Back Bay Observer

The Official Newsletter of the Back Bay Amateur Astronomers
P.O. Box 9877, Virginia Beach, VA 23450-9877

EPHEMERALS - August 2006

DATE	WHEN	WHAT & WHERE
3	7:30p	August Meeting @ Cox Communications Campus
4	8:00p	Nighthike @ Northwest River Park
5	8:00p	Garden Stars @ Botanical Gardens
18	Dusk	Skywatch @ Northwest River Park
19	Dusk	Cloverwatch @ Franklin Fairgrounds
26	Dusk	Nightwatch @ Chippokes Plantation

CONTENTS

LOOKING UP

The Dog Days of Summer

Are you suffering from the heat? Sweating with the high humidity? I guess you could say we are in the "Dog Days of Summer". Did you ever wonder where that term came from? Well, it turns out that it comes from a study of the stars! Here is an excerpt from Wikipedia, the online encyclopedia:

The Dog Days or the dog days of summer are typically the hottest and most humid times of the year. They are a phenomenon of the northern hemisphere where they usually fall between July and early September but the actual days vary greatly from region to region, depending on latitude and climate. Dog days can also define a time period or event that is very hot and/or stagnant.

The term itself was coined by the ancient Romans, who called these days caniculares dies (days of the dogs) after the constellation of Canis Major, (bigger dog) within which Sirius (Alpha Canis Majoris) is found. As the hottest and most humid days of summer generally coincided with the period where Sirius rose/set with the sun, they believed that heat from Sirius [the brightest star in our sky] was increasing the heat of the sun.

Well, we can't see Sirius at this time of the year, but we can see the opposite side of the Milky Way from Orion and Canis Major. We'll be looking toward the heart of our Galaxy, so look for a lot of open and globular clusters in the regions of Sagittarius and Scorpius.

This month's meeting will be at Cox Communications Campus in Chesapeake, so don't go to TCC on Thursday, August 3. We have some new members who have joined the club recently. We hope you please come to the August meeting and meet the rest of the group.

And don't forget to

KEEP LOOKING UP!

George Reynolds

July Meeting Minutes

The July meeting of the Back Bay Amateur Astronomers was called to order by President George Reynolds on Saturday June 22nd, 2006 at about 1:45 PM at one of the Northwest River Park's picnic gazebos in Chesapeake.

Members in Attendance: Many!

Secretary's Report: No report, he was drying out...

Astronomical League Coordinator's Report:

The Astronomical League Coordinator, Georgie June, presented an Outreach Award to **Taylor Christie** chauffeured by some old dude.

Treasurer's Report: There is some dough in the kitty.

Old Business: None.

New Business: None.

Observer's Corner: Nobody saw nothing.

Presentation: The picnic.

In Conclusion: The meeting was adjourned about 1:50 PM.

Chuck Jagow

ANNUAL BBAA FAMILY PICNIC

A good group of BBAA members and their families descended on Northwest River Park, in the daylight, even, to attend the annual picnic (and water battle.). The weather cooperated, giving us a partly cloudy day with a nice breeze, keeping the heat and humidity down. Not all members were there, but those who were there agreed it was one of the best picnic days we have had. Here are some of the comments:

Georgie June: "Yes, it was a great picnic today! The weather was actually perfect - I don't think it could have been much better! Thank you all for coming and bringing all the great food, drinks, and deserts! George 3, not only are you a great president - you ARE a Master Chef! I think those were the best hotdogs ever! .... nice and crispy, perfect! Hope everyone is dried out and not too waterlogged. Loved the ATV and the squirt guns - next year Chuck 5 and Kevin are TOAST!"

Chuck Rippel and Kevin Weiner rode around on a contraband all-terrain vehicle with a loaded Super Soaker. I think they got worse than they gave.

Rick Bish: "Yes--thank you George for cooking this year, too. I can't remember a BBAA picnic when you didn't cook, but the food was great. It was especially nice having ice cream--I think that was Kevin with the dry ice-- thanks Kevin! Awesome squirt gun shoot out, too! I don't think I had a square inch of dry Clothing, by the end of the picnic! Thanks to all who attended and contributed! It was a lot of fun and good seeing everyone again!"

I cooked the burgers and hot dogs again this year, for the third year in a row. I think they're going to make me do it until I get it right! For those who did not want to get wet, the shelter was "off-limits" to the squirt gun battle. Though a few stray shots may have come our way, we stayed dry.

Ted Forte: "Great seeing everyone at the picnic (we missed all of you that weren't there!) The chow was great and so was the fellowship. Congratulations Taylor for your outreach award. We are lucky to have such a dedicated young astronomer in our midst!

Thanks Georgie for once again organizing the picnic. BBAA would be a very different club without you. (A good deal duller). You DO need to work on your stealth though ... you sneak up on folks from BEHIND. (Dale, you dodged a bullet on that one.) Thanks George for being the chief cook. We should just make that part of the president's duty now that you've set the precedent!

If we haven't already, may I suggest that our leadership extend an official "thank you" to the NWRP administration? We did after all, enjoy the use of a reserved area for free."

The large shelter we used was provided free of charge by the folks at Northwest River Park, and we thank them for their kindness. They also partook of the food and fellowship, as usual, and we enjoyed having them there.

Kevin Weiner and "C4" Chuck Rippel made the squirt gun fight a quasi-military operation, as seen by their "situation report"::

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SUBJ/BBAA PICNIC H2O OFFENSIVE/SITREP/ 20060722/ / 1.
HYDRO ASSAULT VEHICLE (HYDRO-AV) WAS MINIMALLY EFFEC-
TIVE. THE ENEMY HAD SUPERIOR WEAPONS AND GREATER NUM-
BERS THAN INTEL REPORTED.
2. HYDRO-AV PILOT TOOK A FEW DIRECT HITS FROM THE EN-
EMY'S FLANK, TAIL GUNNER WAS LOST TAKING DIRECT CONCEN-
TRATED POINT-BLANK FIRE FROM MAIN ENEMY BATTERIES.
3. FIELD COMMAND RECOMMENDS ARIAL SUPPORT AND ESCALA-
TION TO DIHYDROGEN MONOXIDE WMD FOR MASS NEUTRALIZATION
OF ENEMY SURGE ATTACKS.
4. NO FURTHER COMMUNICATIONS IN THE CLEAR.
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In short, a good time was had by all. If you missed the picnic, please plan to come next year.

George Reynolds

NASA's Space Place

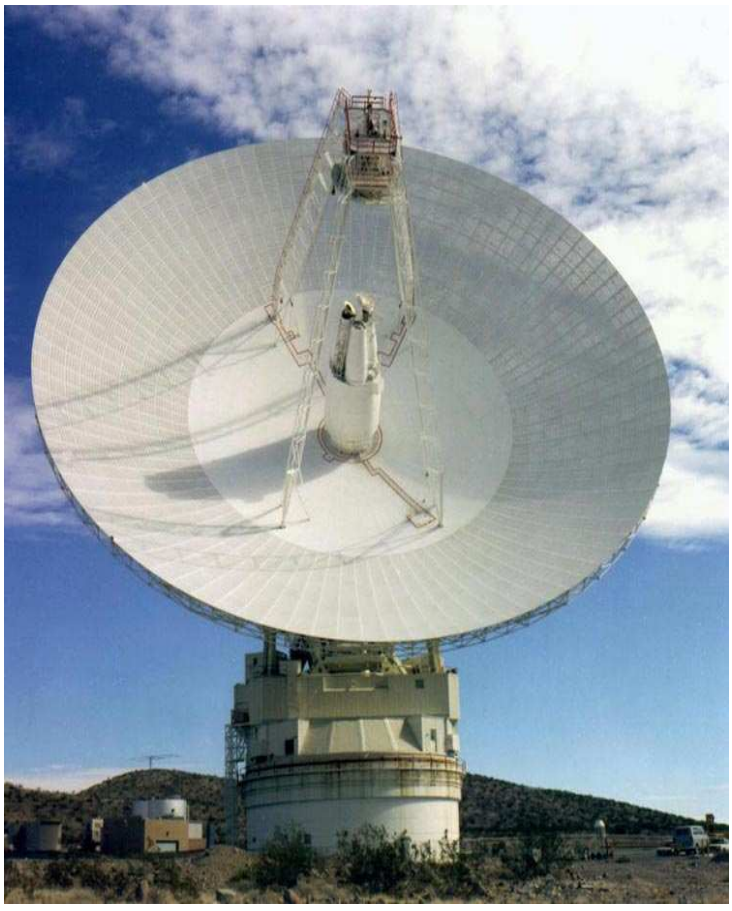
Celebrating 40 Years of Intent Listening

By Diane K. Fisher

In nature, adjacent animals on the food chain tend to evolve together. As coyotes get sneakier, rabbits get bigger ears. Hearing impaired rabbits die young. Clumsy coyotes starve. So each species pushes the other to "improve."

The technologies pushing robotic space exploration have been like that. Improvements in the supporting communications and data processing infrastructure on the ground (the "ears" of the scientists) have allowed spacecraft to go farther, be smaller and smarter, and send increasingly faint signals back to Earth—and with a fire hose instead of a squirt gun.

Since 1960, improvements in NASA's Deep Space Network (DSN) of radio wave antennas have made possible the improvements and advances in the robotic spacecraft they support.



"In 1964, when Mariner IV flew past Mars and took a few photographs, the limitation of the communication link meant that it took eight hours to return to Earth a single photograph from the Red Planet. By 1989, when Voyager observed Neptune, the DSN capability had increased so much that almost real-time video could be received from the much more distant Planet, Neptune," writes William H. Pickering, Director of JPL from 1954 to 1976, in his Foreword to the book, *Uplink-Downlink: A History of the Deep Space Network, 1957-1997*, by Douglas J. Mudgway.

Mudgway, an engineer from Australia, was involved in the planning and construction of the first 64-m DSN antenna, which began operating in the Mojave Desert in Goldstone, California, in 1966. This antenna, dubbed "Mars," was so successful from the start, that identical 64-m antennas were constructed at the other two DSN complexes in Canberra, Australia, and Madrid, Spain.

As Mudgway noted in remarks made during the recent observance of the Mars antenna's 40 years of service, "In no time at all, the flight projects were competing with radio astronomy, radio science, radar astronomy, SETI [Search for Extra-terrestrial Intelligence], geodynamics, and VLBI [Very Long Baseline Interferometry] for time on the antenna . . . It was like a scientific gold rush."

In 1986 began an ambitious upgrade program to improve the antenna's performance even further. Engineering studies had shown that if the antenna's diameter were increased to 70 m and other improvements were made, the antenna's performance could be improved by a factor of 1.6. Thus it was that all three 64-m DSN antennas around the world became 70-m antennas. Improvements have continued throughout the years.

"This antenna has played a key role in almost every United States planetary mission since 1966 and quite a few international space missions as well. Together with its twins in Spain and Australia, it has been a key element in asserting America's pre-eminence in the scientific exploration of the solar system," remarks Mudgway.

Find out more about the DSN and the history of the Mars antenna at http://deepspace.jpl.nasa.gov/dsn/features/40years.html. Kids (and grown-ups) can learn how pictures are sent through space at http://spaceplace.nasa.gov/en/kids/phonedrmarc/2003_august.shtml .

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

IMAGE CAPTION
For over 40 years, the "Mars" 70-m Deep Space Network antenna at Goldstone, California, has vigilantly listened for tiny signals from spacecraft that are billions of miles away.

Mystery of explosive star solved

In February, a faint star a few thousand light-years away flared suddenly, beaming so brightly that for a few days it was visible to the naked eye.

The star is a stellar corpse the size of Earth, known as a white dwarf, and it is paired in a binary system with a red giant, a dying, bloated star that once resembled our sun. The red giant has been dumping gas onto the surface of the white dwarf, and every few

years, enough matter accumulates to set off a giant thermonuclear explosion.

It was one of these explosions, called a "nova," that astronomers

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WHERE IS THE MEETING?

The COX Communications Campus is located in Chesapeake's Greenbrier section. The following should help you locate the facility.

FROM Interstate I-64:

Take exit 289B (between the Indian River & Battlefield exits)
South on Greenbrier Parkway (.7382 miles)
Turn RIGHT onto Eden Way West (.9231 miles)
Turn RIGHT on Crossways Blvd (.88901 miles)
Turn Right into the Cox Campus

The meeting is held in the Silver room located on the North side of the facility. Enter and tell the guard that you are with the BBAA and they will issue a badge and direct you to the room.

BBAA INFO

The BBAA meet the first Thursday of every month. While school is in session we meet at the VA Beach TCC campus in the Pungo building. Summer meetings are usually held at the Chesapeake COX campus. The August meeting will be on Thursday August 3rd at 7:30 PM at the Cox Communications campus in Chesapeake.

President
George Reynolds
757.497.0755
pathfinder27@yahoo.com

Treasurer
Barb Weiner
757.548.4936
Barb.weiner@cox.net

Vice President
Kevin Weiner
757.548.4936
Kevin.weiner@cox.net

Secretary
Chuck Jagow
757.547.4226
Chuck@jagowds.com

ALCOR
Georgie June
doublestarjune@msn.com

Librarian
Gerry Carver
popcarg@aol.com

Web Master / RRRT Coordinator
Ted Forte
twforte@cox.net

Scholarship Coordinator
Ben Lyola
benito@loyola.com

What do you want to do?

BBAA INTERNET LINKS

BBAA WEB SITE
http://groups.hamptonroads.com/bbaa/

YAHOO GROUP
http://groups.yahoo.com/group/backbayastro

OBSERVER INFO

The BBAA Observer is published monthly, the monochrome version is mailed to members who do not have Internet access. Members who do have Internet access can acquire the full color version on the Internet at:

http://www.backbayastro.org/newsletters/newsletter.shtml

Please submit articles and items of interest no later than the 20th of August for the September issue. Please submit all items to:

ObserverBBAA@cox.net

OR

BBAA Observer
P.O. Box 9877
Virginia Beach, VA 23450-9877

MY SUMMER WORKATION

This summer my bride, Karen, and I traveled to my boyhood home in Colorado to assist my mother while she had cataract surgery on one of her eyes. Karen and I were to take care of the horses while my mother recuperated. The ranch is located in the heart of the Sangre De Cristo mountain range at an altitude just over 8650. The Clear Sky Clock lists the Verde Mont Observatory as one of the darkest sites still left in Colorado. This would be the third time I have packed up the majority of my telescope equipment when I visited home. And this would be the third time that I was skunked by bad weather! It had been sunny and clear for three weeks prior to our arrival. It was raining when we arrived about midday. With occasional breaks during the daytime every night but one was clouded in solid. It just so happened that on that particular night the newly formed Sangre Stargazers had planned a star party.

The get-together was held at member Bob Moose's observatory. Bob and his wife Rosemary live in what is known as the Bull Domingo development. He could have just bought a nice 35 acre tract that had a little bit of the hill and the rest would have been level land to build on. Apparently, Bob really wanted his observatory on the top of the hill so he acquired the whole hill also. He built his house a little less than halfway up the hill. He designed the house so that he could maximize exposure to the sun during the winter to provide heat. The sun streams in through special energy efficient windows that allow the heat to come in during the winter, and block it during the summer. The sunlight streams in and quickly heats the thick tiles that make up the floor. The warmed tiles effectively provide the primary heat source for the house. For supplementary heating they have a very small wood stove, which they only need to fire up on successive cloudy days during the winter.

The observatory is on the right hand “hump”.

Bob's observatory houses a twelve inch Meade LX200GPS on a wedge. Bob built the observatory himself. This may not sound like a big deal, after all I built my backyard observatory by myself. The difference is that Bob's observatory is all the way up on the top of a high hill and the path from the house to the observatory could challenge a goat. His first task was to dig, cut and scrape a narrow switch-backed road wide enough for his quad-wheeler to wind its way to the building site. Once that was accomplished Bob hauled all of the materials to the site as they were needed. The observatory is large enough to hold the big scope plus about eight to ten people. A The roof rolls around on a circular track and provides a nice wide slit to point the scope through. Right now the roof is manually operated until Bob installs the solar panels to power an electrical system.

The Sangre Star Gazers, the rightmost fellow in the back row is Bob, yours truly is on the left.

There were approximately fourteen people who attended, only twelve made the hike up to the observatory. Bob's wife Rosemary kept my wife Karen busy back at their house. After the steep, long hike to the top of the hill (did I mention it was steep) we all rested a bit (man that hill was steep) while Bob, apparently not out of breath, began telling us about the observatory and it's construction. Once normal breathing had returned to the group, we went inside and opened the shutter and stared up at the clouds. We talked about what we might have been able to see over here and where Jupiter should be. Just as we were discussing the minimal light dome from Colorado Springs 70 miles to the North East. I kind of chuckled as the "light dome" they were talking about extended less than five degrees above the NE horizon and was barely visible- I thought about the light dome we have in Greenbrier extending nearly 70 degrees high on a warm humid summer night. Just about then someone hollered there it is! Sure enough a sucker hole opened and out popped Jupiter.

Bob quickly slewed the scope over to Jupiter, sighted it in and we began taking turns observing the gas giant. The Great Red Spot was clearly visible. As we continued to look at Jupiter, the sucker hole expanded to extend almost from horizon to horizon. The one group of stubborn clouds that did stay, managed to obscure what light the crescent moon was providing. Bob quickly accomplished a two star alignment and we began slewing to globular clusters and faint fuzzies for everyone to see. I swear I could see color in M13! The Milky Way was spectacular! Finally around midnight the sucker hole figured we had enjoyed the sky enough and it closed up. Now we had to negotiate the trail down to the house.

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Bob suggested that we follow the quad-runner road that he had made, it was not as steep but was about three times as long as was the path up. The majority agreed that longer was indeed better than steep, especially in the dim light of red flashlights. We all managed to make it down with out twisting any ankles. Everyone agreed that the observations were well worth the hike, have I mentioned how steep that darn hike was?

All in all it was a very rewarding trip. My mom's cataract surgery went over better than anticipated and I did get to use my Orion 12" to spot elk up on the mountain, damn things were upside down! We managed a couple days of sun observations before the daily, I mean hourly, rains started.

Chuck & Karen Jagow

Master Observer Award

On June 17, 2006 in Coinjock Ted Forte completed the Astronomical League's Deep Sky Binocular program which also completed the requirements for the Master Observer pin.

The following are Ted's thoughts on this new award.

"Master observer" seems a bit pretentious in a club with observers the likes of Kent Blackwell and so many other prolific observers, many of whom haven't an A.L. pin to their names. But for some of us, these programs are a real encouragement; an inducement to get out there and observe new objects. I'm sure that participation in these programs has made me a better observer and a more disciplined note taker, but they have also provided the goals that keep me at the eyepiece.

It wasn't always that way; early on in my observing career, I never considered completing an AL program. Maybe that's why it took me ten years to complete the Messier list! But then about five years ago, Georgie June became our ALCOR and started pushing members to complete these programs. As president at the time, I thought it was incumbent on me to take the lead and do some programs myself. Since then, BBAA members have been awarded well more than 50 AL pins and even created a new observing program!

Now I guess I'm hooked. I usually have three or four programs in progress at a time, and so I'm never at a loss for something to look for. The road to my master observer designation started with the logging of M13 on September 2, 1991, but didn't really go into full swing until early in 2001 when I decided to concentrate on completing the Messier Club. Before that, only one BBAA member (to my knowledge) had ever submitted an AL observing program. Now it seems that to many of our members, it is a rite of passage, almost an obligation!

To earn a Master Observer designation, one must complete the five "core programs" and any other five upper level programs of the observer's choice. The core programs are the Honorary Messier, Binocular Messier, Lunar Club, Double Star Club, and the Herschel 400. My elective programs were the Sunspotter Club, Urban Club, Caldwell Club, Globular Cluster Club and the Deep Sky Binocular Club.

I've had a lot of fun along the way. Until I did the programs, I had very little interest in the Moon, or double stars, or sunspots. But I have gained an enormous appreciation for them now. I learned a lot too; how to count and classify sunspots, and how to classify clusters, planetaries and galaxies. I learned about the geology of the moon and the life cycles of stars. I got to converse with Sir Patrick (Caldwell) Moore and earned enough pins so that my ball cap can double as boat anchor. And I was inspired to create an observing program of our own. I am quite proud of my part in the development of the A.L.'s Planetary Nebula Club and honored to be its coordinator.

This Master Observer pin represents 1139 observations, but I'm not done by any means. As I write this and wait for my tenth and eleventh observing pins, I have no fewer than five programs in progress. Two of them, Herschel II and the Planetary Nebula Club, are each more than 96% complete!

My intent here isn't merely to crow about my pending Master Observer designation but rather to express how valuable the experience has been to me. To some, earning awards may seem frivolous or trendy (that's how I once viewed them), but the process itself has been quite rewarding. I encourage all of you, especially those that find themselves observing the same objects repeatedly, to consider these programs as a great source of inspiration, information, and purpose.

Visit http://www.astroleague.org/observing.html to learn about A.L. observing programs.

Ted Forte

CONGRATULATIONS TED!!

(Continued from page 4)
and stargazers detected earlier this year.

The two-star system, called RS Ophiuchi, is known as a recurrent nova because five similar eruptions have been detected before. The first observation occurred in 1898; the last eruption prior to this latest one happened in 1985.

The new observations, made using advanced radio and X-ray telescopes not available during the last outburst, reveal the explosion to be more complex than was previously assumed. Standard computer models had predicted a spherical explosion with matter ejected in all directions equally. The latest observations instead showed that the explosion evolved into two lobes, confirming suspicions that the nova outburst produces twin jets of stellar material that spews out from the white dwarf in opposite directions.

"The radio images represent the first time we've ever seen the birth of a jet in a white dwarf system. We literally see the jet 'turn on,'" said Michael Rupen, an astronomer at the National Radio Astronomy Observatory who studied RS Ophiuchi using the Very Long Baseline Array (VLBA).

As impressive as the nova are, they might just be precursors for a more violent supernova explosion that will occur in the future, scientists say. The white dwarf's thermonuclear blasts are similar to those that occur on the surface of the sun, but they can be over 100,000 times more powerful. During each outburst, an amount of gas equal to the mass of the Earth is flung into space.

Some of this ejected matter slams into the extended atmosphere of the inflated red giant, creating blast waves that accelerate electrons to nearly the speed of light. As the electrons travel through the stars' magnetic fields, they emit radio waves that can be detected by telescopes on Earth. The blast waves move at over four million miles (about 6.4 million kilometers) per hour. For a few weeks during each outburst, the white dwarf becomes a red giant.

"After the [thermonuclear explosion], the white dwarf will puff up into a red giant for a few weeks as the hydrogen that has been blasted into space fuses into helium," explains Richard Barry of the NASA Goddard Space Flight Center in Maryland.

All eyes on Ophiuchi Japanese astronomers first detected signs of RS Ophiuchi's latest nova on the night of February 12. Follow-up observations by radio telescopes revealed an expanding blast wave whose diameter was already the size of Saturn's orbit around the Sun.

In the weeks following, several radio and X-ray telescopes around the world tracked RS Ophiuchi closely, including the MERLIN array in the UK, the European EVN array, the Very Long Baseline Array (VLBA) and Very Large Array (VLA) in the United States, and NASA's Swift and Rossi X-ray Timing Explorer satellites.

Findings from the Rossi X-ray Timing Explorer and the VLBA/EVN observations are detailed in two separate studies published in the July 20 issue of the journal Nature.

The red giant and white dwarf stars making up RS Ophiuchi are separated by about 1.5 astronomical units, or one and a half times the distance the Earth is from the sun. The binary star system is located in the constellation Ophiuchus, about 5,000 light-years away -- very close by astronomical standards.

"We have a ringside seat for this very important event," Barry told SPACE.com. Barry is a co-author on another study on RS Ophiuchi that will appear in an upcoming edition of **Astrophysical Journal**.

Supernova precursor?
When the outburst is over, gas will once again build up on the white dwarf and the explosions will begin anew, perhaps in some 20 years time. It's unknown whether the white dwarf casts off all of its accumulated matter during each eruption, or whether some of the material is being hoarded and slowly increasing the mass of the dead star.

"If the white dwarf is increasing in mass then it will eventually be ripped apart in a titanic supernova explosion and the cycle of outbursts will come to an end," said Tim O'Brien of the University of Manchester, a co-author on one of the Nature studies.

White dwarfs must attain a critical 1.4 solar masses before they can explode in what scientists call a Type 1a supernova. The white dwarf in RS Ophiuchi is near this critical limit now, but it will still probably need hundreds of thousands of years to accumulate the final bit of mass, scientists say. Because all Type 1a supernovas emit the same amount of light at their peak, they serve as important "standard candles" which astronomers use to calculate cosmic distances.

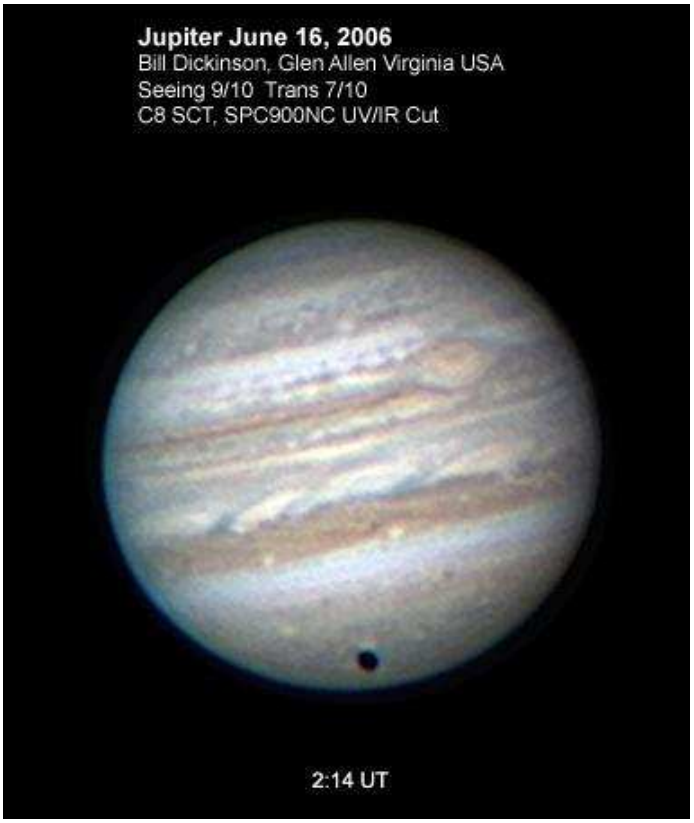
"Our understanding of these objects is exceedingly important as any miscalculation or uncertainty in the total light of output of supernovae could have a dramatic effect on our calculations of the scale and size of the entire universe," Barry said.

Ker Than

This article is courtesy of **SPACE.COM**.

JUPITER

Image provided with permission of Bill Dickson.



AUGUST 2006

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
		1	2  First Qtr	3 BBAA MEETING @ COX	4 NIGHT HIKE @ NWRP	5 GARDEN STARS @ NBG
6	7	8	9  Full Moon	10	11	12
13	14	15  Last Qtr	16	17	18 SKYWATCH @ NWRP	19 CLOVERWATCH @ FRANKLIN
20	21	22	23  New Moon	24	25	26 NIGHTWATCH @ CHIPPOKES
27	28	29	30	31  First Qtr		