangle with the lighthouse in Chatham, Massachusetts, on August 12, 2002" and is published on page 54 of the Dec 2008 of Sky & Telescope.

Congratulations to member Chris Cook on creating a beautiful photograph and having it published in an international magazine of Astronomy!

[Details: 3 seconds exposure Nikon 105mm lens @ f/4. Colors, brightness, and contrast adjusted with Photoshop 6.0.]

FINAL CURTAIN

...by Jon Greenberg

Last October 29, I concluded my 18th and final course in observational astronomy for beginners. The courses were given mostly on my roof deck observatory on clear nights (alas, too few!) and indoors on cloudy nights. From the beginning I was assisted on the roof deck by Bill Boyd and, later, by Betsy Young and Peter Kurtz. I also had help from Gary Derman, Jarvis Hunt, Greg McCauliff and Mike Hunter. My thanks to them for their stellar efforts!

All instructor fees received from Nauset Community Education were donated toward construction and (later) maintenance of the Werner Schmidt Observatory. In all, we raised approximately \$ 8,000.00.

A total of about 180 students participated. Most were seniors, but we also had younger people including several teen-agers. Approximately 70% were women - in contrast to the male predominance in most astronomy clubs, including ours. Some of our club members also took the course.

I think most of our students found out how much more there is to amateur astronomy than just looking up at the sky. Some told me that what they saw and learned was a revelation.

In the last few years, enrollment has been down. Probably, most of those in the Nauset Regional School District (Brewster, Orleans, Eastham and Wellfleet) who were interested in astronomy have already taken the course. As I am now 80, I think this is an appropriate time to bring down the curtain on an adventure that lasted much longer than I had anticipated!

[Editors Note: Many thanks to Jon for his great course over so many years. A personal note: Special thanks from me. Jon's course introduced me to new aspects of our hobby. Jon also acquainted me with the wonders of really good telescopes and introduced me to CCAS, its activities, and its members.]

So... is the Whirlpool Galaxy on the Logo of The Cape Cod Astronomical Society? Or not? Or was it? Or what?

What could possibly take higher priority than a story in First Light answering such questions? What could possibly be more important that all of us having new insights into the wonderful history of this organization?

Following Paul Cezanne's talk on targets for binocular observing at the Society meeting on November 6th, Hilda Whyte volunteered the notion that The Whirlpool Galaxy, M51, is the sky image on the logo of CCAS. Some of us newer members made sure she understood what was really going on: all of us know (see patch on the last page) that Orion is the star image on our logo. Where, Hilda, did you get such an idea about the Whirlpool Galaxy?

Well we received some wonderfully enlightening and most enjoyable documentation by email from Hilda during November and we publish same here pretty much as she wrote it so that all may believe.

To start with, Hilda has at least one copy of our current logo: the one with Orion in the upper left quadrant;. Witness the t-shirt she wears in the photo following. And take a look at Susie O'Brien on the left.

What IS that on that blue shirt?



And here is the wonderful story she wrote to go with the picture.

Yes, guys- there really was another logo.

When Paul Cezanne showed us M51 found with his star-hopping binoculars, I volunteered that M51 “is” on the CCAS logo. There seemed to be a fairly strong differing view from a number of people.

I realized then that Susie O’Brien, who also remembered our old logo, and I were possibly the only members present at our meeting on November 6th who were part of the beginning of this great organization. Susie and I first met when we both joined the club two months after its founding in 1986. When we recently talked, Susie said that we even had logo t-shirts in the old days, although she no longer had hers.

All this inspired a mini research project for me, including a foray into the darkest corner of the closet shelf where – YES- my original t-shirt, on Susie in the photo, still resided. An e-mail inquiry to Jim Carlson, who is a Founding Member of the club, verified the M51 identity and said that Harry Hammond, our second year president and Newsletter editor for the first two years had chosen it and created a design for our first t-shirts.

So- when and why did we switch? The next inquiry and answer came from Bill Boyd who designed the elegant new logo that features our observatory-in 1987 only a dream yet to be realized. Yes, the star image in the left upper quadrant is Orion! When Werner Schmidt asked him to serve as treasurer of the Foundation, Bill learned that the grand sum in the treasury toward our lofty goal was only \$8000. He and his wife Pauli realized that we needed to engage in some hefty fund raising efforts- but first a saleable product was needed. That was the impetus for Bill to create the beautiful design with which we all now identify. They ordered a large number of t-shirts, hats, and sleeve patches, all proudly bearing the dream we hoped to achieve. I don’t think he was aware that the club even had another logo. Apparently very few people knew or remember that. Thus this little story.

A number of fund raisers with the new “goods” were launched including the first one at Coast Guard Beach where CCAS star parties were occasionally held and several at the Eastham Windmill weekend with the help of Gary Derman.

One of the new patches showing the observatory traveled into outer space on NASA mission STS-106 Atlantis (Sept.8-20, 2000) with astronaut Dan Burbank who was also one of our former members and Newsletter editor. Dan's second mission was STS-115 Atlantis; exactly 6 years and one day later, in 2006. From Jim Carlson: according to the NASA website, Dan "is currently a Professor of Engineering at the U.S. Coast Guard Academy in Connecticut where he teaches Astronomy, Aerodynamics, and Engineering design".

I hope this report and the enclosed photo of Susie and me, wearing an early and newer version of our CCAS logos will help all members understand a little better and enjoy part of the rich history of our Society.

Hilda Whyte

**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.**

.....A Project Idea?

.....A Photo?

.....A Piece of Club History?

.....A Short Profile on Yourself: New or Old Members!?

Cape Cod Astronomical Society

President	Gary Derman	508-240-0984
Vice President	Tom Leach	508-237-9291
Secretary	Betsy Young	508-255-8448
Treasurer	Kelvin Parkinson	508-385-5982
Observatory Director	Michael Hunter	508-385-9846
First Light Editor	Peter Kurtz	508-255-0415 info@CCAS.ws

Cape Cod Astronomical Foundation

Chairman	Werner Schmidt	508-362-9301
Vice Chairman	Michael Hunter	508-385-9846
Director R&D	Bill McDonough	508-771-0471
Secretary	Ed Swiniarski	508-895-5973
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.



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 mimima of Algol.
- 2) Information on how Libration and Declination Maxima and Minima can make visible parts of the moon normally hidden was reviewed in the 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) <http://www.astroleague.org/al/socaids/betrmeet.html>
- 5) <http://www.skyandtelescope.com/community/skyblog/observingblog/33501429.html>
- 6) <http://www.skyandtelescope.com/community/skyblog/newsblog/34222264.html>