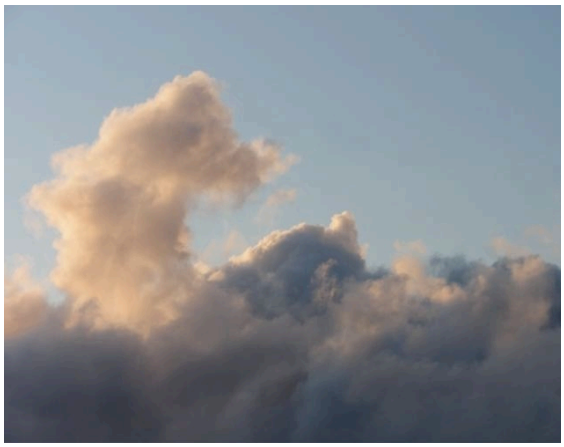
First Light

The Newsletter of the Cape Cod Astronomical Society

November, 2011 **Vol.22 No.11**

Astrophotography is Easy and Fun!



M31…Andromeda Galaxy, **10/18/11** **Canon DSLR on Meade 10" Schmidt-Newtonian** **By Tom Leach, CCAS President from his Home Observatory**	**"Horsehead Nebula" with blue sky background?** **Actually, "Seahorsehead in Clouds" over Cape Cod Bay** **By Lori Wood.** **Lori is a member of the Westchester Amateur Astronomers who participated in our October meeting.**

Thank, you, Tom and Lori!

Next Monthly Meeting: is Thursday, November 3rd at 7:30pm in the D-Y Library; open to the public. Please join us!

Reminder: "Dark Saturday" Star Party at the Schmidt, 7:30pm, Saturday, October 29th; members and public welcome!

In this issue: "Astrophotos" / A Bright New Star / Day & Evening Classes with D-Y Students / 70% Dues Paid / Autumn Targets / The Leonid Meteor Shower / Best Comet Still Shines / SN2011fe fades

Bright New Stars:

We would like to welcome Anthony Chapman who joined CCAS at our October 6th meeting. Anthony lives in Orleans. Anthony, please send more information on yourself and your interests in amateur astronomy and we will share that information with our membership next month.

We like to profile new members in our Society in this section of *First Light* each month. If you are a new member and have not yet been so recognized, or have new information for us (background, astro equipment preferred, interests, etc.) on yourself or someone else, please let us know (email info@ccas.ws).

CCAS and Related Events:

Many thanks to Mike Hunter and colleagues Bernie Young, Gail Smith, Peter Kurtz, Ed Swiniarski and Joel Burnett, for their most informative update, **"What's Happening at the Schmidt"**, at our October meeting. Topics ranging from

- New still and video camera capabilities
- Recording occultations of stars
- Star Parties: public, private, and "just for you"
- The anatomy of a big Dob and our new Meade Lightswitch 'scope
- Binoculars key for wide field observing
- How to do virtual observing when it rains using modern technology

provided brief portraits of the new directions and capabilities evolving at the Dome.

And, once more, thanks to Tom who continues to put together great programs of speakers for our meetings.

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 Program Chairman. For sure he will follow up.

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

CCAS DUES

Thanks to all members who are up-to-date on payment of their 2011-2012 dues. **70%** of 45 members are paid up.

If you are one of those who has overlooked the matter, please make your payment either by bringing to the November meeting or mailing directly to CCAS at PO Box 207 Harwich Port MA 02646.

Thank you.

Executive Corner

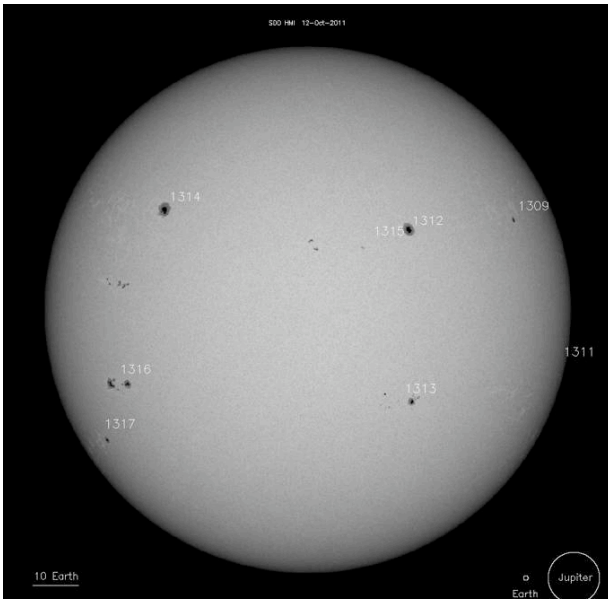
The new Executive Board plans to meet for the first time in November.

From the Dome…

…by Mike Hunter

We are busy at the Dome during October and November introducing D-Y students to observational astronomy.

To begin, Jim Mitchell's Earth & Space class of Dennis-Yarmouth Regional High School juniors and seniors visited just after sunrise for a daytime session on October 12. We started with a short presentation by Peter Kurtz while we all waited for the sun to clear a low cloud bank. Just at the end of Peter's orientation, the sun popped out. Peter assisted the



students with observing through his 15x70 binoculars and Mike Hunter helped them at the 8" Schmidt-Cass. Both instruments were fitted with full aperture sun filters. The NASA image above for October 12[4] shows the main groups of sunspots we saw that morning.

This same class will be attending nighttime observing sessions using the 16", 18", and various other instruments. Observatory Staff members Mike Hunter, Bernie Young, Joel Burnett, Gail Smith, Ed Swiniarski, and Peter Kurtz have formulated observing agendas and special projects for these evenings. The targets will varying according to the phases of the moon, but will certainly include observation of the lunar terminator, lunar occultations, Jupiter and its moons, variable stars, deep sky objects, etc. The session will run for three consecutive Wednesdays: October 26th and November 2nd and 9th.

Planning is underway for a separate special program for eighty-five eighth graders, a group who attend DY high school under a special pilot program. We will observe the various phases of the moon over a lunar month. Given the normal weather conditions during late fall and early winter on Cape Cod, this program might take several months to complete. It should be noted that this program is the first one to take place under the new "Observation Program" opportunity announced at our Society's October monthly meeting.

The "Observation Program" is an opportunity to request a personal observing session. It is open to all Society members and Dennis-Yarmouth Regional School District staff and students.

This is not a training or mentoring program. It is intended to provide a personal observing opportunity for individuals or small groups. Observatory staff will be present to operate the scopes and other equipment.

Those who are interested should contact Observatory Director Mike Hunter at mamhunter@yahoo.com .

"Dark Saturday" Star Parties at The Schmidt; 7:30pm:

Oct 29 Nov 17 Dec 15 Jan 21
Feb 18 Apr 21 Mar24 May 19

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! Help us 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

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November Observing:

Observing Highlights for November, 2011 at Cape Cod:

Please consult the November Issues of *Sky and Telescope* (pp 42-49), *Astronomy Magazine* (pp 40-47), and *Astronomy Magazine Online* (See Ref 5) for more information on these topics and others.

This month: Clock change, Venus now an "evening star" again, more Jupiter and moons at their best, blue planets, Garradd comet, asteroids, and finally, the Leonids.

But first, each season, *Astronomy* editor Michael Bakich assembles a list of 10 "don't miss" Targets for Small Telescopes. Here's the list for this autumn (much more detail is available online; please see reference 4a.)

- Andromeda Galaxy, M31
  - Low power (see nucleus, M32, NGC205); M31 is 3º wide!
  - 150x Look for clumps in spiral arms.
- M15, a globular cluster in Pegasus; mag 6.1 star just east. At 100x see chains of stars.
- Owl Cluster, NGC 457 in Casseopiea; 50 stars at 75x ; the cluster is 20' wide.
- Helix Nebula, NGC 7293 in Aquarius: "half as large as a full moon"; use 75x or 100x
- Double Cluster in Perseus. (NGC 869 and companion); best with 15x binoculars.
- μ-Cephii, Herchel's Garnet Star: defocus your telescope to make a blob to see the color.
- Globular Cluster M2 in Aquarius: hundreds of stars in outer halo if good seeing.
- M33 Pinwheel galaxy in Triangulum.
- Blue Snowball planetary nebula in Andromeda, NGC7662: 36" in diameter, 50% larger than Saturn.
- Pleiades, M45

EASTERN STANDARD TIME BEGINS AT 2am ON SUNDAY, NOVEMBER 6th in the USA. Clocks set back one hour.

Mooncusser's Almanac and Monthly Alert[1]
By Peter Kurtz
Novembeer 2011

Object	Nov. 1 (DST)	Nov. 15 (EST)	Nov. 30 (EST)
Sun	R: 07:12 S: 17:35	06:29 16:20	06:47 16:11
Moon	R: 13:00 S: 22:56	20:11 10:36	11:04 21:52
Mercury (early eve)	R: 09:02 S: 18:21	08:33 17:24	07:27 16:41
Venus (early eve)	R: 08:58 S: 18:33	08:31 17:37	08:59 17:54
Mars (late nite)	R: 00:52 S: 14:47	23:33 13:11	23:10 12:30
Jupiter (evening)	R: 17:23 S: 06:55	15:23 04:51	14:20 03:44
Saturn (predawn)	R: 05:44 S: 17:04	03:57 15:12	03:06 14:17
Uranus (evening)	R: 16:00 S: 04:06	14:04 02:09	13:05 01:09
Neptune (evening)	R: 14:42 S: 01:17	12:46 23:22	11:47 22:23
Pluto (early eve)	R: 11:29 S: 21:12	09:35 19:18	08:38 18:21

Planets:

Absent for quite a while, our "morning stars", **Venus** (mag -3.9) and **Mercury** (mag -0.3) put on their dance again this autumn in the southwest at dusk. Find yourself a quiet southwestern evening horizon looking over water. At month's beginning, Mercury sits almost directly below Venus, separation 2º; Antares is below and way to the left; by the 15th, Mercury is still almost directly below Venus at separation 2º and Antares (if not set) is below and off to the right; but by month's end, Venus has moved much to the left and more than 10º above Mercury (which sets then 30

minutes after the sun and more than an hour before Venus.) Each night of the month, the pair and nearby stars present excellent photo ops for a simple digital camera on a tripod. On November 26 and 27, a 2- and then 3-day-old crescent moon adds flavor to your observation or photo.

Mag 7.9 **Neptune** lies well up in the sky as darkness falls in Aquarius. You should be able to see it in 50mm or larger binoculars; a telescope will show it to be a blue-gray disk 2.3" in diameter. Brighter (mag 5.8) **Uranus** follows well up in the sky between Pegasus and Cetus after dark. You might be able to see it without optical aid; but, for sure, you will see it with binoculars. A telescope will show a blue-green disc much different from the nearby mag 6.3 field star 0.5º away. Finder charts for these "blue" planets can be found at reference 4b.

No need to dwell at this point on the continuing dramatic show put on by **Jupiter and its moons**. Yes, Jupiter reached opposition in late October but views this month remain spectacular: the disk is 50" at month's beginning and still 48" at month's end. *We hope a D-Y student star party scheduled for November 2 is blessed with clear dark skies; that night Jupiter's moons put on several special events the highlight of which should be the* ***moon Europa disappearing behind Jupiter just after 9pm EDT.***

Resources for Jupiter and its moons: if you don't have Gas Giants, the iPod/iPad app for moons of Saturn and Jupiter discussed in the April, 2011 *First Light*, please see the November *S&T*, p 47; November's *Astronomy*, p 41, or the interactive resource online at reference 6 for positions of Jupiter's moons for any date and time. A chart of special eclipses, occultations, and transits is given in the November *S&T*, p54; a table of transits for the great red spot in November is given on the same page.

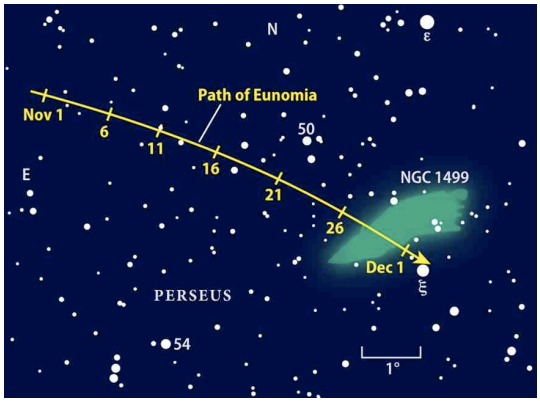
Meteor Showers, Newcomer Asteroid, Comet:

Look for the sometimes spectacular, sometimes not so, **Leonid Meteor Shower** before midnight on November 17. True, the radiant, Leo, won't rise until after midnight but, when it does, a quarter moon rises right with it. So the best time to try will be before midnight.

The mag 8 asteroid **Ceres** continues its readily observable trip in November, still in Aquarius. Finder chart: Reference 7. Vesta is still in the evening sky in Capricorn but sufficiently low to make it tough to get at with most telescopes

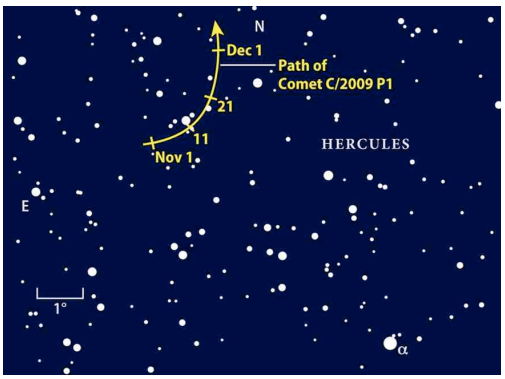
The asteroid **15 Eunomia** swings close enough to Earth this month that it shines brighter, at mag 8, than all others except 4 Vesta; and it is much higher in the sky than Vesta.

Eunomia is at opposition on the 28th when it passes nearly overhead around midnight. During the month's final days, it passes in front of the California Nebula (NGC 1499), which



lies just north and east of 4th-magnitude Xi (ξ) Persei. You won't have trouble seeing the asteroid but you might need a nebula filter to see California.

As is evident from this November finder chart from Reference 5, **Comet C/2009 P1 (Garradd)** continues to



crawl very slowly to the north and west this month against the stellar backdrop of southern Hercules. It's unusually slow day-to-day movement offers a distinct advantage to new observers — yes, it moves only at bit…but you can find it almost at the same spot night after night.

This month Garradd's tail fans out to the northeast (almost straight up in the evening sky). Although the tail fades gradually, the comet's head appears well-defined on its southwestern side. See reference 8 for more on Garradd and a finder chart tracing it past the Hercules keystone from now to February.

Note on Supernova, SN2011fe: Getting Dim

As of October 25th the supernova in the galaxy M101 had dimmed down to about magnitude 13.2, after peaking in mid-September at 9.9. It's fading by about 0.1 magnitude every two days, and it has changed from white to strikingly orange-red. It is getting quite dim.

Another problem is that SN2011fe is very low in the evening sky right now; better to look between midnight and

dawn when it is higher. If you want to try: Find SN at **RA: 14 03 05.81 , Dec: +54 16 25.4**

You can make an AAVSO dim star comparator chart by going to http://www.aavso.org/vsp and entering SN2011fe as the name of the target.

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, November, 2011

First QTR Wednesday, Nov. 2nd , at 12:38pm DST
Full Moon Thursday, Nov. 10th, at 3:16pm EST
Last QTR Friday, Nov. 18th, at 10:09am EST
New Moon Friday, Nov. 25th, at 1:10am EST

A PORTION OF THIS PAGE IS INTENTIONALLY LEFT BLANK TO REMIND ALL MEMBERS THAT THERE IS ALWAYS PLENTY OF ROOM IN *FIRST LIGHT* FOR YOUR CONTRIBUTIONS

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The **Cape Cod Astronomical Society** meets at 7:30 pm on the first Thursday of every month in the library of the Dennis-Yarmouth Regional High School in Yarmouth, Massachusetts. Meetings are open to the public. Membership dues are $30 for adults, $15 for students in two year colleges and part year residents, and no charge for spouses or for students in K-12 schools.

References and Notes for this issue:

1) Information for The Mooncussers Almanac and Monthly Observing Alerts was extracted from Sky Events, Astronomy Magazine Online (Astronomy.com), Stargazing.net's Planet Rise/Transit/Set calculator (http://www.stargazing.net/mas/planet2.htm), *Astronomy Magazine*, *Sky & Telescope Magazine*, *Sky and Telescope Skywatch 2011*, and other sources. The *Observer's Handbook, 2010 and 2011,* published by The Royal Astronomical Society of Canada is also an important reference, particularly for information on lunar libration and declination and the 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 December2007-January2008 *First Light*. Quick recap: Max Long brings to view extra right side; Min Long, extra left side; Max Lat, extra north side; Min Lat, extra south side. Max Dec puts it high in our sky during its transit; Min Dec puts it low.

3) Algol is an eclipsing variable star in Perseus which has its brighter component eclipsed or covered by its companion once every 2.87 earth days. When the dimmer component is not eclipsing the brighter, Algol appears typically about magnitude 2.1; when eclipsed, magnitude 3.3 The minima usually lasts about two hours with two hours on either side to bring it back to mag 2.1. Good comparison stars are γ-Andromedae to Algol's west, mag 2.1, and ε-Persei to its east, mag 2.9.

4) Index of NASA's daily sunspot photo archive: http://sohowww.nascom.nasa.gov/data/synoptic/sunspots_earth/

4a)http://astronomy.com/NewsObserving/Intro Sky/Tour the Deep Sky/2011/09/Autumn observing targets for small telescopes.aspx

4b) http://media.skyandtelescope.com/documents/Uranus-Neptune-2011.pdf

5) Here is the web address for Astronomy Magazine's online "The Sky This Month" online for October: http://www.astronomy.com/News-Observing/Sky this Month/2011/09/Mercury joins Venus at dusk.aspx

6) *S&T*'s interactive Java utility for showing the positions of Jupiter's main moons for any date and time: http://www.skyandtelescope.com/observing/objects/planets/3307071.html

7) Ceres and Vesta charts from May to December from S&T: http://www.skyandtelescope.com/observing/objects/asteroids/122249184.html

8) A profile on Garradd through February: http://www.skyandtelescope.com/observing/highlights/128836743.html

9) AAVSO Light Curve on SN2011fe as of 10/25/11: http://www.aavso.org/lcg/plot?auid=000-BKD-525&starname=SN 2011FE&lastdays=1000&start=&stop=2455860.304893264&obscode=&obscode_symbol=2&obstotals=yes&calendar=calendar&forcetics=&grid=on&visual=on&uband=on&bband=on&v=on&pointsize=1&width=600&height=450&h