



General Meeting of the Omaha Astronomical Society  
Friday, September 7th at 7:30 PM  
Durham Science Center, Room 169, UNO Campus  
Program: See Page 3

August 24, 2007 from Astronomy Magazine

### Gaping hole in universe

Astronomers conclude a cold region in the constellation Eridanus is caused by a hole in the universe nearly one billion light-years across.

Provided by University of Minnesota

University of Minnesota astronomers found a hole in the universe nearly a billion light-years across, empty of both normal matter such as stars, galaxies and gas, as well as mysterious "dark matter." While earlier studies have shown holes, or voids, in the large-scale structure of the universe, this new discovery dwarfs them all.

"Not only has no one ever found a void this big, but we never even expected to find one this size," said Lawrence Rudnick, an astronomy professor at the University of Minnesota. Rudnick, along with grad student Shea Brown and associate professor Liliya Williams, reported their findings this week.

"What we've found is not normal, based on either observational studies or on computer simulations of the large-scale evolution of the universe," Williams said.

The astronomers studied data from the NRAO VLA Sky Survey (NVSS), a project that imaged the entire sky visible to the Very Large Array

(VLA) radio telescope, part of the National Science Foundation's National Radio Astronomy Observatory (NRAO). Data showed a remarkable drop in the number of galaxies in a region of the constellation Eridanus, southwest of Orion.

"We already knew there was something different about this spot in the sky," Rudnick said. The region had been dubbed the "WMAP Cold Spot," because it stood out in a map of the Cosmic Microwave Background (CMB) radiation. The CMB is the earliest "baby picture" available of the universe. Irregularities in the CMB show structures that existed only a few hundred thousand years after the Big Bang.

The WMAP satellite measured temperature differences in the CMB that are only millionths of a degree. The cold region in Eridanus was discovered in 2004.

"Although our surprising results need independent confirmation, the slightly lower temperature of the CMB in this region appears to be caused by a huge hole devoid of nearly all matter roughly 6-10 billion light-years from Earth," Rudnick said.

How does a lack of matter cause a lower temperature in the Big Bang's remnant radiation as seen from Earth?

Continued on page four

**September Club Star Party,  
August 15th, 2007  
OAS Club Site, Weeping Water**

**Omaha Astronomical Society is a  
member of the NASA Night Sky Network**

# Events and Stuff Section

## September Meeting Presentation

### Outer Gas Giants

## New Members

None

## Good September Observing Dates to Observe at the Club Site or other good dark sky location

Friday 3 August 07, last quarter moon  
Saturday 4 August 07, last quarter moon  
Friday 10 August 07, new moon  
Saturday 11 August 07, new moon

## Mahoney Public Star Parties

All Friday evenings from Twilight On the Golf Driving Range of the Mahoney State Park Ashland, NE

**Friday September 14, 2007**

## Recent Observing Awards

None

## September Sky Calendar

3rd	Last Quarter Moon
11th	New Moon
19th	First Quarter Moon
26th	Full Moon

## Outreach, Outreach, Outreach Again

Monday, Sept. 10th - Hickory (62 kids)

Wednesday, Sept 12th - Walnut (89 kids) This is our biggest group, and I definitely need more help with this night!

Monday, Sept 17th - G. Stanley (54)

Wednesday, Sept 19th - La Vista West/Golden (69)

Monday, Sept 24th - Portal (50)

Monday, Oct 1st - Rumsey (87)

Thursday, Oct 4th - Parkview (50)

We have also been asked to do an Astronomy program again at the girl scout camp, Camp Neyati, over in Iowa for the Glenwood Schools. The dates for those nights are:

Monday, Sept 17th and Thursday Sept 20th. There will be a sign up sheet for these events at the Sept. OAS meeting also.

Also, don't forget the Mahoney State park public star party on the 14th of Sept.

## OAS Meeting Minutes August 3rd, 2007

The **meeting** came to order at 7:32. No rooftop observing tonight. The Secretary read the **July minutes**. Tim Kepler motioned to accept and Ed Sikorski seconded. We had 5 guests and (estimated) 50 people total in attendance.

John Macy gave the **Treasurer's report**, with July income of \$744.90, expenses of \$99.72, and balance of \$5094.26.

## Old Business

## Outreach and Events

John Johnson let us know how July events went. The outreach events at Gretna 4-H camp were well attended and had good weather! Several OAS members received thank you T-shirts from Camp Coholo (short for courage, hope, love). Also we are trying to expand to Iowa School for the Deaf, Omaha Home for Boys, YWCA, Bellevue.

## Upcoming events:

\*Fri., August 10<sup>th</sup>, Public Star Party, Mahoney State Park, dusk.

\*Saturday, Aug. 11<sup>th</sup>, "Perseid Meteor" Public Star Party, Hitchcock Nature area near Crescent Iowa, dusk.

\*Sat. Aug. 18<sup>th</sup> Whispering Hills Vineyard and

Winery, Wine tasting and observing, near Carson, IA, about 30 miles east of Co. Bluffs. Wine tasting at 7 pm observing at dusk.

\*Gretna 4-H Camp hosts Papillion La Vista Schools Outdoor Education Program, with star talks on the following nights: Wed, **Aug 22<sup>nd</sup>**, Mon. **Aug. 27<sup>th</sup>**, Wed. **Aug.29<sup>th</sup>**, Thur. **Sep.6<sup>th</sup>**, Mon. **Sep. 10<sup>th</sup>**, Wed. **Sep.12<sup>th</sup>**, Mon. **Sep. 17<sup>th</sup>**, Wed. **Sep.19<sup>th</sup>**, Mon. **Sep. 24<sup>th</sup>**, Mon. **Oct. 1<sup>st</sup>**, Thur. **Oct 4<sup>th</sup>**.

\*Glennwood, IA schools have asked for star talks at Camp Neyati on Mon. **Sep. 17<sup>th</sup>** and Thur. **Sep. 20<sup>th</sup>**.

\*Please contact John Johnson if you can help with one (or all!) of these events or if you need a map to the location.

## Club Telescopes

If you would like to check out a telescope see Bob Dunn or any OAS officer for more information.

6" Dobsonian, John Macy  
6" Newtonian, Bob Van Meteran  
8" SCT, Larry Wilkes  
13 " Dobsonian, Keith Jones  
Binoculars, 11x80, Bill Bond

**Observing and Awards**—Two awards are in the works. Astropark use=(at least 5). Jupiter is still great for observing at this time, very bright and high in the south. The Perseid meteors peak August 12<sup>th</sup> should be good views because it is also near the new moon. Total lunar eclipse is in the early morning hours of Tuesday, August 28<sup>th</sup>, beginning locally around 3:30 am. The Auregid meteor shower happens on the 1<sup>st</sup> of Sep. however it will be better viewed in the Pacific Ocean area.

**Report from Vice President**--New gate is up, Farmer Walt helped quite a bit, wouldn't accept cash for his help. New gate is lighter and more efficient. It has a new post and a regulation farm gate. The gate will cost \$26 more than expected; Howard Boehm motioned we OK the extra cost, seconded by Sharon Weiss, and passed. Road still hasn't been graded yet, but a visual estimate revealed it needed more rock than previously thought. Ed Sikorski motioned to authorize up to \$200 more for rock; Deb Cheney seconded and it passed. Gary will contact Steve Hauschild again. Also the road sides need to be mowed. The road is private, so its maintenance is entirely up to us. A motion was made to have the

road mowed by Harlen Sefer, seconded by John Macy, and passed.

**Mission Statement and OAS Objectives and Goals**—Open vote to accept the objectives as written, passed unanimously.

**T-Shirts and Polos**---are available with the OAS logo. They look sharp! Polos are \$15 and T-Shirts are \$7. See Deb or Clark Cheney if interested.

**Solar Telescope**---We further explored the idea of the club investing in a PST, "Personal Solar Telescope." We came up with the estimate of \$664 for telescope, mount and shipping and handling and case. John Afergin motioned to buy the set and Deb Cheney seconded and it passed. Clete Baker offered to look into getting a discount for being a non-profit educational group.

## New Business

**Banquet**---The Lincoln astronomy club (PAC) has opted not to do a banquet this year. Bill Bond and Mark Weiss suggested instead to do a swap meet as part of the December meeting this year instead.

**Opportunities to Help**—Our club is in need of a Newsletter editor. Mark is the Stella editor, but also President, and webmaster and would like to share the wealth! Also we could use a Librarian/Historian, willing to store magazines and books the Club owns. (Garage storage is OK for the magazines.) Whether you can help a little or a lot or just want to ask questions, see any club officer.

**OAS Contact E-Mail**---If you would like to be on a contact list for OAS reminders of events go on-line to [omahaastro-subscribe@yahoogroups.com](mailto:omahaastro-subscribe@yahoogroups.com). Also our own website has a forum for discussion OAS topics at [omahaastro.com](http://omahaastro.com) and go to Forum.

**Next meeting** will be same location, **September 7th**, 2007, 7:30. Motion to adjourn Eric Balcom, seconded by Gary Grimes.

Tonight's program:

## Highlights form Nebraska Star party

By John Johnson

Minutes by OAS Secretary  
Kim Moss-Allen

## Western Nebraska Star Gaze Redo

Western Nebraska Star Gaze will be held at Camp Clarke Raiders Black Powder Range (five miles south of Bridgeport, Nebraska just off State Highway 88) on September 7, 8, & 9. This is just below historic Courthouse and Jailhouse Rocks.

The Western Nebraska Star Gaze is a time to share, to relax and enjoy our heavens. It's a time for amateurs, professionals, families and friends to come together to promote astronomy. It's a time to share the night sky, our experiences and stellar sights with others. It is good clean fun for all ages.

Our observing site provides some of Western Nebraska's darkest skies with light pollution at a minimum. The Milky Way is easily visible from this location and the viewing compares nicely to that of the Nebraska Star Party.

In addition to the dark skies, there will be other scheduled events such as an astronomers breakfast, ice cream social, program for beginners and educational activities for the children. As well as, several area attractions located within an hour drive from the site. Including several golf courses, Bridgeport State Lakes, Lake Minatare, Chimney Rock and the Scottsbluff National Monument.

The Western Nebraska Star Gaze is open to anyone interested in astronomy. You do not need to own a telescope in order to attend. Camping is permitted on the observing field. Outhouses and drinking water are available at our site. There are no electricity, flush toilet or showers; so plan accordingly.

The cost for the entire weekend is \$10.00 for ages 5 through 100. Young astronomers under the age of 5 or over the age of 100 are free.

For more information contact the Panhandle Astronomy Club

Phone: 308-641-5874 or 308-641-1201

Email: [info@panhandleastronomyclub.com](mailto:info@panhandleastronomyclub.com)

Website: [www.panhandleastronomyclub.com](http://www.panhandleastronomyclub.com)

Snailmail: Western Nebraska Star Gaze, PO Box 987, Scottsbluff, NE 69363

## Gaping Hole continued

The answer lies in dark energy, which became a dominant force in the universe very recently, when the universe was already three-quarters of the size it is today. Dark energy works opposite gravity and is speeding up the expansion of the universe.

Thanks to dark energy, CMB photons that pass through a large void just before arriving at Earth have less energy than those that pass through an area with a normal distribution of matter.

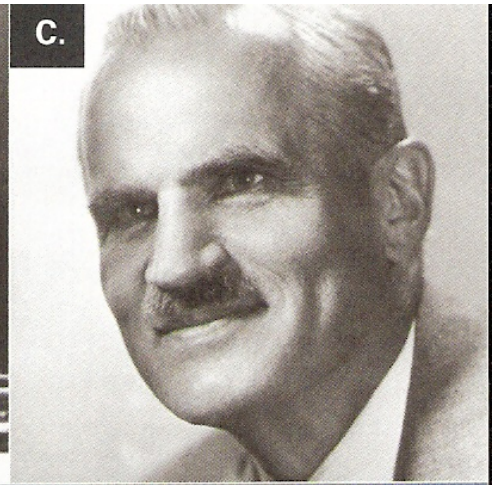
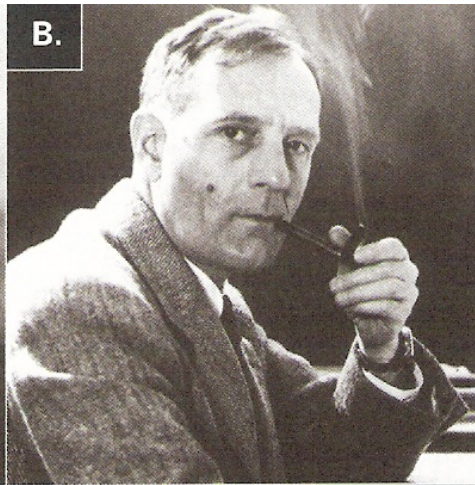
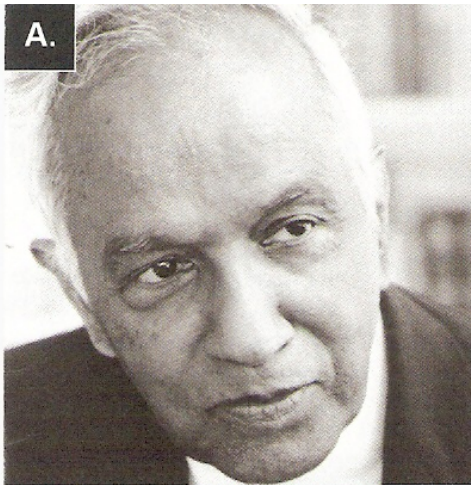
In a simple expansion of the universe, without dark energy, photons approaching a large mass — such as a supercluster of galaxies — pick up energy from its gravity. As they pull away, the gravity saps their energy, and they wind up with the same energy as when they started.

But photons passing through matter-rich space when dark energy became dominant don't fall back to their original energy level. Dark energy counteracts the influence of gravity and so the large masses don't sap as much energy from the photons as they pull away. Thus, these photons arrive at Earth with a slightly higher energy, or temperature, than they would in a dark energy-free universe.

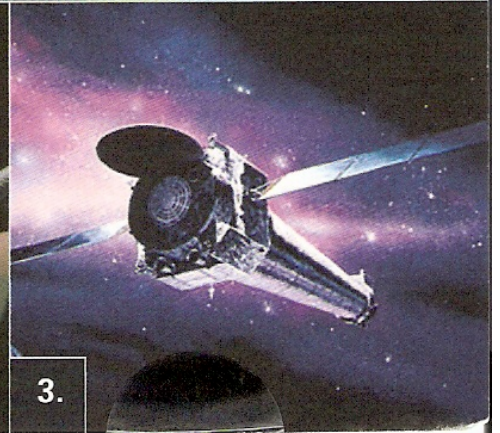
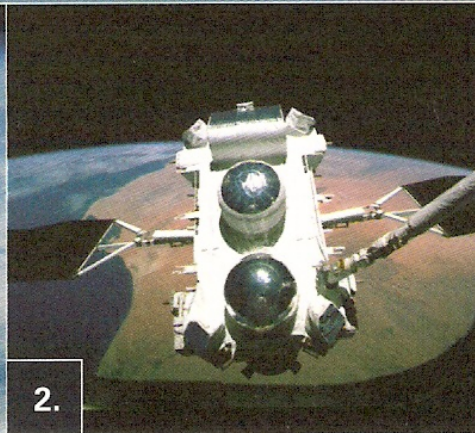
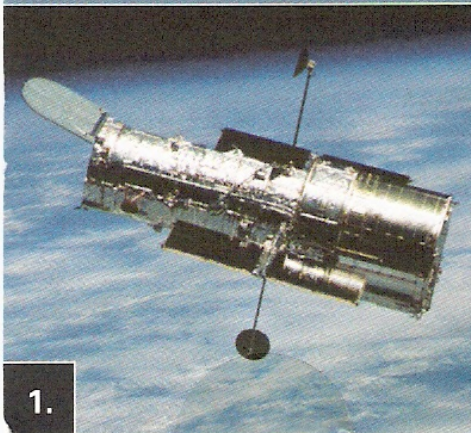
Conversely, photons passing through a large void experience a loss of energy. The acceleration of the universe's expansion, and thus dark energy, were discovered less than a decade ago. The physical properties of dark energy are unknown, though it is by far the most abundant form of energy in the universe today. Learning its nature is one of the most fundamental current problems in astrophysics.

## September Astronomy Quiz

1. As the sun sets in September the “Summer Triangle” may be the first stars you see. What **stars** make up their asterism and what are their **magnitudes**?
2. Of those stars which is **closest** to us? **Farthest**?
3. Where do you find **Charon** and what is it?
4. Where do you find **Chiron** and what is it?
5. What mountain is the largest known single **volcano** in our solar system and how big is it?
6. What is a **parsec**?
7. Where is **Terra Aphrodite**?
8. The **sun** has cycles of more and then fewer sunspots. How long are those cycles?
9. The stars Deneb and Altair look about the same brightness or magnitude. **Why**?
10. What’s the difference between **apparent magnitude** and **absolute magnitude**?
11. This comet was rediscovered in 1826 by an Austrian military officer and amateur astronomer, and had an orbital period of 6.6 years. Later, in 1846, the nucleus split in two and on its next pass it had apparently disintegrated and made a meteor shower. What is the **comet’s name**?
12. If I am observing stars in an urban area with some **light pollution** (or light spillage) which of the following would be most helpful? a) H-alpha filter, b) a 80a light blue filter, c) OIII filter or d) broadband LPR filter.
13. Can you match these famous astronomers with “their” telescopes?



## KNOW YOUR TELESCOPES!





## OAS Club Officers

<b>President:</b>	Mark Weiss	291-5322	mweiss4@cox.net
<b>Vice President:</b>	Gary Grimes	(712)-527-3495	b52crow@netzero.com
<b>Treasurer:</b>	John Macy	991-5587	ptmacy@doctor.com
<b>Secretary:</b>	Kim Moss-Allen	291-7887	dallen@novia.net
<b>Program Chair:</b>	Eric Balcom	491-3502	ecbalcom@msn.com
<b>Outreach Coordinator:</b>	John Johnson	333-5460	jwjohnson@oppd.com
<b>Stella Editor:</b>	Mark Weiss	291-5322	mweiss4@cox.net

### Answers to the August Quiz

1. The Barycenter, or center of gravity, for the Earth- Moon system is actually not out in space between the two bodies but 1,707 km (about 1,061 miles) under the Earth's surface, and is moving slowly toward the moon.
2. The crater Grimaldi.
3. A planet around a star other than our sun.
4. 51 Pegasi.
5. MESSENGER is short for MErcury Surface, Space ENvironment, GEochemistry and Ranging. Yeah, I agree that it's a stretch for an acronym also!
6. Clete Baker, Sharon and Mark Weiss all earned the basic Outreach Award.
7. -4.7
8. It was thought to be an open cluster but recently changed to asterism using data from the ESA's (European Space Agency's) Hipparcos Satellite.
9. This is the "Flanur" by Oliver Wendell Holmes who was inspired to write it (about Venus) after witnessing a transit of the planet Venus (in front of the sun) December 6<sup>th</sup>, 1882.
10. M8, the Lagoon Nebula
11. Appulse is another word for conjunction, such as when when Venus and Saturn "appeared" to be very close to each other (less than 1 degree) on July 1<sup>st</sup>, 2007.
12. Our "sister" planet Venus has the most circular orbit, followed by Neptune.

Ref. The Planets, Dava Sobel, 2005, National Audubon Society Field Guide to the Night Sky, 1991, Astronomy Magazine, July 2007

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#### BENEFITS OF MEMBERSHIP

- ◆ Members receive the STELLA, our monthly newsletter.
- ◆ Each member is automatically a member of the Astronomical League, the only nation-wide organization for amateur astronomers.
- ◆ Use of the observing site at Weeping Water, NE
- ◆ The opportunity to borrow one of several club-owned telescopes.
- ◆ Organized trips to local observatories, planetariums and museums.
- ◆ Significant savings on subscriptions to **Sky & Telescope** and **Astronomy** magazines.
- ◆ Savings on astronomy books and printed materials.

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