

"CLEAR SKIES"



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

January, 2006

PRESIDENT'S MESSAGE

There are so many "Mikes" in this club that we even confuse ourselves, but thankfully we are all very unique individuals. In an effort to help clear up the confusion and help some members get to know me better, I thought I would tell you a bit about myself. In addition to what I like to do and what I am good at, I will also tell you what I'm not so good at.

But first, thank you for electing me. It is a great compliment.

I grew up in the dark north woods of Michigan, and that's where I learned the night sky and started grinding mirrors. After a ten-year hiatus from telescope making, I picked it up again in 2003 and I've stayed very busy with it since then. I have been a member of the U of I astronomy club since I came to C-U in 1997, and I still attend their meetings.

My first event with CUAS was the 2003 Mars gaze at Meadowbrook Park, and I remember meeting Mike Conron and Bob Rubendunst for the first time there. I joined the club later that year. Little did I know that a year later I'd be making new optics for the club Cassegrain and building one of my own.

Most of my evenings are filled with mirror or telescope making. I especially enjoy refiguring mirrors for friends that appreciate great optics. As for other hobbies, I teach beginning and intermediate ballroom dancing for a campus club, I like to fix up my house and build other useful items, I'm a bit of an audiophile, and I used to play a lot of golf. I spend time on weekends with my girlfriend of nearly three years, Lisa, who lives in Normal, IL. My day job is signal processing research at the U of I here in Champaign.

But what do I really like about astronomy other than the beauty of the sky? I guess what is most fulfilling is making the best optics and telescopes I possibly can and using them to their fullest advantage. I enjoy observing with friends and sharing the views of the wonders of our universe – that is much more fun than observing alone, at least for me.

I've been in three astronomy clubs (before CUAS), and I was an officer in one of them. I've found that I am competent at finding objects and explaining what they are to the general public, but I am not that patient with children. I am a good public speaker, and I try to choose my words carefully. I'm a fairly good planner, but I often find myself volunteering to take on much more of a project than I intended. When a simple project is not making progress, I get impatient. I always have too many of my own projects going on, and I get irritated when I can't progress on them. Guess I'm sort of a productivity addict, and I hate to see good projects die unfinished. However, there are very few projects that I end up not finishing.



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Jeff Bryant, Secretary	840-5251
Phil Wall, Treasurer	352-5442
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But, every now and then, I just have to stop and relax a bit and not do anything. After a few hours, my mind starts to fill with ideas and solutions for my current projects and I am back to working on something.

Which brings me to a point – I believe an astronomy club should always be working on something, and to do that we first need a set of goals. So, I'd like to ask each member to take some time and think about what they would like to see the club do in the next year or two. Consider carefully if the goal is realistic – for example, can we afford it, in terms of money or manpower? Also consider if it is something you alone would like done, or if you know there is significant interest in it among the club membership.

I'd like each member to bring his/her ideas to the January 2006 meeting. That will be the topic of discussion at that meeting – the future directions of our club. I want to see the best turnout ever for a meeting. I'd like to try to come up with a list of goals and gauge interest in them among the membership. I have two goals that I will be contributing to that list, but I'd like to see what others have to say first.

In addition, we'll get a preview of the action in the sky for 2006 courtesy of Dave Leake. I should mention that Dave has been in charge of the newsletter for 20 years as of this summer, and he would like someone else to take over the job. It will be hard to fill his shoes, but we need to start searching for someone to take it on.

Hope to see all members at our next meeting on January 12th.

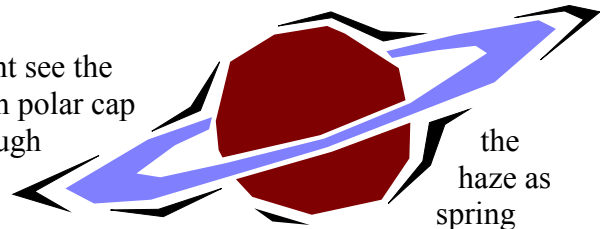
Mike Lockwood

LOOKING UP THIS MONTH

Happy New Year, everyone! We begin 2006 with a couple of planetary events in the sky. First, be sure to keep an eye on Venus in the southwest. This month, Venus will pass between the Sun and Earth on its way into our morning sky, but it does so pretty rapidly. The date of the passage is January 13. Watch as Venus "plunges" towards the Sun, actually passing about five degrees north of it. If you can imagine a planet passing between us, you'll understand that the phase of Venus is a thinning crescent. Look in the table how the angular size is over an arc minute (60") but yet Venus is only 1% lit! So Venus appears tall and narrow. Some claim to see the crescent phase in binoculars! Try it!

Mars is still a target for telescopes, though it's fading and shrinking with increasing distance. It's high in the south at dusk and heading eastward amongst the stars, towards the Pleiades star cluster. In fact, in January, it will come to within 8-degrees of the cluster. What color is Mars? OK, red, you may say, but look at it and compare it to the yellow star Capella. Orange, maybe? A rust-colored hue? Or, if dust storms are prevalent, it may look more amber. Telescopically, Mars is small, but you

might see the north polar cap through



the haze as spring

begins in the northern hemisphere on January 21.

Saturn reaches opposition this month on the 27th. This means it rises nearly due east at Sunset . . . about the same time the brilliant star Sirius rises in the southeast. It's probably good to wait a few hours before turning a telescope this way to let Saturn get in some thinner air. You can see the moon Titan east of the planet around January 13th and 29th and west of the planet on the 5th and 21st. Also, don't ignore the Beehive Star Cluster if you're using binoculars. Saturn comes to a scant one degree of the cluster this month as it retrogrades westward.

Jupiter is the only other planet of note, rising at about 2am at mid-January in the southeast. This month, Jupiter passes just north of the double star Alpha Librae, also called "Zubenelgenubi."

The other planets aren't too favorably placed in the sky for observation. Mercury is low in the morning sky, passing behind the Sun

on the 26th to begin a nice evening view in mid to late February. We'll catch her then.

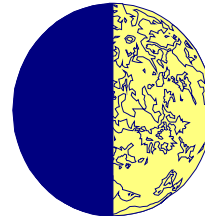
January 3rd marks the maximum of the Quadrantid meteor shower, named for a long-outdated constellation of the north. The radiant is far to the north and the Moon will be out of the sky, so if you happen to be out anyway, have an eye to the north just in case. The next day, January 4th, the Earth is closest to the Sun at just over 147,000,000 kilometers. Here's hoping for some clearer weather in 2006! -DCL

Planet	Date	Constellation	Magnitude	Distance*	Apparent Diameter
Mercury	1/11	Sagittarius	- 0.8	130.7	4.8"
Venus	1/15	Sagittarius	- 3.8	24.8	62.4
Mars	1/15	Aries	- 0.2	84.5	10.3
Jupiter	1/15	Libra	- 1.9	528.5	34.7
Saturn	1/15	Cancer	- 0.2	761.0	20.3
Uranus	1/15	Aquarius	+5.9	1933.3	3.4
Neptune	1/15	Capricornus	+8.0	2880.7	2.2
Pluto	1/15	Serpens	14.0	2966.4	0.1

* in millions of miles from Earth

Moon Phases:

1 st Quarter	January 6	February 5
Full	January 14	February 12
3 rd Quarter	January 22	February 21
New	January 29	February 27



CUAS NEWS

Remember to renew your dues!!! Most CUAS members are on a prorated dues system, meaning your \$15 membership dues (and dome key fee, if appropriate) are ***due this month!!*** Why not use the handy dandy form on the last page of this newsletter and renew today! Or you can bring your check made out to "CUAS" to the January meeting. Might you have magazines (Sky & Telescope or Astronomy) that need to be renewed? Consider taking advantage of the club's discount plans.

2006 Calendars We still have a dozen or so Astronomy magazine 2006 calendars for sale. They'll retail for \$12 to non-members and \$10 to club members. Grab one (or more) at the December meeting or give Dave a holler at 351-2567 to make arrangements to pick one up.

Thanks to Phil Wall and Bob Rubendunst, we now have ownership of the "cuas.org" domain for two years.

We now have an active chapter of **Junior Stargazers** at Bottenfield Elementary School on south Prospect in Champaign. There's a meeting for parents on January 30 in the Bottenfield Library.

Note from the Editor Happy New Year! As Mike mentioned in his president's message, it hit me on one of my end-of-month trips to the Bresnan Meeting Center to copy & mail the newsletter that I've been doing this for a while. I guess it's kinda getting "old," if you know what I mean. The writing style hasn't changed in 20 years! "Things are Looking Up" (the original name for the newsletter) became a reality after the club formed in July, 1986, post-Halley's Comet. A lot of people had gotten together for Halley's and some didn't want to part, hence CUAS was formed. By today's standards, the first few issues were really crummy! It had a press-type title (I didn't own a computer . . . in fact, few people did!) and a hand-drawn panoramic view of Champaign seen from the south, with the Assembly Hall & stadium in the mix. Each issue was hand-typed from scratch with the paste-up graphics that appeared every month. The president's message, "Looking Up" column and planet info are pretty much unchanged from 1986. Past-secretary Bob Januzik, came along and added some cool computer graphics. So I'd write the thing and give it to him on a 5 ¼ -inch floppy disk and he'd make it look pretty! Then I'd give a master copy to Paul Ellis at the CPD and he'd duplicated it. When Paul left I got to learn how to use a memiograph machine!!! Then a Risograph. We've come a long way in 20 years and the future is bright. But, after 20 years, it's time I resign the newsletter editor's position. It's time for "fresh blood," new ideas, better writing, and better lay-out & graphics. I told the officers that I'd volunteer to continue in this role until July, 2006 so it's an even 20-years for me, then I'd bow out. So NOW is the time for YOU to think about what you'd like to see in a CUAS newsletter! And hopefully someone(s) will step up and take over. Thanks for all the presidents & treasurers who have contributed over the past two decades . . . and thank YOU for putting up with me! - Dave Leake

Light Pollution Report The Champaign lighting code has been distributed to interested parties in an effort to look at and amend the code and take those amendments to the Zoning Board of Appeals. The goals of the code are excellent, but the actual ordinance stops short of where it needs to go. If you're interested in being part of this (and the more, the merrier!), contact Dave at dleake@parkland.edu or 359-6644.

If you want to get your club news fast, please subscribe to the **Cuas-l email list**. Sometimes people will email and say they will be observing that night and will ask for people to join them. There is also news of new comets and possible auroral displays. To subscribe, just go to the Cuas-l web page at <https://mail.prairienet.org/mailman/listinfo/cuas-l> and follow the subscription directions. Email cuas-l@lists.prairienet.org to post.

OBSERVATORY NEWS!

A priority list is being developed for the observatory. Items that are on the currently-incomplete list include (in no order . . . yet):

- * repair/replace right ascension bearings on Cass scope
- * composting or incinerating toilet on-site
- * repair/replace mowers in the shed
- * auction of some club equipment



LOOKING AHEAD

January 7

CUAS Family Skywatch

7-9pm

Observatory

We voted to have a Skywatch in January, despite this being close to New Year's . . . meaning we'll need some hearty volunteers to open the observatory! Take I-57 to the south to the Monticello exit. Turn right and go 1.4 miles to county road 700E. Turn left here and the dome is 0.8 miles south on this road, on your left.

January 12 CUAS Club Meeting 7-8:30pm Staerkel Planetarium
We'll discuss some plans for the new year.

January 20 "Skywatchers of Africa" opens 8pm Staerkel Planetarium
The newest production by the Staerkel Planetarium takes us to Africa to see how their many diverse cultures incorporated the sky into their society. This show was originally produced by the Adler Planetarium in Chicago and is made possible through a grant from the Staples Foundation.

January 28 New Moon Observing 7pm-? Observatory
Our members-only session for the month in a dark sky. Dress warm and join us!

February 3 "World of Science" talk 7pm Staerkel Planetarium
The planetarium welcomes back astronomer James B. Kaler to talk about something a little different. Art and science "collide" in an artistic look at the universe. Admission is only \$1 at the door.

February 4 CUAS Family Skywatch 7-9pm Observatory

February 9 CUAS Club Meeting 7-8:30pm Staerkel Planetarium
We've reserved time at the February meeting to allow members of the public to bring in their new and old telescopes that just don't seem to work (or they can't figure out how to work them) and they need a little advice. Bring your collimation tools and expertise and learn something about telescope operation. If you know someone who has a telescope that they just can't get working, tell them about this night. Advice is free!

February 12 "String Theory with a Twist" 2, 4pm Staerkel Planetarium
The planetarium hosts the "Bow-dacious String Band" for two shows in the dome, beneath the stars. Come hear the kid's playin the dark in this odd light show featuring two dozen mucisians. Call 351-2568 for information.

February 24 "Across the Sky" 7pm Staerkel Planetarium
Storytelling program for kids. Call 351-2568 for information.

CHECK OUT ALL CLUB EVENTS ON THE CUAS HOME PAGE:

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



A New View of the Andromeda Galaxy

By Dr. Tony Phillips and Patrick L. Barry

This is a good time of year to see the Andromeda galaxy. When the sun sets and the sky fades to black, Andromeda materializes high in the eastern sky. You can find it with your unaided eye. At first glance, it looks like a very dim, fuzzy comet, wider than the full moon. Upon closer inspection through a backyard telescope—wow! It's a beautiful spiral galaxy. At a distance of "only" 2 million light-years, Andromeda is the nearest big galaxy to the Milky Way, and astronomers know it better than any other. The swirling shape of Andromeda is utterly familiar.

Not anymore. A space telescope named GALEX has captured a new and different view of Andromeda. According to GALEX, Andromeda is not a spiral but a ring. GALEX is the “Galaxy Evolution Explorer,” an ultraviolet telescope launched by NASA in 2003. Its mission is to learn how galaxies are born and how they change with age. GALEX’s ability to see ultraviolet (UV) light is crucial; UV radiation comes from newborn stars, so UV images of galaxies reveal star birth—the central process of galaxy evolution. GALEX’s sensitivity to UV is why Andromeda looks different. To the human eye (or to an ordinary visible-light telescope), Andromeda remains its usual self: a vast whirlpool of stars, all ages and all sizes. To GALEX, Andromeda is defined by its youngest, hottest stars. They are concentrated in the galaxy’s core and scattered around a vast ring some 150,000 light years in diameter. It’s utterly *unfamiliar*.

“Looking at familiar galaxies with a new wavelength, UV, allows us to get a better understanding of the processes affecting their evolution,” says Samuel Boissier, a member of the GALEX team at the Observatories of the Carnegie Institution of Washington.

Beyond Andromeda lies a whole universe of galaxies—spirals, ellipticals and irregulars, giants and dwarfs, each with its own surprising patterns of star formation. To discover those patterns, GALEX has imaged hundreds of nearby galaxies. Only a few, such as Andromeda, have been analyzed in complete detail. “We still have a lot of work to do,” says Boissier, enthusiastically.

GALEX has photographed an even greater number of distant galaxies—“some as far away as 10 billion light-years,” Boissier adds—to measure how the rate of new star formation has changed over the universe’s long history. Contained in those terabytes of data is our universe’s “life story.” Unraveling it will keep scientists busy for years to come.

For more about GALEX, visit www.galex.caltech.edu. Kids can see how to make a galactic art project at spaceplace.nasa.gov/en/kids/galex/art.shtml.



The GALEX telescope took this UV image of the Andromeda galaxy (M31), revealing a surprising shape not apparent in visible light.

A LOOK AT 2006

The years keep flying by, don’t they? And it’s time to write a look at the next year once again. “Boring” is one word I’ve heard applied to this year, but I think that’s kind of harsh. There will be lots to see, though no special eclipses or scheduled comets. Mercury will have two wonderful evening views in 2006. The first will be the end of February and early March with greatest elongation being February 23. The second might be a prime target for a viewing session since it occurs from the end of May into early August and includes all of June. On June 20, Mercury doesn’t set until after 10pm, a full hour after the end of twilight! There are also two very good morning apparitions, one in early August and the other in mid-November. Mercury will also transit the Sun on November 8 as seen from our hemisphere, though we only see the start of the event.

As mentioned, Venus will quickly sped into the morning sky in mid-January and remain in the morning sky until early November. The “fun” begins in August when Venus and Mercury rise only 20 minutes apart (2°) on the 10th. Saturn joins them later in the month coming to within 0.6° on the 27th. Venus & Jupiter come close in the evening house of November 14, but it’s very low in the sky.

Mars won’t have an opposition this month but it will be with us in the evening sky through the end of summer, passing behind the Sun on October 22. Even now Mars is pretty small and it will get smaller and fainter still, but still in view. Mars and Saturn come to within 0.6° on June 17th, right about the time Mercury is nice. Observing anyone?

For the outer planets (Mars included), “opposition” time is when the planet is closest, brightest and visible all night. This year Saturn’s opposition date is January 27th, May 3 for Jupiter, August 10 for Neptune, and September 4 for Uranus. Neptune (1.8°) and Uranus (0.3°) will pass close to Venus in the morning time on March 26 and April 18 respectively.

This year, the Pleiades Star Cluster will undergo some occultations (meaning our Moon will pass in front of it). Depending on the Moon phases, these can be cool to watch, even in binoculars. Mark down Jan. 9, Apr. 1, June 20, July 20, Oct. 9 and Dec. 3.

I guess I should mention the eclipses . . . a penumbral lunar (seen from Europe) on March 14, a total solar as seen from Brazil, across the pond to northern Africa and Turkey on March 29, and a partial lunar for Asia on September 7.

As far as meteor showers go, there are many, but the majors are the Perseids on August 11 (two days after Full Moon . . . bla!), the Orionids on Oct. 22 (near New Moon), Leonids on Nov. 17 (just before New Moon), and the Geminids on Dec. 14 (3rd Quarter Moon). So a couple of possibilities there.

Clubwise, we should have Skywatches on the following dates (Saturday nearest 1st Quarter Moon): Jan. 7, Feb. 4, Mar, 4, Apr. 1 (no kiddin), May 6 (National Astronomy Day), June 3, July 1 & 29, Aug. 26, Sept. 30, Oct. 28, and Nov. 25. Get em on the calendar as we’ll need your help. And the New Moon member’s-only, dark sky nights are the Saturdays before these dates. We might also do more in-town observing to try to get more people interested *and* more aware of the lighting issue. We’ll also head westward and observe from the meadow at Allerton Park on Apr. 22, June 17 and Sept. 16. Might we work in a night at Walnut Point?

In odds & ends dates, the planetarium will host the GLPA Illinois state meeting on April 8 and any CUAS people are welcome to attend to meet state planetarians. The State Science Olympiad finals are at the UI on April 29. Who said it was going to be boring? -DCL

MEMBERSHIP FORM

_____ Enroll me as a new member!
 _____ Membership renewal [attach mailing label]
 _____ Change of address only

Name _____
 Address _____
 Phone # _____
 Email address: _____

Make all checks payable to:
 “*Champaign-Urbana Astronomical Society*”

Circle all that apply:

Basic membership	\$15
Observatory key fee	\$10
<i>Astronomy</i> magazine renewal*	\$34
<i>Sky & Telescope</i> renewal*	\$33
Donation	\$ _____
Total Enclosed	\$ _____

*enclose mailing label

Detach and mail to:

C.U.A.S.
 C/o Phil Wall
 607 West Healey #11
 Champaign, IL 61820

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The Champaign-Urbana Astronomical Society is an affiliate group of the **Champaign Park District**. <http://www.champaignparkdistrict.com>

William M. Staerkel Planetarium has public shows on Friday evenings in August. Call 217/351-2446 for more information. <http://www.parkland.edu/coned/pla>



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