OBSERVER

Asteroid Occultations

April 18, 2008 7:00PM

TCC Metro Campus - Philips Auditorium
Building 2 9th and Cincinnati

PRESIDENT'S MESSAGE

By Tamara Green

Our guest speaker for our April Meeting is our own Tony White! Tony will be giving a presentation on asteroid occultation that promises to be interesting as well as educational. So come on out and show your support for Tony and enjoy his cool-sounding talk!

On Saturday, Apr 19 we will have a work day at our observatory, to get it in shape for our upcoming star parties. As always, we will need as many volunteers for this as we can get, and any help from our members will be very much appreciated. If you are interested in helping out, contact Craig Davis.

Don't forget our members-only star party on Friday, Apr 25 and our regular star party on Fri, May 2. In the event of lousy weather on those Fridays, we will have the Saturdays as back-up nights.

Our Messier Marathon at TUVA was pleasantly successful, with many of our regular attendees showing up to once again challenge themselves (and each other) in the hunt for those 110 elusive yet beautiful deep-sky objects. Your humble president somehow managed to lead a caravan of about five vehicles to the site without losing a one, we enjoyed a WONDERFUL pot-luck dinner (thank you so much to everybody who brought all that yum-licious food!) and then, in spite of the sky getting all crudded up for a while Saturday night, but then clearing, we enjoyed a pretty decent sky and were able to go all night in search of Messier's treasures. As always, I thank Ron and Maura so much for having us again this year, and for being such fun and gracious hosts!

I hope to see all of you soon!

Clear Skies,

Tamara

Lands Tidbits by *John Land* April 2008

Welcome Recent New Members: Russell Dysart, Mike Ransom, Nate Isaacs, Grant Cole, Bobby Cox, Christopher Proctor, Len Turner, Steve Elliott, Callen Johnson

Our membership rates for 2007 – 2008

Adults - $ 35 per year includes Astronomical League Membership

Sr. Adult discount $25 per year for those 65 or older includes Astronomical League Membership

Students $ 15 without League membership.

Students $ 20 with League membership.

The regular membership allows all members in the family to participate in club events but only ONE voting membership and one Astronomical League membership.

If an additional member of the family would like to join with voting rights the additional cost is $15.

Additional League memberships within a family are $ 5 each.

Magazine Subscriptions: If your magazines are coming up for renewal, try to **save the mailing label** or renewal form you get in the mail. Do NOT mail renewals back to the magazine!

To get the club discount you must go through the club group rate.

Astronomy is $ 34 for 1 year or $ 60 for 2 years. www.astronomy.com

Sky & Telescope is **$33 / yr** www.skyandtelescope.com

Sky and Telescope also offers a 10% discount on their products.

Note: You may **renew** your Sky & Telescope subscription directly with out having to mail in the subscriptions to the club. **NEW SUBSCRIPTIONS must still be sent to the club treasurer. Forms are available on the website.**

We now have an automated on line registration form on the website for new AND renewal memberships plus magazine subscriptions. You simply type in your information and hit send to submit the information.

http://www.astrotulsa.com/Club/join.asp

You can then print a copy of the form and mail in your check**.**

Astronomy Club of Tulsa - 25209 E 62nd St – Broken Arrow, OK 74014

Address Corrections- Email changes – Questions:

You may forward questions to the club by going to our club website and Fill out an online form or just click on John Land and send an email. Please leave a clear subject line and message with your name, phone number, your question – along with email

Summer Astronomy Events

June 6 and 7, 2008 The Mulberry Mountain Star Party near Ozark, AR

http://www.aoas.org/calendar/event.php?eid=20080116224315459 more info at www.aoas.org

June 21, 2008 convention of the Mid-States Region of the Astronomical League (MSRAL) will be at the St. Charles Community College campus in Cottleville, Missouri.
http://asemonline.org/archives/category/upcoming-events/

June 26 to July 5, 2008 Heart of America Star Party in SW Missouri hosted by the Kansas City Astronomy club.
http://www.hoasp.org/

Secretary's Corner by *Teresa Kincannon* April 2008

As the secretary for the Astronomy Club I have compiled a summary of the items discussed through the past few months. Some of these things were voted on for a board approval. Other items didn't really need a board approval but we needed to simply take care of general business to keep the club and the observatory in good shape. For a copy of the actual details of each board meeting, you may contact me at: msteresa_astrotulsa@yahoo.com I would be glad to send over the complete minutes.

One of the main items that we have been working on is up-dating the by-laws. Since the original by-laws were written, we have evolved into a much more sophisticated club. Many of the changes that we will be bringing to your attention for approval are items that we have already adapted into our club. A committee of members has met to work on the wording and clarity of the changes. The committee members are John Land, Tony White, Teresa Kincannon, Ann Bruun, and Tom McDonough. Tamara & Owen Green have joined us while Bill Steen and Denny Mishler have some contributions to make. So that none of us are overwhelmed, we will be taking one article/section at a time. In the month of May we will ask for your approval by an acceptance vote on the proposed new "Article IX Discipline".

We would like to have more public events. So far the weather has not cooperated enough to accommodate some of the groups. Soon we should have plans for groups at the observatory. All those who have volunteered, keep an eye out for emails with dates.

Together we planned an exciting weekend for April 4 &5th. Friday night was our star party and Saturday, April 5 we made plans for the Messier Marathon. Tamara headed the group that would caravan to TUVA and Tom made announcements on the website complete with a map. All those who participated in the event have reported having an enjoyable time. At the meeting I'm sure we will hear the winners of the competition.

If you didn't get a chance to join in that fun, try to make plans for this next big event: A Week-end at the Adams Ranch. As a board we have made arrangements to use the bunk house and observing site located in a section of the Tall Grass Prairie. The drive is not so far and skies are comparable to Okie-Tex. Flat land from horizon to horizon and away from city lights this place offers some very nice skies. The cost is 5.00 per person each day plus 20.00 for the bunk house. You will need to get your reservations in and register for this one.

Tom has been working on a new 'Members Handbook' and doing a very thorough job as usual. Currently he needs help from anyone that can share information on the history of our club. This will be a great resource for all members. Thank you to Tom.

Speakers for April and May: Tony White has prepared a presentation for April. In the month of May we will have a guest speaker: Dr. Eddie Baron from OU. Dr. Baron's research is on Supernova.

Work day at observatory: Saturday, April 19, 2008. Craig is renting chain saws to cut the limps off the trees on the roads going up to the observatory. We need helpers for inside as well as outside. Wear work clothes.

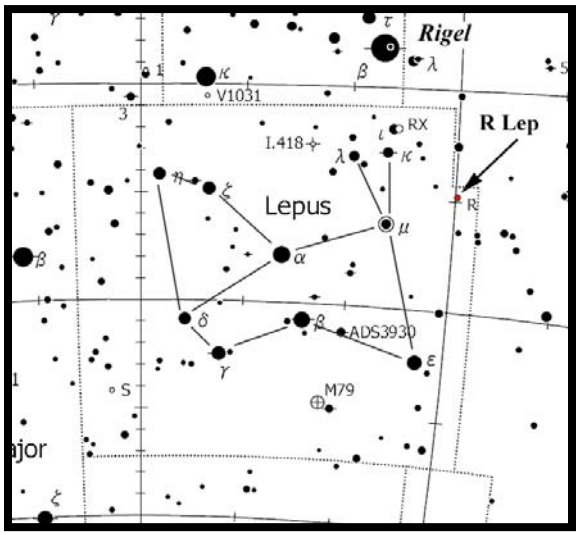
We are receiving emails from people seeking help with telescopes. We need to have some procedure to be prepared so we don't leave these people out. One thought was putting a forum on the website for discussion on this. Perhaps we could have a list of members along with the telescopes of their expertise. As a board we will continue to work on this.

Of course we had the usual votes on approval of our dates for star parties and public meetings. The lunar eclipse was something we made big plans for public outreach. Too bad the weather didn't cooperate. That summarizes just about everything on our official minutes.

HIND'S CRIMSON STAR (R Leporis)

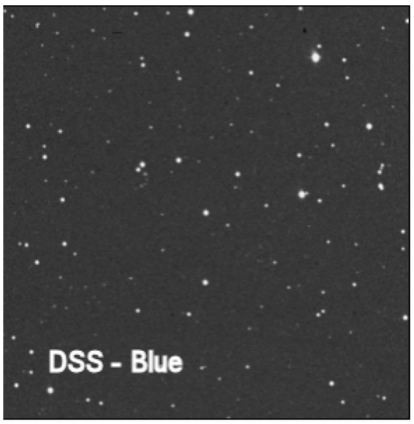
by D. J. Karcher

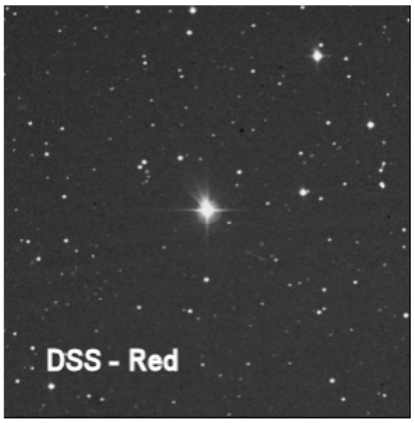
R Leporis is a long-period Mira-type variable in the constellation Lepus (the Hare), easily seen in binoculars when at maximum brightness. It varies from approximately magnitude 5.5 to as low as magnitude 11.7 in about 432 days. It was first noted by the 19th century British astronomer John Russell Hind in 1845 who described it as "resembling a blood drop on the background of the sky" and thus named *Hind's Crimson Star* in his honor, although this deep red color is not pronounced when the star is near its maximum brightness.



R Lep belongs to a class of variable stars with some extremely interesting spectral characteristics. In the early days of stellar spectral typing, there were two categories, R and N which have since been combined into one newer group called type C stars (for Carbon Stars). These are old cool giant stars nearing the end of their stellar life with a large abundance of carbon left over from their years of nuclear fusion. Almost always these stars can be seen quite easily in a star field by their deep red color that is most intense when the star is at minimum brightness.

To be a "Mira-type" variable, a star must be a cool giant, and cool stars are redish, the shade of Betelgeuse, Mu Cephei or Mira itself. The term giant is certainly apt. From its distance of 820 light years and direct measures of its angular diameter, R Lep would, if put in place of the Sun, stretch 95 percent of the way to Mars. As a Mira variable, R Lep is also luminous, its maximum radiation over 300 times the visual solar power (while at minimum plunging only to solar brightness). Such variation is deceptive, though, as cool R Lep, like other "Miras", radiates most of its light in the infrared. As a result, visual variations are caused as much (or more) by changes in temperature as changes in energy output.

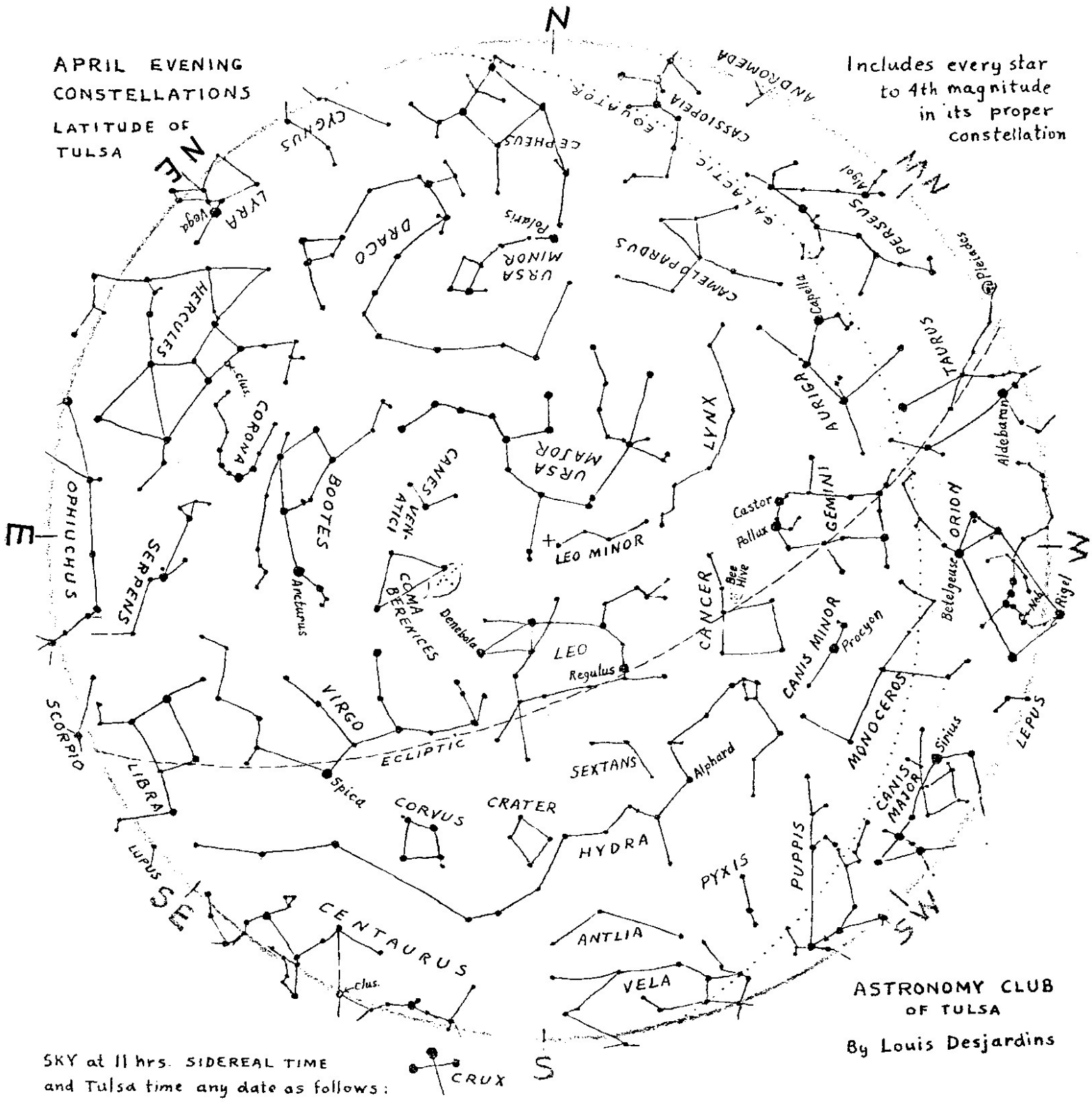




Two additional factors contribute to the depth of R Lep's color. First, it has an especially low temperature of only 2050°K, making the star one of the coolest giants known. When stars were first classified 150 years ago, two kinds of absorptions were found in the form of broad "bands" rather than narrow "lines". The majority had bands that shaded to the red; the other kind shaded oppositely. The rarer bands were quickly identified with carbon molecules, while the more common bands were later found to be the ubiquitous titanium oxide of the M stars. Harvard's William Pickering, who developed the modern classification system, called the carbon stars class "N" ("C" now used). C_2 molecules and especially cyanogens (-CN), absorb a great deal of blue light. As a result, the more carbon, and the cooler the star, the more blue light is absorbed. Carbon stars are therefore quite red. R Lep, partly because of its very low temperature, takes redness to an extreme, making it the sky's riveting "Crimson Star".

The carbon is a by-product of stellar evolution. R Lep, like Mira, has fused its internal core to a mixture of carbon and oxygen and can go no farther. The core is now expanding and contracting, while hydrogen fuses into helium, and helium fuses into carbon in shells that embrace the burnt core. Some of the carbon from the helium-burning shell has been lofted to the surface by convection. At one time, surface oxygen dominated carbon. For a brief period when carbon equaled oxygen, R lep must have appeared as an "S" star like Chi Cygni.

Although its mass is not directly determinable, carbon stars tend to be in the range of 2.5 to 5 solar masses, meaning R Lep began life as a hot class B star. Once the envelope is ejected, the hot core will light the surrounding wind in a "planetary nebula" and will then finally expire as a cooling, fairly massive white dwarf akin to Sirius B. Much of the carbon (and many other chemical elements) of the Universe came from such stars that died off long before the Sun was born 4.5 billion years ago, including that from which life is made. At its distance of only 820 light years, the show should be spectacular.



Thanks to Jim Miller for scanning the original map.

CLUB OFFICERS

POSITION	NAME	PHONE
President	Tamara Green	918-851-1213
Vice-President	Tom McDonough	918-665-1853
Treasurer	John Land	918-357-1759
Secretary	Teresa Kincannon	918-637-1477

BOARD MEMBERS AT LARGE

NAME	PHONE
Ann Bruun	918-834-0757
Steve Chapman	918-342-1643
Rod Gallagher	918-369-3827
Owen Green	918-851-1213
Jim Miller	918-627-4551
Richie Shroff	918-835-3565
Bill Steen	918-251-3062
Tony White	918-258-1221

APPOINTED STAFF

POSITION	NAME	PHONE
RMCC Facility Manager	Craig Davis	918-252-1781
Membership Chairman	John Land	918-357-1759
Observing Chairman	David Stine	918-834-1310
New Members	Tom McDonough	918-665-1853
Observatory Director	Teresa Kincannon	918-637-1477
Webmaster	Richard Alford	918-855-9986
Newsletter Editor	Tom McDonough	918-665-1853
Night Sky Network	Teresa Kincannon	918-637-1477

MEMBERSHIP INFORMATION

Astronomy Club of Tulsa membership ($35/year) includes membership in the Astronomical League and subscription to ACT's "Observer" and AL's "Reflector". "Astronomy" ($34/year) and "Sky and Telescope" ($33/year) are also available through the club. For more information contact John Land at 918-357-1759. Permission is hereby granted to reprint from this publication provided credit is given to the original author and the Astronomy Club of Tulsa Observer is identified as the source.

The Astronomy Club of Tulsa is a member of the Astronomical League and the Night Sky Network

http://www.astroleague.org

http://nightsky.jpl.nasa.gov

ACT welcomes your questions, suggestions, comments, and submissions for publication.

Please send all inquiries to Newsletter@astrotulsa.com