COLUMBUS ASTRONOMICAL SOCIETY

Prime Focus

Volume 58 Number 1 January 2009
The Columbus Astronomical Society Newsletter

Contents

Wired for Astronomy

Happy New Year!

What will 2009 have in store for us? No one knows the answer to that question, but there are a few predictable events, especially in astronomy.

http://www.seasky.org/astronomy/astronomy_calendar_2009.html has a list of celestial happenings through 2015.

Go here for a detailed list of occurrences: http://space.about.com/od/calendarsofevents/a/astroevents.htm

Since 2009 is the International Year of Astronomy, you will need a site like this one to keep up with the festivities: http://astronomy2009.us/

http://www.delscope.demon.co.uk/news/skywatch3DIARY.htm gives a detailed list of happenings in the sky.

And my favorite place to get information for events is the JPL space calendar: http://www2.jpl.nasa.gov/calendar/

Happy planning!

From the President

Greetings fellow stargazers:

I'd like to thank everyone for the opportunity to serve as the CAS President for another year. OK, so it was a no contest election, but it's something that makes me proud. I have the chance to make a difference. The experience transcends the monthly trip to the grocery store to buy donuts and goodies and my presidential duty to collect and take out the trash after the meeting each month. I hope that I've contributed to making CAS a little better off than it was before.

We voted and ratified the changes to the CAS Constitution at the Christmas party. With that piece of club business behind us, we start 2009 with a clean slate…and a few changes to how we will conduct business.

The default delivery method for the Prime Focus will change to email beginning January 1, 2009. Each member will continue to receive the PF via email or snail-mail until his membership renewal date. If a member wants to continue receiving the PF via snail-mail, a $5 fee can be paid in addition to the membership fee; otherwise, delivery via email will begin with the 1st month after membership renewal.

It's New Years Eve with about 15 minutes until 2009. The sky is clear tonight. I think I'll go outside.

Happy 2009 Everyone!

Regards,

Tom Beck
President, CAS

Results from 12-13-2008 Amendment Ratification and Officer Election

Quorum: 154 memberships paid up as of 12-12-2008
Registrants: 46 registered; Note however 53 ballots were handed in.
Tally: Ballots were counted by Jay Elkes and Byron Winchell.

Results: Amendments:

Each of the 13 Amendments issues had a "yes" vote of from51 to as much as 52 and so were considered to have had the necessary 2/3rd majority. Subtracting six "yes" votes from those not registering makes no difference.

(Continued on page 3)

What's Up
Brad Hoehne

In celebration of the 400th anniversary of the first use of a telescope for astronomical purposes the International Astronomical Union has declared 2009 to be the International Year of Astronomy.

In December 1609, Galileo first pointed one of his crude (perhaps even wretched by today's standards) *perspeculims* at the moon and began a program of observation that would come to change the way we view the universe. Though not the first to point a such a device skyward- England's Thomas Harriot had made a few glances at the moon through a *spyglass* four months earlier- Galileo's were far superior- magnifying 20 times instead of only 3 or 4 times. Just as important was the fact that Galileo was a more careful, methodical observer than Harriot, and took great pains to convincingly document and share his observations with his contemporaries. Moreover, Galileo, unlike Harriot, realized in that in the rugged surface of the moon he was seeing something *new*- something that contradicted the received wisdom of the previous two millennia. Galileo didn't just look, he *interpreted*- and did so in a new and compelling way. So, it was through the writings of Galileo that the western world was exposed to the idea that the universe is much more than it seems to the naked eye.

Intellectually, the universe was a very different place in 1609 than it is today. To understand the impact that Galileo's message had on the world, it helps to put oneself in the shoes of his contemporaries.

If you were an educated person living in Italy in January 1609, you probably would have thought of the Earth as an inert, spherical mass at the center of the universe (if you thought about such things at all.) Any suggestion that the Earth moved would be almost impossible to conceive. After all, you don't *feel* the Earth move. When had you ever been moving in a way that you couldn't obviously feel? (Running? On horseback? In the back of a carriage going down a bumpy road? On a ship?) Pretty much everyone you know would have thought the same. Even the Bible agreed with you. Amongst several relevant verses was:

Psalm 104:5 "He set the earth on its foundations; it can never be moved."

Moreover, if you'd attended college, the idea of a moving Earth contradicted everything that you'd been exposed to in your liberal arts education. While producing long-winded *disputations* you would have come to realize a beautiful consistency in the ideas of the great Aristotle and his followers: Water and earthy matter is drawn to the center of the universe, fire and air go in the opposite direction. Drop a rock, it falls. Light a fire and the sparks fly upward. The heavenly bodies- out of reach, out of touch- were, of course, perfect and unchanging- notwithstanding that anomalous "New Star" that briefly popped into view 37 years before- even if reports of it could be trusted (and they probably couldn't.) The planets and stars moved according to an elaborate combination of clockwork circular motions, probably on transparent crystal spheres, with Earth at the center of that motion. How did they stay up? Well, they were special, being made of some substance other than the four of your earthly experience- some fifth substance. A *quintessence.*

These ideas were consistent with your ethical and religious learning. The Earth is imperfect and crude and inert, and the sky, where God resides, eternal and perfect. Your day-to-day experiences confirmed this. The world around you was a messy place of intemperate weather, unreliable crops, dirt, war, politics, birth, disease and death. (And, oh, the smell!) The heavens, by comparison, slid by coolly, with perfect regularity, and had done so since the time of the ancients. What else did that? How could the stuff of the irregular, unmanageable material world be the same stuff as that of the moon, the sun, the planets and the stars, that slid through the heavens in an exactly predictable fashion? Moreover, your rulers and most learned men of your time leaned heavily on the astrological divinatations inspired by the observation of these bodies. *Of course* the heavens were made of a different stuff.

If, on top of all this, you were a mathematician (which was the category that astronomers would be lumped under in those days) you may have even read the work of a curious Polish brethren named Nicholas Copernicus who had suggested that the appearance and motions of the planets could be explained if one accepted the idea that the Earth moved around the sun, rather than vice-versa. It is likely, however that you would have dismissed this idea as a mere mathematical contrivance. If you had had access to that arcane book, you may have even read the preface which (in a curiously different style) asked you to treat it as such. (Did the same guy really write it?) If you were particularly savvy you may have even objected to Copernicus's hypothesis on the grounds that, if the Earth *did* move around the sun, the distant fixed sphere of stars would appear wobble back and forth as well- that is, they would exhibit *parallax*. That the stars didn't wobble was compelling evidence the Earth didn't move. (Gotcha', Copernicus!) Perhaps, instead, you would have entertained the more recent ideas of Tycho Brahe, who thought that maybe the sun went about the

fixed Earth while the planets (not counting the immobile sphere beneath your feet, of course) went about the sun. A nice compromise- but perhaps a bit much considering that it meant that there were two centers of rotation in the universe- and, as you knew, the quintessence liked to move about that immobile sphere. The followers of Aristotle would not be pleased.

As a mathematician/astronomer, you would likely have been familiar with the few "nebulae" scattered around the sky: A small-lentil shaped "Little Cloud" in Andromeda, another nestled between Cassiopeia and Perseus, one in the heart of Cancer which you probably referred to as "The Manger," and, if you were eagle-eyed, a tiny fuzzy patch in the sword of Orion. The great arc of the Milky-Way would also be a familiar sight on moonless nights. The nature of these things, however, would be a mystery. Some of your contemporaries believed them to be atmospheric phenomena- just as comets were *known* to be. However, some took note of the lack of any parallax of these objects and sought an alternate explanation. You may have caught wind of the suggestion that the "Nebulae" were, in fact, made of innumerable faint stars, which, collectively, presented themselves to the eye in the same way that countless water droplets seen from afar form a cloud. Later on in the year, painter Adam Elsheimer, working in Rome, would incorporate this idea in this his astounding portrayal of the night sky: *Flight into Egypt.*

This is where your mind would be regarding the nature of the Earth and the Heavens when, 15 months hence, the news of Galileo's observations would sweep like a firestorm through the Royal courts, the church fathers, and the learned people of Europe. If you were lucky, you might have a chance to see for yourself what the Tuscan mathematician had seen through one of the instruments that he had sent out to patrons and noblemen along with his pamphlet- *Sidereus Nuncius*.

Perhaps, as you squinted through the gilded eye-hole of the spyglass, you might see the quartet of Medician Planets- the movement of which Galileo painstakingly documented in his *Nuncius.* (Wait, the Earth *isn't* the center of all heavenly motion?) And maybe you would note that the moon, far from being a smooth, perfect orb of quintessence, was scarred and pitted like the Earth. The Pleiades would bloom from the six or seven that you could see with your eye alone into dozens. And the vast milky-way would resolve into countless speckles of light. (Elsheimer guessed right!)

Perhaps your immediate instinct would be to distrust the idea that an instrument could extend the natural talents of your senses. Would you be jealous of this presumptuous man- who blithely disregarded 18 centuries of wisdom with his wild interpretations of half-seen phantasms? Or would the visions creep into your mind and transform the way you thought about the universe? Maybe *there was more in the heavens (and on Earth) than was dreamt of in your little philosophy*, as a certain English playwright of your time had recently suggested.

Mercury and Jupiter over Jamaica
Bill Kramer

(Continued from page 1)

Officers:

A written "convenience" ballot of the slate of officers and trustee was presented so all votes would be written. No office was contested but the ballots allowed a "Vote Against" choice as well as a "Vote For".

In any event, this vote was unanimous in the "Vote For" column on the 50 such ballots turned in:

Thomas Beck, President;
Jason Hissong, Vice-President;
James Schoultz, Treasurer
Byron Winchell, Secretary;
William Kramer; Trustee (01-01-2009 to 12-31-2013).

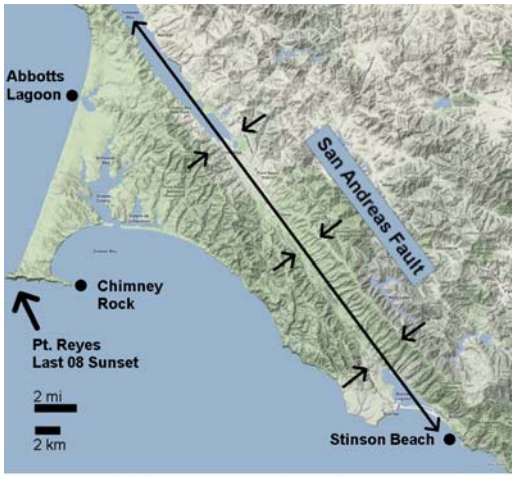
It would appear that the proposed amendments were ratified by 2/3rd of a quorum and that the slate of officers were elected to a final term of one year, and Bill Kramer to the above-noted trustee term.

Respectfully submitted,
Byron Winchell
Secretary

Studying the Moon
Lunar Intermission
Michael Packer

I'm on holiday in Northern California and you might think visiting family and the sun would be more on my mind than the moon. But not so. After my last column on sailing the lunar seas, it seams fitting to recount a day of observing next to one of our earth based maria - the Pacific Ocean. The observing place is Point Reyes National Seashore.

Visualizing similarities between Pt. Reyes to a cape on the moon like Promontorium Heraclides is engaging but it is far more impressive to realize you get to Pt. Reyes by traveling inside a 2 mile wide linear fault known infamously as the San Andreas (see figure).



Point Reyes National Seashore

Coincidently, the easy to observe Rima Hyginus fault on the moon is also 2 miles wide. I am struck by this similarity in scale as I look up at the sloping walls of the San Andreas. Moreover, Hyginus and the adjacent linear fault Rima Andreas are about the same height as the San Andreas at Pt. Reyes.

With respect to length, all you can say is that these faults are about the same order of magnitude. Combined, Rimea Hyginus and Andreas span a length of about 270 miles where as the San Andreas length spans 800 miles.

In fact, the tectonics that formed the linear San Andreas fault are different than the orogenic events that formed the faults on the moon but the similar surface results are plain to see and drive through! It's also worth noting the similar coastal location of San Andreas Fault and arcuate and linear rilles on the moon. There are some similar surface and gravitational stresses at work here. (See Wikipedia and lpod.wikispaces.com if you would like to read more about faults.)

Observing Wildlife: On the trail to Abbotts Lagoon I met a guy who asked if he should take his 10x50's with him. It's amazing how many people visit places like Point Reyes without a pair binoculars. Instead of observing perhaps 5 wild animals that pass in front of your nose you can increase that number to an easy 50 to 200. A resounding "Yes!" came from me and a Rhode Island woman I was traveling with. I mentioned 10x50's would be great for astronomy and he replied that he was an amateur astronomer. Well that's both excellent and lucky.

The binos and scope I currently use are 8.5x42's and an 80mm f6 refractor mounted to a Gitzo G2180 spring loaded fluid head and geared column tripod. The eyepieces are the wide-field 8-24mm Baader zoom and the 3-6mm Televue zoom. The later EP is for planets, double stars and the moon.

The refractor is fairly lightweight at 6 lbs and has a handy backpack from Eagle Optics (see picture) otherwise I would use a 65mm.

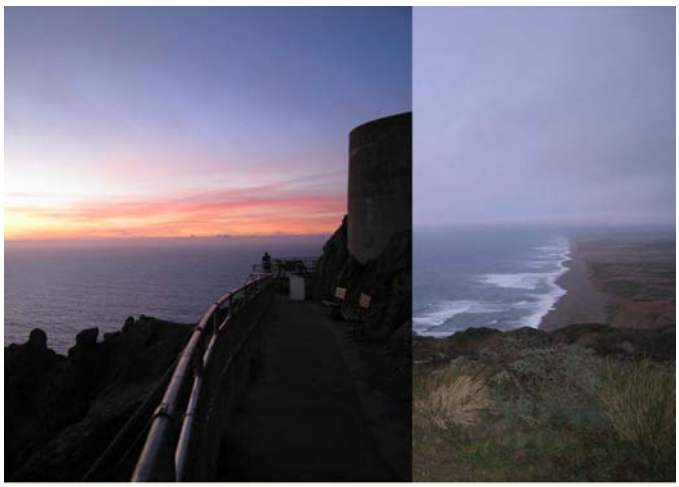

Scope with Tripod Backpack

With this setup I was able to observe over 126 species of birds. Abbotts Lagoon had 31 species on the 31st including the White-tailed Kite and Pacific Loon. Animals including badger, dear, otter and sea lion were also seen there. Out at Chimney Rock, sea lion were seen with their pups along with Great Horned Owls,

(Continued on page 5)

Surf Scoters and a myriad of diving ducks and pelagic gulls. The scope was almost always used and was a must have. It also saved a lot of walking.

Astronomy began with the setting sun at Pt. Reyes Lighthouse. The last sunset of 2008.



Lighthouse Sunset and Pt. Reyes' Coast

After getting a bite to eat at Vladimir's restaurant, I traveled down Highway 1 one to Stinson Beach. By then it was 8:00PM and 1 was dead quiet. There was plenty of time to observe before joining my family.

Just beyond Stinson, the road rises some 200 feet above the shore and there is a nice pull off to set up a scope. As I drove up, the crescent moon was setting over waves of water that reflected the beam out to sea. I got out I was absolutely stunned how dark the sky was. San Francisco was too far away and perhaps covered by fog to have any significant effect and Stinson is out of the way. With the Baader, I scanned the Messier objects in the Milkyway and then selected a few to zoom in on until they were well framed and the background inky black. I forgot a little 80mm can neatly resolve the Auriga's. The Televue did nice job on the trapezium and I used it to check out the moon's T before it got too low to the horizon.

All said is was a bio rich day with one outstanding fault, a magical night, and great way to end the year. Happy New Year everyone and hope you enjoyed the extra second.

Another telescope for sale:

Edmund Astroscan
Includes Original Accessories, two eyepieces manuals, box.
Asking $150 or best offer.

email at, n7xgr@excite.com

Bruce

Christmas 2008 party
Photos by Charlie Sigrist

Superstar Hide and Seek

by Dr. Tony Phillips

It sounds like an impossible task: Take a star a hundred times larger in diameter and millions of times more luminous than the Sun and hide it in our own galaxy where the most powerful optical telescopes on Earth cannot find it.

But it is not impossible. In fact, there could be dozens to hundreds of such stars hiding in the Milky Way right now. Furiously burning their inner stores of hydrogen, these hidden superstars are like ticking bombs poised to 'go supernova' at any moment, possibly unleashing powerful gamma-ray bursts. No wonder astronomers are hunting for them.

Earlier this year, they found one.

"It's called the Peony nebula star," says Lidia Oskinova of Potsdam University in Germany. "It shines like 3.2 million suns and weighs in at about 90 solar masses."

The star lies behind a dense veil of dust near the center of the Milky Way galaxy. Starlight traveling through the dust is attenuated so much that the Peony star, at first glance, looks rather dim and ordinary. Oskinova's team set the record straight using NASA's Spitzer Space Telescope. Clouds of dust can hide a star from visible-light telescopes, but Spitzer is an infrared telescope able to penetrate the dusty gloom.

"Using data from Spitzer, along with infrared observations from the ESO's New Technology Telescope in Chile, we calculated the Peony star's true luminosity," she explains. "In the Milky Way galaxy, it is second only to another known superstar, Eta Carina, which shines like 4.7 million suns."

Oskinova believes this is just the tip of the iceberg. Theoretical models of star formation suggest that one Peony-type star is born in our galaxy every 10,000 years. Given that the lifetime of such a star is about one million years, there should be 100 of them in the Milky Way at any given moment.

Could that be a hundred deadly gamma-ray bursts waiting to happen? Oskinova is not worried.

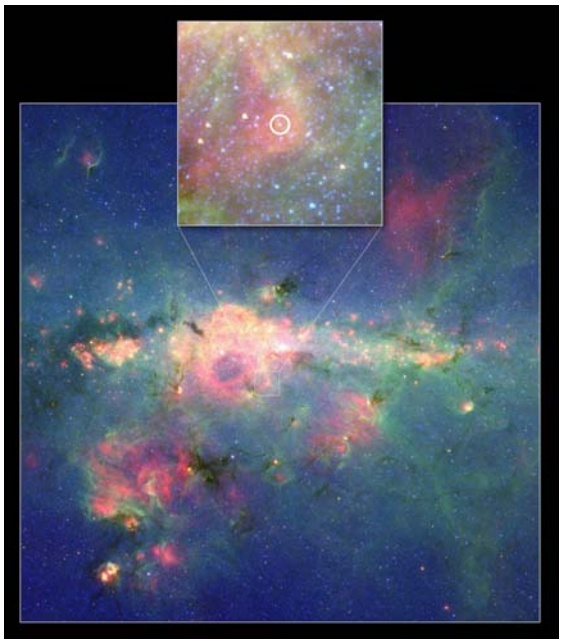
"There's no threat to Earth," she believes. "Gamma-ray bursts produce tightly focused jets of radiation and we would be extremely unlucky to be in the way of one. Furthermore, there don't appear to be any supermassive stars within a thousand light years of our planet."

Nevertheless, the hunt continues. Mapping and studying supermassive stars will help researchers understand the inner workings of extreme star formation and, moreover, identify stars on the brink of supernova. One day, astronomers monitoring a Peony-type star could witness with their own eyes one of the biggest explosions since the Big Bang itself.

Now *that* might be hard to hide.

Find out the latest news on discoveries using the Spitzer at www.spitzer.caltech.edu. Kids (of all ages) can read about "Lucy's Planet Hunt" using the Spitzer Space Telescope at spaceplace.nasa.gov/en/kids/spitzer/lucy.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.



The "Peony Nebula" star is the second-brightest found in the Milky Way Galaxy, after Eta Carina. The Peony star blazes with the light of 3.2 million suns.

January 2009

Columbus Astronomical Society Calendar

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
2009 is the International Year of Astronomy				1 Happy New Year!	2	3 Quadrantids meteor shower
4 Earth at p[illegible]on	5	6 Moon at perigee	7	8 Perkins New Vistas	9	10 CAS Meeting 8 PM
11	12	13 Mercury at perihelion	14 Venus at greatest Eastern elongation	15	16	17
18	19 Moon at apogee	20 Mercury at inferior conjunction	21	22	23	24 Jupiter at conjunction
25	26 Annular solar eclipse (Indian Ocean)	27	28 PF Articles deadline	29	30	31

February 2009

Columbus Astronomical Society Calendar

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7 Moon at perigee
8	9 Penumbral eclipse	10	11	12 Neptune at conjunction	13	14 CAS Meeting 8 PM
15	16	17	18	19 Moon at apogee	20	21
22	23	24	25 PF Articles deadline	26	27	28

Columbus Astronomical Society
PO Box 163004
Columbus, Oh 43216-3004

The Prime Focus is the monthly newsletter of the Columbus Astronomical Society, a not for profit group of amateur astronomers interested in the night sky. Information can be obtained by writing to the address below. Society members build telescopes, observe the splendors of the universe, contribute to scientific research and educate the public at public programs around the city and at Perkins Observatory.
CAS web site - http://www.the-CAS.org/.
For Advertising info contact the editor.

President: : Tom Beck
stargrokker@yahoo.com
Vice president: Jason Hissong
jhisson1@columbus.rr.com
Secretary: Byron Winchell 937-981-7046
Bwinch@yahoo.com
Treasurer: Jim Schoultz
Jschoultz@att.net 614-267-9009
jhisson1@columbus.rr.com
Prime Focus Editor: Joanne Konst 614-276-2911
jfkonst@columbus.rr.com

Mail to: **Columbus Astronomical Society**
P.O. Box 163004
Columbus, Ohio 43216

*Must be a club member to qualify for discount magazine subscription rates. If you are renewing a magazine subscription please send your magazine renewal notice from the publisher along with this form and your check to ensure proper credit toward your subscription.

Columbus Astronomical Society
Membership Application/Renewal Form

Please indicate whether a [ ] new member [ ] membership renewal [ ] magazine subscription [ ] magazine subscription renewal.

I have checked the class of membership and magazine/s subscription/s desired and enclosed a check made payable to the Columbus Astronomical Society for:

[ ] Annual Regular Membership Fee: $20 _____
[ ] Annual Student Membership Fee: (under 18) $10 _____
[ ] Annual Family Membership Fee: $25 _____
[ ] Annual Patron Membership Fee: $50 _____
[ ] Annual Corporate Membership Fee: $150 _____
[ ] Astronomy Magazine: $34.00/1 year * _____
[ ] Sky & Telescope: $32.95/1 year * _____
[ ] Trial - 3 issues of PRIME FOCUS while I decide: $2 _____
[ ] Tax Deductible Donation: _____
[ ] Send the Newsletter via USPS instead of e-mail ($5.00) _____
Total: _____

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Phone _____ (E-Mail) _____
Today's Date _____

NIGHT TIMES

The Newsletter of Perkins Observatory Jan. 2009

NEW VISTAS IN ASTRONOMY for 2009
Last Chance to Buy Season Passes!

This mini-course in astronomy allows you to learn about the latest discoveries by astronomers and on clear nights to observe a variety of celestial objects with the 32-inch Schottland reflecting telescope. Unless otherwise noted, all presenters are from Ohio State University's world-class Department of Astronomy. Please use the order form on the back to order a season pass or tickets for individual nights.

SCHEDULE
All programs are on Thursdays and begin at 8 P.M.

8 January (Thursday) 8 P.M.
Do Supergiant Stars Vanish? by Christopher Kochanek

12 February (Thursday) 8 P.M.
Welcome to the Multiverse by David Weinberg

19 March (Thursday) 8 P.M.
A History of Dark Matter and its Present Properties by Gregory Mack

16 April (Thursday) 8 P.M.
A History of Supernovae in the Milky Way by Jennifer Johnson

14 May (Thursday) 8 P.M.
Chemistry Meets Astronomy: The Role of Molecules in Understanding Stellar and Planetary Formation by Eric Herbst

18 June (Thursday) 8 P.M.
How to Find Life on Exoplanets by David Ennis

16 July (Thursday) 8 P.M.
Results from the Spitzer Space Telescope by Kris Sellgren

20 August (Thursday) 8 P.M.
Eclipses by Robert Harmon of
Ohio Wesleyan University's Department of Astronomy and Physics

17 September (Thursday) 8 P.M.
Looking Inside Stars: Helioseismology and Asteroseismology by Marc Pinsonneault

15 October (Thursday) 8 P.M.
Gamma-Ray Bursts: The Biggest Explosions Since the Big Bang by Kris Stanek

19 November (Thursday) 8 P.M.
This Is the Way the World Ends: The Long-Term Fate of Life in the Universe by B. Scott Gaudi

10 December (Thursday) 8 P.M.
How the Telescope Changed Astronomy by Barbara Ryden

The International Year of Astronomy

Astronomy's greatest year was almost certainly 1609. Galileo began his groundbreaking work with his crude telescope and subsequently discovered the phases of Venus and the craters on the moon. He saw for the first time that the Milky Way was made up of uncountable stars. After years of mind-meltingly difficult intellectual effort, Johannes Kepler proved once and for all time that the sun was at the center of our solar system, that the planets traveled around the sun in elliptical orbits. He was for the first time able to predict the positions of the planets in the sky with great precision.

Perkins will be honoring the their great achievements in a variety of ways. We will of course continue our weekend programs on Friday nights starting at 8 PM. (Please call 740-363-1257 to order tickets.) This year, we will reserve Saturdays for large-group reservations and for IYA special programs that will be announced in later editions of NightTimes.

Taurus
The Bulletin Board

None of our public activities below could happen without the support of our parent institution, Ohio Wesleyan University.

We couldn't afford to do the programs or even pay the electric bill without the kind financial support of hundreds of donors every year.

Few of the programs below would happen at all without the help of our hard-working volunteers, most of whom come from the Columbus Astronomical Society. Our heartfelt thanks to all!

★January 8 (Thursday) 8 P.M.
New Vistas in Astronomy featuring Christopher Kochanek on the rather intriguing question, "Do Supergiant Stars Vanish?"
★January 9 (Friday) 8 P.M.
Guest Night. Plenty of tickets available.
★January 10 (Saturday) 10 A.M.
CAS Amateur Telescope Making group.
★January 10 (Saturday) 8 P.M.
Monthly meeting of the Columbus Astronomical Society.
★January 16 (Friday) 8 P.M.
Guest Night. Tickets available.
★January 17 (Saturday) 10 A.M.
CAS Amateur Telescope Making group.
★January 20 (Saturday) 8 P.M.
Guest Night. Tickets available.
★January 22 (Monday) 7:30 P.M.
Ohio Council of Churches.
★January 23 (Friday) 8 P.M.
Guest Night. Tickets available.
★January 24 (Saturday) 10 A.M.
CAS Amateur Telescope Making group.
★January 30 (Friday) 8 P.M.
Guest Night. Some tickets available.
★January 31 (Saturday) 10 A.M.
CAS Amateur Telescope Making group.
★January 31 (Saturday) 8 P.M.
Cub Scout Pack 193.
★February 6 (Friday) 8 P.M.
Guest Night. Tickets available.
★February 7 (Saturday) 10 A.M.
CAS Amateur Telescope Making group.
★February 13 (Friday) 8 P.M.
Guest Night. Sold out!
★February 14 (Saturday) 10 A.M.
CAS Amateur Telescope Making group.
★February 14 (Saturday) 8 P.M.
Columbus Astronomical Society meeting.

Donations

Our deepest appreciation goes to the many fine folks below who helped Perkins Observatory during the last couple of months. You'll see a lot of names on this list you will recognize from previous newsletters. Above all, thanks for your constancy to the "O," folks. We quite literally couldn't do it without you.

Gifts to the Operating Fund:

- The Columbus Astronomical Society, the second of two $1,000 gifts this year.
- Kim and Midge Short of Marion, $100.
- Joseph Zaleski of the CAS and Cambridge, Ohio, $150.
- Kathie Martin, in memory of Robert and Geoff Wyant, $200.
- Vic Stover of the CAS and Waldo, Ohio, his annual gift of $128, his yearly collection of pocket change. In the hope that others will be inspired by Vic's good-hearted example, we herewith begin the Vic Stover "Pennies for Perkins" fundraising program. Call for details.
- Jim Pace of the CAS, two gifts of $40.00, which Jim, bless him, has sent automatically every month. In his name, we herewith begin the Jim Pace Periodic Payment Program. Call for details.

Gifts to the Perkins Endowment Fund:

- Jim Pace of the CAS, two gifts of $40.00 each. (See above.)
- The Columbus Audubon Society, arranged by Jay Young, $500.
- Kim and Midge Short of Marion, $100.
- Joseph Zaleski of the CAS and Cambridge, Ohio, $150.
- Mrs. Jay W. Roberts of Waldo, $50.
- James Dale of Marysville, $25.
- Rachel M. Thurston of Columbus, $200.
- Linda Watson and the whole blessed Watson family, $100.
- David Klug of Marysville, $100.

Participants in our "2,000 Points of Light" program split their $200 contribution. Half goes to the Perkins Endowment and half goes to our Operating Fund:

- Ed and Kathy Kitchen of Powell.
- Robert F. Wing, Emeritus professor in OSU's Astronomy Department.
- Richard Bradley and Amy Tovar in honor of David Bradley.
- Ronald Ravneberg, beloved former president and longtime member of the CAS.
- Battelle Astronomy Club, by Phil Shoemaker, President.
- Glen Miller in honor of Arlene Miller.
- Larry Simpson of Westerville.
- Mike Henry, honoring Perkins staff and current and past CAS presidents.
- Carl Wenning of Normal, Illinois, who also includes a challenge grant to OSU alums of up to $1,000 to other 2KPL participants.

Participants in the Perkins Adoption Program:

- Tony and Debra Knapke adopted a bat and a plant for $55.
- Regie and David Powell of Powell adopted a bat and a buzzard, for $65.
- Susan Wyant of Delaware adopted a toad for $50 in honor of T. E. Wyant.
- Byron Winchell, CAS secretary, adopted a computer-projector light bulb for $350.

Gifts of equipment and materials:

- Scott and Robbie Steiner, a classic 1950's Orbit Scope, now on display at Perkins.
- Bob Muth of Marysville, a box of books, including the Time-Life *Voyage Through the Universe* series.
- Jason Hissong, CAS vice president, a Magic Chef microwave oven.
- Sightsinger Security, 5 CCD security cameras, one of which is currently being by our amateur telescope-making group to test mirrors.

New and renewing memberships in the Friends of Perkins Observatory:

- Ed Winkler of Howard, $50 individual membership.
- Bill Buckel, longtime friend of Perkins, $50 individual membership.
- Barbara Martin of Delaware, $50 individual membership renewal.
- Richard Bradley and Amy Tovar, $90 family FOPO membership.
- Gregory Barden of Columbus, $100 sponsorship.
- W. Mike Oskins of Westerville, $50 individual membership.
- John Flanagan of the CAS, $100 sponsorship.
- James Dale of Marysville, $50 individual membership.
- Philips and Christel Burnside of the Ohio Wesleyan community, $100 sponsorship.
- Kathy Shaw of the CAS and Johnstown, $60 for an individual membership.
- Thomas Jonard of the CAS and Westerville, $100 sponsorship.
- Dan Boyer of Carroll, $100 sponsorship.
- Gerald Newsom, emeritus professor in OSU's Astronomy Department and a longtime and friend us here, $100 sponsorship.

New Vistas in Astronomy Ticket Order Form

Series Passes

_____ passes @ $55 each = _____

For tickets to individual nights, please use the box at the right.

Single-Night Tickets

PROGRAM DATE _____

_____ tickets @ $7.00 each = $_____

Please print your name, address, city, state, and zip code in the box below. The box will become your mailing label, so print carefully.

Phone: _____

Total enclosed $_____

Please mail to Perkins Observatory, P. O. Box 449, Delaware, OH 43015.
Please make checks payable to Perkins Observatory.

___ Yes, I want to make a donation to the Perkins Endowment. Amount enclosed: _____

___ Yes, I want to donate to the Perkins Operating Fund Amount enclosed: _____

___ Yes, I want to be a member of the Friends of Perkins Observatory. Enroll me at the level of sponsorship checked below:

___ Individual ($50) ___ Sponsor ($100) ___ Family ($90) ___ Family Sponsor ($200) ___ Corporate ($300)

Name _____

Names of family members (for family memberships) _____

Address _____

City _____ State _____ Zip Code _____

(Please mail to Perkins Observatory, P. O. Box 449, Delaware, OH 43015. Make checks payable to "Perkins Memorial Observatory.")

2,000 Points of Light

On any given night of the year from a dark, rural location, 2,000 stars light up the sky.

You can light up the sky over Perkins Observatory in the same way. Rising costs have made it increasingly difficult for its small but dedicated staff to engage in its public mission: to show the people of Central Ohio the wonder and majesty of the universe they live in.

Over the years, we have reduced our staff to the bare bones. With the switch of our Building Superintendent to part-time status, Perkins no longer has a single full-time employee. Despite those reductions, we have managed to increase our public activities and the number of people, especially children, we serve.

Those of you who love the night sky have been extraordinarily generous with both your time and financial help, and we thank you. Now, we need your help one more time.

If 2,000 people, 2,000 Points of Light, will contribute $200 each, we can continue our mission unimpaired.

Half of your gift will go into the Perkins Endowment, the interest on which will keep us open for decades to come. The other $100 will be used to make building repairs (including much- needed repairs to our roof), build new exhibits and displays, and help with ongoing costs.

To show our gratitude, we will associate your name (or the name of any honoree you pick) with one of the over 2,000 stars on our large, publicly-displayed star map. (Sorry, we get to pick the star). We will also send you a certificate honoring your help, mention your contribution in this newsletter, and add you to the monthly newsletter mailing list at your request.

Families, corporations, and fraternal organizations need not limit themselves to a single Point of Light. Why not honor several -- or many -- members of your group by making them a "star" on our map?

You can mail your contribution by using the handy form on the back or by writing 2KPL and the name of your honoree on the memo line of your check. Please mail to

Perkins Observatory 2KPL
PO Box 449
Delaware, OH 43015

Or give us a call at (740) 363-1257 and schedule a trip to one of our weekend public programs. We'd be honored to receive your gift in person. If you become a Point of Light, Perkins can continue its public stargazing sessions for many years to come.