

D I S T A N T **L I G H T**

Rockland Astronomy Club Journal ~ February 2006



HUBBLE SEES ORION NEBULA M42

DETAILS ON PAGE 2

SAVE THE DATES:

FEB 10 FRIDAY 8PM
PLANETARIUM SHOW
CLARKSTOWN SOUTH

DETAILS ON PAGE 3

FEB 11 SATURDAY 7PM
RAC ANNUAL DINNER

DETAILS ON PAGE 3



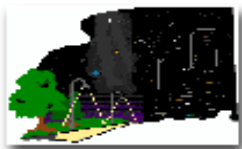
DISTANT LIGHT

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 Complete and mail the Membership



International Dark Sky Association



Rockland Astronomy Club is proud to be the first astronomy club to become a lifetime member of the International Dark Sky Association, is a longtime member of the Astronomical League, and is the 2005 recipient of the prestigious Pride of Rockland Award.

[CLICK HERE FOR MONTHLY SKYDATA: P. 5](#)

[CLICK HERE FOR RAC MEETINGS SCHEDULE AND ADVISORY COMMITTEE: P. 6](#)



COVER PHOTO

Abstract Art Found in Orion Nebula

Close inspection of the 2006 Hubble Space Telescope color mosaic of the Orion Nebula (M42) reveals numerous treasures that reside within the nearby, intense star-forming region. Southwest of the Trapezium stars located in the center of the nebula, a stunning Hubble Heritage portrait captures a variety of intricate objects. Deeply contrasting areas of light and dark blend with a palette of colors mix to form rich swirls and fluid motions that would make even the best artists stand back and admire their work. Visible slightly above left center is the star LL Orionis (LL Ori), originally release by the Hubble Heritage Project in 2002. The delicate bow shock that surrounds LL Ori points towards the stream of

gas flowing slowly away from the center of the Orion Nebula, near the Trapezium stars located off the image to the upper left. Close examination of the ends of the bow shock show secondary shocks that are formed as a two-sided jet of gas flowing away from this forming star at high velocity strikes the stream of low velocity gas from the center. To the right of LL Ori, a ghostly veil of material hangs thick and dark, obscuring portions of the nebula behind it.

The bright star toward the lower left of the image, known as LP Orionis (LP Ori), is surrounded by a prominent reflection nebula. Astronomers believe the star is moving within another veil of material that lies in front of M42.★

Credit: NASA, ESA, and The Hubble Heritage Team (STScI/AURA) Acknowledgment: NASA, ESA, M. Robberto (Space Telescope Science Institute) and the Hubble Space Telescope Orion Treasury Project Team

RAC MEMBERSHIP APPLICATION

Club members receive this journal, enjoy special prices for annual subscriptions to S&T and ASTRONOMY magazines, discounts to club events and much more. Make checks payable to RAC and mail with this form to: Rockland Astronomy Club, attn: Memberships, 214 Route 59, Ste. 10-304, Suffern, NY 10901- 5205.

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Note: The Journal is sent to Members via email. For mailed hard copies, add \$18/year.

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Individual	\$20	\$38	\$55	\$90	+\$18/yr.	_____
Senior Citizen (65+)	\$15	\$28	\$40	\$65	+\$18/yr.	_____
High School Student	\$10	\$18	\$25	\$40	+\$18/yr.	_____
Grand Total						_____

CLUB NEWS

Planetarium Show

8 PM Friday February 10, 2006
Clarkstown South High School
Planetarium, West Nyack, NY

Join the Rockland Astronomy Club at the beautiful Clarkstown South Planetarium on Friday February 10th for a free event. Take a journey through the wonders of the winter constellations and explore the deep sky with the beautiful astrophotography of noted astronomy author Jim Burnell. RAC's planetary expert Keith Murdock will be your guide as he cohosts this extraordinary evening event. Sit back and relax and be dazzled by the state of the art Spitzer Planetarium and a fascinating cascade of astrophotography as Keith and Jim take you on a wonderful flight into the deep sky. ★



PLANETARY NEWS



Headed for Pluto!

Liftoff of the Atlas V rocket carrying New Horizons!

Image above: Liftoff of the Atlas V carrying NASA's New Horizons spacecraft to a distant date with Pluto!
Image credit: NASA/KSC.

After launch aboard a Lockheed-Martin Atlas V rocket, the New Horizons spacecraft set out on a journey to the edge of the solar system. Liftoff occurred Jan. 19, 2006 at 2:00:00 p.m. EST from Launch Complex 41 at Cape Canaveral Air Force Station in Florida. New Horizons is headed for a distant rendezvous with the mysterious planet Pluto almost a decade from now.

As the first spacecraft to visit Pluto and its moon Charon, New Horizons looks to unlock one of the solar system's last, great planetary

secrets. The New Horizons spacecraft will cross the entire span of the solar system and conduct flyby studies of Pluto and Charon in 2015. The seven science instruments on the piano-sized probe will shed light on the bodies' surface properties, geology, interior make-up and atmospheres. ★

MISSION MILESTONES

- February 2007 Jupiter gravity assist
- March 2007 - June 2015 Interplanetary cruise
- July 2015 Pluto-Charon encounter
- 2016-2020 Kuiper Belt objects encounter

2006 RAC Annual Dinner

'MARS, SATURN, COMETS & BEYOND'

7pm Saturday February 11, 2006

Casa Mia Restaurant

577 Rt. 303, Blauvelt, NY

Special Guest Speaker:

Dr. Ken Kremer, JPL Spokesman

RSVP NO LATER THAN SATURDAY FEBRUARY 3RD

Email: SpecialEvents@RocklandAstronomy.com or
Phone: 914-523-6548 Frank Bifulco

ADMISSION \$19.99 RAC Members & Spouses (each)

\$35 Non-Members

\$10 Children 4 to 12 years of age (under 4 free)

CHECKS MUST BE RECEIVED BY FRIDAY FEBRUARY 3RD

Send check made out to "Rockland Astronomy Club" to:
RAC Dinner, c/o Frank Bifulco,
34 Astor Place, Monsey, NY 10952-1013

LOCATION Casa Mia Restaurant (formerly Kings Arms)
577 Rt. 303 Blauvelt ★

THE LAST LAUGH

So the physicist walks into a bar...

At the physics exam: 'Describe the universe in 200 words and give three examples.'

Question: What do physicists enjoy doing the most at baseball games?
Answer: The 'wave'.

A student recognizes Einstein in a train and asks: Excuse me, professor, but does New York stop by this train?

Researchers in Fairbanks Alaska announced last week that they have discovered a superconductor which will operate at room temperature.

One day in class, Richard Feynman was talking about angular momentum. He described rotation matrices and mentioned that they did not commute. He said that Sir William Hamilton discovered noncommutativity one night when he was taking a walk in his garden with Lady Hamilton. As they sat down on a bench, there was a moment of passion. It was then that he discovered that AB did not equal BA .

The experimentalist comes running excitedly into the theorist's office, waving a graph taken off his latest experiment. 'Hmmm,' says the

theorist, 'That's exactly where you'd expect to see that peak. Here's the reason (long logical explanation follows).' In the middle of it, the experimentalist says 'Wait a minute', studies the chart for a second, and says, 'Oops, this is upside down.' He fixes it. 'Hmmm,' says the theorist, 'you'd expect to see a dip in exactly that position. Here's the reason...'

A Princeton plasma physicist is at the beach when he discovers an ancient looking oil lantern sticking out of the sand.

He rubs the sand off with a towel and a genie pops out. The genie offers to grant him one wish. The physicist retrieves a map of the world from his car and circles the Middle East and tells the genie, 'I wish you to bring peace in this region'. After 10 long minutes of deliberation, the genie replies, 'Gee, there are lots of problems there with Lebanon, Iraq, Israel, and all those other places. This is awfully embarrassing. I've never had to do this before, but I'm just going to have to ask you for another wish. This one is just too much for me'. Taken aback, the physicist thinks a bit and asks, 'I wish that the Princeton tokamak would achieve scientific fusion energy break-even.'

After another deliberation the genie asks, 'Could I see that map again?'

What is the difference between a physicist, an engineer, and a mathematician?

If an engineer walks into a room and sees a fire in the middle and a bucket of water in the corner, he takes the bucket of water and pours it on the fire and puts it out. If a physicist walks into a room and sees a fire in the middle and a bucket of water in the corner, he takes the bucket of water and pours it eloquently around the fire and lets the fire put itself out. If a mathematician walks into a room and sees a fire in the middle and a bucket of water in the corner, he convinces himself there is a solution and leaves.

A psychologist makes an experiment with a mathematician and a physicist.

He puts a good-looking, naked woman in a bed in one corner of the room and the mathematician on a chair in another one, and tells him: 'I'll half the distance between you and the woman every five minutes, and you're not allowed to stand up.' the mathematician runs away, yelling: 'in that case, I'll never get to this woman!'. After that, the psychologist takes the physicist and tells him the plan. The physicist starts grinning. the psychologist asks him: 'but you'll never get to this woman?', the physicist tells him: 'sure, but for all practical things this is a good approximation.' ★



1st Qtr Feb 5 Full Feb 13 Last Qtr Feb 21 New Feb 28

FEBRUARY SKYDATA

Highlights

- Feb 5 Mars 2° south of Moon
- Feb 6 Saturn 4° south of Moon
- Feb 11 Venus stationary
- Feb 17 Venus at greatest brilliancy (magnitude -4.6)
- Feb 17 Spica 0.4° south of Moon
- Feb 20 Jupiter 5° north of Moon
- Feb 21 Antares 0.2° north of Moon
- Feb 23 Peak of the Delta Leonid Meteor Shower**
- Feb 23 Mercury at greatest eastern elongation (18°)
- Feb 28 Mercury 4° north of Moon

THERE'S MORE TO THE NORTH STAR THAN MEETS THE EYE

Washington, DC - We tend to think of the North Star, Polaris, as a steady, solitary point of light that guided sailors in ages past. But there is more to the North Star than meets the eye - two faint stellar companions. The North Star is actually a triple star system. And while one companion can be seen easily through small telescopes, the other hugs Polaris so tightly that it has never been seen directly - until now.

By stretching the capabilities of NASA's Hubble Space Telescope to the limit, astronomers have photographed the close companion of Polaris for the first time. They presented their findings today in a press conference at the 207th meeting of the American Astronomical Society in Washington. "The star we observed is

so close to Polaris that we needed every available bit of Hubble's resolution to see it," said Smithsonian astronomer Nancy Evans (Harvard-Smithsonian Center for Astrophysics).

The companion proved to be less than two-tenths of an arcsecond from Polaris - an incredibly tiny angle equivalent to the apparent diameter of a quarter located 19 miles away. At the system's distance of 430 light-years, that translates into a physical separation of about 2 billion miles. "The brightness difference between the two stars made it even more difficult to resolve them," stated Howard Bond of the Space Telescope Science Institute (STScI). Polaris is a supergiant more than two thousand times brighter than the Sun, while its companion is a main-sequence star. "With Hubble, we've pulled the North Star's companion out of the shadows and into the spotlight."

By watching the motion of the companion star, Evans and her colleagues expect to learn not only the stars' orbits but also their masses. Measuring the mass of a star is one of the most difficult tasks facing stellar astronomers. Astronomers want to determine the mass of Polaris accurately because it is the nearest Cepheid variable star. Cepheids are used to measure the distance to galaxies and the expansion rate of the universe, so it is essential to understand their physics and evolution. Knowing their mass is the most important ingredient in this understanding. "Studying binary stars is the best available way to measure the masses of stars," said science team member Gail Schaefer of STScI.

"We only have the binary stars that nature provided us," added Bond. "With the best instruments like Hubble, we can push farther into space and study more of them up close." The researchers plan to continue observing the Polaris system for several years. In that time, the movement of the small companion in its 30-year orbit around the primary should be detectable. ★

Prime Observing Window

Thursday Feb 23 thru Saturday Mar 4

Sun & Moon Rise & Set Times

Date	Sunrise	Set	Moonrise	Set	Phase
Feb 5	07:03	17:19	10:45	00:59	First Qtr
Feb 13	06:53	5:28 PM	18:01	07:23	Full
Feb 21	06:43	17:38	01:24	10:27	Last Qtr
Feb 28	06:32	17:46	07:01	18:49	New

Planetary

Visible Planets in the Night Sky

February 1

	Rise	Transit	Set	Mag
Mercury	07:31	12:30	17:29	-1.3
Venus	05:09	10:15	15:22	-4.6
Mars	11:09	06:27	01:46	0.2
Jupiter	01:06	06:11	11:16	-2.0
Saturn	16:35	11:49	07:04	-0.2

February 15

	Rise	Transit	Set	Mag
Mercury	07:32	13:08	18:45	-1.0
Venus	04:28	09:32	14:37	-4.6
Mars	10:35	06:00	01:25	0.5
Jupiter	00:17	05:20	10:24	-2.1
Saturn	15:35	10:50	06:06	-0.1

February 28

	Rise	Transit	Set	Mag
Mercury	07:01	13:06	19:12	0.5
Venus	04:09	09:13	14:17	-4.5
Mars	10:05	05:36	01:07	0.2
Jupiter	23:24	16:29	09:35	-2.2
Saturn	14:39	09:55	05:12	-0.1

All data calculated for Suffern, New York, Eastern Time:
Latitude: 41:06:48 N; Longitude: 74:08:38 W



The RAC Essentials

MONTHLY CALENDAR

**201-768-2238
or 845-47STARS**

Message Hotline: The latest information or last minute changes to club events.

Prime Observing
Fri, Feb 10, 8pm

February 21 thru March 3
Winter Planetarium Show at Clarkstown South High School (details on page 3)

Sat, Feb 11, 7pm

Annual RAC Dinner, Guest Speaker Dr. Ken Kremer (see details on page 3)

Wed, Feb 15, 8pm

Advisory Committee Meeting LHVCC, Airmont, N.Y., Different night this month only because of Valentines Day.

Mon - Sat, Feb 20-25
Fri/Sat, Feb 24/25

Winter Star Party in the Florida Keys Observing at Wawayanda (members night)*

Sat, Feb 25

Up all night Observing at Taghkanic State Park (members night)*

LOCATIONS

ADVISORY CMTE.

North Rockland High School Planetarium
Hammond Road, Thiells, NY

Rockland Community College
College Road, Suffern, NY

Lower Hudson Valley Challenger Center
Rt. 59, Suffern, NY

Anthony Wayne Recreation Area*
Exit 17, P.I.P., NY

Silvermine Ski Area*
Exit 18, P.I.P., NY

Wawayanda State Park*
973-853-4462,
Highland Lakes, NJ

Taghkanic State Park*
Taconic State Parkway,
Ancram, NY

Jose Alvira
Frank Bifulco
Jim Burnell
Mark Hettinger
Mies Hora
Rob Lyons
Keith Murdock
Al Nagler
Dr. Jack Rosen
Audry Salvatore
Len Salvatore
Ed Siemenn, *Chair*
Bernie Sokolowski
Bill Thys
Alan Traino
Don Urban

Life & Honorary Members

Tom Massey (L)
Al Nagler (L)
Andrew Warrington (H)
Dr. Saeed Safaie (H)

*Special permits required to observe at these locations. Contact Frank Bifulco for permit info.

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