November 2007

OBSERVER

November Meeting – Dinner Meeting

November 16, 2007 6:30PM

Golden Corral 9711 E 71ST ST

PRESIDENT'S MESSAGE

By Tamara Green

I hope you all will join us for our Annual Dinner Meeting on Friday, Nov. 16 at the Golden Corral, 71st and Mingo, at 6:30 PM. There will be great food, door prizes, and we may be bringing a cake to celebrate the club's 70th birthday! Also, John Land says we maybe ought to try to get a group photo to commemorate this special event! So come on out and join us for a good dinner and good times!

Don't forget our Star Party on Friday, Nov. 9. Hopefully, we should still get a good look at Comet 17P/Holmes, which is becoming more and more amazing every time we see it! For those of you who have not yet seen this magnificent comet, get out and look! You will surely be treated to quite a view, as it is elongating and showing signs of forming a tail!

And of course, I wish you and your families a happy Thanksgiving holiday. Eat some extra turkey and dressing for me, 'cause I can't due to my weight loss plan!

For those of you who attended our last meeting at TCC, thank you again for re-electing me for my second year as your president. I look forward to this continued opportunity to serve the Astronomy Club of Tulsa. Even though my first year got off to a bumpy start, it is my hope that this year will go a little smoother! I look forward to seeing you all at our meetings and star parties and other events, and I hope to bring you some interesting speakers in the coming year. Thank you again for this wonderful opportunity to serve you.

Clear Skies,

Tamara

Lands Tidbits – by *John Land* Nov 16, 2007

Happy 70th Birthday – Astronomy Club of Tulsa ! !

Our club was organized in 1937 and has been active in promoting interest in astronomy for 70 years.

I'd like to give special recognition to our long term members:
1954 Reginald Kikugawa
1962 Richie Shroff
1967 James Liley
1974 Phillip Davis
1975 Tom McDonough
1976 David Stine
1977 John Land
1977 Bob and Judy Lieser
1979 K.C. Lobrecht
1984 Steven Chapman
There may be others that I do not have records for.

At our October Annual club meeting we approved adding a Sr. Citizen discount to our members 65 or older for $25 per year which includes the Astronomical League dues.

Our membership rates for 2007 – 2008 will be as follows.
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.

2008 Deep Space Mysteries Wall Calendars are here!
We have about 25 left at $ 8.00 each so bring exact change to the meeting to get yours.

2008 Royal Canadian Observers Handbooks Have been ordered. Hopefully they will make it from Canada for our Nov 16 meeting. If you haven't prepaid bring your $ 19 to the dinner.

Welcome Recent New Members: Arlo Cain, William Lea

You may renew your Sky & Telescope subscription directly with out having to mail in the subscriptions to the club treasurer. You may have already notice the new address if you received a renewal notice. You will still receive the club discount rate of $ 32.95 per year. Sky & Telescope will send out a list annually to verify club membership. You may also phone in your renewal at 1-800-253-0245. You will need to know your subscription number when you call. The new change should make renewing your subscription more convenient and allow you to use your credit card. The down side seems to be that it has added about an extra month to getting renewals and new subscriptions started. So send renewals in at least 2 months before they expire.
NEW SUBSCRIPTIONS must still be sent to the club treasurer. Forms are available on the website.

DON'T LET YOUR MEMBERSHIP or Subscriptions LAPSE !!
Check your MAILING LABEL for membership expiration date. Those receiving Email should get a reminder when your membership is up for renewal or you may contact John Land. You may also renew magazine subscriptions through the club for substantial discounts.

Magazine subscriptions Renewals: Several of you may be receiving renewal notices for you Astronomy or Sky & Telescope. Sky & Telescope may be renewed directly to the company. If you have an individual membership you may renew through the club you get a substantial discount. Go to the website and fill out the renewal

form then print it off and mail it in with your notice and envelope from the magazine. Or you may fill out and mail in the form below.

GUEST SIGN IN SECTION on the Website is already bringing the club new contacts for potential new members.

Changing EMAIL - When you change your email or mailing address be sure to send me the new information so I can update the club records. You can use the Join feature on the club web page to make changes.

ON LINE Club Memberships and Renewals:

Adults - $ 35 per year includes Astronomical League Membership
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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

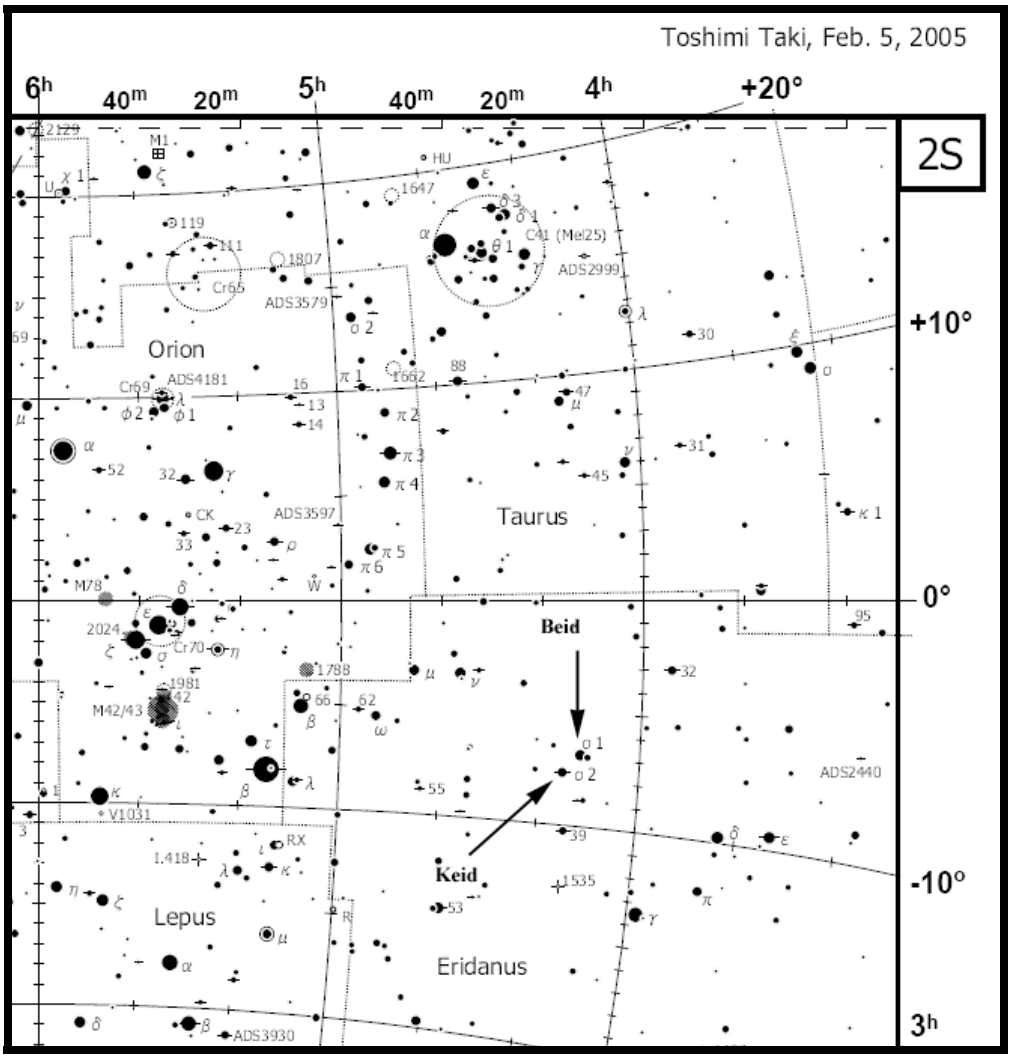
Magazine Subscriptions: If your magazines are coming up for renewal, try to save the mailing label or renewal form you get in the mail. Do NOT mail renewals back to the magazine!
To get the club discount you must go through the club group rate.
Astronomy is $ 34 for 1 year or $ 60 for 2 years. www.astronomy.com
Sky & Telescope is $33 / yr www.skyandtelescope.com
Sky and Telescope also offers a 10% discount on their products.

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 address or email

Three Dwarfs in the River

By D.J. Karcher

Almost 15 degrees west and just a little north of Orion's bright foot, Rigel, lies a faint 4.5 magnitude star in the constellation Eridanus (the river) that goes by the unassuming name of Keid. Keid, (more commonly known by its Flamsteed number, 40 Eridani or its Bayer designation omicron-2) seems to play second fiddle to it's somewhat brighter 4.0 magnitude neighbor Beid (aka - 38 Eridani or omicron-1). Keid (*Arabic for "egg shells"*) and Beid (*Arabic for "the eggs"*) are not a true binary system, Keid being at least seven times closer to Earth than Beid.



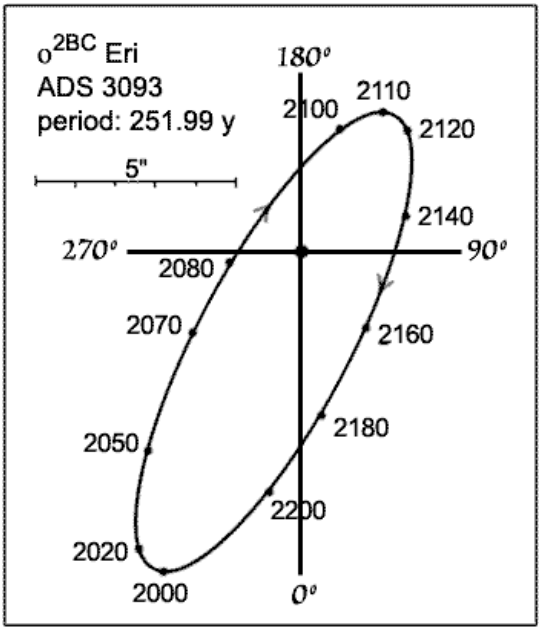
Finder Chart – Source: Taki's Star Atlas (http://www.asahi-net.or.jp/~zs3t-tk/index.htm)

So why check out Keid? It just happens to be a most remarkable triple dwarf star system, less than 16.5 light years away from Earth, containing the most easily observed ordinary dwarf, white dwarf and red dwarf stars for small telescopes. (*Note - the limiting visual magnitude for a 60mm scope is 11.4 with a Dawes limit of ~ 2" which puts this system well within the reach of the most modest armature equipment, always assuming that reasonably dark skies and good seeing conditions exist.*)

The brightest member, Keid A, is one of the very few class K (K1V spectral type) orange main sequence dwarfs visible to the naked eye, although in light polluted suburban skies it will be most difficult to locate. However, if you can make out all of the main little dipper bowl stars (magnitudes 2, 3, 4 & 5), Keid should be an easy find Other than proximity, Keid A has very little to offer but a cool temperature of 5,200° Kelvin, a low luminosity of 0.4 times that

of the Sun, and a mass around three-fourths solar. Such sun-like stars abound in space, but they are normally so faint that few can be seen without a telescope. Although not one of the 50 closest stars to our solar system it is the 8th closest of the naked eye stars. This is a close neighbor and it's very ordinary nature makes it special.

Keid B (magnitude 9.5), discovered by William Herschel in 1783, lies a little over a minute of arc (83.4") away from Keid A at PA 104° (almost due east). A true binary in orbit around the brighter class K star, it has changed undetectably in separation and only a few degrees in position angle since discovery. Best estimates indicate an orbital period of about 8,000 years and an actual separation of 400 AU (10x the distance between the Sun & Pluto).



This faint speck of light has the distinction of being the first recognized white dwarf star (1910) and is "the only white dwarf which can honestly be called an easy object for the small telescope", according to Burnham. Although Sirius B was discovered in 1862 and is a much more famous and well known star, a satisfactory spectrum (and thus confirmation of white dwarf nature) was not obtained until 1915 due to it's proximity to ultra-bright Sirius A. White dwarfs are the final products of ordinary solar-like evolution, and are the spent cinders of the original stars' cores. Ordinary dwarfs (like the Sun and Keid-A) fuse hydrogen to helium in their cores. When the hydrogen is consumed, these stars become red giants and fuse the helium to carbon and oxygen. The outer envelope is ejected as a planetary nebula, and all that remains is the low-mass ultra-dense carbon-oxygen white dwarf. Typical white dwarfs are only about the size of Earth and have extraordinary typical average densities of a ton per cubic centimeter. After many frustrating failed attempts to see the more "famous" white dwarfs, Sirius B & Procyon B, seeing Keid B the first time I turned my scope on this system was an absolute thrill with an added bonus – a faint red point just to the northwest of the blue-white B star.

Keid C (magnitude 11.2), is one of those ubiquitous low mass red dwarf stars that are rarely seen due to their extremely low luminosity. According to Burnham, "only three visible stars are definitely known to have smaller masses: UV Ceti, Ross 614B in Monoceros and Krueger 60B in Cepheus". It orbits the white dwarf with a period of 252 years and is currently at its furthest separation from Keid B (8.9"/PA=337°). It has been observed frequently through almost a complete orbit since discovery by Friedrich Georg Wilhelm Struve in 1825 (hence the system's alternate designation of Σ 518 among double star observers). Analysis of the orbit shows the pair to average 35 AU apart, the distance changing from 21 AU (about Uranus's distance from the Sun) to 49 AU (further than Pluto).

From the orbital data it was calculated that the white dwarf, 40 Eridani B, has a mass of just 0.50 times that of the Sun, the smallest of the classic three white dwarfs, the other two being Procyon B and Sirius B. The little star shines at but 1.3 percent the luminosity of the Sun, its high temperature of 16,500° Kelvin offset by a terribly small radius just 1.48 times that of Earth (the largest of the classic trio, consistent with lower mass, which yields a lower gravitational field and less squeezing). The result is a dead star with an average density of a quarter of a ton per cubic centimeter. The mass of the red dwarf, 40 Eridani C, is much smaller than that of 40 Eri B, 0.20 solar. Curiously the actual luminosities of the two stars are comparable, that of the cool (about 3,100° Kelvin) red dwarf 0.8 percent solar, most of it coming out in the infrared. As fascinating as the white dwarf may be, the dim M dwarf is not without its own charm. Like many of its cousins (such as Proxima Centauri), it is a "flare star," one with a magnetic field that occasionally short-circuits, causing the star to suddenly brighten all across the spectrum (DV Eri). Overall the age of this triple star system is estimated to be around 7.24 billion years or older. Since higher mass stars live shorter lives than lower mass stars, the white dwarf must originally have been the most massive star of the three, with a mass perhaps that of the Sun or a little more, to have evolved first. As a red giant, 40 Eridani B would have quite dominated the system. The class K star will be next to go, while the dim red one will last for a seeming eternity and still be essentially unchanged long after the Sun has passed through its own red giant phase and become a white dwarf itself billions of years from now.

Oh, and one last little bit of trivia – Keid (40 Eri-A), was the supposed site of Vulcan, the home world of Mr. Spock in the Star Trek television/movie universe created by Gene Roddenberry. Live long and prosper fellow star gazers.

EQUIPMENT FOR SALE

The estate of Ken Willcox has several items for sale. Anyone who's interested please contact:

John Grismore
(918) 333-5257
jrgrismore@cableone.net

Eagle-Picher	12V 5Amp Porta-Pac		rechargeable	with cigarette lighter socket, battery condition unknown	$10.00
Celestron	Telescope	C8		with tripod, wedge, visual back	$500.00
Edmund	Lens Luster Cleaning Solution				
NASA	Atlas of Galaxies		book, 1988	currently selling for $125	$75.00
NASA	Moon Viewed by Lunar Obiter		book, 1970		$20.00
SBIG	CCD Camera		ST-6 Opto-Head	no cable, software or documentation	$350.00
SBIG	CCDOPS Software		Macintosh		
SBIG	Color Filter Wheel		CFW-6A		$350.00
Starlight	Astro Flashlight				$5.00
Zelco	Lumifier (astro light?)			in package	$5.00
	Illuminator Batteries	2 per pack	SR-44	condition unknown	
	Allen Wrenches				
	Assorted Books				
	Assorted NASA Slides				
	Assorted Small Hardware				
	Assorted Posters				
	Film Hypering Apparatus ?				
	Hand Mirror		front surface?	solar filter ???	$3.00
	Lighted Magnifier			corroded battery clip	$1.00
	Notebooks of Astro Slides (5)			Ken's slides and some from NASA	
	Notebooks of Astro Slides (5)			Ken's slides and some from NASA	
	Solar Filter	3"	corrector cap	for C8?	$30.00

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

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Ann Bruun	918-834-0757
Steve Chapman	918-342-1643
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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

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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	Jerry Mullennix	918-237-8220
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