

"CLEAR SKIES"



NEWSLETTER of the CHAMPAIGN-URBANA ASTRONOMICAL SOCIETY, Inc.
An affiliate of the Champaign Park District

January, 2007

PRESIDENT'S MESSAGE

Well, it's the start of another year, and I hope it has been a good one. So far, though, all kinds of crazy things have been happening to my friends, and I hope that calms down soon. I also hope the weather improves – I have not observed seriously since the star parties in the fall, with the exception of some mirror testing through high clouds on a couple of nights.

This newsletter is late because of me – I didn't get this column to Bill as early as I should have, and for that I apologize. The holiday season is always so full of events.

My goal this year is to raise meeting attendance. To do this, we need more outside speakers and new programs. So, please let me know if you have ideas for interesting speakers. I also have heard a few people mention that they'd like more time to chat with other members during the meetings, and I've sort of felt the same way myself. I think this can be achieved by trying to schedule things so our programs end a bit before 8:30pm, and then there will be more time for catching up with friends. I have already been pushing in this direction. If there is a month when there is a lot of club business, though, of course we'll take the time to handle it.

For our first program this year, Dave Leake will do his annual sky preview, which I always look forward to. It's fun to see the seasons change live in the dome. In the next few months I hope to bring in a couple of outside speakers and one we know fairly well to give talks on topics we haven't seen before. I hope to see you there, and please call your friends and invite them to attend too.

Mike Lockwood

LOOKING UP THIS MONTH

With few evening planets to look at late last year, we now have a few targets in our evening sky to kick off 2007. For starters, Venus is now a glowing beacon in the southwest. It's the brightest object in that part of the sky and getting higher each day. In early January it sets at 6pm, but this increases to 7:15pm by the end of the month (with twilight ending at about 6:15pm). A telescope won't show much but you might get a glimpse of a gibbous phase. With Venus so close to the horizon, the view will bubble by way of Earth's turbulent atmosphere. Especially take note of January 20th when a lovely waxing crescent Moon will be just above and to the left of Venus. Two days before, Neptune will be 1.4° north of Venus, but that will take a telescope.

Towards the end of the month, look for Mercury to join Venus in the southwest. Technically Mercury is in the evening sky after a January 7th conjunction with the Sun, but



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Mike Lockwood, President	398-9778
Guy Hampel, Vice-pres.	352-3690
Mike Conron, Secretary	
Willard Brineger, Treasurer	
John Stone, 5 th Director	
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Jameel Jones, CPD	398-2550

it rises from the glare very slowly. Mercury will be at its best on February 8th when it will set at 7pm, about an hour before Venus. Use your fist at arm's length (10°) to estimate the nightly separation of Venus and Mercury.

Saturn rises at 8:15pm on New Year's Day, which increases to 6pm by the end of the month. Opposition occurs next month when Saturn will rise as the Sun sets. You still need to allow time for Saturn to get into some steadier air for observation. Saturn is currently retrograding away from Regulus, the heart of Leo the Lion. You can see them both in the east with Saturn being the brighter of the two. On the 5th and 6th a gibbous Moon visits the area.

Jupiter and Mars are both morning objects. Jupiter rises a bit after 4am in mid-January in the extreme southeast. It is just above and a little to the left of the red star Antares. Mars rises about an hour and a half after Jupiter, to the left and below Antares. It's magnitude (brightness) is 1.5.

The Earth makes some headlines as it reaches its perihelion position on January 3. At a distance of 91,399,744 miles from the Sun, the Earth is as close to the Sun as it's been since 1996 and won't be closer until 2020! This happens because the Earth's orbit is not a perfect circle.

Lastly, the magazines report the best asteroid occultation of a star in the last 23 years! The star is 32 Lyncis which is magnitude 6.3 – within reach of binoculars, though in a rather non-descript part of the sky. The asteroid 372 Palma will pass in front of the star on the night of January 26, impeding the light from the star for as much as 14 seconds. The predicted eclipse path stretches across the nation from Delaware to California. Check it out on the skytonight.com if you're interested.

-DCL

Moon Phases

Last Quarter Moon



1 st quarter	January 25	February 24
Full	January 3	February 2
3 rd quarter	January 11	February 10
New	January 19	February 17

If you would like to see the phases of the moon, past, present, and future log on to <http://aa.usno.navy.mil/data/docs/MoonPhase.html#y2007>



CUAS NEWS

Congratulations to the following individuals who have been elected to be our club **officers** in 2007:

President: Mike Lockwood

Vice-president: Guy Hampel

Secretary: Mike Conron

Treasurer: Willard Brinegar

Fifth Director: John Stone

These gentlemen are looking for some feedback. What would you like to see the club do in 2007? Mike Lockwood talked briefly about raising awareness of the club in town. Possibly a park observing tour? Bring your ideas!

Remember to renew your membership dues! For most of us, annual dues and key fees (if you have an observatory key) are due at the end of this month. Why not renew today? Use the form at the end of this newsletter.

There was a short discussion of doing a small **star party at Allerton Park** near the 4H camp. Nothing on the order of "Prairie Skies" or "Astrofest" but something small that could grow. Dave Leake and Stuart Levy took some photos of the site several months ago – we may show these again at the January meeting. There were some thoughts of doing some observing near the Suninger statue, which would be darker but also lacking in facilities.

Dave Leake now has a copy of the Manatee County (Florida) **lighting ordinance** that was passed by their county board. The ordinance was written by an amateur astronomer but there's no mention of astronomy or skywatching in the ordinance. The plan here is to try to adapt this ordinance for our county. Anyone interested in tackling this? Give Dave a yell and he can email it to you.

We're happy to report that we now have, not one, but two **Junior Stargazers groups** with the addition of a group at the Next Generation School just off Galen Drive, south of Windsor. Sherri Givens is the coordinator. Our first group is the Bottenfield Junior Stargazers led by Kim Dalluge. Kim and Sherri have each other's email addresses and they may plan some joint observing.

We still have 10 *Astronomy* magazine **2007 calendars**. They are first come, first served and \$10 for members and \$12 for non-members

For sale: 6-inch f/8 Criterion reflector with completely redone optics. Equatorial mount and clock drive included. The optics were redone by the Tuesday night ATM group that meets at Mike Lockwood's home. Asking \$350. The mirrors are now back from the coating people and the scope is ready to roll. Contact Mike Lockwood if you're interested.

For sale: 10" F/6.8 and 10" F/5.5 truss-tube Newtonians, both built by me, with primary mirrors made by me. The F/6.8 is plate glass and about 1/15th wave, and the Pyrex F/5.5 is roughly 1/30th wave. They are

not inexpensive, but if you're interested in a serious, high-quality telescope that will provide the best of planetary views, please give me a call (398-9778) or talk to me at a meeting. The F/5.5 is the brother to my 10" F/8.8, featured in the March S&T. Both scopes can be seen on my web site (<http://bi-staff.beckman.uiuc.edu/~melockwo/index.html>) under "Telescopes". I am willing to customize the f/6.8 a bit. - Mike Lockwood

TREASURERS REPORT

Champaign Urbana Astronomical Society
 Treasurer's report 31 December 2006
 for past 30 days

CUAS Treasurer's Report for December 2006
 Philip J. Wall, CUAS Treasurer 2004-2006

As of 12/31/06:

Assets*

 \$ 281.00 - cash and checks awaiting deposit
 \$ 111.00 - petty cash envelope
 \$1757.85 - checking account
 =====
 \$2149.85 - Total Assets

Income*

 \$ 30.00 - three calendars to members @ \$10
 \$ 15.00 - new membership @ \$15
 \$ 60.00 - four membership renewals @ \$15
 \$ 10.00 - one key fee @ \$10
 \$ 18.00 - donation
 =====
 \$ 133.00 - Total Income

Expenses*

 \$ 35.00 - Prairienet for annual Basic Web
 Hosting
 \$ 32.95 - Sky Tel for subscription won by Dale
 Hirstein in Aug. raffle
 \$ 74.88 - for Sep. thru Dec.06 postage to Tom
 Gilbert, CPD
 =====

\$ 142.83 - Total Expense

*Note: Magazine subscription funds are not reflected in Income and expenses since they are simply sent on to the respective publishers. As of 12/31/06, all received subscription payments have been sent on, so they are not reflected in the Assets category either. Assets \$1935.73 - checkbook balance as of Nov. 30, 2006

\$111.00 - petty cash envelope as of Nov. 30, 2006
 0.00 - cash and checks awaiting deposit

 \$2046.73 - Total assets
 \$ 15.00 - donation
 \$ 10.00 - donation

Income past 30 days (not counting magazine renewals)
 \$ 60.00 - Four membership renewals
 \$ 20.00 - two calendars

 \$ 105.00 - Total income
 Expenses past 30 days (not counting magazine renewals)

\$ 418.48 - State Farm for 2007 dome site insurance

 \$ 418.48 - Total expense

by Philip Wall
 CUAS Treasurer 2006

OBSERVATORY NEWS

If you're returning the 8-inch red Dobsonian telescopes to the dome, remember to try to store them horizontally to help protect the mirror coatings.



LOOKING AHEAD



January 11 CUAS Club Meeting 7-8:30pm Staerkele Planetarium
We'll talk about plans for the year and take a look at this year's planetary alignments. Bring your ideas! What do YOU want to do this year?

January 19 New Show at Staerkele 8pm Staerkele Planetarium
The planetarium opens a brand new show on Native American astronomy called "Spirits From the Sky, Thunder on the Land." The show takes an in-depth look at the Pawnee nation and how they used the sky in their culture.

January 20 New Moon Observing 7pm - ? Observatory

January 27 CUAS Family Skywatch 6-9pm Observatory

February 2 "World of Science" talk 7pm Staerkele Planetarium
Dr. Angus Rockett will be in the dome talking about "Alternative Fuels and Alternative Energy." Admission is \$1 at the door.

February 15 CUAS Club meeting 7-8:30pm Staerkele Planetarium
For this meeting, we'll invite telescope users to the lobby (with their telescopes) for a telescope user's seminar. In the past we have had more than a dozen people show to get some one-on-one assistance with their telescopes. We need members to help with this one! A short business meeting will follow.

CHECK OUT ALL CLUB EVENTS ON THE CUAS HOME PAGE:

<http://www.prairienet.org/cuas> or <http://www.cuas.org>

A LOOK AT 2007

It's always fun to take a peek at what the year has in store for the backyard skywatcher. So let's look at the planets, meteor showers and some special events.

Unfortunately it once again isn't a great year for eclipses. We will have an odd total lunar eclipse on the evening of Saturday, March 3. What makes it odd is that the eclipse will be in progress when the Moon rises . . . meaning we probably won't see the Full Moon when it rises but it will appear to emerge from the Earth's shadow after the Sun sets. Might be a good time to have an observing session, ya think? The eclipse ends at 5:58pm when we'll have a Full Moon in the sky once again.

The best time to see an outer planet is when it's at "opposition," seen directly opposite the Sun. It is here when the planet is generally closest and thus it's bright and looks large in a telescope. We lead off the year with Saturn's opposition on February 10, followed by Jupiter on June 5, Neptune on August 13, Uranus on September 9 and Mars on Christmas eve. Mars has an opposition every 26 months and this year is our year.

The inner planets are different in that you have to wait until they are on one side of the Sun or the other in order to see them in a dark sky. Venus is in our evening sky now and will be until early August. Greatest separation from the Sun occurs in early June (45°) and it is brightest on July 11th. After August, Venus goes into the morning sky where it rises very quickly to reach its greatest separation (46°) on October 28th.

Mercury has three evening appearances and three morning appearances in 2007, but not all of these are favorable for observation. For evening viewers, the best times to look for Mercury are from the end of January to mid-February and then again from mid-May to mid-June. The late spring view should be grand, especially with Venus in the sky, too. If you like to get up early in the morning, then Mercury will be nicely placed during the entire month of July, plus early to mid-November.

As the planets wander they'll often catch and pass each other and there are several events of note this year. In the evening, the Moon occults the star Regulus near sunset on June 30th and then Saturn and Venus are 0.7° apart on June 30. Venus comes close to Regulus (1.7°) on July 12th. In the morning hours Mars appears to come close to Neptune (March 25th, 1°) and then Uranus (April 29th, 0.7°). Later in the year, Saturn and Venus come to within about 3° on the morning of October 14th.

We might want to think about a Perseid meteor party this year. The most-observed of the major meteor showers peaks on the evening of August 11-12. For starters, the 11th is a Saturday night and then Sunday is the New Moon, so the skies will be dark! The Moon is near full for the Delta Aquarids (July 28) and is a waning gibbous for the October (22nd) Orionids. The Leonids are a little better with the first quarter Moon setting at midnight (and it's a Saturday night, too,

November 17th). This is also a Skywatch night. The Geminids reach their peak also just before first quarter Moon on the 13-14th of December.

As far as club events go, remember that all the meetings are on the second Thursday of the month at the Staerkel Planetarium at 7pm (unless otherwise noted) and we'll have observatory open houses on the Saturday closest to first quarter Moon. For 2007 that means Skywatches on January 27, February 24, March 24, April 21 (also National Astronomy Day), May 19, June 23, July 21, August 18, September 15, October 20, November 17, and December 15. Fall of this year is also the 20th birthday of the Staerkel Planetarium with hopefully several special events and guest speakers.

For those of you who like to travel to observe, the "Prairie Skies" star party will be held on Sept. 13-16 at Camp Shaw-Waw-Nas-See near Kankakee. The Illinois Dark Skies party and Astrofest don't have 2007 dates on their web sites yet.

Get out your calendars and get these dates on there! We'd love to have YOUR participation at many of these events! It should be a great year! -DCL

The anatomy of a comet:

I think this is an interesting subject, since scientists have recently captured some very minute particles of a comets tail. A comet's **nucleus** is like a dirty snowball made of ice. As the comet gets closer to the Sun, some of the ice starts to melt and boil off, along with particles of dust. These particles and gases make a cloud around the nucleus, called a **coma**. The coma is lit by the Sun. The sunlight also pushes this material into the beautiful brightly lit **tail** of the comet.

Scientists have now had a look inside a comet's nucleus.



For more information go to , <http://spaceplace.nasa.gov/> , under "Cool Subjects.