



*Astronomy Club of Tulsa*

# *Observer*



**December 2009**



*Color enhanced image by Alan C Tough, Elgin, Scotland*

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***Important ACT Upcoming Dates:***

ACT Meeting at TCC	Fri, Dec. 04, 2009 (p 2)
Public Star Party	Fri, Dec. 11, 2009 (p13)
Member Only Star Party	Fri, Dec. 18, 2009

## *December Meeting Speaker*

The Astronomy Club of Tulsa is excited to announce that our December 4th meeting at TCC Metro Campus will have Dr Gordon Emslie from Oklahoma State University as our featured speaker. Subject of Dr. Emslie's talk will be: Solar Flares – Probing Particle Acceleration Processes in the Universe

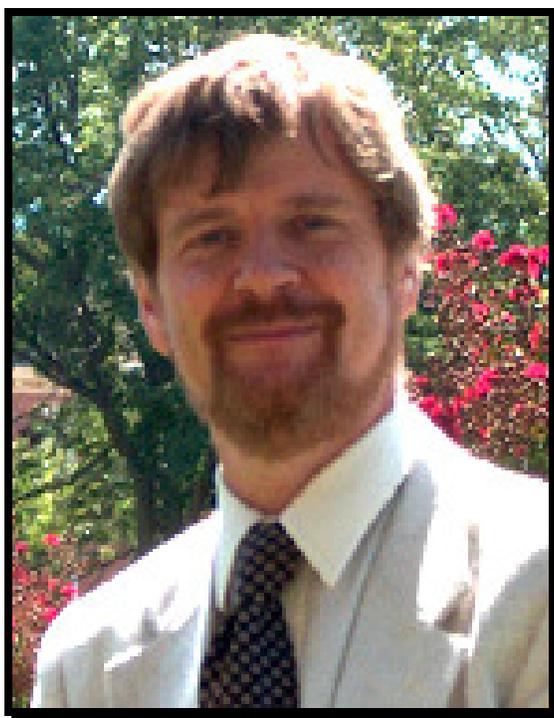
**When:** Friday, December 4, 2009 7:00 PM

**Where:** TCC Metro Campus - Philips Auditorium - Located in Building 2 at the corner of 9th and Cincinnati. Park on NORTH side in Lot 5 on 9th and Boston Ave. From the BA Expressway – take the Detroit Exit and go north to 9th St and then turn left. The meeting room is on the NE corner of the buildings

[Map](#)

[Directions](#)

*A. Gordon Emslie*



Dr. Emslie is Associate Vice President for Research, Dean of the Graduate College, and a Regents Professor of Physics at Oklahoma State University. He received his B.S. degree in Physics and Astronomy from the University of Glasgow (Scotland) in 1976, his Ph.D. in Astrophysics in 1979, and a D.Sc. in 1997. He also holds a bachelor's degree in French, master's degrees in Atmospheric Science, Materials Science, and Mechanical Engineering, and he is a Licensed Professional Engineer. Dr. Emslie was one of the first recipients of a National Science Foundation Presidential Young Investigator Award in 1984. He has authored or coauthored over one hundred fifty papers in refereed journals, and he has co-authored a book on "The Physics of Solar Flares." He is a member of the American Astronomical Society, an officer in its Solar Physics Division, and a co-investigator on the Ramaty High Energy Solar Spectroscopic Imager (RHESSI) mission, launched in February, 2002 to study the physics of particle acceleration in solar flares.

## *President's Message - December 2009*

As we look towards to the coming year, we have several things to look forward to. Firstly, in order to grow our club and improve our facilities we have formed a budget and fundraising committee to oversee the procurement and allocation of revenue towards specific goals. The first fruits of that labor are the production of an outstanding Astronomy Club of Tulsa 2010 calendar featuring images and artwork of the membership. This effort was headed up by Peggy Walker and will be available for a \$10 donation. I encourage each member to get at least one and solicit their friends, neighbors, and coworkers to get several also!

Secondly we are in the process of kick starting our special interest groups (SIG). Rick Walker is heading up the ATM group, Chris Proctor is in charge of the Radio Astronomy group, and Rod Gallagher will host the Astro Imaging group. We will have more details about this in the January meeting.

Thirdly, thanks to our new Program Director Rick Walker, we have a slate of exciting speakers scheduled throughout the year. Along with that we will be bring back formal club meetings during the summer. Although all the details have not yet been finalized, they will most likely be held at the observatory on the public star party nights and will possibly involve a hands-on Astronomy 101 topic.

On the observing front, winter is a great time to get out with your telescope. Darkness comes early thus cutting down on sleep deprivation, and the brightest stars are visible along with many of the best deep sky objects. Always dress with plenty of layers especially at the observatory since the temperature drops rapidly after sundown, even on our milder winter days.

The past year has seen a huge upswing in activities thanks to IYoA and the dedication and energy of many of our members. I am putting out a call to all our membership to join in on the outreach we're continuing in 2010; it's only a little bit of work and a whole lot of fun.

Keep Looking Up!

Tom McDonough / President, ACT

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## **Secretary's Report**

Hello and hope all of you had a good Thanksgiving.

Here are summaries of what went on at the Annual Dinner Meeting on November 6 and the board meeting on November 7.

The dinner meeting at Islamorada Fish Company at Bass Pro went as follows:

The total number of attendees was 39. President Tom McDonough called the meeting to order at 6:54 PM, after we ordered dinner. He welcomed everyone to the dinner, and introduced the officers, board, and staff members. Following that was the recognition of members, and special prizes for them. They were:

Youngest member present: Noor Kahbi. She won a glow-in-the-dark logbook.

Newest member present: John Johnson. He won a book titled The Universe.

Longest-time club member present: Bob Lieser. He won a book titled Brother Astronomer, by Brother Guy Consalmagno.

Oldest club member (age) present: Bob Lieser. He won a replica New York Times Moon Landing Edition.

A slideshow presentation of photographs from events throughout the year played throughout the evening. This was put together by the Walkers. Following the recognition of members was dinner. The festivities continued after we had finished eating. They began with the IYoA recap. Peggy Walker presented certificates to all those who participated in and helped with IYoA events. These included:

Night Sky Network presentations. Everybody who did a Night Sky Network presentation for the public star parties this year received a certificate. Those present who won this certificate were Rod Gallagher, Owen and Tamara Green, Ann Bruun, and Peggy Walker. There were others, who were not there, who will receive their certificates later. They were Tony White and Dennis Karcher.

For Sidewalk Astronomy, those who won AL pins included Dennis Karcher, and Owen and Tamara Green.

For the 100 Hours of Astronomy, all who participated in any capacity received a certificate.

Any and all who participated in any Sidewalk Astronomy event in any capacity received a certificate and button.

For the Sun-day on Saturday event at Woolaroc, all who participated in any capacity received certificates and a copy of the National Geographic Sun Bursts edition from July 2004. Following that was the group photo.



Tom made announcements about upcoming star parties and events, then turned the floor over to Rick, our Program Director. Rick then made announcements about guest speakers and presenters for Astro 101. He also talked about the Summer Workshop Series for June through August.

The list of speakers and presenters for 2010 is:

- Dec 4, 2009 - 101 Topic- Rod Gallagher, Main Speaker-Dr. Gordin Emslie, OSU
- Jan 9, 2010 - 101 Topic-Open, Main Speaker-George Flickinger, Channel 2
- Feb 26, 2010 - 101 Topic-Chris Proctor, Main Speaker-Dr. Eddie Baron, OU
- Mar 26, 2010 - 101 Topic-Rod Gallagher, Main Speaker-Dr. Aaron Coyner, Goddard Space Center (possibly)
- Apr 23, 2010 - 101 Topic-None, Main Speaker-John Dobson
- May 28, 2010 - 101 Topic-Open, Main Speaker-Dr. Aaron Coyner, Goddard Space Center (possibly)
- June 4, 2010 - Workshop Topic-Open
- July 2, 2010 - Workshop Topic-John Land
- August 13, 2010 - Workshop Topic-Rod Gallagher
- Sep 24, 2010 - 101 Topic-Open, Main Speaker-Open
- Oct 22, 2010 - 101 Topic-Tom McDonough, Club Elections
- Nov 19, 2010 - Dinner Meeting, no 101 or speaker
- Dec 17, 2010 - 101 Topic-Open, Main Speaker, Dr. Aaron Coyner, Goddard Space Center (possibly)

John Land announced that he had wall calendars and mentioned that if anybody needed to pay dues to come see him. Richie said he had ACT logo stickers. Tom then thanked everyone for coming and adjourned the meeting at 8:05 PM.

A summary of the board meeting:

**On observatory maintenance:** Chris Proctor stated that at this time he does not foresee any further major expenses for this year. He will install an 8-foot section of the brush seals on the dome within the week (of November 8) to see how it works, and he and Rod

plan to attempt to fix the RCX on Sunday, Nov. 8. If they cannot repair it, we have budgeted \$500 to fix it. On the subject of the roof work, Chris has not yet heard back from our roofer, but Rick will call him within the week.

**SIG'S: Amateur Telescope Making:** Rick Walker and Michael Blaylock will try and get a group together and will send out a notice for a planning meeting next month. **Imaging:** Rod Gallagher will try to get a group together after the first of the year. **Radio Astronomy:** Chris Proctor would like to obtain equipment for Radio Jove, which would come to about \$300. Rick Walker suggested going to the membership to ask for donations, just like we did for TUVa to repair BART. The Fundraising committee will draw up a proposal for Tom McDonough to look at.

**We will soon have Astronomy Club of Tulsa calendars for \$10 apiece.** This will be a fund-raiser for the club, in order for us to have the funds we need for observatory repairs, etc. In order to get this project going in a timely manner, and have them out and available for those who have been anxiously awaiting them, the board decided to commit to a pre-sale of at least \$500 worth of calendars, and then the club would fund the rest. Most of the officers and board pre-ordered calendars and have already pre-paid for them. Rod Gallagher then made the motion that we go ahead and have the club fund up to \$1,000 for the remainder of the calendars, Chris Proctor seconded, all in favor, none opposed.

**Program Director:** Rick Walker talked about upcoming speakers for the remainder of 2009 and all of 2010, including Astronomy 101 Presenters, Guest Speakers, and PSP presenters. We have John Dobson coming in April, and we will schedule our meeting around him! We will have a Summer Workshop Series for the months of June, July, and August, at the observatory. The Summer Workshop Series will be held on public star party nights. Rick also said that he would like to see us have potluck dinners at the summer events as well, an idea everyone liked. Chris Proctor said that the gas grill at the observatory still works. For our meetings, the main speaker will be up front, with Astro 101, other presentations following. We will also continue the Night Sky Network presentations, except for months where we have other presentations going on.

**Concerning Election Reform:** In order to make our annual elections run more smoothly, Tom McDonough suggested that a committee be formed to make this happen. Rick Walker seconded that statement, and made a motion for a committee to be formed to come up with new election rules. Ann Bruun seconded. All in favor, none opposed. The committee, appointed by Tom McDonough, will be Ann Bruun and Tom McDonough. This is being done for the purpose of eliminating confusion in who is nominated for what, last-minute write-ins, hard feelings, etc. and for making our annual elections go in a more smooth and common-sense manner.

So don't forget your ACT calendars! The plan is for them to be available at our December 4 meeting. I have personally seen the proof of the calendar, and it is going to be a beautiful calendar, filled with really cool astroimages, photos and artwork, along with interesting astronomical data and facts! They will surely make wonderful holiday gifts and they are only \$10 apiece. Peggy Walker put her heart, soul, blood, sweat, and tears into this project, and the money is, of course, for a good cause!

I would like to see as many of you as possible come out and enjoy our upcoming meetings and star parties. Rick Walker really worked his behind off to get a whole year's worth of exciting programs on the schedule for 2010 and I myself am really pumped about them! So come on out, have some fun, and learn something!

Wishing you all Happy Holidays and Clear Skies, Miss Tamara

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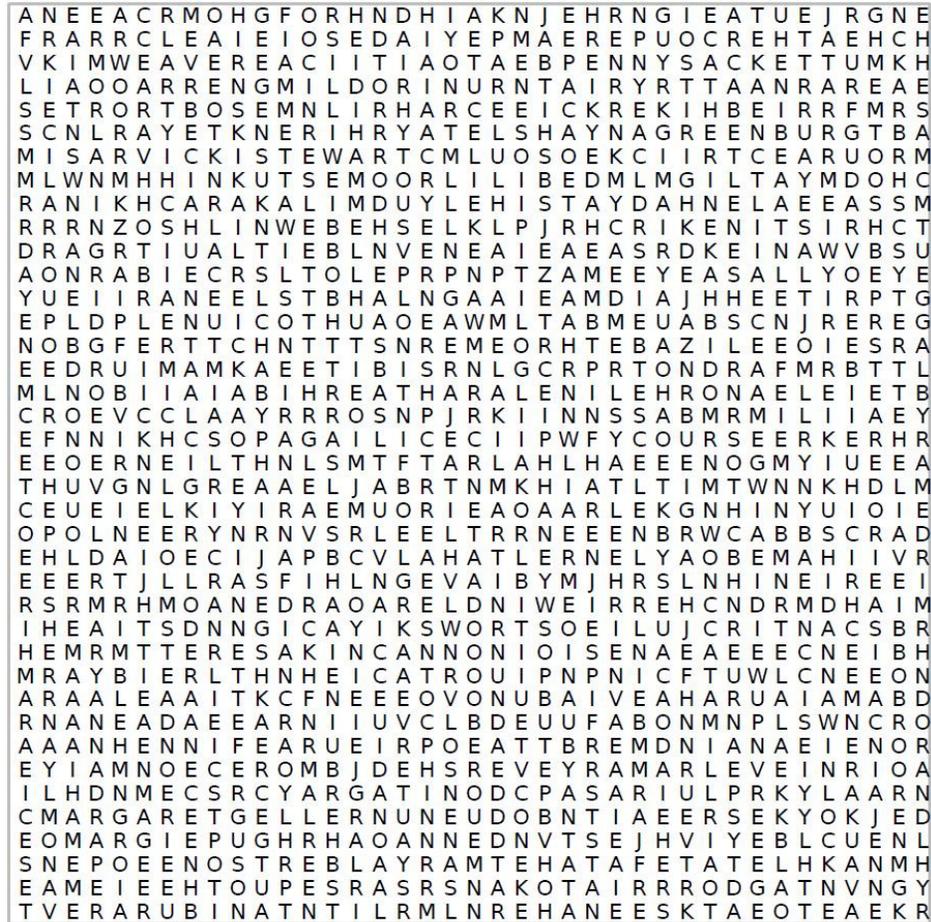


*Season's Greetings*

# Word Search – by Rick & Peg Walker

## Notable Female Astronomers Part 2 Astronomy Club of Tulsa

Check this puzzle for who you may know...



Monetha Calvert  
Louise Jenkins  
Elisabeth Hevelius  
Nancy Roman  
Jill Tarter  
Mary Evershed  
Charlotte Sitterly  
Pamela Kilmartin  
Anne Young  
Jean Mueller  
Vera Rubin  
Elizabeth Roemer  
Elizabeth Brown  
Ingrid Groeneveld  
Bobbie Vaile  
Marjorie Harrison

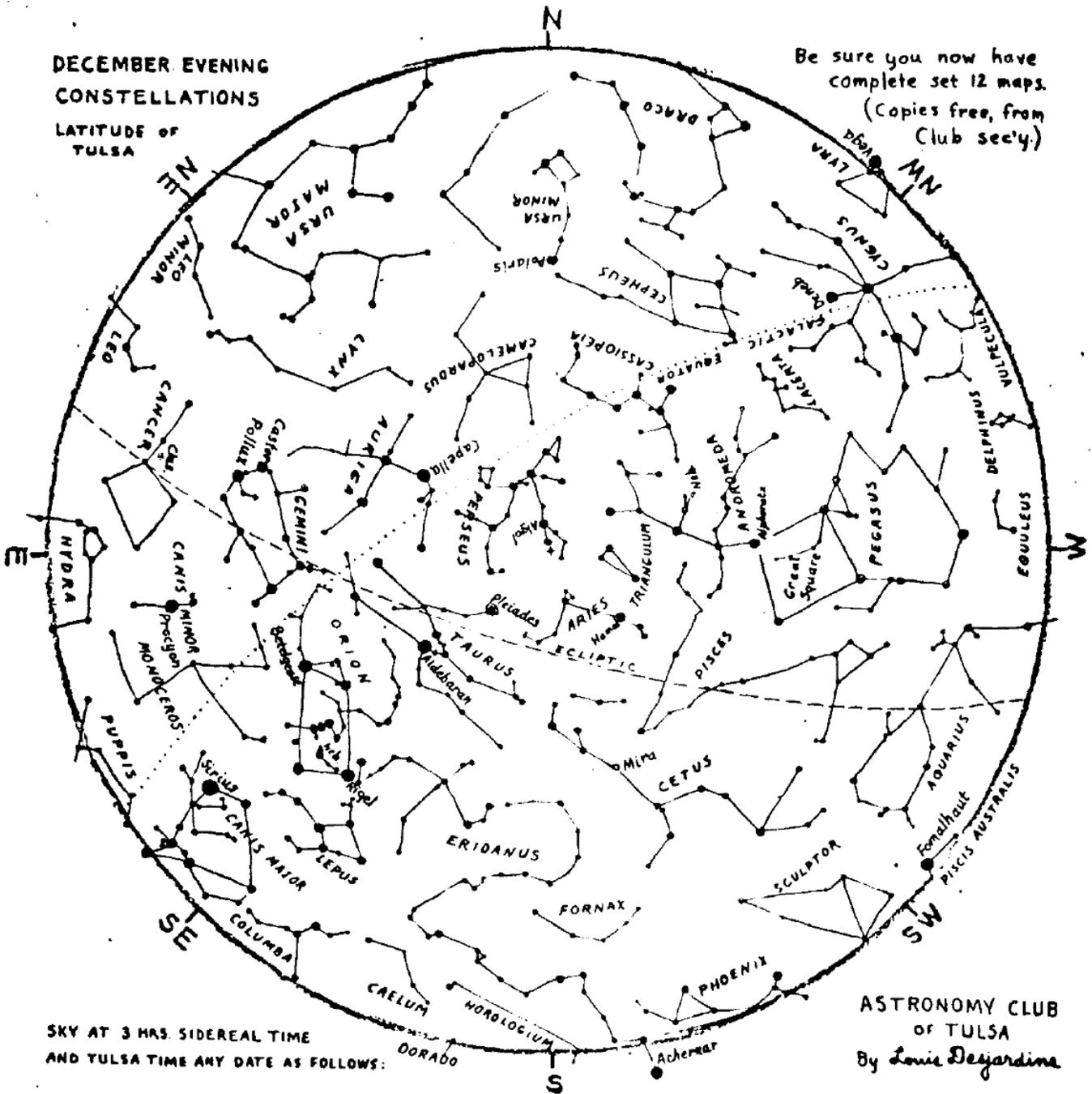
Donita Gray  
France Cordova  
Margaret Burbidge  
Michelle Olmstead  
Catherine Kahbi  
Eleanor Helin  
Maura Tombelli  
Katherine Freese  
Terra Forrest  
Anna Winlock  
Elena Pitjeva  
Sally Oey  
Eva Rohlfis  
Henrietta Swope  
Mareta West

Margaret Geller  
Renee Spangenberg  
Teresa Kincannon  
Virginia Trimble  
Julie Ostrowski  
Nichole Lepaute  
Cherie Thomas  
Kim Weaver  
Mary Anna Draper  
Heidi Hammel  
Sandra Faber  
Jane Luu  
Louise duPierry  
Christine Kirch  
Annette Ferguson

Tamara Green  
Cherrie Windler  
Sherry Doherty  
Mary Blagg  
Antonia Maury  
Penny Sackett  
Heather Couper  
Nicole Lepaute  
Lyudmila Karachkina  
Bobbie Willis  
Risa Wechsler  
Maria Cunitz  
Fiammetta Wilson  
Merieme Chadid  
Reiki Kushida

Margie Pugh  
Shayna Greenburg  
Carol Christian  
Florence Cushman  
Vera Rubin  
Vicki Stewart  
Karen Meech  
Margaret Mayall  
Beth Willman  
Annie Cannon  
Cecilia Gaposchkin  
Mary Albertson  
Pamela Gay  
Jun Chen  
Helen Lines

(Answers in next month's newsletter)



SKY AT 3 HRS. SIDEREAL TIME  
AND TULSA TIME ANY DATE AS FOLLOWS:



Full Moon..... December 2<sup>nd</sup>  
 Last Quarter..... December 9<sup>th</sup>  
 New Moon..... December 16<sup>th</sup>  
 First Quarter..... December 24<sup>th</sup>  
 Full Moon..... December 31<sup>st</sup>

December 14<sup>th</sup> - Geminid Meteor Shower peaks  
 December 17<sup>th</sup> - Mercury Gr. Elong. East (20°)  
 December 20<sup>th</sup> - Jupiter 0.6° S of Neptune  
 December 29<sup>th</sup> - Moon 0.03° N of Pleiades (M45)  
 Evening - Mercury & Jupiter / Morning - Saturn & Mars

## December 2009

Tulsa, Oklahoma

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1 Sunrise: 7:16am Sunset: 5:09pm Moonrise: 4:31pm Moonset: 6:39am	2 Sunrise: 7:16am Sunset: 5:09pm Moonrise: 5:29pm Moonset: 7:47am Full Moon: 1:31am	3 Sunrise: 7:17am Sunset: 5:09pm Moonrise: 6:37pm Moonset: 8:50am	4 <b>ACT MEETING</b> Sunrise: 7:18am Sunset: 5:09pm Moonrise: 7:49pm Moonset: 9:45am	5 Sunrise: 7:19am Sunset: 5:09pm Moonrise: 9:03pm Moonset: 10:31am
6 Sunrise: 7:20am Sunset: 5:09pm Moonrise: 10:15pm Moonset: 11:10am	7 Sunrise: 7:21am Sunset: 5:09pm Moonrise: 11:25pm Moonset: 11:44am	8 Sunrise: 7:22am Sunset: 5:09pm Moonrise: none Moonset: 12:14pm Last Qtr: 6:14pm	9 Sunrise: 7:22am Sunset: 5:09pm Moonrise: 12:32am Moonset: 12:43pm	10 Sunrise: 7:23am Sunset: 5:09pm Moonrise: 1:38am Moonset: 1:12pm	11 <b>RMCC PUBLIC</b> Sunrise: 7:24am Sunset: 5:09pm Moonrise: 2:43am Moonset: 1:43pm	12 Sunrise: 7:25am Sunset: 5:09pm Moonrise: 3:48am Moonset: 2:16pm
13 Sunrise: 7:25am Sunset: 5:10pm Moonrise: 4:52am Moonset: 2:55pm	14 Sunrise: 7:26am Sunset: 5:10pm Moonrise: 5:54am Moonset: 3:38pm	15 Sunrise: 7:27am Sunset: 5:10pm Moonrise: 6:53am Moonset: 4:28pm	16 Sunrise: 7:28am Sunset: 5:10pm Moonrise: 7:46am Moonset: 5:22pm New Moon: 6:03am	17 Sunrise: 7:28am Sunset: 5:11pm Moonrise: 8:32am Moonset: 6:19pm	18 <b>MEMBERS</b> Sunrise: 7:29am Sunset: 5:11pm Moonrise: 9:12am Moonset: 7:18pm	19 Sunrise: 7:29am Sunset: 5:12pm Moonrise: 9:46am Moonset: 8:16pm
20 Sunrise: 7:30am Sunset: 5:12pm Moonrise: 10:16am Moonset: 9:13pm	21 Sunrise: 7:30am Sunset: 5:12pm Moonrise: 10:43am Moonset: 10:10pm	22 Sunrise: 7:31am Sunset: 5:13pm Moonrise: 11:08am Moonset: 11:06pm	23 Sunrise: 7:31am Sunset: 5:13pm Moonrise: 11:32am Moonset: none	24 Sunrise: 7:32am Sunset: 5:14pm Moonrise: 11:57am Moonset: 12:03am First Qtr: 11:37am	25 Sunrise: 7:32am Sunset: 5:15pm Moonrise: 12:25pm Moonset: 1:02am	26 Sunrise: 7:33am Sunset: 5:15pm Moonrise: 12:55pm Moonset: 2:03am
27 Sunrise: 7:33am Sunset: 5:16pm Moonrise: 1:32pm Moonset: 3:08am	28 Sunrise: 7:33am Sunset: 5:16pm Moonrise: 2:16pm Moonset: 4:16am	29 Sunrise: 7:34am Sunset: 5:17pm Moonrise: 3:09pm Moonset: 5:25am	30 Sunrise: 7:34am Sunset: 5:18pm Moonrise: 4:13pm Moonset: 6:30am	31 Sunrise: 7:34am Sunset: 5:19pm Moonrise: 5:25pm Moonset: 7:30am Full Moon: 1:13pm		

### Lands Tidbits – by John Land

Welcome Recent New Members: **BARRY SIERRA, JOHNNIE JOHNSON & ALAN WOODCOCK - SO FAR THIS YEAR WE HAVE HAD 51 NEW MEMBERS FOR A TOTAL OF 149 MEMBERS.**

**IF YOU HAVE RECEIVED NOTICE THAT YOUR CLUB DUES EXPIRE BY THE END OF 2009, PLEASE GO TO THE WEBSITE AND RENEW YOUR MEMBERSHIP OR BRING YOUR DUES TO THE DEC 4TH MEETING.**

Our membership rates for 2009 – 2010 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 Astronomical League membership)

**Students** - \$20 (with Astronomical 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, and/or additional Astronomical 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 / year. [www.skyandtelescope.com](http://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.astronomy.com/Club/join.asp"

You can then print a copy of the form and mail in your check to:

**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 (<http://www.astronomy.com/>) 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.

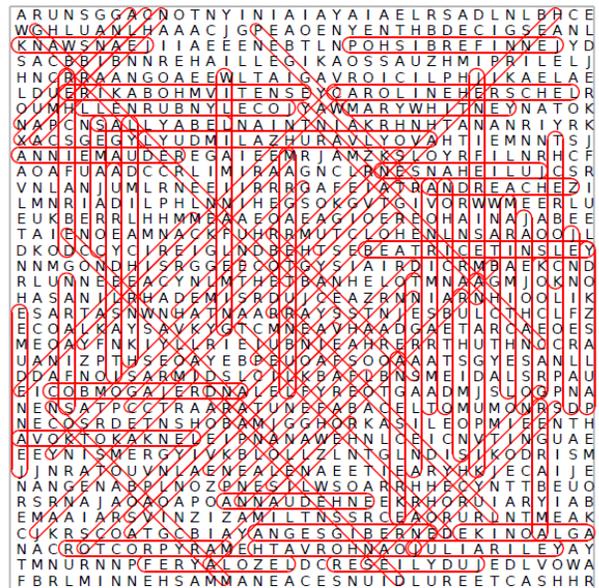
**Predicted MAXIMA of long period variables - December 2009**  
 North of -55° Declination ~ Tulsa, OK Viewing Limit  
 (Predicted Maxima > 8.0 - Easy Binocular Range)

Designation	Name	Code	Range	Est Max Date
1647+15	S Her		<7.6-12.6>	Dec 1
0727+08	S Cmi		<7.5-12.6>	Dec 2
1910-19	R Sgr		<7.3-12.5>	Dec 5
1425+39	V Boo		<7.0-11.3>	Dec 9 (I)
1214-18	R Crv		<7.5-13.8>	Dec 14
1650-30	RR Sco		<5.9-11.8>	Dec 19
0701+22A	R Gem		<7.1-13.5>	Dec 26
0816+17	V Cnc		<7.9-12.8>	Dec 28
1946+32	Chi Cyg		<5.2-13.4>	Dec 29
1233+07	R Vir		<6.9-11.5>	Dec 30

**Codes:**  
 # - needs more observations  
 & - needs more observations urgently  
 @ - needs more observations very urgently  
 % - has good CCDV or multicolor photometry, but more visual observations are needed (usually more visual observations are needed very urgently)

Source: AAVSO Bulletin 71

**Notable Female Astronomers Part 1**  
**Astronomy Club of Tulsa**



**New Special Interest Group**

Amateur Telescope Making SIG is lead by Michael Blaylock and Rick Walker for those with an interest in amateur telescope making or telescope related projects. This SIG will encourage and facilitate amateur telescope making in Tulsa and provide workshops, think tanks, demonstrations, and collaborate other resources toward this end. It will also create a venue for members to share experiences and support and bounce ideas off each other during our telescope - making endeavors.

In the start up phase, I would like to gather ideas as to what people are interested in doing, and plan projects along that general consensus.

In talking to a few folks at star parties, I get things like EQ Mounts (my current endeavor), repairing or building new DOB mounts, parallelograms for binocs, etc. What are you ideas?

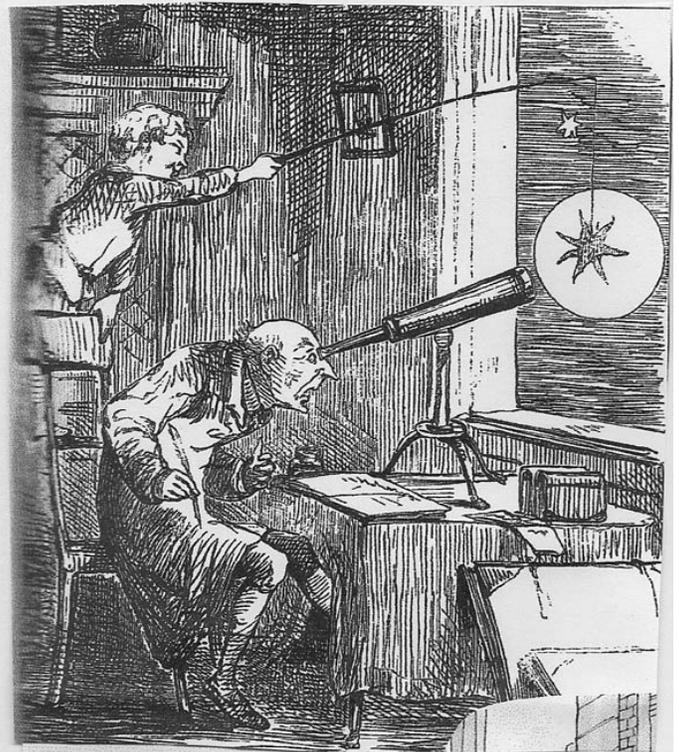
Get in touch with either Rick or myself, and we will start a workshop going. I can provide a comfortable venue and as a group, we can get materials and expertise.

My contact info (Michael Blaylock) is as follows:

Home: [quaga53@cox.net](mailto:quaga53@cox.net)

Work: [michaelb@odysseyprint.com](mailto:michaelb@odysseyprint.com)

*Answers for November 2009 Word Search*



**CAPT. H. R. HOWARD (1860)**  
 The scratchy pen-and-ink style immediately places this illustration in the 19th century and mocks the aspirations of amateur astronomers to discover something missed by the professionals.

## Observing Pages

### Information Exchange

The Astronomy Club of Tulsa maintains a Yahoo Group for the club. For those of you unfamiliar with Yahoo groups, it is a forum that allows for messages, photos and files that can be shared among the group's members. As stated in the group's description, "This group is for the members of the Astronomy Club of Tulsa to ask questions, share ideas, get information, plan observing sessions, or just communicate in general. Informal club business communications may also be announced here." This group can be found on the web at <http://tech.groups.yahoo.com/group/AstroTulsa/>. It is open to all club members, so be sure to check it out! Tom McDonough, our Club President, and Anne Bruun, our Vice-President and Observing Chairperson, are the group's moderators.

### December 2009 Observing List

			Star Clusters		Nebula		
	Double Star	Galaxy	Globular	Open	Bright	Planetary	Dark
1	GCVS780003	M77	M79	M36	M78	M1	
2		NGC178		M38	NGC1555	NGC246	
3		NGC210		M45	M42	NGC1514	
4		NGC255		NGC869			
5		NGC309		NGC884			
6		NGC578		NGC1746			
7		NGC584		NGC1807			
8		NGC586		NGC1817			
9		NGC596		SAC877			
10		NGC615					
11		NGC636					
12		NGC991					
13		NGC1022					
14		NGC1032					
15		NGC1035					
16		NGC1048					
17		NGC1052					
18		NGC1073					
19		NGC1084					
20		NGC1087					

Details of this list are located in the folder, "ACT Observing Lists" in the AstroTulsa Yahoo group's files section. This list contains too many objects to "observe" in one evening, but we will recognize anyone who observes 20 or more of these objects. The reason there are many objects is to give the observer a variety of objects that can also be used for completion of an Astronomical League (AL) Observing Club. For more information on the Astronomical League and the observing clubs, check them out at <http://www.astroleague.org/observing.html>.

Most of the objects cross the meridian between 8 PM and midnight. For this month, we are continuing with a new list of objects. These objects are based on the book, "Deep-Sky Wonders" by Walter Scott Houston. For those who may not know, Walter Scott Houston had the monthly column "Deep-Sky Wonders" in Sky and Telescope. This book is adapted from his many years of information contained within that column. It is a great book and I highly recommend it for those who want to find out more information about these objects, how to find them and especially how to observe them. Sue French authors the present column in Sky & Telescope. For more information about this book, check out the review in the October Newsletter on page 7.

For the month of December one of the most noticeable star clusters rises into prominence. According to Scotty, "it would be a very un-amateur act not to look in on the Pleiades." This star cluster while very visible to the naked eye takes on another appearance in a telescope. Traces of nebulosity appear around the entire cluster with some of the brighter wisps around the Pleiad Mesrope.

Here's an image of the Pleiades that I took at the 2008 Okie-Tex Star Party. I took this image with a digital DSLR camera connected to a 4-inch refractor.



Please provide feedback on this observing list to either Ann Bruun or Rod Gallagher. Also, please provide a copy of your observing logs to Ann Bruun.

Rod Gallagher



Garrett Optical® stocks over 50 astronomy binoculars from six different manufacturers, and we're based right here in south Tulsa.

Visit our websites  
[www.GarrettOptical.com](http://www.GarrettOptical.com)  
[www.AstronomyBinoculars.com](http://www.AstronomyBinoculars.com)  
for more information!

## **Hitting Orion Below the Belt**

### **By Ann Bruun**

M42 – The Orion Nebula. This is the most beautiful nebula available in the northern hemisphere. (I don't know about the Southern hemisphere I haven't been there.) In the heart of the glow is the Trapezium. Four stars are arranged in a lopsided rectangle. There are actually more stars in and around it but they are difficult to spot.

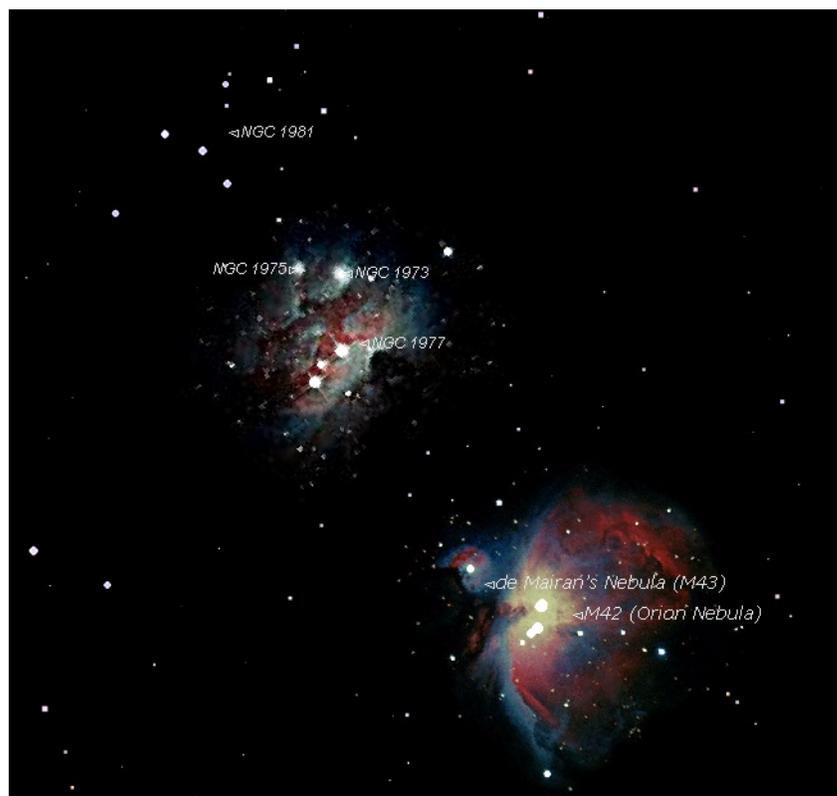
M43 – A smaller nebula floating above the “wings” of M42. The two nebulae seem connected by a border of fainter nebulosity.

NGC 1973-75-77 – (Don't let the 'NGC' deter you from checking this out.) Here we have nebulosity surrounding an open cluster. This is a fairly bright nebula but its proximity to M42 means it often gets overlooked. (Kind of like poor ol' M110.) There are three bright stars forming a shallow curve. Continuing the same direction away from M42, you will find two more bright stars surrounded by nebulosity.

NGC 1981 – The Zig-Zag. Keep moving on up from the last nebula away from M42, toward the belt stars. You will run into one of my favorite asterisms. Use low power to see this zig-zag pattern. It is actually an open cluster.

Sigma Orionis – Multiple star group. Sigma is the first bright star you come to below Zeta, the left belt star. The brightest star in the complex is actually a close double star. There are three more companion stars. Two of them are fairly easy to spot but the third is a little harder at 10<sup>th</sup> magnitude.

All charts are from Starry Night Pro 4.5.



# ASTRONOMY CLUB STAR PUBLIC PARTY

**FRIDAY DECEMBER 11<sup>TH</sup>** - ALTERNATE DATE WILL BE SATURDAY DECEMBER 12<sup>TH</sup> IF SKY IS CLOUDY ON FRIDAY.

GATES OPEN AT ~5:00 PM / SUNSET 5:10 P.M. / END CIVIL TWILIGHT - 5:38 P.M.

PHASE OF THE MOON ON 11 DECEMBER: WANING CRESCENT WITH 22% OF THE MOON'S VISIBLE DISK ILLUMINATED.

Due to the uncertain weather reports, always check your local weather reports for sky conditions. Our club has excellent resources for predictions of cloud cover on the observe section of our website <http://www.astrotulsa.com/Observe/observe.asp>, or check the AstroTulsa Yahoo Page <http://tech.groups.yahoo.com/group/AstroTulsa/> for cancellations if weather is uncertain! Since night-time temperatures can dip to the mid 30's or colder you should plan to bring a jacket or heavier coat. **Note – The wind chill on the observatory hill can be brutally cold!!**

- Beginners Telescope Set Up on Center Pad: Several of our new members and guests have new telescopes they are trying to learn how to use. We would like to invite you to set up your equipment near the center concrete observing pad. Members let's all take time to meet these novice astronomers and help them get a good start with their equipment.
- Wireless Internet now available at the Observatory: For laptop users - Rod Gallagher has made arrangements for wireless Internet to be broadcast on the observing field. Details for log on are available at the observatory. This is available for members to use for astronomy, observing and weather information and should not be abused for other types of browsing and gaming.
- Things to bring to a star party: Of course a telescope or binoculars are great for observing but you don't have to have one to enjoy the evening. You don't have to own a telescope to enjoy an observing night. Our members are eager to share their views with others. There will be plenty of people willing to share the view if you just ask. Also bring a red colored or covered flashlight to see your way around. We have plenty of folding chairs and a clean restroom.
- Children are always welcome but must be supervised and must stay on observatory grounds. It's always wise to have an alternate activity such as a favorite book or tapes for younger children who may tire early. Closed toed shoes are preferred and a light jacket as needed.
- We would like to encourage our new members and guests to join us
- Plan to arrive before dark. We have plenty of chairs and a classroom area.
- We have a microwave and you can bring your own snacks. You need to bring your own drinking water!

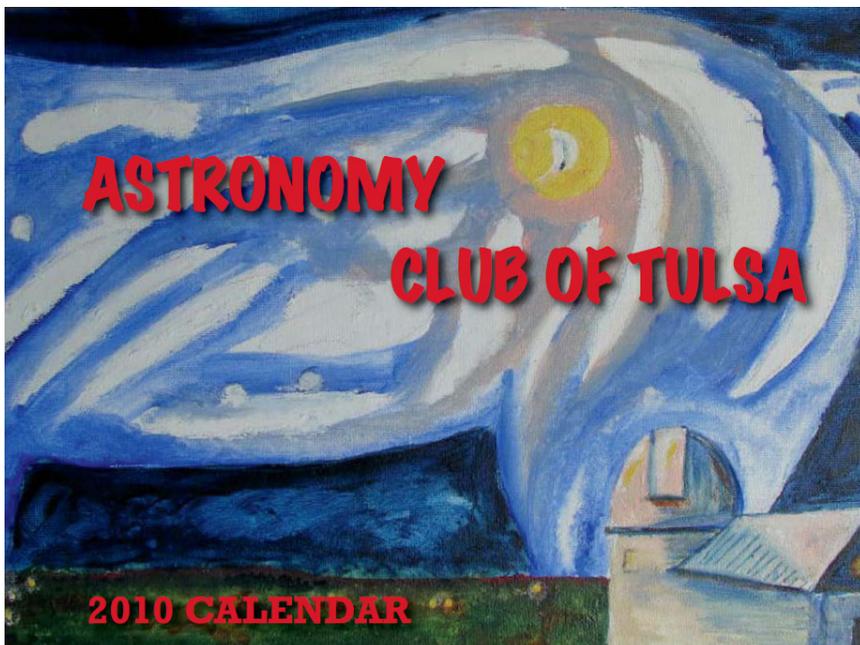
**PARKING MAY BE AT A PREMIUM.** Reserve Parking is available next door in old ATT lot for those without equipment or planning to leave early. PLEASE DO NOT PARK VEHICLES near the center-observing pad blocking the view and traffic access.

**SAFETY ISSUE:** When large groups are present it is better to turn on your park lights or headlights on low beam rather than to try driving in or out without lights... especially if those groups include children. Just warn everyone when you are getting ready to leave.

**NEVER try driving down the hill without lights.**

*A donation of \$2.00 per guest would be appreciated to help us maintain the observatory.*

## 2010 Astronomy Club of Tulsa - Wall Calendars



The long awaited 2010 Astronomy Club of Tulsa Calendars will be ready at the December Meeting this week! We are only doing one run, and when they're gone, they're gone. So far there are over 50 calendars already spoken for. Because this project has the potential to bring serious revenue to the club, (little over \$3,000.00) the order placed is for 500. These will have the same quality printing as the Astronomy Magazine calendars so they will not be hard to sell. Many in the membership are taking them to work and their church friends and neighbors.

They are only \$10.00 each and will feature A.C.T. photos and artwork from the membership as well as: sunrise/set, moon rise/set, moon phases, planets at sunrise/set, the sun and planets monthly locations, planets at opposition, planets at greatest elongation, meteor showers, (start, peak, and end and number of meteors per hour), lunar and solar eclipses, planetary and stellar conjunctions. It will also have daylight savings time, holidays, A.C.T. Public Star Parties, Members Only Observing Nights, Sidewalk Astronomy Nights, Messier Marathon and our monthly meeting listed. It also has national star parties and more detailed

information on our monthly events, special interest groups, Amateur Telescope Making, Astro-Imaging and Radio Astronomy, and A.C.T. membership/website & Twitter information. Contact Peg Walker for additional information.

**CLUB OFFICERS**

POSITION	NAME	PHONE
<b>President</b>	Tom McDonough	918-665-1853
<b>Vice-President</b>	Ann Bruun	918-834-0757
<b>Treasurer</b>	John Land	918-357-1759
<b>Secretary</b>	Tamara Green	918-851-1213

**BOARD MEMBERS AT LARGE**

NAME	PHONE
Steve Chapman	918-342-1643
Rod Gallagher	918-369-3827
Catherine Kahbi	918-409-1867
Dennis Karcher	918-619-7097
Teresa Kincannon	918-637-1477
Denny Mishler	918-274-4772
Chris Proctor	918-810-6210
Peggy Walker	918-640-0832
Rick Walker	918-451-9235

**APPOINTED STAFF**

POSITION	NAME	PHONE
<b>RMCC Facility Manager</b>	Chris Proctor	918-810-6210
<b>Membership Chairman</b>	John Land	918-357-1759
<b>Observing Chairman</b>	Ann Bruun	918-834-0757
<b>New Members</b>	Owen Green Rick Walker	918-851-1213 918-451-9235
<b>Observatory Director</b>	Teresa Kincannon	918-637-1477
<b>Webmaster</b>	Tom McDonough	918-665-1853
<b>Newsletter Editor</b>	Dennis Karcher	918-619-7097
<b>Night Sky Network</b>	Peggy Walker	918-640-0832
<b>Program Director</b>	Rick Walker	918-451-9235

**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 proud 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 [djkarcher@cox.net](mailto:djkarcher@cox.net)**