



# *First Light*

The Newsletter of the Cape Cod Astronomical Society



January, 2011

Vol.22 No. 1

## What We Thought in Antiquity

*When it was dark I set by my camp fire smoking, ... and feeling pretty satisfied;  
but by-and-by it got sort of lonesome, ... and so I went and set on the bank and listened to the currents  
... and counted the stars and drift-logs and rafts that come down,  
...and then went to bed.*

*There ain't no better way to put in time when you are lonesome ... you can't stay so, ...you soon get over it.*

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*We had the sky up there, ... all speckled with stars,  
... and we used to lay on our backs and look up at them, and discuss about whether they was made  
... or only just happened.*

*Jim he allowed they was made, ... but I allowed they happened;  
... I judged it would have took too long to MAKE so many.*

*Jim said the moon could a LAID them;  
... well, that looked kind of reasonable,  
...so I didn't say nothing against it, because I've seen a frog lay most as many, so of course it could be done.  
We used to watch the stars that fell, too, and see them streak down.  
...Jim allowed they'd got spoiled and was hove out of the nest.*

[... some views on the heavens by two 19<sup>th</sup> century cosmologists. Please see note on page 5.]

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- **Next Monthly Meeting:** is Thursday, January 6<sup>th</sup> at the D-Y Library. We have just learned that Dr. Chester C. Languay, the scheduled speaker has had a medical emergency and will no be able to speak. We wish Dr. Languay a speedy return to good health. Paul Cezanne has graciously agreed to move his talk, Getting the Most Out of Astronomy Software, originally scheduled later in 2011, to January 6<sup>th</sup>. Please see next page for more on Paul and his talk. (Please see the moving banner and the “tail of the rocket” on our website’s home page for information on other upcoming speakers and topics.)
  - Please pay your Society dues for 2010-11 if you have not yet done so.
  - The last scheduled Star Party for this season took place in October. Sometimes emails will be sent out to alert members to special opportunities coming up at the Dome. 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 and to learn. If you would like to spend an evening at The Schmidt, contact us and we will try to schedule.
- **In this issue:** views from a raft / six new members / upcoming speakers / shadow transits of Jupiter moons / meteor shower / Comet Hartley / Our Dome / DSLR Astrophotography / A good book / Video of “empty space” / Murder! Intrigue! /
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## **Bright New Stars:**

We are pleased to note that over the last three months, CCAS has gained an average of *two* new members each month; including Nora Glass (profiled last month), and David Rego, welcomed in November. In addition to these folks, please welcome recently joined Beth Ruggiero, Charles Sterling, Robert Campolieto, and Jim Whitehill.

We like to profile 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)).

New member Jim Whitehill shared some of his background (and remarkable breadth of interests) with us during December. Jim is a retired professor of religion and philosophy, specializing in Japanese Buddhist philosophy, ethics, and culture. He taught at Stephens College in Missouri for 36 years and directed their Japan programs. Jim and his wife moved to the Cape in 2004 when his wife accepted a position at Cape Cod Hospital. Jim is a catboat sailor, a ham radio operator (Extra Class license, call sign N1QV), a Japanese archery practitioner, and, very recently, a novice stargazer. He took up astronomy only a few months ago, after seeing “what a special group was available to me” in the CCAS. With the initial help of Gary Derman (short story last month) Jim is currently learning how to use his Celestron 4" GoTo refractor, to avoid frostbite, and to read a sky chart! Recommended reading: Mary Roach, [Packing for Mars: The Curious Science of Life in the Void](#). Jim, please stand up and let us know who you are at our next meeting!

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

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

Many thanks to Mike Hunter for his article on starting up in DSLR astrophotography (page 5), Jon Greenberg for the murder story on page 8, and Ernest Ryden for the link to the wonderful video on “empty space”, page 8.

## **CCAS Events**

Bernie Young organized observing sessions at the Schmidt Observatory early in December aimed at capturing meteor impacts on the moon during the Geminid (Dec 9-12) and Leo Minorid (Dec 13-14) meteor showers and to observe and image the moon the night of its total eclipse, Dec 20-21. Unfortunately, none of these observing sessions panned out because of most

impossible weather.

Many thanks to Randall Moore for his overview of major telescopes in space and associated engineering challenges at our meeting on December 2<sup>nd</sup>. Randall’s experience ranges over adaptive optics, the Viking Mars Lander, airborne reconnaissance sensors for aircraft and orbiting spacecraft, the Chandra Orbiting X-Ray Observatory and the Hubble and Spitzer space telescopes. He drew from many aspects of this experience in his talk. Thank you, Randall.

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### **January 6th - January 6th 'GETTING THE MOST OUT OF ASTRONOMY SOFTWARE'**

At our meeting on January 6th, MIT scientist and Amateur Astronomer Paul Cezanne will give a presentation profiling astronomy and sky charting software, what's out there, and what works best. An MIT graduate Cezanne is a software analyst by day and is also known for his Astronomy website called 'Paul Cezanne's Observing Reports' as he says "Sometimes when I'm done looking at the stars, I write about it". He continues to give stargazing talks at Truro Library and the National Seashore and has been an outreach person for Astronomy in general in the Outer Cape.

At our meeting on February 3<sup>rd</sup>, Paul Blackmore, staff photographer for *The Cape Cod Times*, will present a program: **Celestial Landscape Photography**. Paul is a dynamic, young, prize-winning photographer who teaches photography “so the novice photographer can understand it.” He is self-taught photographer and has won many New England Press Association awards as well as awards from the New England Associated Press News Executives Association. Paul works as a photojournalist, but has a passion for landscape photography and nightscapes. He teaches photography and runs a wedding photography business. He is a board member and one of the founders of the Photographic Society of Cape Cod.

On March 3<sup>rd</sup>, CCAS’ Bernie Young will present a program: **Planning and Determining Limits for Recording Moon Occulations**. This has recently become a primary interest of the Werner Schmidt Observatory Staff. Discussion will include planning and measures to record the Lunar Eclipse of 2010. Bernie is an amateur astronomer and professional land surveyor. In addition to his extensive background in Physics from the University of Michigan, he is a trained member of

the Observatory Staff.

Thanks again to Tom Leach, who continues to put together great programs. Tom informed us recently that speakers for the CCAS Lecture Series are now fully scheduled through our July 2011 meeting! If you would like to take a peek at what's coming up beginning in April, take a look at <http://www.ccas.ws/monthlynotice.html> or look in the "tail of the rocket" on our main website page.

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 December meeting prepared by Charlie Burke, our Secretary, are on our website; click on the "Minutes" button at [www.ccas.ws](http://www.ccas.ws) or go to <http://www.ccas.ws/minutes/ccasminutes120210.pdf>

## **Executive Corner**

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

2010-2011 Dues **WERE** Due June 30, 2010

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

Thank you.

## **From the Foundation... and Dome...**

**As always, "Private" group or individual observing sessions at the Werner Schmidt Observatory may be scheduled by contacting observatory Director Mike Hunter at [mamhunter@yahoo.com](mailto:mamhunter@yahoo.com) or sending an email to [info@ccas.ws](mailto:info@ccas.ws)**

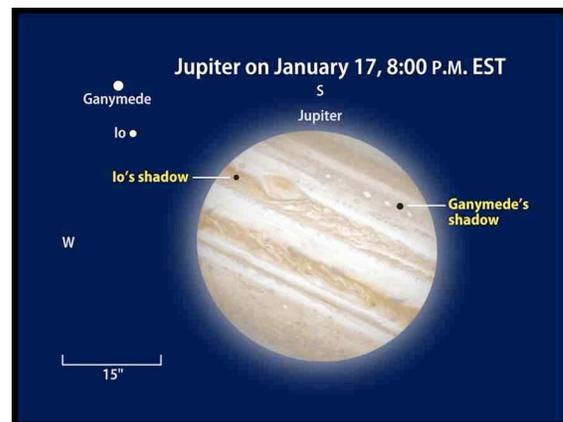
**Our Society exists to promote observing! Help us promote this objective by asking for time at the Dome!**

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

## **January Observing: Best "Prime Time" Shadow Transits on Jupiter in 2011:**

**If it is clear the evening of Monday, January 17<sup>th</sup>, do not miss this opportunity to watch or capture images of this very special sky phenomenon!**

On Monday, January 17<sup>th</sup>, the best double shadow transit of Jupiter in 2011 will take place in "Prime Time" viewing hours. Beginning at 6:04pm EST, the shadow of Io will begin to cross Jupiter from East to West. Beginning at 7:44pm the shadow of Ganymede will begin transit. From 7:44 until 8:20pm, **TWO** moon shadows can be seen moving across the face of Jupiter.



The picture above (Astronomy Magazine, p50; also online, reference 4) shows what you can expect to see at 8pm on the 17<sup>th</sup>. This image has west left and south up as one would see in a Newtonian telescope. As viewed in such a telescope, the moons and their shadows move over Jupiter from east to west or from lower right to upper left as imaged here. In a Schmidt-Cassegrain telescope equipped with an eyepiece diagonal, west still will be left but south would be down so you would see the moons and their shadows moving from right to left but the shadows would appear at the bottom of the planet.

See page 8 for timing details on this event.

**Near encore!!!:** A *single* shadow transit of Io will take place in prime time on Monday, January 24<sup>th</sup>. Please see details on page 8. Actually two single shadow transits take place that evening but the second takes place after Jupiter sets that night for us at the Cape.

**Resources** for Jupiter and its moons for *December*:

- Position charts for Jupiter’s main moons are published in the January issues of *Astronomy Magazine* (p45) and *Sky and Telescope* (p46);
- A Chart for timing of “special” Jupiter moon events is published on page 40 of the December *S&T*. See also reference 5 for an all-season dynamic model of the moment-to-moment positions of Jupiter’s main moons and time, any date.

<b>Moonscuser’s Almanac and Monthly Alert <sup>1</sup></b> By Peter Kurtz <b>January 2011</b>			
<b>Object</b>	<b>Jan. 1 (EST)</b>	<b>Jan. 15 (EST)</b>	<b>Jan. 31 (EST)</b>
<b>Sun</b>	R: 07:07 S: 16:20	07:05 16:35	06:53 16:54
<b>Moon</b>	R: 05:01 S: 13:58	12:37 03:43	05:24 14:46
<b>Mercury (dawn)</b>	R: 05:26 S: 15:01	05:36 14:50	06:09 15:26
<b>Venus (predawn)</b>	R: 03:21 S: 13:34	03:35 13:25	03:56 13:27
<b>Mars (in the sun)</b>	R: 07:43 S: 16:54	07:26 16:53	07:02 16:55
<b>Jupiter (early evening)</b>	R: 10:51 S: 22:40	10:00 21:56	09:03 21:08
<b>Saturn (~ midnight)</b>	R: 00:13 S: 11:49	23:20 10:55	22:17 09:52
<b>Uranus (early evening)</b>	R: 10:49 S: 22:42	09:55 21:49	08:53 20:49
<b>Neptune (early evening)</b>	R: 09:36 S: 20:08	08:42 19:15	07:40 18:15
<b>Pluto (dawn)</b>	R: 06:25 S: 16:12	05:32 15:18	04:31 14:18

**Meteors, Planets, a Moon, a Comet...**

Don’t miss the **Quadrantid meteor shower**, which should be one of the best in 2011. Peaking at “Prime Time” for us in the east on Tuesday January 3rd, dark skies (new moon is the same day) should allow good viewing of what could be more than 120 meteors/hours. Although the radiant, near Arcturus in Bootes, is below the horizon at peak time, the expected timing for peak is about 8pm on the 3<sup>rd</sup>. Do make a point to observe near this peak time; unlike other showers, the Quadrantids have high rates of meteors only six hours on either side of peak. The Quadrantids get their name from a defunct constellation, Quadrans Muralis, which used to occupy

this region of the sky.

Imagine you are above the solar system looking down at an angle; **Jupiter** is farthest from you in its orbit circle at the 12 o’clock position, earth is at about the 9 o’clock position, and earth is moving rapidly toward your viewpoint in a counterclockwise direction. Each month the earth moves dramatically away from Jupiter as it moves toward the 6 o’clock position of its orbit; at the same time, Jupiter moves slowly and gradually closer to where it will soon be in conjunction with the sun as we look at it. Conclusion: if you are a fan of Jupiter and its moons, *study it NOW*... before it gets too much smaller and before it goes behind the sun (April 6<sup>th</sup>)!

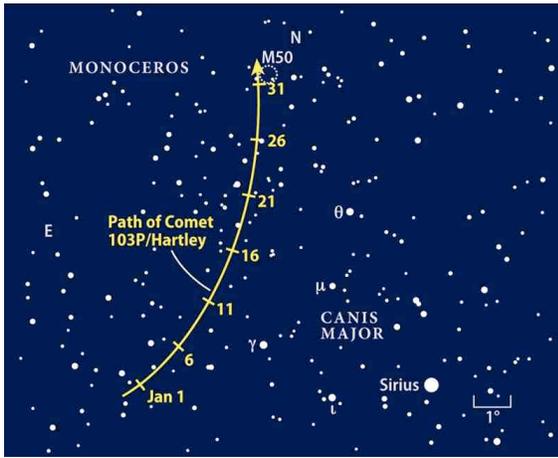
If you study Jupiter this month, you can look for the red spot, observe the now reappeared formerly “lost” South Equatorial Belt, use Jupiter as a locator in the sky for **Uranus** (only 0.6° north of Jupiter on January 2), and (see below) watch the best double moon shadow transit of Jupiter for all of 2011!

**Saturn’s** evening season is coming soon for us; at midmonth, January 15<sup>th</sup>, Saturn rises in the east at 11:20pm. Imagine Saturn at the 12 o’clock position in the scheme we looked at above for Jupiter. If our view shows Saturn at the noon position, right now earth is at about the 2 o’clock position and moving rapidly (at opposition on April 4<sup>th</sup>) counterclockwise toward Saturn. From January 15<sup>th</sup> to April 4<sup>th</sup> Saturn will grow from 17.7” (mag 1.1) to 19.3” (mag 0.7)!

**Variable Stars? How about a Variable Moon?:**

Iapetus is the oddest of Saturn’s bright moons. It wanders much farther from the planet than many others, and its two-toned surface causes major brightness variations. Iapetus glows at its brightest, mag 10, when it reaches greatest western elongation January 4. On that date it lies a whopping 9’ from Saturn — about 13 ring diameters. It appears brightest then because its highly reflective trailing hemisphere faces us. It dims two magnitudes, to mag 11, by the time its dark leading hemisphere faces us mid-February.

Finally, although **Comet 103P/Hartley** is dimming as it moves away from the earth and the sun (magnitude 8 to begin January; mag 9 by month’s end) it is conveniently placed in the sky this month for evening viewing with binoculars or stronger. See next page for a finder diagram. Try early and then late in the month away from brightest moon periods. Near the end of the month, the comet is near the beautiful 200-star compact open star cluster M50.



More details on all the events mentioned in the preceding, and others, can be found in the January issues of *Astronomy* and/or *Sky and Telescope* magazines or online at reference 4.

### Moon Phases, January, 2011

<b>New Moon</b>	Tuesday, Jan 4 <sup>th</sup> , at 4:3am EST
<b>First QTR</b>	Wednesday, Jan 12 <sup>th</sup> at 6:31am EST
<b>Full Moon</b>	Wednesday, Jan 19 <sup>th</sup> , at 4:21pm EST
<b>Last QTR</b>	Wednesday, Jan 26 <sup>th</sup> at 7:57am EST

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.

## Interested in Domes?

If so, check out this advertisement from Ash Mfg. which appears on p78 of January's *Astronomy Magazine*:

**FOCUS ON**  
**The Werner Schmidt Observatory**  
 South Yarmouth, MA

The observatory located on the grounds of the Dennis-Yarmouth Regional High School is the only public observatory on Cape Cod. It has generated interest in astronomy. The project was funded by the Cape Cod Astronomical Foundation and built by the Cape Cod Regional Technical High School students. The building was designed to provide people with disabilities access via a CCD camera and monitor screen. It has been a welcome addition to the educational community.

**ASH MANUFACTURING COMPANY**  
 P.O. Box 312  
 Plainfield, IL USA 60544  
 815.436.9403 • FAX 815.436.1032  
 web site: www.ashdome.com

## What We Thought "in Antiquity":

... from The Adventures of Huckleberry Finn by Mark Twain, Chapter 8, page 37; Chapter 19, page 113; from the Barnes and Noble edition c 1996; original copyright, first published in England, December 1884 and in the United States in 1885.

We return to excerpts from *The Friendly Stars*<sup>11</sup> next month.

## **Feature Article:**

### **First Attempts at DSLR “piggyback” and Prime Focus Astrophotography**

...by Mike Hunter

Just over a year ago, my little point-and-shoot digital camera died. About the same time, I was bitten by the astrophotography bug; the pretty picture astrophotography bug. All that I needed was a camera, a camera that would take pictures of the grandkids at the beach *and* the Horsehead nebula. I prowled the small camera shops and large box stores and quietly lurked on four or five Yahoo astronomy groups. Picking brains is a pastime that I really enjoy.

Finally, I saw a Canon newspaper add with a camera that fit the bill and a bill that fit my wallet. The question of where to buy was also answered by the ad; the camera was the same price at all stores, big and small. I went right down to the local camera shop and bought a Canon *Rebel XS* and two image-stabilized lenses for \$650. In manual mode, every adjustment imaginable and then some can be made quickly and easily, once you’ve learned how to do them. Astrophotography made easy. The grandkids? Well, you just turn one knob to Full Automatic, point, and shoot.

After minimal time spent reading the manual, I went to The Schmidt and attached the camera and 250mm lens to the 16”, piggyback style. An hour of work taught that focusing is most critical. The second night was not much better. The third night I took the lens off and attached the camera to the 16” at prime focus. Many shots later, it became obvious that I had more to learn about focusing and that the field of view on the 16” is somewhat narrow, especially for my skill level.

The next several nights were spent at prime focus on my own 8” f4 Schmidt-Newtonian at home. It’s a Meade LXD55 housed in a micro-observatory in my back yard. I finally had success with focusing.

The photos embedded here are single shots, no stacking. The M31 shot has just a tad of adjustment, some increase in brightness and contrast. The shot of The Pleiades, M45, and moon shots are raw jpg’s. Their files sizes are 156KB, 136KB, and 112KB respectively. The M45 shot was taken on the 16” f10 at prime focus. The other two were taken on my 8” Schmidt-Newtonian f4 at prime focus. All three have been cropped and downsized. Downsizing costs loss of much of their detail, especially the shot of M31; when I viewed the original on my camera’s LCD display under high magnification, I could see the spiral dust lanes. The moon survived the best of the three.

The first photo (below) is a 5 second shot of the Pleiades. The focus is reasonable and the exposure is only a little too long.

The next night on my scope at home we did much better. I finally solved the focusing problem.



...Learning to Focus: The Pleiades



Sharp as a Tack: The Moon

The photo of the moon, shown on the previous page, 1/250th second at prime focus, can be enlarged to 16 inches and still show a crisp focus. The raw photo is 3888 x 2592 pixels.

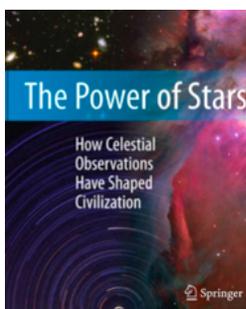


The same evening, I took ten 30 second prime focus shots of M31, the Andromeda nebula. The best of ten is shown here. Seven of the shots showed star trails from poor tracking. I stacked the remaining three using Nebulosity, an astrophotography program from Stark Labs. The result was not significantly better than the single shot. I need to get five or more good shots.

Focusing has been solved. Solving tracking and stacking, especially tracking, will climb a steep learning curve.

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## **Read a Good Book Lately?**



### ***The Power of Stars – How Celestial Observations Have Shaped Civilization***

Dr. Bryan Penprase, Professor of Astronomy at Pomona College in Claremont California, sent us an overview of his new book, published by Springer, Inc. The book covers a history of the human response to the sky from cultures around the world, and includes sections describing constellation lore from diverse cultures, that include the Native American, Mayan, Chinese, Aboriginal Australians and others. The book also presents a wide range of models of the universe from all cultures, star maps from cultures around the world, and celestial architecture from both ancient and modern civilizations. The evolution of modern timekeeping, from shadow and water clocks

to modern atomic clocks, is also treated as is how our modern picture of cosmology and astronomy developed from the contributions of Galileo, Newton, Herschel, Hale, and Hubble.

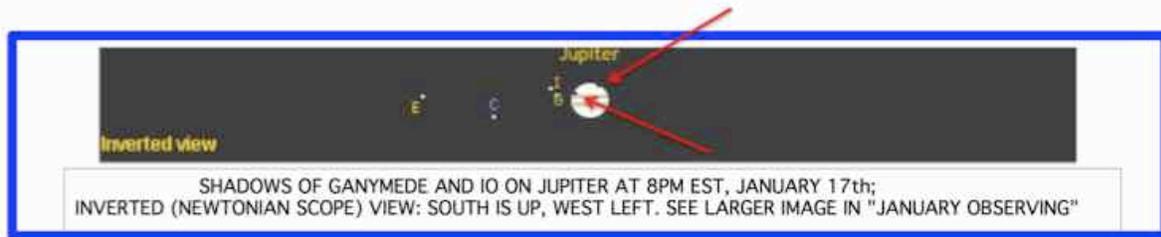
Dr. Penprase tells us his book comes from 17 years of his teaching at Pomona, where he developed a course entitled “Archaeoastronomy and World Cosmology.” He also conducts research in quasar absorption line spectroscopy at Caltech using the Keck telescope in Hawaii and others. He says he has found in his travels doing research astronomy that having a better understanding of how other cultures responded to the sky makes the entire experience of star-gazing more enjoyable.

You can find out more about the book including access to some excerpts and supplementary content at his website: <http://www.astronomy.pomona.edu/powerofstars/> You can order at his website or at Amazon.

Dr. Penprase expressed an interest in visiting us and possibly making a presentation related to the book or on his research next summer when he may have reason to be in the area. We will keep contact with him to see what might be arranged.

## Best Prime Time Shadow Transits on Jupiter in 2011:

MONDAY, JAN 17th (EST): A DOUBLE SHADOW TRANSIT OF JUPITER



UNIVERSAL TIME		EASTERN TIME				
DATE	UT	DATE	EST	EST		
17-Jan-11	22:46	17-Jan-11	17:46	5:46 PM	Prime Time	Ganymede ends transit of Jupiter.
17-Jan-11	23:04	17-Jan-11	18:04	6:04 PM	Prime Time	** A multi-shadow transit event begins. **
17-Jan-11	23:04	17-Jan-11	18:04	6:04 PM	Prime Time	Io's Shadow begins to cross Jupiter
18-Jan-11	0:06	17-Jan-11	19:06	7:06 PM	Prime Time	Io ends transit of Jupiter
18-Jan-11	0:44	17-Jan-11	19:44	7:44 PM	Prime Time	Ganymede's shadow begins to cross Jupiter.
18-Jan-11	1:20	17-Jan-11	20:20	8:20 PM	Prime Time	Io's shadow leaves Jupiter's disk.
18-Jan-11	3:28	17-Jan-11	22:28	10:28 PM	Prime Time	Ganymede's shadow leaves Jupiter's disk.

MONDAY, JAN 24th (EST): IO HIDES BEHIND JUPITER;  
TUESDAY, JAN 25th (EST): IO'S SHADOW CROSSES JUPITER; BOTH AT PRIME TIME.

UNIVERSAL TIME		EASTERN TIME				
DATE	UT	DATE	EST	EST		
24-Jan-11	23:52	24-Jan-11	18:52	6:52 PM	Prime Time	Io begins transit of Jupiter.
25-Jan-10	0:06	24-Jan-11	19:06	7:06 PM	Prime Time	Ganymede begins transit of Jupiter.
25-Jan-10	1:00	24-Jan-11	20:00	8:00 PM	Prime Time	Io's shadow begins to cross Jupiter.
25-Jan-10	2:06	24-Jan-11	21:06	9:06 PM	Prime Time	Io ends transit of Jupiter.
25-Jan-10	3:06	24-Jan-11	22:06	10:06 PM	Prime Time	Ganymede ends transit of Jupiter.
[Note: Since the following shadow events take place after Jupiter sets on 1/25 (9:38pm), they cannot be visible from Cape Cod]						
25-Jan-10	3:14	24-Jan-11	22:14	10:14 PM	Prime Time	Io's shadow leaves Jupiter's disk.
25-Jan-10	4:46	24-Jan-11	23:46	11:46 PM	Prime Time	Ganymede's shadow begins to cross Jupiter.
25-Jan-10	7:28	25-Jan-10	2:28	2:28 AM		Ganymede's shadow leaves Jupiter's disk.

## We all know Tycho was bizarre... but... Murder? Intrigue?

... Extracts from an article published 11/20/10 by John Tierney in *The New York Times*. Thanks to Jon Greenberg for sending us the web address for this article.

When Danish and Czech scientists exhumed the remains of the astronomer [Tycho Brahe](#) in Prague this month, they dug up much more than some bones and hairs. They found something that has eluded astronomers for thousands of years: a story with major box-office potential.

It's "Amadeus" meets "Da Vinci Code" meets "Hamlet;"... a deadly struggle to find the secret of the universe ...between Tycho, the swashbuckling Danish nobleman with a gold-and-silver prosthetic nose, ...and the not-yet-famous [Johannes Kepler](#), his frail, jealous German assistant.

The story also includes

...an international hit man, hired after a Danish prince becomes king and suspects Brahe of sleeping with his mother (and maybe being his father!).

...a beer-drinking pet elk wandering around Tycho's castle, as well as a jester named Jepp, a dwarf

who sits under Tycho's table and is believed to be clairvoyant.

Naturally, the scientists analyzing Brahe's remains are steering clear of all this gossip, including the claim that Brahe had an affair with the Danish queen that helped inspire "Hamlet."

The archaeologist leading the team cautions that even if they confirm suspicions that Brahe was poisoned by mercury, that wouldn't necessarily prove he was murdered, much less identify the killer. Typical scientists!

Fortunately for Tycho and Kepler, Hollywood has never let a lack of data get in the way of a plot. There's no evidence that Antonio Salieri poisoned Mozart, but look what the movie "Amadeus" did for album sales. The only difficulty for a screenwriter would be choosing an assassin from the competing candidates (and ...deciding between scholars' Latin pronunciation of "Tee-ko" or the vernacular Latin "Tye-ko" popularly applied to the lunar crater named after him).

Intrigued? Read the full article: [http://www.nytimes.com/2010/11/30/science/30tierney.html?pagewanted=2&\\_r=1&emc=eta1](http://www.nytimes.com/2010/11/30/science/30tierney.html?pagewanted=2&_r=1&emc=eta1)

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## How about a good video?



Ernest Ryden, one of our members, sent in the web address for a spectacular three minute video which captures the daring of Hubble telescope scientists in 1996 and again in 2004 to conduct multiday exposures of "totally empty" areas of space. As you know or probably expect, they found a lot more than nothing. Enjoy the video available at: <http://www.flixxy.com/hubble-ultra-deep-field-3d.htm> Thanks, Ernest!

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## Got 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>6</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**

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## Cape Cod Astronomical Society

President	Tom Leach	508-237-9291
Vice President	Paul Cezanne	508-487-1456
Secretary	Charles Burke	508-394-9128
Treasurer	Peter Kurtz	508-255-0415
Observatory Director	Michael Hunter	508-385-9846
<i>First Light</i> Editor	Peter Kurtz	508-255-0415

[info@CCAS.ws](mailto:info@CCAS.ws)

Mailing Address: PO Box 207 Harwich Port MA 02646

## 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 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  $\gamma$ -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: [http://www.astronomy.com/News-Observing/Sky\\_this\\_Month/2010/11/Mercury\\_and\\_Venus\\_peak.aspx](http://www.astronomy.com/News-Observing/Sky_this_Month/2010/11/Mercury_and_Venus_peak.aspx)

5) ALL DATES AND TIMES UTILITY FOR JUPITER'S MOONS:  
<http://www.skyandtelescope.com/observing/objects/planets/3307071.html>

6) Tom Leach's draft video on light pollution: <http://www.youtube.com/watch?v=AkwLyD1YKzM>

11) *The Friendly Stars* available for perusal online:  
[http://books.google.com/books?id=fY4XAAAAyAAJ&printsec=frontcover&dq=The+Friendly+Stars&hl=en&ei=VsjTMztD4P\\_8AbQm7STBQ&sa=X&oi=book\\_result&ct=result&resnum=1&ved=0CCgQ6AEwAA-v=onepage&q&f=false](http://books.google.com/books?id=fY4XAAAAyAAJ&printsec=frontcover&dq=The+Friendly+Stars&hl=en&ei=VsjTMztD4P_8AbQm7STBQ&sa=X&oi=book_result&ct=result&resnum=1&ved=0CCgQ6AEwAA-v=onepage&q&f=false)