



The Astronomy Club of Tulsa Observer



APRIL 2010 EDITION



PRC00-01 Space Telescope Science Institute NASA and The Hubble Heritage Team (STScI)

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to have it featured here in future issues!

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April meeting date

➤ Meeting 30th
Chris Proctor presenting Radio Astronomy 101
Amateur Telescope Making presented by Stephen Farwell and Tom McDonough

Meeting Date	Scheduled Speaker
Friday, April 30, 2010	Chris Proctor - Radio Astronomy
Friday, May 28, 2010	To Be Determined
Friday, June 04, 2010	* Summer Series - Speaker TBD
Friday, July 02, 2010	* Summer Series - John Land
Friday, August 13, 2010	* Summer Series - Speaker TBD
Friday, September 24, 2010	Dr. Peter Shull - OSU
Friday, October 22, 2010	Tom McDonough - Club Elections
Friday, November 19, 2010	2011 Club President - Dinner Meeting
Friday, December 17, 2010	Dr. Aaron Coyner - Goddard Space Center



Setting Circles – Astronomy 101

by Ann Bruun

For those of you that did not get to attend the meeting at TCC Friday March 26th here is a brief recap of the Astronomy 101 about Setting Circles. Enjoy!

There are different kinds of setting circles. There are electronic setting circles, which work very well. “So called” setting circles can be used on Dobsonian mounts and do work with a little extra effort. However, to understand how all those work you first have to understand traditional setting circles.

The first thing you find out is that traditional setting circles work only with equatorial mounts. You must be polar aligned in order for the setting circles to work. Polar alignment means just what it says – the polar axis of your scope must be aligned parallel with the polar alignment of the earth. In other words, if you imagine a rod going right through the Earth’s center and out into space with the Earth rotating around it, that is the line you are aligning the axis of your mount to. This is the second thing you have to understand when using setting circles – how to polar align your scope.



setting circles will get you to your objects. Once you are polar aligned check your Declination circle. It should be set to 90 degrees. The Declination circle should be very hard to move or it will not move at all on some mounts. Check it and make sure that it does read 90 when you are pointing at the celestial North Pole. Once you set the Declination setting circle you don’t have to touch it again. So that only leaves one setting circle you have to adjust for the rest of the evening – Right Ascension.



So, to polar align, first level your mount then adjust your latitude scale to match your latitude – approx. 36 degrees in the Tulsa area. Once you are properly polar aligned, you should see the star field with Polaris when you look through your eyepiece. Polaris is not exactly the celestial North Pole but it is close. Many mounts have a built in alignment scope for finding the celestial North Pole. If your scope is aligned properly you should be able to rotate it around the polar axis and the stars will not move when you look through your finder scope.

The better your polar alignment the closer your



Now that the polar alignment is set let's go after an object, M78 for example, the reflection nebula in Orion. There is nothing around it and it always gives me trouble when I try to find it. First we calibrate on a bright star near M78, like Rigel. Check with a chart to get the coordinates for Rigel. Center Rigel in your eyepiece and check your Declination circle, it should read $-08^{\circ} 12'$ but check it to see how close your setting circle is. Next set your Right Ascension setting circle to 5h 14m. Once you are set on the calibration star move your scope to the coordinates of the object you want to find, M78 in this case. Don't wait very long to move your scope to the coordinates of the object you want to find, the sky continues to move and the more time that goes by the less accurate your calibration will be. Using a wide-angle eyepiece look for your object, it may not be in the center of



your eyepiece but you should be in the ballpark. Scan around and look for it. Once you find it you can increase magnification and check it out. When you are ready to move on to the next object be sure to readjust your Right Ascension. You

might want to go to a bright star near your next object. The closer you are to your object when you calibrate the more accurate your setting circles will be.

If the object is nowhere to be found:



-Check your polar alignment – did you remember to level your tripod?

-Check the calibration coordinates, go back to your calibration star and make sure the setting circles are set correctly.

-Be sure you are using the correct R.

A. scale. There may be two scales, one for the northern hemisphere and one for the southern hemisphere. To tell if you are on the correct scale push your scope to the east – the numbers should increase.

If you just can't find your objects and you've checked everything it could be your setting circles. They are not all created equally. Some setting circles are more detailed than others. Some are more accurate. There is not much you can do about bad setting circles.

Now if you have a Dobsonian mount you can use setting circles – sort of. You must know the altitude and azimuth of your object at a specific time from your specific location. This means you will need these figures calculated for each object and time. The good news is – “There’s an app for that.”

Once you have access to the altitude and azimuth calculations, you can install an azimuth scale on the base of your scope you can use to align the azimuth. You also will put an altitude scale on the altitude bearing of your mount. There are websites that detail how this can all be done. The bottom two links of my sources will take you there. The top of the following page has the links to my sources.

Setting circle info links:

http://www.astro-tom.com/telescopes/setting_circles.htm

<http://www.astroleague.org/al/astrnote/astnot13.html>

<http://startrak.co.uk/MakingSettingCircles.htm>

<http://www.homebuiltastronomy.com/ManualDobSettingCircles.htm>



The Hilarious Adventures of a Guy with no Clue

By Allen Martin

In last month's article I said that f-ratio can be confusing. In trying to simplify it, I may have made your understanding of it even worse by telling you that f-ratio affects the "brightness" of an image. It does not. "Brightness" may have been the wrong word to use when describing what it actually does affect. I should have said, "The lower the f-ratio, the shorter distance it has to travel to its focal point". I have read many times in various websites, books and instructionals calling this "brightness". True brightness is obtained by aperture size and light gathering ability.

So, after much reading and many questions, I decided on a 10" Newtonian with a CG5 goto mount. I also decided to drive to Norman to pick it up even though shipping was free with the purchase. I mean, I know it had to be shipped from the manufacturer to the retailer, but why risk another ship? While I was there, I picked up a "beginner's" eye piece kit for about \$150 and one of the old fashioned collimators, called a Chesire, for around \$35. I had read and been told by many people that they were more exact than laser, though a little more difficult to use. I mentioned I was in the Astronomy Club of Tulsa, a member of cloudynights.com, that I was prior military, AAA, my birth date, political affiliation and anything else I thought might get me some sort of discount. I did manage to get something off for one of them, though not sure what percentage or for what name drop, but I happily paid and I sped home, slowing for large bumps and potholes, of course.

I am being honest when I say I am not an instruction reading kind of guy, but I did have to glance once or twice and then, behold the beauty of a brand new telescope taking up the majority of my living room. The mount runs on 12volts and does NOT come with an AC adapter, just that cigarette lighter plug on a 25' cord so you can drain the battery on your car and get stranded whilst observing. Luckily, I had an old UPS (uninterruptable power supply) like you plug your computer into so it stays on when the power goes off. I knew there where a few 12volt batteries in it, so I tore it apart and robbed one and attached a cigarette lighter plug dongle, that you can buy at auto parts stores, to the terminals and we had power.



"wEEEEEEEEEerrrrrrr!" was the sound it made. It moved about one inch and stopped, but continued to make the noise. "Balance is very important" the instructions stated, so the next four hours were spent balancing and trying to get it to move more than an inch. I believe this was the most perfectly balanced telescope on the planet, rivaling that of any NASA has had any involvement or interest in. Part of me knew I was missing something but the other part blamed it on a bad mount.

Thanks to Rick Walker, the problem was solved the following day. You know those little locking levers that you release to move a standard NON-motorized mount or tripod and then lock them to keep it in place? Yeah, they have to be locked so the motors can operate correctly on a motorized mount. This information is NO WHERE IN THE MANUAL. Silly me, I assumed I would be burning the motors up by trying to move it with these locks engaged.

Once that was solved, it was whizzing around all over the place! Unfortunately, I am sure you all remember that 3 weeks of rain and ice and snow we had a couple months ago. The following day is when all that mess started. I did manage to figure out the whole collimation thing during this time period, but that's next month.



Astronomy at Campfire USA Centennial Celebration a Big Success!

From Cathrine Kahbi

On March 18th, ACT members shared the wonders of the universe with a throng of Campfire celebration attendees. Guests included children and adults, along with Campfire staff. Guests viewed Saturn, Mars, the Orion nebula, Venus, many constellations, and the crescent moon during a beautiful evening of crystal clear skies and warm breezes. Campfire USA leaders introduce campers to the night sky, but the addition of the six telescopes really took it to a new level. Although children were the primary audience, the many adults attending were extremely interested in the telescopes as well as the skies. Children also made constellations from foil which they pierced and put over their flashlights (thank you, John Land, for your input on this idea).

The celebration was held at Camp Okiwanee, located on an open hilltop near Kellyville. There was also archery, repelling, night hikes, crafts, and of course, a campfire. The event marked the 100 year anniversary of Campfire USA. I would like to extend a big "Thank You" to Teresa Kincannon and Tim Davis for so generously sharing their time and expertise!

The Astronomy Club of Tulsa would like to welcome its most recent new members,
Tai Blalock, Jeff Jones and Lowell Dodson

Please visit the clubs website at www.astrotulsa.com for valuable information regarding observing, basic night sky lessons, useful links, club contacts and archived editions of this newsletter.



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
www.AstronomyBinoculars.com
 for more information!

Upcoming 2010 Events

Messier Marathon	April 17	<i>See ACT's Yahoo group for latest info</i>
Astronomy Day	April 24	http://astroleague.org/al/astroday/astroday.html
Texas Star Party	May 9 to 16	http://www.texasstarparty.org
Grand Canyon Star Party	June 5 to 12	http://www.tucsonastronomy.org/gcsp.html



MidStates Regional convention
June 4-5, 2010 Lincoln, Nebraska
<http://msral.org/>



National Astronomical League Convention
June 25–26, 2010 Tucson, AZ
Side trips include tours of Kitt Peak
national observatory
<http://alcon2010.astroleague.org/>

Adam's Ranch	July 9 and 10	<i>See ACT's Yahoo group for latest info</i>
Nebraska Star Party	Aug 8 to 13	http://www.nebraskastarparty.org/
Heart of America Star Party In west central Missouri	Sept 2 to 9	http://www.hoasp.org/
Okie-Tex Star Party	Oct 2 to 10	http://www.okie-tex.org/

If you know of an upcoming event not listed here that may be of interest to club members, Please email relevant information to act_pm@astrotulsa.com

**ASTRONOMY CLUB OF TULSA
-MINUTES-
GENERAL MEETING FRI MAR 26, 2010**

PRESENT, OFFICERS: President Tom McDonough, VP Ann Bruun, Secretary Tamara Green, Treasurer John Land.

PRESENT, BOARD: Steve Chapman, Denny Mishler, Catherine Kahbi, Teresa Kincannon

NOT PRESENT, BOARD: Chris Proctor

President Tom McDonough called the meeting to order at 19:05.

Tom then welcomed new members and guests.

The program for the evening was Neta Apple, former member of the ACT and current member of the Kansas City Astronomical Society and XMM-Newton Educator Ambassador for NASA. Her talk was "*Active Galactic Nuclei: Many Models or One?*" Her presentation was highly entertaining and educational.

Following the presentation, Tom McDonough announced upcoming events, which can be seen on the Yahoo groups and/or the website and newsletter. In the interest of time, he kept everything short. Club member Tony White made a call for volunteers to help with a Girl Scout group, approx 150 girls, who are working on their astronomy badges. Their camp event will be near Woolaroc on April 10, 2010 from 6:30 to 9:30 PM.

Officer/Department Reports:

Treasurer –John Land announced that guests who are not on the mailing list should fill out our form located at the table in the lobby. 2010 club calendars are on sale for \$6 apiece, along with some Sky and Telescope and other astronomy magazines. Sales from the magazines are donations. He announced new members Tai Blalock and Lowell Dodson and his wife.

Groups – Nothing to announce.

Facilities – Chris Proctor was not present, no report.

Observing – Ann Bruun had nothing to report.

PR/Outreach – Owen Green announced the Sidewalk Astronomy event at Bass Pro, to be on Saturday Mar. 27, weather permitting.

Secretary – Due to time constraints, Tamara did not read the minutes from the last meeting.

Following the Officer/Department reports, Ann Bruun gave the Astronomy 101 topic for the evening, which was on Setting Circles. It was a really neat presentation explaining what setting circles are and how they work.

Following that, Tom McDonough adjourned the meeting at approximately 9 PM. Membership met at Hideaway Pizza on Cherry Street for dinner and socializing.

Past meeting minutes are archived within the newsletter archives on the Astronomy Club's website. Please visit

<http://www.astrotulsa.com/Archive/archive.asp> to view previous month's newsletters.

Land's Tidbits *for April 2010*

– by John Land

Our membership rates for 2010 – 2011 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.

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 it with 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 filling 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

OFFICERS

President: Tom McDonough 918-851-2653 Vice-President: Ann Bruun 918-231-0301

New Members :Owen Green 918-851-8171 Observing Chairman: Ann Bruun 918-231-0301

Membership questions: John Land 918-695-3195 Secretary Tamara Green 918.851.1213

Observatory Caretaker: Chris Proctor 918-810-6210

Contact Chris to volunteer to help with observatory projects

Observatory Spring Cleanup Days

Contact Chris Proctor to volunteer 918-810-6210 act_maint@astrotulsa.com

The Astronomy Club of Tulsa is made of about 150 members who share a common love of astronomy. Unfortunately most of us live under light polluted skies. Our Observatory gives us a retreat to gather under darker skies but we can only continue to enjoy its use if we **VOLUNTEER OUR TIME AND EFFORTS TO MAINTAIN THE BUILDING AND ITS GROUNDS.** The harsh winter of 2009 has taken a toll on the facility and lots of work is needed to get it ready for the spring and summer observing seasons. So, bring your outdoor work tools such as weed eaters and tree pruning equipment or help out indoors with cleaning – painting – stair repair.

Your club dues only pay the bills – we need some SWEAT EQUITY to keep the observatory and grounds in good shape. Also, if you are willing to volunteer to help with mowing and trimming this summer let Chris know.

For all the scheduled club events for 2010 you may wish to purchase the first edition ACT calendar. Prices now reduced to \$ 6 each. This calendar includes club events, plus a wealth of other astronomical data.

Details are on the website at www.AstroTulsa.com

CLUB OFFICERS

POSITION	NAME	PHONE
President	Tom McDonough	918-851-2653
Vice-President	Ann Bruun	918-834-0757
Treasurer	John Land	918-357-1759
Secretary	Tamara Green	918-851-1213

BOARD MEMBERS AT LARGE

NAME	PHONE
Steve Chapman	918-342-1643
Catherine Kahbi	918-409-1867
Teresa Kincannon	918-637-1477
Denny Mishler	918-274-4772
Chris Proctor	918-810-6210

APPOINTED STAFF

POSITION	NAME	PHONE
RMCC Facility Manager	Chris Proctor	918-810-6210
Membership Chair	John Land	918-357-1759
Observing Chair	Ann Bruun	918-834-0757
New Members	Owen Green	918-851-1213
Group Director	Teresa Kincannon	918-637-1477
Webmaster	Tom McDonough	918-851-2653
Newsletter Editor	Allen Martin	918-407-9706
Night Sky Network	Peggy Walker	918-640-0832
Program Director	Vacant	

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



Night Sky Network

Astronomy Clubs bringing the wonders of the universe to the public

<http://www.astroleague.org>

<http://nightsky.jpl.nasa.gov>

**ACT welcomes your questions, suggestions, comments and submissions for publication.
Please send all inquiries to act_pm@astrotulsa.com**