

# The Custer Comment

★ For The Curious ★

**February-March 04**

**Volume XXXIV, Issue 2**

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## **Cassini-Huygens in "Excellent Health" and On Track**

for Saturnian Orbital Insertion, July 1, 2004

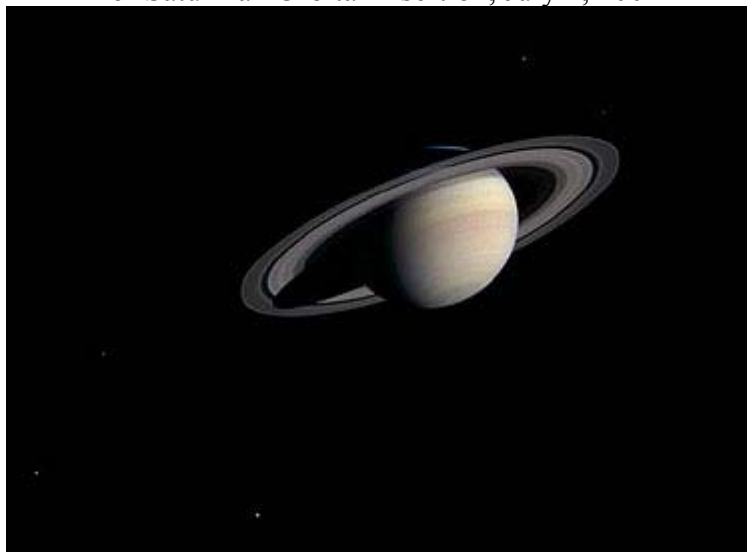


Image courtesy, NASA/JPL

Long range view of Saturn and its family of satellites (31 at last count) from the Cassini-Huygens spacecraft obtained on November 9, 2003 from a distance of 111 million kilometers (69.3 million miles). Latest telemetry reports the spacecraft in excellent health. Since this image was acquired the next phase in the mission, preliminary science, measurement and imaging, have begun. Prior to Saturnian Orbital Insertion, the spacecraft will fly within 2,000 kilometers of Phoebe, one of Saturn's most distant satellites. If everything goes according to plan, among the wealth of data and images to be returned, images with 10 times the detail of any other will be obtained. Six months after orbital insertion, the spacecraft will release the Huygens probe on Christmas day, 2004 for a 22 day journey to Titan. Upon arrival, the Huygens probe descends through the atmosphere for a 2 hour, unprecedented journey of science and discovery, capturing over 1,100 images, some being obtained within meters of the surface and with the aid of a high-intensity spotlight! Since we don't know what awaits the probe at or near the surface, it's prepared for a solid or *liquid* landing!

In the coming months, imaging highlights will include near daily, multi-wavelength imaging of Saturn and its rings; imaging of Titan beginning in April; Titan movie sequences starting in late May, when the resolution exceeds that obtainable from Earth. Complete coverage of the mission including the latest images and press releases can be found at <http://cassini-huygens.jpl.nasa.gov>.

Cassini-Huygens is a cooperative mission of NASA, the European Space Agency and the Italian Space Agency.

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### **Announcements & General Interest**

- Spring Astronomy 101;
  - Adults, \$50.00; Wednesdays, April 14<sup>th</sup> thru May 19<sup>th</sup>, 7:30 – 9:00 PM; Instructor, Professor George LoMaga;
  - Children, \$35.00; Thursdays, April 15<sup>th</sup> thru May 13<sup>th</sup>, 7:00 – 8:30 PM; Instructor, Custer Member Colin Van Tuyl;All interested, please register at the Southold Town Recreation Dept.
- Winter Star Watching Project - The Pleiades; this project is undertaken to assist the International Dark-Sky Association. The IDA, in turn, is cooperating with the Environmental Protection Agency in Japan to determine the extent of light pollution around the world. Please see supplemental attachment included with the electronic addition only.
- Rotary International, Greenport Chapter to assist in an ongoing and combined effort to supply surplus educational materials to children in the Ukraine. Please see memo on the last page.
- Saturday March 20<sup>th</sup> – St. Patrick’s Day Dinner followed by a lecture on the Vernal Equinox. A great weekend to plan a 24-hour Messier Marathon, weather permitting.

## Editor's Column

<p><b>Tom Madigan, Editor</b>          Tom Madigan          99 North Summit Ave.          Patchogue, NY 11772-2226  <a href="mailto:tmadigan@optonline.net">tmadigan@optonline.net</a>          631-447-5339</p> <p>Cutoff for submissions is the 15<sup>th</sup> of the month preceding publication</p> <p>Visit the new Custer Website at  <a href="http://www.custerobservatory.org">http://www.custerobservatory.org</a></p>	<p><b>The Custer Comment is published monthly by</b></p> <p>Custer Institute          P.O. Box 1204          Main Bayview Road          Southold, NY 11971          631-765-2626</p>
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I hope you enjoy this issue of the Custer Comment, as much has gone into its production. I've done my best to combine February and March's issue into one comprehensive issue. Much continues to happen at Custer, NASA and in the world of Astronomy, hence the oft lateness in publication. I try to include as much as is relevant and timely as possible. Please see my editorial on page 6.

Best,

Tom

*Tom Madigan, Editor*

## Gift Corner & Classifieds

<p><b>We have meteorites.</b></p> <p><b>Great sets mounted in beautiful display cases. Perfect for gifts.</b></p> <p><b>New Custer logo coffee cups ONLY \$4 EACH</b></p>	<p>The Gift Shop still has a dwindling number of copies of ASTRONOMY FOR ALL AGES, by Philip Harrington &amp; Edward Pascuzzi just \$20. As an added bonus, copies are signed by Ed Pascuzzi. We also have copies of PARALLAX, the book that was referred to in the recent lecture. Quantities are limited so hurry and add to your collection while supplies last. Back by popular demand, we again have the <i>exclusive Custer Astronomical Pocket Diary</i> still just \$9. Quantities are limited.</p>	<p><b>For Sale</b>          Super C-8 Telescope, Richfield Finder, Tripod Wedge, Polaris Pointer, Polar Axis Finder, Case liner, Handle, Handbook-\$1307. No-tool knob set for C-8- \$12. Illuminated Reticle ocular assembly for C-8 including 12.5MM ocular rheostat-\$66. 2 inch Premium grade Deep Sky filter and 1 1/4 inch ocular adaptor-\$121. Observer's Chair with adjustable height-\$47. Rubber eyeguards (4)-12. Vernon mounted glass filters- neutral density, blue 80A, violet 47, light red-\$23A, green 58, orange- \$51. Adapter for Celestron 1 1/4 inch non-threaded oculars-\$10.  <b>Rich Field Adaptor with TeleCompressor and 20mm Erfle ocular-\$150. 8mm Brandon-\$69. 12mm Brandon-\$59. 2.4X Dakin Barlow- \$59. 25mm Kellner-\$28. 40mm Kellner-\$28. Declination Motor &amp; Accutrack Telescope Drive Corrector, Dual Axis-\$199. Counter Weight set-\$30. Astronomer's Flashlight-\$7. Omni-axis Camera Mount-\$ 50. Accessory tray-\$30. Accessory Case-\$25. Helical Focuser-\$28. Dewcap-\$40. T-adaptor-\$20. Eyepiece projection adapter: teleextende-\$20. Best offer or \$1600 for the whole. Original cost \$2468. Contact Bill Richards at 631-957-2032, 98 Laurel Road, Lindenhurst, NY 11757-1705.</b></p>
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## HEAVENLY EVENTS TO WATCH FOR March 04

“ Arcturus, with the spring returning,  
I love you best; I cannot tell  
Why, save that your recurrent burning  
Is spring’s most punctual miracle. “

- Sara Teasdale

March offers an uncommon opportunity to enjoy all five planets known to the ages (as well as the waxing Moon) in the evening sky at the same time. After midmonth MERCURY makes its best appearance for this year low over the western horizon after sunset. By month’s end Mercury will be quite prominent around 7:30 PM as evening twilight vanishes. Less than 30° above and slightly to its left is

dazzling VENUS. Another 10° farther up and to the left is 1.4 magnitude red MARS. Continue another 30° to SATURN, high in the south-southwest in Gemini. Finally, another 65° swing brings you to JUPITER in Leo, climbing in the east-southeast. Certainly this planetary array, added to at least nine 1<sup>st</sup> magnitude (and brighter) stars, is the feature celestial attraction as spring arrives.

- 2 Tonight observers with telescopes on Long Island should keep an eye on the northern edge of the waxing gibbous Moon between 11:15 and 11:45 PM, as the 5.9 magnitude star  $\omega$  (Omega) Cancri brushes by. From Nassau and New York City, it should be a grazing occultation centered around 11:30. From most of Suffolk it should be an appulse (a near miss). Record your location and times of any disappearances and reappearances.
- 4 Jupiter is at opposition tonight as the Earth passes it in our respective orbits. At a distance of 411.4 million miles from us, it peaks at -2.5 magnitude and is in the sky all night.
- 6 Full Worm Moon rises in the east beneath Jupiter this evening.
- 7 Retrograde ends for Saturn near the feet of twin Castor in Gemini. Now it begins its normal eastward, prograde drift which will end 8 months from now, still in Gemini.
- 8 Algol,  $\beta$  Persei, is in mid-eclipse at 9:31 PM. Later, after midnight tonight, at about 12:33 AM, the 4.4 magnitude star  $\theta$  (Theta) Virginis will suddenly reappear from behind the dark upper-right edge of the gibbous Moon.
- 9 On this date in 1979, 25 years ago, the first extraterrestrial volcanic eruption was discovered on a Voyager 1 image of Jupiter’s satellite Io, four days after the spacecraft swung by the giant planet. Linda Morabito, a member of the Voyager Navigation Team, saw the bright plume of that eruption along the limb of Io.
- 14 Albert Einstein was born on March 14, 1879, 125 years ago today.
- 20 Spring begins at 1:49 AM this morning as the Sun straddles 0 hours right ascension, 0 degrees declination in the sky. Did you know that spring and summer combined are about  $7\frac{3}{4}$  days longer than fall and winter combined?
- 22 The very thin crescent Moon sets in the west at dusk just above Mercury.
- 24 Watch the crescent Moon slide by Venus this evening. Real pretty!
- 25 Now it’s the Moon with Mars, even closer than with Venus!
- 28 The first quarter Moon pairs up with Saturn.
- 28 Very heavy traffic around Jupiter in the early morning hours! Get out the scope and crank up the magnification between 3:00 and 3:19 AM. On Jupiter’s disk you may find Ganymede and Io, as well as the shadows of Callisto, Io and Ganymede. (Europa is hiding behind Jupiter, but Callisto can be seen just off the west edge of Jupiter.) Except for Callisto’s shadow, things will remain the same until 4:05 AM, when Ganymede emerges at Jupiter’s west edge, followed by Io at 4:14.
- 29 Mercury and Venus both reach greatest elongation east of the Sun. Also, on this date in 1974, 30 years ago, Mariner 10 became the first spacecraft to fly by and study Mars.
- 30 Another grazing occultation for Long Island; this time it’s 5.7 magnitude star  $\nu^1$  (Upsilon-one) Cancri at the top edge of the waxing gibbous Moon, between 9:30 and 10:10 PM. Except for eastern Suffolk, an occultation will be seen. Times will vary according to your location.

*Prepared by Robert Chapin*

## **PRESIDENT'S MESSAGE**

### February

Marylyn and I had a wonderful time playing the Lord of the Rings Monopoly board game at the January 31<sup>st</sup> Custer Game Night. I even got to use Gandolf as my board piece. Though there was a nice turn out, and the earlier ones shared in a real nice dinner, there were lots of you who didn't come. You missed a real fun evening. I hope Game Nights become a regular event several times a year.

On February 21<sup>st</sup>, there will be a talk about THE NEW AOS OBSERVATORY to be presented by Jeff Johns and John Bliex of AOS starting at 7:00 PM. This will be a perfect opportunity to learn more about the newest addition at Custer. As the first ever-permanent construction to be located at Custer by another astronomy group, it marks a big step forward for both AOS and Custer in inter organizational cooperation, which I know will benefit both organizations and astronomy in general on Long Island. Hope to see you there!

### March

On Saturday February 21, 2004, Jeff Johns and John Bliex of AOS gave an excellent presentation on the progress that has been made on the NEW AOS OBSERVATORY at Custer, complete with pictures of the workers clearing trees and shrubs, moving the little dome and clearing the old pedestal and platform site. They also distributed some early plans for the new platform and AOS was given permission to modify the old pedestal as needed to accommodate the dome and the C-14 that has been donated.

March and April will be rather busy months at Custer. In addition to the scheduled events, the St. Pat's Dinner and Vernal Equinox Program on 3/20, the 5 Planet Bash on 3/29, the Clean-Up and Concert Party on 4/17 and Family Astronomy Day on 4/24, Custer will be hosting 3 Ukrainians who will be touring the US in April making a video, for Ukrainian TV, about Amateur and Professional Astronomy. Their 2-week tour starts 4/8 in California, then the South western US and finally they will be joining us on 4/24 to wind up their tour on the East coast before returning home.

Bob Vanson

### **WELCOME TO OUR NEW OR RETURNING MEMBERS:**

Joan Baffa of Lindenhurst and the Joseph Notovitz Family of Great Neck. Welcome one and all!

### **MARCH SPECTACULAR**

- "Planet Bonanza", Saturday, March 27<sup>th</sup>; elongation of Venus and Mercury and 3 other visible planets combined with the 1<sup>st</sup> quarter moon are sure to provide a stunning evening spectacle. Make plans to join us at Custer on the 27<sup>th</sup>. Rain date, Sunday, March 28<sup>th</sup>. Normal Saturday observing of this event followed with a Monday bash on the 29<sup>th</sup> hosted by George Lomaga. The program starts at 6:00 PM sharp. Mercury through Saturn will all be visible all at the same time, starting just after sunset on the 29<sup>th</sup>.

## **Editorial**

### **NASA is Wrong to Scuttle Future Servicing Missions to HST**

By Tom Madigan, Editor

Amid the excitement and success of the brilliant landings and performance of NASA's Mars rovers, there is one less-than-brilliant development that may have been overlooked. NASA has decided to cancel all future servicing missions to the Hubble Space Telescope including the originally planned and final one scheduled for later this year. On January 16<sup>th</sup>, against the backdrop of President Bush's 'new vision' for US Space exploration and while citing safety concerns raised by the Columbia Accident Investigation Board, NASA administrator Sean O'Keefe made the announcement to cancel the final HST servicing mission.

Instead of servicing the pioneer orbiting 2.4 meter observatory, NASA, as implicitly directed by President Bush during his 'New Vision' address, has decided that all future Space Shuttle missions, including the Return to Flight mission, will be centered around support and the ongoing construction of the International Space Station. In his remarks, Administrator O'Keefe cited a physical 'safe haven' provided by the ISS in case another flight-ending, life-threatening catastrophe is detected, something not afforded by HST. Although I haven't read the entire document, as it's almost 250 pages, it's obvious that catastrophic mission failures such as occurred during the Challenger tragedy and Columbia STS-107 tragedy are centered around or are caused by the mechanical stresses of launch. The loss of the protective ceramic tiles during the launch of STS-107 and the subsequent breach of Columbia's hull during reentry notwithstanding, this rationale is a red herring. Once aloft, the Space Shuttle is in the continuous free-fall of orbit and whether it visits HST or the ISS, it's irrelevant. The 'safe haven' scenario envisioned by O'Keefe and the CAIB calls for a crippled shuttle to orbit to the ISS while NASA prepares a 'rescue' shuttle flight to be launched and retrieve the crew of the crippled shuttle waiting on the ISS.

Recent developments have seen political and public pressure brought to bear on Administrator O'Keefe and NASA to revisit the decision scuttling HST's final servicing mission. Among those applying the pressure is Senator Barbara Mikulski (D-MD), lead Democrat on the NASA appropriations subcommittee who represents the constituency of the Goddard Space Flight Center. If you would like to add your voice to the voices of those calling for a reconsideration and possible reversal of NASA's decision, please visit <http://savethehubble.org>. One possibility for reversal could center around the assembly of a crew who is chosen out of a pool of volunteers who volunteer for the servicing mission, *per se*. If the requisite number is obtained and successfully trained, then the mission is a go and the decision is reversed.

The final servicing mission would have seen the following repairs, upgrades and enhancements to the HST:

1. **Wide-Field Camera 3 ( WFC3 )**; the WFC3 is a fourth-generation HST instrument designed to replace the WFC2 and was developed to ensure imaging capability late in the life of the HST. It enables panchromatic imaging over a very broad 0.2 - 0.17 nanometer wavelength interval not before realized on HST in wide-field applications;

2. **Replacement of all six gyroscopes**; currently Hubble has 3 fully-functional gyros with a fourth working but impaired gyro. These gyros are required for pointing and data / image acquisition. The replacement of these gyros would have all but ensured Hubble's continued health and accuracy through its decommissioning in 2010;
3. **Batteries**; replacement of the six batteries originally launched with Hubble in 1990, which are steadily losing capacity as they age;
4. **COS – Cosmic Orbit Spectrograph**; the most sensitive ultraviolet spectrograph ever planned to fly on HST;
5. **FSU – Fine Guidance Sensor**; last in a series of changed-out units that allow fine pointing of HST;
6. **Aft shroud cooling system**; designed to remove unwanted heat from the enclosure housing HST's scientific instruments;
7. **Data Management Cross Strap Unit**; purpose was to add redundancy to instrument control and data handling;
8. **NOBL - New Outer Blanket Layer**; designed to provide thermal protection to HST equipment, needed to replace degrading blankets originally launched on the HST in 1990.

Throughout history exploration of the unknown and discovery have been fraught with danger. The same dangers and perils still exist now as they did when the HST was first launched. It existed in all shuttle servicing missions and will still exist if NASA's decision is reversed. It will exist in any future shuttle mission, whether that mission is to assist in the building of the ISS or a servicing mission to the HST. It will exist in any future manned missions, be they to the moon, Mars or beyond. Perhaps we've become too accustomed to the dazzling successes of the Space Shuttle, the HST and now, the Mars rovers. These brilliant achievements have, perhaps, masked the danger lurking in so many places. What we've gained at such a terrible price is a healthy respect for what these intrepid souls who brave the infinite unknowns of space exploration face. We must proceed forward, not with carelessness but with caution and vigilance, a resolve built on experience and tragedy alike.

To use the Colombia tragedy as a political lever and an instrument to further a specific agenda for space exploration or to promote a particular vision of it for the country or the world while binding the United States to a specific path or schedule is wrong and should be rejected out-of-hand. Discovery and space exploration is not the purview of politicians or presidents but of scientists, engineers, astronauts and explorers. We have a functioning, orbiting observatory that has pushed back the frontiers of astronomy and discovery to a heretofore unimagined point and that has contributed immeasurably to our understanding of the universe while at the same time returning spectacular images undreamed of and unimaginable during the time of Edwin Hubble. We shouldn't be reaching for pie-in-the-sky manned missions to the moon or Mars at the expense of what is real, here and now.

To cancel the final HST servicing mission is an exercise, not in leadership, but in cowardice and dishonors the memory of those crews we remember today, those who went aloft to touch the Face of God.

The views expressed in this editorial are those of this editor and my not reflect the official position of Custer Institute or its Board of Directors.

# CUSTER

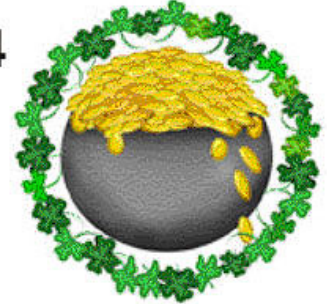
## St. Patrick's Day Party



**Saturday March 20, 2004**

**3:00 PM**

**RSVP to Barbara Lebkuecher 722-3850**



Come celebrate St. Patrick's Day, Ireland's national holiday with all of your Custer friends.



Chefs Tom Madigan and Chuck O'Cardona will be preparing the traditional Corned Beef and Cabbage. Come along and enjoy.



**BYOG**

(Bring Your Own Guinness)

### **Upcoming Programs**

April 10, 2004 Tai Chi with John Apperson Learn the ancient art of balance and exercise. It is perfect for people of all ages and shapes. Come enjoy Tai Chi at Custer.

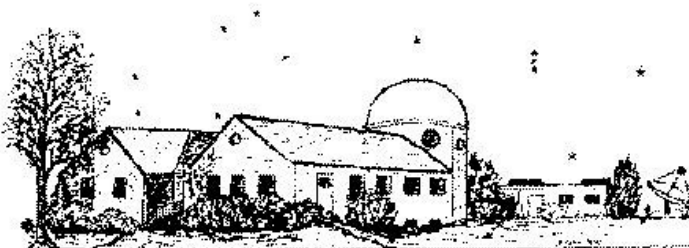
April 24, 2004 Family Astronomy Day - Come enjoy a fun filled day of astronomy, telescopes and family entertainment.

June 12, 2004 Custer Annual Meeting and membership Barbecue

Oct. 15, 16, 17 2004 Custer 26th Astronomy Jamboree



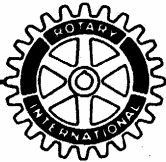
**Directions:** LIE (495) Exit 73 east Route 58 becomes Rt. 25. Follow 17 miles east, make sharp right at Gulf gas onto Main Bayview Rd. Custer is ¼ mile down on left.



**O'Custer Institute**

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[www.custerobservatory.org](http://www.custerobservatory.org)



# ROTARY CLUB

of GREENPORT, NEW YORK

P. O. BOX 204  
GREENPORT, NEW YORK 11944  
Feb. 17, 2004

Dear Educators:

We are seeking your support and assistance in a combined effort to supply surplus educational materials to children in Ukraine.

Last fall, Professor George S. Lomaga of Suffolk County Community College was awarded a Rotary International University Teacher Grant. He taught for three months at several elementary and secondary schools as well as universities throughout Ukraine. There he witnessed poor educational conditions, with outdated, insufficient, and in some cases a complete lack of, textbooks, supplies and equipment.

Professor Lomaga, in response to his experience in Ukraine, proposes to collect from our local school districts any unneeded books which would then be sent to the University of Kharkov in care of Vyacheslav Kurinny, Director of the British Council, for distribution to the appropriate schools.

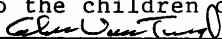
While we in America may at times perceive our books and supplies to be somehow less than optimum, there are children whose educational resources are very much inferior and limited. In our educational system, where we are constantly updating instructional materials, the newly-outdated ones have the potential to be valuable assets to students and teachers in less-fortunate parts of the world.

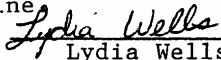
Humanitarian aid and the alleviation of illiteracy are major aims of Rotary International. The Rotary clubs of Suffolk County are proud to have been represented by George Lomaga as an ambassador of good will to Ukraine; and as sponsoring club, the Rotary Club of Greenport enthusiastically endorses his plan to further encourage world understanding, and joins him in undertaking this International Service project.


Preliminary conversation with Greenport Schools officials have garnered us the support of Superintendent Dr. Charles Kozora. Our club president is also advisor to the Interact Club and has suggested that Rotary's high school Interact clubs would embrace this project and be a likely partner in the collection of materials from the schools.

Shipping of collected supplies can be handled through channels of Rotary or the Red Cross.

We hope this proposal may even present you with a serendipitous solution to the disposal of your outdated materials; and we look forward to working with you in providing educational opportunity to the children of Ukraine.

  
Colin Van Tuyl  
Rotary Foundation Chair

  
Lydia Wells  
President

  
George S. Lomaga  
R.I. Grant Teacher

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## **CUSTER EVENTS CALENDAR**

### **OBSERVATORY DUTY**

Any staff on hand will be more than glad to assist in the operation of the telescope.

### **AT THE INSTITUTE**

Public observing every Saturday night, weather permitting

**The Custer Comment**

**TOM MADIGAN, Editor  
CUSTER COMMENT**

99 North Summit Avenue  
PATCHOGUE, NY

**11772**

FORWARDING AND ADDRESS CORRECTION REQUESTED

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