



First Light

The Newsletter of the Cape Cod Astronomical Society



April, 2008

Vol.19 No. 3

Bright New Stars

Kelvin and Anne Parkinson, who manage membership rolls and payment of dues, suggested we might consider celebrating and welcoming new members with a brief introductory profile of each in a section of First Light each month.

If you wish to contact new members highlighted here, please contact Kel or Anne or send your editor an email at info@ccas.wv New members: if you have joined during the last year or so and have not yet been recognized as Bright New Stars and would like to tell us a bit about yourself, please send an email. Please also send an email if you have new information or corrections you would like us to know about. Thanks.

This month we welcome four new members, William A. Wallace, Paul Cezanne, Robert Cabezas, and Joseph deVeer.

William moved to East Sandwich from Texas by way of Illinois last November. He looks forward to spring, and, besides astronomy, has writing as a hobby with a book soon to be released.

Paul recently moved to Truro, has long had a dormant interest in astronomy, but got hooked when a friend gave him a telescope about a year ago. Paul's current scope is a Celestron Nexstar 8" SCT OTA with a custom bracket mounted to a Celestron ASGT German Equatorial Mount. He enjoys looking at planets and open clusters, likes the moon and has expressed an interest in learning more about it, and most enjoys public observing where observing and observations can be shared. He intends to set up his telescope in Provincetown on McMillian Wharf and say to all, "Come see the moon!"

Robert Cabezas lives in Brewster has a Celestron Nexstar5 and plans to attend our next meeting.

Joseph deVeer is a new member from Bourne and has one of the new Orion Skyquest XT8 Dobsonian reflectors. My guess is many of us would like to "sample" a look through that scope if we can persuade him to bring it to a

star party sometime.

William, Paul, Robert and Joseph, we look forward to meeting you and learning more about you and your interests/experience in amateur astronomy.

Thoughts on First Light

This is the second consecutive issue having helpful and interesting contributions from members: "Bright New Stars", overview of the upcoming astrophotography workshop, and a member profile from Ed Swiniarski.

Please continue to send in articles for inclusion in First Light; suggested areas: Member Profiles, "Light Side" articles about members, astronomy resources, favorite observing targets or techniques, astrophotography and photos, special observing experiences you have had. Contributions from members make First Light "shine."

CCAS Events

Mark your calendars: **Astronomy Day this year is May 10th**. We need to nail down our activities for that day which, for sure, should include a star party.

Thanks to Mike Hunter for his informative and entertaining presentation at last month's meeting on his trip and observing notes from "down under". How many of us have observed the southern hemisphere skies with two kookaburras sitting on our shoulders!

We are very pleased to look forward to Gail Smith, CCAS member and proprietor of Smith's Time Shop in West Dennis, presenting a program "**Horology: The Art and Science of Timekeeping**" at our meeting on **April 3**. Gail will demonstrate some time pieces during her talk. Please invite your friends and neighbors to join us for what promises to be a most interesting and informative session

We are also pleased to look forward to a **workshop introducing key principles of astrophotography led by professional (astro) photographer and CCAS member, Chris Cook**, coming up as the program for the May 1st meeting. Because this will be a hands-on session,

interested members are invited to bring their own cameras and supporting equipment. Details on this are presented later on page 4 of this issue.

Reminder: CCAS has both 8" and 14" Dobsonian telescopes for loan to members.

And don't forget to remind your friends and neighbors about the upcoming sessions of Jon Greenberg's course "Observational Astronomy for Beginners" beginning Wednesday, April 9th. Details on Jon's course are outlined in last month's First Light.

Coming Soon...

Next month's First Light will have articles about the new "Gift Shop" button Tom Leach has crafted on our website and a review of two good "resources for observing" books from Greg McCauliff. If you just can't wait, click on the Gift Shop button on the website to see what is there or ask Greg about his two books!

Executive Corner

The CCAS Executive Committee met on March 10th.

Nominating Officers: Three of our current officers have agreed to "run" again leaving only the office of President without any nominations. The nominating committee will consist of three members. One committee member will be chosen by Jon Greenberg; the executive committee will pick one and the general membership will pick one at our next meeting. Please think about this.

The election will be held following the nominating committee's report at the July meeting. The new officers start their two year terms Aug. 1.

The executive committee will hold future EC meetings at 6:45 PM in the D-Y library in odd months, beginning with a meeting on Thurs. May 1, prior to the regular club meeting.

Our June 5th club meeting will feature star gazing inside an inflatable planetarium called STARLAB which will be brought to us by Mike Marks, who teaches astronomy classes at CCCC. We are looking into the possibility of having that meeting at the Cape Cod Museum of Natural History, our former meeting place. The STARLAB dome requires a large room with a tall ceiling, something CCMNH should be able to provide.

From the Dome... and Foundation News...

...when we have input from the Observatory Director or from Foundation Officers...

Astro Trivia

What are the technical definitions and some practical aspects of civil, nautical, and astronomical twilight times?

...to be discussed at our April meeting.

Mooncusser's Almanac and Monthly Alert¹	
By Peter Kurtz	
APRIL 2008	
New Moon	Saturday, April 5 at 11:55pm DST
First QTR	Saturday, April 12 at 2:32pm DST
Full Moon	Sunday, April 20 at 6:25am DST
Last QTR	Monday, April 28 at 10:12am DST

Object	Apr. 01 (DST)	Apr. 15 (DST)	Apr. 30 (DST)
Sun	R: 06:22 S: 19:06	05:59 19:21	05:37 19:38
Moon	R: 04:12 S: 14:10	14:51 04:03	03:03 14:10
Mercury in sun ; eve	R: 06:02 S: 17:50	06:02 19:16	06:14 21:03
Venus (dawn)	R: 05:49 S: 17:31	05:34 18:04	05:17 18:40
Mars (night)	R: 11:04 S: 02:31	10:42 02:00	10:22 01:26
Jupiter (predawn)	R: 02:45 S: 12:06	01:55 11:17	00:58 10:21
Saturn (night)	R: 15:30 S: 05:07	14:32 04:10	13:32 03:10
Uranus (predawn)	R: 05:36 S: 17:09	04:42 16:18	03:44 15:22
Neptune predawn)	R: 04:29 S: 14:54	03:35 14:01	02:36 13:03

More on April Observing:

The ISS Chasing Its Supplier Craft! 3/25-4/3
PHOTO-OP

When the latest US shuttle mission left the International Space Station on Tuesday, March 25th, for a brief time three orbiting spacecraft were flying in close formation. If you looked near the southern horizon that night at

just after 8pm, you could have seen the the magnitude 1.3 *Jules Verne* ATV (reaching highest altitude only 20° at 8:02:39) followed 4 minutes and 16 seconds later by the ISS, followed a mere 18 seconds later by the just undocked shuttle mission STS-123. All three passed just below Canis major on the 25th.

Well, the shuttle will be leaving the trio to return to the US mid-evening on the 25th if all goes according to schedule. But the ATV and the ISS will approach one another gradually until the ATV docks with the space station which is currently scheduled for April 3rd. So each clear night until at least 4/3 presents an opportunity to watch the twosome, one ahead of the other getting closer whenever engine firings have changed the ATV's orbit to lead eventually to docking.

Many passes will be higher in our night sky than that of the trio on 3/25. Log on to www.heavens-above.com, "satellites" to see tracks and timings for Cape Codders for both craft for each visible pass. More info on the ATV is given in reference 2.

After docking we will see the ISS as a single vehicle again, but, because of the added appendage, it will be brighter until the ATV departs. At that time we should have another opportunity to watch a chase.

April "Close Encounters" with the Moon:
[PHOTO-OP]

During April there will be near occultations involving the moon with Venus (5°, April 5), Mars (1.2°, April 12), M44: the Beehive Cluster (0.1°, April 13), Regulus (0.9°, April 15, Saturn close by), and Antares (after midnight, 0.3°, April 23).

By far, the most interesting "traveling" occultation for folks with binoculars and/or telescopes will be the **crepuscular moon's gradual occultation of M45, the Pleiades**, beginning about 9:30pm DST on the evening of Tuesday, April 8th (first encounter of the moon's dark side with the asterism) until 10:51 when the moon's lit crescent is almost past the asterism at the time the pairing sets in the west for us. Since the pairing takes place low on the western horizon, it is advisable to seek out a location for viewing that has a low western horizon (many Cape Cod Bay beaches?). While low in the west, the moon will inch slowly from Southwest toward the NorthEast in direction over the Pleiades during this encounter. Again, the dark edge leads and the bright crescent side follows.

Libration and Declination Tables for the Moon ¹

APRIL	
Max Longitudinal	Min Longitudinal
4/15 (6°)	4/2 (-7°) & 4/30(-8°)
Max Latitudinal	Min Latitudinal
4/22 (7°)	4/8 (-7°)
Max Declination	Min Declination
4/10 (28°)	3/24 (-28°)

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.

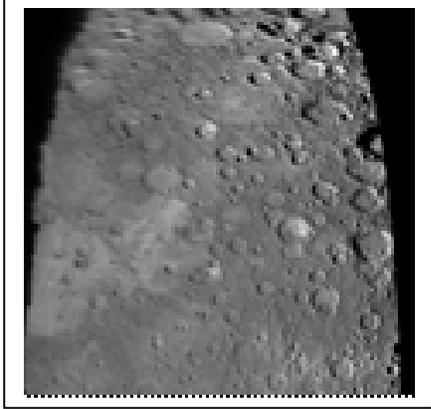
Also of Interest:

The **zodiacal** light may be visible in the west at dusk from 3/23 through 4/7.

Beauty and the Beast in the Bear: A little article in the April issue of *Sky and Telescope* (p 51) magazine points out that in April Ursa Major is upside down and is as high in the sky as it gets all year: a good time to look at its deep sky treasures. **M81**, Beauty, a beautiful face-on spiral galaxy) and the **M82**, the Beast, an edge-on spiral with a big globular center are both nicely visible in the same eyepiece field in high power binoculars and mid to large aperture telescopes with the correct eyepiece choice. A pointer line constructed from the bottom inner star of the dipper cup (γ) to the pouring edge (α) locates the pair nicely.

At the end of April, **Saturn** is as high in the sky as it will be this year. Now and the next several months are an optimum time to look at the ringed planet conveniently placed in the evening. Keep in mind that at this time next year, Saturn's rings will start to get more and more "edge-on" to us and will remain that way well into 2010.

From wherever you are, put the waning nearly full moon behind a building or a hill and look for the **Lyrid meteors** low in the east before dawn on April 22.



No, it's not the moon. It's Mercury! On January 14, 2008, MESSENGER was the first spacecraft to fly near Mercury in nearly 33 years. Check out the mosaic of moon-like photos MESSENGER took in the Sky and Telescope [online article](http://www.skyandtelescope.com/community/skyblog/newsblog/1) at www.skyandtelescope.com/community/skyblog/newsblog/1

1,3

Minima of Algol visible after dark at Cape Cod:

APRIL	
02 21	Sat 4/5
23 10	Tues 4/7
04 04	Fri 4/25
00 53	Mon 4/28
21 42	Weds 4/30

Special Notice: Spaceweather.com reports that effective March 26, we seem to be entering a period of significant sunspot activity on the surface of the sun. Persons having the proper equipment for safe observation of the the sun might enjoy tracking the rotation of these spots from day to day over the next few weeks.

ANNOUNCING SPECIAL WORKSHOP FOR MAY MEETING OF CCAS:

BEGINNING ASTROPHOTOGRAPHY
CCAS MEETING, THURSDAY, MAY 1
CLASSROOM SESSION IN D-Y LIBRARY BEGINNING 7:30 FOLLOWED BY OUTDOOR WORKSHOP

Chris Cook will lead a classroom session beginning in the library and, weather permitting, a workshop out on the grounds of the high school near our observatory will follow. This announcement is made here early and in some detail so that all interested persons can plan to bring their own equipment for active participation in the workshop.

The classroom session will last around 30 minutes. Time will be spent discussing various basic astrophotography techniques concentrating with the camera on a tripod. No work with telescopes this time. Video work will also wait until another time. We'll cover exposure, f/stops, ISO settings, lenses, film SLR's and digital SLR's. Chris has requested that as many attendees as possible bring their own camera and tripod if available. This will be a hands-on session with strong teacher-student exchange and interaction aimed at a beginning understanding of how to operate a camera in shooting astro targets and sky scenes. The outdoor "laboratory" will take place from about 8 until no later than 10pm Attendees should also bring a red flashlight so they can read their camera settings without harming night vision.

In the event of total overcast or worse, the classroom session will extend possibly into some indoor hands-on work.

Attendees please bring any of the following they might have:

- Camera (film and/or digital, SLR or Point and Shoot); cameras able to take time exposures of at least 30 seconds are preferred.
- If separate, lens for camera: zooms are good, if you have multiple lenses, bring them all for experiments.
- Cable release/shutter release if separate from camera; many digital cameras have a time delay shutter feature for self-portraits that serve as a good alternative to minimize vibration at beginning of a time exposure.
- Tripod
- Timer if you have one..... to time the exposure. Digital kitchen timers or stopwatches work well.
- Red flashlight to allow viewing camera controls in the dark without compromising "night vision".

Chris Cook is a member of CCAS and a professional photographer on Cape Cod specializing in wedding and portrait work in our beautiful natural settings. Visit his website, www.cookphoto.com, to see a portfolio of his work including a special section devoted to astronomical targets. Most CCAS members have seen extraordinary contributions from Chris in recent issues of First Light including his most recent very imaginative “Q-tip” portrait of the recent eclipse of the moon taken with a “regular” camera using a time exposure. We look forward to learning a lot from Chris in the upcoming session.

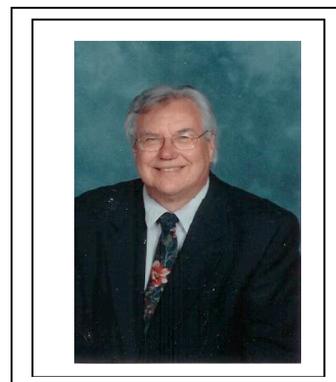
Member Profile: Ed Swiniarski

Ed is originally from Salem, Ma where he grew up dodging tourist questions about witches. The sky always fascinated and, at age 12, he was given a 4” Newtonian for birthday. As it was for probably anyone in the world, that first view of Saturn had him hooked. That led to a major in Astronomy at Boston University.

The faculty advisor was Dr. Gerald Hawkins, who at the time was writing his book on Stonehenge. He used to come into class and start off by telling of his new findings. No one dared tell him we had no clue what he was talking about. He never told the class. Finally he realized it and explained.

After college Ed was recruited by the National Security Agency, in Maryland. This was a good thing because at this time, 1967, no military deferments were given after undergraduate school. The contract signed with NSA solved that.

The job was to study satellite and missile orbits of our adversaries. It was an interesting time.



While in the D.C. area Ed had the time to attend classes in another area of interest, liturgical music. These were at the Georgetown University Center for Liturgical Studies. Ed has taken lessons in piano, organ, clarinet and bassoon.

Ed moved to the Cape in 1974, getting a job as a wine salesman. Since moving to the Cape he has been organist at Our Lady of the Cape Church in Brewster and a member of the American Guild of Organists, having served a term as Dean of the local chapter.

Shortly after arrival on Cape, Ed met some of the original founders of the CCAS and became a member, serving two terms as President starting in 2000.

Currently, Ed has a Meade 10” Cassegrain telescope and a pair of 20x80 binoculars which give rewarding views of the sky. He likes to observe clusters and nebulae. Sweeping through the Milky Way is a delight.

Ed’s fantasy is to have a large binocular telescope.

Now semi-retired, more time can be found for observing at home and at the Schmidt Observatory.

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.

THIS MONTH WE HAD INPUT FROM MANY CLUB MEMBERS! NEXT MONTH, HELP US MAKE IT EVEN MORE!

PLEASE SEND NOTES ON THINGS THAT INTEREST YOU OR SPECIAL EXPERIENCES YOU HAVE HAD BY EMAIL (info@ccas.ws) OR SNAIL MAIL. IF THE LATTER, WE CAN SCAN IMAGES YOU MIGHT INCLUDE AS NECESSARY

Whither Opportunity?

In our last report on the Mars rover Opportunity in the November '07 issue of *First Light*, the rover had demonstrated that it could back out of Victoria Crater after climbing in.

It then had driven down a bit into Duck Bay to look at a layer of light-toned rock marking where the surface was at the time, many millions of years ago, when an impact excavated the crater.

At that time, NASA reported they had to proceed cautiously since now and then Opportunity "slipped" on the slope of the crater and they didn't want a mishap that would end the mission.

Hardly. As we will see, Opportunity is an athlete.

Opportunity passed its 4th anniversary on Mars on 1/25/2008 and, as of March 1, continues to "scuff around" inside Victoria Crater. From a recent NASA report:

"One of these [test] steps involved placing the front two wheels on an area of soil to leave a scuff on the surface and backing up to take images of the exposed area. The rover completed a successful "scuffing" on 2/12/2008. But Opportunity's right front wheel had dug in much more than the rover's handlers had expected." After some dramatic backs and fills, the rover was successful in pulling out the wheel.

Some perspective:

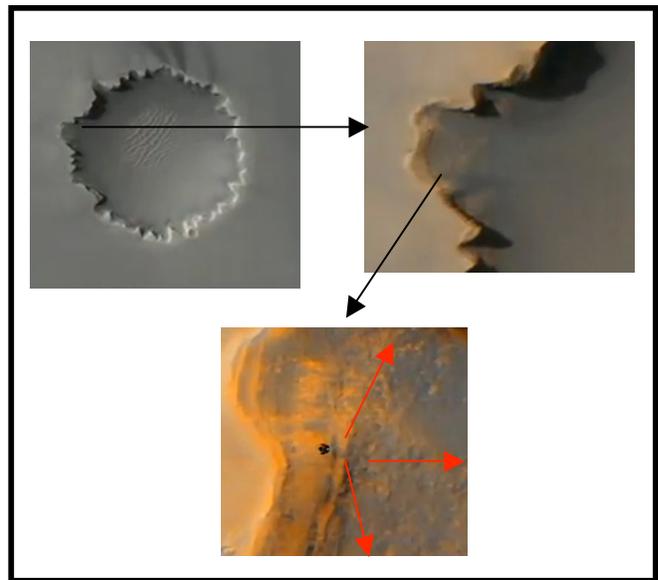
Opportunity landed on Jan. 24, 2004, inside a much smaller crater about 6 kilometers (4 miles) north of Victoria Crater, to begin a surface mission designed to last **3 months** and drive about 0.4 mile.

Four years later it has logged a total of more than **seven miles** and survived the "dark days" of severe dust storms which threatened to snuff out its life in mid year last year.

Just recently, to celebrate the rover's 4th anniversary, NASA has made available an amazing video⁴ which provides a panorama from Opportunity's perch on the side of Victoria crater. Check out the reference to see the complete video.

The clips to the right were taken from this video. At the top are artist's renditions zooming in on Opportunity's location on the inside of the crater. The three following clips show actual photos of what the Rover sees to the right, center, and left from its perch on the crater wall.

We will report again on Opportunity's adventures in a month or two.



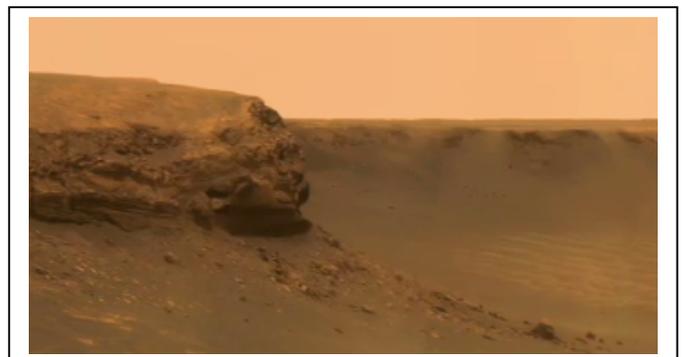
Looking to the right: "Cabo Frio", about 50 ft tall,



Looking across to the far side of Victoria crater:



Looking to the left: "Cape Verde", about 20 ft tall:



Cape Cod Astronomical Society

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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, no charge 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 minima of Algol.

2) 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.

3) An Automated Transfer Vehicle or ATV is an expendable, unmanned resupply spacecraft developed by the European Space Agency (ESA). ATVs are designed to supply the International Space Station (ISS) with propellant, food, water, air, spare parts, and experiments. In addition, ATVs can re-boost the station into a higher orbit. The first ATV, the *Jules Verne*, was launched March 9, 2008 by an Ariane 5 from Guiana Space Centre. Since that time several engine firings have accomplished test movements and are/will be used to gradually bring the vehicle to within docking distance of the ISS: scheduled for April 3. ATV's will continue to run back and forth to the ISS even after the US shuttle missions have ended. http://www.redorbit.com/news/space/1308910/esa_readies_the_jules_verne_for_docking/index.html?source=r_space [March 19: 2008]

4) Don't miss the video; click on "a Postcard from Opportunity" at http://www.nasa.gov/mission_pages/mer/ or enter directly: http://www.nasa.gov/multimedia/nasatv/on_demand_video.html?param=http://mfile.akamai.com/20356/mov/etouchsyst2.download.akamai.com/18355/qt.nasa-global/ccvideos/jpl/mer20080204a-480cc.mov&_id=115197&_title=A%20Postcard%20From%20Opportunity&_tnimage=210268main_Sol1332B_Lyell_atc-th.jpg