



COLUMBUS
ASTRONOMICAL
SOCIETY

Prime Focus

Volume 59 January 2010

The Columbus Astronomical Society Newsletter

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From the President

Happy New Year CAS! I hope you had a wonderful holiday season and are looking forward to exploring the wonders the universe in the coming year. I want to take a moment and thank Tom Beck and the other officers for their efforts these past two years. As your new president, I am excited to have the opportunity to lead a group of crazy people who are as passionate about the sky and hobby as I am. I look forward to implementing a few of the great ideas some members have mentioned. Stay tuned to the newsletter and the Yahoo group for more details as they come available!

Winter is one of my favorite seasons and the winter observing season is well upon us. Many of my early astronomical memories are of the winter sky. Cold, clear, nights with Orion looking down on me. Orion was one of the first constellations I learned to recognize in the winter of 1985. The Orion Nebula was the first deep space object I glimpsed through an eyepiece. On any given clear night, my dad and I would take our Meade 2080LX SCT telescope out in the back yard and look at Orion. I still have that telescope; and I should get it out more.

We are planning our annual WE*R*NUTS event in the Hocking Hills for new moon of January

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Wired for Astronomy:

Did you know the Earth is flat? No? then go to http://www.alaska.net/~clund/e_djublonskopf/Flatearthsociety.htm

And learn how wrong you are believing the Earth is a globe.

The Earth is also stationary. Don't believe me? Go to <http://www.reformation.org/stationary-earth.html> and read the arguments supporting an unmovable Earth. It is also the center of the Universe!

Light gets tired as it travels. This site will show you how, and the consequences of tired light in our perception of the Universe: <http://www.lyndonashmore.com/>.

The Universe is young, less than 10,000 years. The pros and cons of a young Universe can be found here: http://www.religioustolerance.org/ev_young3.htm.

And here's the biggie: we did not go to the Moon. <http://www.ufos-aliens.co.uk/cosmicapollo.html> will set you right!

Something tells me I should have shelved this column until April...

What's Up Brad Hoehne

*A little learning is a dangerous thing;
drink deep, or taste not the Pierian
spring:
there shallow draughts intoxicate the
brain,
and drinking largely sobers us again.*

- Alexander Pope, *Essays on
Criticism*

In Greek mythology the Pierian Spring was the literal Font of Knowledge. If you merely sipped from it, Pope suggests, you acquired the exhilarating, intoxicating, and misleading sensation of knowledge. Only by drinking deep do we ironically sober up and achieve real understanding.

From the earliest days of the telescope, observers of the planet **Mars**, squinted and strained for sips of Knowledge about the planet. However, the small, remote world gave up its secrets very slowly- only gushing forth at a sobering rate at the beginning of our age of robotic exploration.

Mars is a small world. 4,213 miles in diameter, it is roughly half the width of Earth, and a bit less than two times the width of the moon. Though Jupiter is much farther away, its great size makes it a much easier target for telescopic observers.

The orbit of Mars, as Kepler first deduced in 1609, is not round but very subtly elliptical. (Earth's is as well, but even less so.) This ellipse is so subtle, that if you were to draw a five inch circle with a drafter's compass and a lead pencil, an accurate scale representation of the planet's orbit could be completely masked by the width of the line. In other words, to the eye, Mars's orbit is a circle. It is, however, noticeably offset. In your scale model, you could represent this offset by sliding the "sun" about an eighth of an inch to one side of the point where your compass pierced the paper. The upshot of this is, that Mars is sometimes closer to the sun and sometimes further away. At the closest point, called the *perihelion*, Mars, the Sun and the constellation Aquarius form a straight line. At the most distant point, the *Aphelion*, Mars is lined up with Leo.

Every two years and two months Earth catches up to Mars- and reaches *opposition*- as it loops around on its inside-track orbit around the sun. Because of those extra two months, each subse-

quent time this happens, Mars appears to have drifted eastward through the zodiac. When Mars appears in Aquarius, in late August or early September, it can be as close as 35 million miles- 140 times further away than the moon. At these *perihelic oppositions*, which occur every fifteen or seventeen years, Mars swells to a positively middling 25.1 arc seconds across. That's 1/70th the apparent size of the moon- not much larger than a medium sized lunar crater. At *aphelic opposition*, when Mars is in Leo, the situation is even worse. The red planet drifts by at a distance of 65 million miles, and never grows larger than about 14 arc seconds- about a third the apparent size of Jupiter.

The favorable viewing period of Mars, that is the time in which it is reasonably close to Earth, lasts only about 4 months. The rest of the time, Mars is frustratingly distant.

Because Mars is such an elusive observational target, it took astronomers nearly 350 years to get a good, sobering, gulp of knowledge from it.

The first to try was made, of course, by Galileo- who took a quick look at it with his 20X telescope at around the same time he was first exploring the moon in late 1609. At that that, Mars was well over on the other side of the sun- a mere 4 arc seconds across. It is doubtful that he was able to see the planet as a disk, and he included no mention of it in his *Siderius Nuncius*. Later, however, in 1610, Galileo made an effort to observe Mars at *quadrature*- the point in its orbit where it would, theoretically, appear most gibbous.

Galileo had been a convert to the idea that the Earth went around the sun since 1597, well before his telescopic observations. He therefore surmised that- unlike Venus and Mercury which, closer to the sun, would appear to go through phases like the moon- Mars would only appear slightly "out of round-" that is, *gibbous*- at certain points in its orbit. In his 1610 observations he could see the disk, but he was hesitant to claim that he could see the gibbous phase:

"I dare not affirm that I was able to observe the phases of Mars; nevertheless, if I am not mistaken, I believe that I have seen that it is not perfectly round."

Galileo, it seems, had a high tolerance for tiny sips from the Pierian spring. Kepler, with whom Galileo shared his observations- was not so immune. He quickly sent reply and included his belief

that Mars, now shown to be a true world like Jupiter or Earth, must have two moons. His logic? Earth has one moon. Jupiter (the next planet out from Mars) possessed four. Mars, in between, must have the geometric mean of the two- that is, *two*. (Kepler was nothing if not a lover of numbers.) As it turns out he was correct. Mars does have two moons. But Kepler, drunk on the teeniest drop of knowledge, arrived this idea in an entirely fanciful, and unreliable, way.

Kepler's wild surmising entered the popular consciousness and eventually found its way into Jonathan Swift's *Gulliver's Travels* (published in 1726). In that book, Swift's narrator Gulliver recounts the "story of the astronomers of the flying island of Laputa"?, who:

... discovered two lesser stars, or satellites, which revolve around Mars, whereof the innermost is distant from the center of the primary exactly three of his diameters, and the outermost five: the former revolves in the space of ten hours, and the latter in twenty-one and a half.

Surprisingly, this completely made up statement was not far from the truth. 150 years later, during the extraordinary perihelic opposition of 1877, Ohio Native Asaph Hall (from the Cleveland-area hamlet of Schalersville, in case you were wondering) managed to figure out a way keep the blinding light of Mars out of view while still inspecting the immediate environs of the planet and, in so doing, discovered the tiny lumps of rock that came to be called Deimos (which revolves about Mars in 30.5 hours) and Phobos (which takes 7.7 hours). Not a bad guess, Mr. Swift.

After Galileo, the font of knowledge about Mars slowed to a trickle. The gibbous phase of Mars was eventually reported by Franceco Fontana in 1638- but given the fact that he also reported seeing a moon of Venus (none exists), this report may be unreliable. The first drawing of a recognizable feature on the planet came only in 1659, when Christian Huygens (discoverer of Titan), using a two-inch telescope- drew a v-shaped blob, which came to be called "The Hourglass Sea." (We know this feature today as the distinct *Syrtis Major*.) Two days after his first observation, Huygens returned to Mars and again saw this feature. He therefore surmised "*The rotation of Mars, like that of the Earth, seems to have a period of 24 hours.*" This is, roughly, correct.

Later observers noted that Mars also had a tilt of roughly 25 degrees- very

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close to Earth's 23.4 degrees, that Mars had polar "ice" caps that came and went with the seasons (Did Mars have snow?) and that features on the planet seemed to change from year to year.

This knowledge, however, was very hard won. Telescopes of the 17th and 18th century, would have been outclassed by all but the cheapest optical junk of today. Until 1830, and the invention of achromatic optics, refracting telescopes suffered from horrible chromatic aberration. To help minimize this problem, they were often built with very long and unwieldy focal lengths. Giovanni Domenico Cassini, for instance, in his quest for ever greater clarity and magnification, eventually commissioned a 136 foot long scope that he had mounted from an abandoned water tower. Even with such great measures, however, few if any new features on the red planet could be seen.

The next significant breakthrough had to wait until 1777 William Herschel trained his *reflecting* telescope on Mars. He had been convinced that the difficulties in manufacture of a reflecting instrument were outweighed by the lack of chromatic aberration. With his 8 inch scope, he made close and contentious observations of Mars's then well known polar caps, he confirmed the planet's tilt, and refined the length of its day. He also noted the seeming "seasonal" changes of the few fuzzy

features he could make out (which exist, but not to the great extent that he reported). Thus tipsy with knowledge, he made the reasonable (but sadly wrong) suggestion that the polar caps were made of water ice. All well and good. But he went further and coyly implied that Mars might have inhabitants who "*probably enjoy a situation in many respects similar to ours.*"

Gradually, astronomers more and more, came to make these leaps of imagination. Amongst many, the idea that the dark areas of Mars were watery seas (not like the moon's dry "seas") and that the brown areas were land, was self-evident. Some observers even went so far as to watch for glint of light off of these "bodies of water" when Mars neared its biannual oppositions. That this was not seen did little to change people's minds.

In the 1830's, the team of Wilhelm Beer and Johann Mädler, two German Amateurs produced a map of the

planet based on their observations made through a 9-inch Achromatic refractor built by the noted Bavarian optician Joseph von Fraunhofer. This scope allowed them to achieve a clear 158X magnification. They picked one small, distinct feature relatively close to Mars's equator, and used it as their "prime meridian." (The feature they chose is now called *Sinus Meridiani*- "the Meridian bay-" a dark plain that is currently being explored by the stupendously-past-warranty rover *Opportunity*.) This convention is still in use today. Over ten years of observations, the two were able to confirm, once and for all, that the features on Mars were, for the most part, permanent.

They called Syrtis Major "The Atlantic Canale" reflecting the thought that it was a body of water separating two areas like Earth's Old and New Worlds. In the 1860s British Mapper Richard A. Proctor renamed Syrtis Major "The Kaiser Sea" and the positively smashed-on-Pierian-water Camille Flammarion resurrected "the hourglass sea" in French translation: "Mer du Sablier".

Another skilled and conscientious observer who contributed much to the knowledge of Mars, Flammarion nonetheless took speculation about Mars to new heights. In 1862 at the age of nineteen, he published a book - *La Pluralité des Mondes Habites*- in which he made a passionate case for the existence of extraterrestrial life, especially on Mars. The supposed "seas," seasonal changes, tilt of the planet, and ice caps, figured heavily into his reasoning. It was a smash hit.

Late in his career he extended his speculations. Given the problematic observation that the "land" of Mars was a rusty hue, he simply surmised that the plant life on that planet (which many, by then, simply assumed to exist) had the same sort of chlorophyll that trees reveal in autumn when the green of summer retreats. He surmised that Mars was "at a later stage of evolution" than Earth, and that its mountains had been worn down (after all, few had been reported) and land features had been smoothed over (features on Mars were not as distinct as those on Earth.) And, finally, he passed judgment on the "canals", proclaiming them to be channels of water- most likely made by some intelligent.

Next month, we'll see how that idea took hold in America.

Watch for Mars all month in the late evening and early morning hours. Opposition occurs on the January 29. This

particular observation, being close to aphelion, is less favorable than average, and Mars only grows to 14.1 arc seconds in size. A convenient online applet for determining the features that can be seen on a given night is the first hit when Googling "S&T mars profiler." Enjoy your month!



A couple of photos of the CAS Christmas party last month, Courtesy of Jay Elkes. Go to the Perkins Facebook page for more photos of this event and of Perkins Observatory.

A Case for Public Support

By Bill Hurley

As many of you know, Perkins Observatory was under attack last fall by a local developer who was seeking permission to build a mixed retail/residential project on the site of the current golf course. Without a doubt, such a development would have spelled the end of Perkins as an observation site if not the end of the facility itself.

The developer made his initial pitch before a regular meeting of the Delaware Planning Commission, a body whose approval would eventually be needed to authorize the project by City Council. While this meeting was designed to be a presentation of the concept and not the vote itself, the meeting room was packed to overflowing. The head of the commission remarked that he had never seen as many people in attendance as were there that night.

There were four items on the agenda, but clearly all but a few were there to show their opposition to agenda item "C". Those of us who attended in support of Perkins were not only pleased by the amount of people opposing any use of the site that would compromise Perkins's functionality, but we were also pleased to see others who were in opposition to the project from other venues, such as the golf course members and adjacent property owners. Opposition was also voiced from the committee members itself, citing their long term commitment to a "Green Corridor" between the City of Delaware and the southern edge of the county.

Despite the strength of the opposing arguments, the reality is that this battle is not over. This fight will continue, irrespective of the outcome of this specific project. As long Perkins Observatory is surrounded by space owned by another party, the property will always be up for grabs and those who would invest in it will do so only for its potential to be developed. Let's face it, unless one of us wins the lottery, buys the property, and places it into a land trust, this battle will rage on.

All this to say that we must never underestimate the power of public support. Although we CAS members do a lot for Perkins in many ways, we must make sure that the "O" never becomes one of central Ohio's best kept secrets.

To that end, I have a suggestion. I think it would be helpful for a few of us to develop a series

of short talks about astronomy, then make them available to the public in various forums, such as Cub Scout Blue and Gold Banquets, PTA meetings, Kiwanis and Rotary clubs, etc. Most of these organizations meet regularly and are always looking for speakers.

At the end of the talk, we could invite people to come to the Perkins website to learn more about the facility and possibly make a visit to a public evening. Those with more interest might spin off to the CAS site and possibly be invigorated to take up the hobby.

A final benefit of having several talks "in the can" is that Tom, Don, and Gary can draw upon one of these speakers and their shows to fill in on the public nights when their own staff is otherwise not available. Tom will also be free to delegate one of us to go make a presentation when such a request comes directly to Perkins.

Last October, Tom Beck asked for a volunteer to make a presentation to the Marysville Public Library on any topic of Astronomy that would be of public interest. Having already thought about the idea of building these presentations, I volunteered to put together a Power Point of Terence Dickerson's "The Universe in Twelve Steps". The presentation was well received and both Tom and Jason Hissong asked me to present it to the CAS monthly meeting. We agreed, and it will be the January program.

I wanted to let all of you know the hidden agenda behind this month's presentation. Although I hope you will enjoy it, what I really want to do is to stir up some dialogue about how more of these programs can be developed, presented to the public, and continue to build upon the support of the public for Perkins.

We saw last fall what public support means for the observatory. Let us know focus our attention of maintaining and building that level of support. The speaker's bureau may be one venue, but we should continue to dialogue on how we can foster public education about Perkins and astronomy.

Oh yeah, please consider buying a lottery ticket and using your winnings to buy the golf course and give it to Perkins. ;-)

See you at the January Meeting!

Bill Hurley

Find Us on Facebook

CAS has been using the Yahoo Group http://tech.groups.yahoo.com/group/The_CAS/ for nine years now and it is a good way to keep in touch with club activities. While Tom Burns uses this as a way to remind us of programs at Perkins, I've created two new unofficial Facebook options for those with particular interest in Perkins Observatory.

For those who enjoyed a visit to the observatory, share your pictures on our Perkins Observatory Fan page at <http://bit.ly/6rLZVp> -- let your friends know about it after you've done so. No flash photography during observing sessions, please.

For those willing to support the Observatory more actively, please sign up for the Friends of Perkins Observatory Facebook Group at <http://bit.ly/5jIo5c> -- our Friends group uses this group to talk with each other and keep an eye on issues that affect the observatory.

If you have an interest in the Observatory, please consider joining one or both and actively participating. When you post to either page, the results get posted to your friends. This is a great, free way to share our hobby and promote Perkins Observatory as the unique cultural and historic site it is.

(Continued from page 1)

or February. We don't have all the details yet, but plan to have things ironed out by the January 9th CAS meeting. And, of course, we will post information about it on our website and in the Yahoo group. Upcoming new moons are January 15th and February 14th.

Bill Hurley will be presenting the "Powers of 10" at the upcoming CAS meeting. I had the opportunity to see this presentation recently at the Marysville Public Library. You are in for a treat! See you at the meeting!

Clear Skies,
Jason Hissong

The CAS Watering Holes

Members of the Columbus Astronomical Society have several places they can use in the pursuit of their interests. First and foremost is Perkins Observatory. CAS members are welcome to use the lawn any time, but particularly when Tom Burns has a full program! Go to <http://www.perkins-observatory.org/> to keep track of their activities.

AEP has set aside a small tract of land for the CAS use. You will need a permit from AEP for the overnight use of the site. For more information, go to the CAS website (<http://www.the-cas.org>) and select observing sites. This site is quite dark (for Ohio), and quite primitive. You may camp here.

The same web site also tells you how to observe at Hocking Hills State Park. The Conkle's Hollow parking lot can be used with previous authorization, and members must leave by 1AM.

The Hut is a collection of small observatories used by members of the astrophotography SIG. While this site is not open to all members, the group occasionally hosts small star parties.

The Yahoo group is the CAS main medium of communication. Members discuss plans, news, and assorted astronomical topics. It is usually the first place to announce sale of equipment, or request help. Join the group by going to http://tech.groups.yahoo.com/group/The_CAS/ and sending an e-mail to the group. Once your membership is verified, you can participate.

As Jay Elkes announced, Perkins Observatory is in Facebook. Join as a friend of Perkins.

Another perk of membership is the use of the society's C-14. Contact Ted Saker for more information. Several members already have access to this fine instrument.

Possibly our biggest asset is our membership, from beginners to advanced amateurs. Many can guide you to some of the finest spots to observe in Ohio and even out of state. And no one is so advanced that cannot learn, or so green that cannot teach. Join us at our next meeting!

Sunglasses for a Solar Observatory

By Patrick Barry

In December 2006, an enormous solar flare erupted on the Sun's surface. The blast hurled a billion-ton cloud of gas (a coronal mass ejection, or CME) toward Earth and sparked days of intense geomagnetic activity with Northern Lights appearing across much of the United States.

While sky watchers enjoyed the show from Earth's surface, something ironic was happening in Earth orbit.

At the onset of the storm, the solar flare unleashed an intense pulse of X-rays. The flash blinded the Solar X-Ray Imager (SXI) on NOAA's GOES-13 satellite, damaging several rows of pixels. SXI was designed to monitor solar flares, but it must also be able to protect itself in extreme cases.

That's why NASA engineers gave the newest Geostationary Operational Environmental Satellite a new set of sophisticated "sunglasses." The new GOES-14 launched June 27 and reached geosynchronous orbit July 8.

Its "sunglasses" are a new flight-software package that will enable the SXI sensor to observe even intense solar flares safely. Radiation from these largest flares can endanger military and civilian communications satellites, threaten astronauts in orbit, and even knock out cities' power grids. SXI serves as an early warning system for these flares and helps scientists better understand what causes them.

"We wanted to protect the sensor from overexposure, but we didn't want to shield it so much that it couldn't gather data when a flare is occurring," says Cynthia Tanner, SXI instrument systems manager for the GOES-NOP series at NASA's Goddard Space Flight Center in Greenbelt, Maryland. (GOES-14 was called GOES-O before achieving orbit).

Shielding the sensor from X-rays also reduces the amount of data it can gather about the flare. It's like stargazing with dark sunglasses on. So NASA engineers must strike a balance between protecting the sensor and gathering useful data.

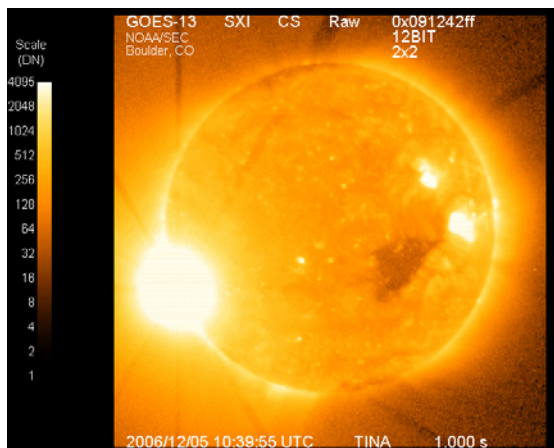
When a dangerous flare occurs, the new SXI sensor can protect itself with five levels of gradually "darker" sunglasses. Each level is a combination of filters and exposure times carefully calibrated to control the sensor's exposure to harmful high-energy X-rays. As the blast of X-rays from a major solar flare swells, GOES-14 can step up the protection for SXI through these five levels. The damaged sensor on GOES-13 had only two levels of protection—low and high. Rather than gradually increasing the amount of protection, the older sensor would remain at the low level of protection, switching to the high level only when the X-ray dose was very high.

"You can collect more science while you're going up through the levels of protection," Tanner says. "We've really fine-tuned it."

Forecasters anticipate a new solar maximum in 2012-2013, with plenty of sunspots and even more solar flares. "GOES-14 is ready," says Tanner.

For a great kid-level explanation of solar "indigestion" and space weather, check out spaceplace.nasa.gov/en/kids/goes/spaceweather.

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



Huge solar flare in December 2006, as seen by GOES-13's Solar X-ray Imager.

January 2010

Columbus Astronomical Society Calendar

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
January 7th is the 400th anniversary of Galileo's discovery of Jupiter's four largest moons.					1 Moon at perigee	2
3 Quadrantids meteor shower	4 Earth at perihelion Mercury at inferior conjunction	5	6	7 	8	9 CAS meeting 8PM
10	11 Venus at superior conjunction	12	13	14 Perkins New Vistas program	15 Annular solar eclipse (Africa and Asia)	16 Moon at apogee
17	18	19	20	21	22	23
24	25	26	27 Mercury at greatest Western elongation	28 Mars closest approach to Earth	29 Mars at opposition	30 Moon at perigee
31						

February 2010

Columbus Astronomical Society Calendar

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
7	8	9	10	11	12 Moon at apogee	13 CAS meeting 8PM
14 Chinese New Year	15	16	17	18 Perkins Observatory New Vistas	19	20
21 	22 Vesta's closest approach to Earth	23	24 PF Articles deadline	25	26	27 Moon at perigee
28 Jupiter in conjunction						

Columbus Astronomical Society
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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.

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*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.

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Annual Family Membership Fee: \$25 _____

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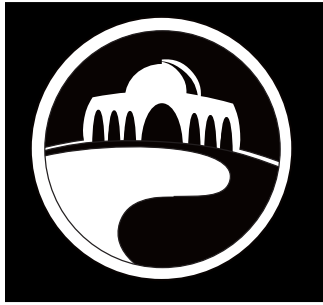
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NIGHTTIMES

The Newsletter of Perkins Observatory Jan. 2010

NEW VISTAS IN ASTRONOMY for 2010 Last Chance to Purchase Season Passes!

This mini-course in astronomy will allow you to learn about the latest discoveries by astronomers and, weather permitting, to observe a variety of celestial objects with the 32-inch Schottland reflecting telescope. This year, we are pleased to present presenters from both Ohio State and Ohio Wesleyan's Departments 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.

14 January (Thursday) 8 P.M.

Galaxy Clusters: Evolution without Elbow Room by Paul Martini

18 February (Thursday) 8 P.M.

The New, Improved Hubble Space Telescope by Bradley Peterson

11 March (Thursday) 8 P.M.

Planets in Distant Parts of our Milky Way Galaxy by Andrew Gould

8 April (Thursday) 8 P.M.

Quasars: The Quest Continues by Matthias Dietrich

13 May (Thursday) 8 P.M.

What Galaxies Do, How Galaxies Work by Todd Thompson

10 June (Thursday) 8 P.M.

The Biggest Unsolved Problems in Astronomy by Donald Terndrup

15 July (Thursday) 8 P.M.

How to Make a Planet by David Ennis

12 August (Thursday) 8 P.M.

Do We Know What the Sun is Made Up Of? by Anil Pradhan

16 September (Thursday) 8 P.M.

The Rise and Fall of the Infinite Universe by Barbara Ryden

14 October (Thursday) 8 P.M.

Archaeoastronomy in the Southwestern United States by Barbara Andereck,
Ohio Wesleyan University's Department of Physics and Astronomy

11 November (Thursday) 8 P.M.

Einstein's Elevator: A Brief Introduction to General Relativity by Robert Harmon,
Ohio Wesleyan University's Department of Astronomy and Physics

9 December (Thursday) 8 P.M.

The Multi-Object Double Spectrograph on the Large Binocular Telescope by Richard Pogge

Taurus The Bulletin Board

CAS members, please help with telescopes. Teachers, please reserve dates for field trips as soon as possible.

★January 8 (Friday) 8 P.M.

Guest Night. Tickets available.

★January 9 (Saturday) 12 P.M.

CAS Amateur Telescope Making and Radio Astronomy groups.

★January 9 (Saturday) 8 P.M.

Regular meeting of the Columbus Astronomical Society.

★January 14 (Thursday) 10 A.M.

Emerson Elementary 2nd graders.

★January 14 (Thursday) 8 P.M.

New Vistas in Astronomy featuring Paul Martini from OSU on "Galaxy Clusters: Evolution without Elbow Room."

★January 15 (Friday) 8 P.M.

Guest Night. A few tickets available.

★January 16 (Saturday) 12 P.M.

CAS Amateur Telescope Making and Radio Astronomy groups.

★January 22 (Friday) 8 P.M.

Guest Night. Plenty of tickets available.

★January 23 (Saturday) 10 A.M.

CAS Amateur Telescope Making and Radio Astronomy groups.

★January 23 (Saturday) 6:30 P.M.

90 Girls Scouts! Please help if you can.

★January 28 (Thursday) 7 P.M.

3rd - 6th grade teachers from the Teaching and Learning Collaborative.

★January 29 (Friday) 8 P.M.

Guest Night. Some tickets available.

★February 5 (Friday) 8 P.M.

Guest Night. Tickets available.

★February 12 (Friday) 8 P.M.

Guest Night. Tickets available.

Your Help is Urgently Needed

Our public activities couldn't happen at all without the support of our parent institution, Ohio Wesleyan University, thousands of kind donors, and our hard-working volunteers, many of whom come from the Columbus Astronomical Society. Our heartfelt thanks to all!

Please contribute to Perkins Observatory in any way you can. Volunteer your telescopic skills at our public programs. Buy a season pass to the New Vistas lectures above. Become a member of the Friends of Perkins Observatory so that you can attend any or all of the Friday, clear-night programs throughout the year. Make a contribution to our Operating or Endowment funds. Donate your relatively recent computers and astronomical equipment.

It's no secret that the "O" faces many challenges in the coming year. Those of us who love Perkins with an abiding passion are resolved to do whatever it takes to keep the "O" a real, functioning, public observatory that shows everyone the stars in all their glory. Please join us.

Lots of Ways to Reach Us

Phone:

(740) 363-1257

Mail:

P. O. Box 449, Delaware, OH 43015

Email:

perkins@owu.edu

Web site:

www.perkins-observatory.org

Fax:

(740) 363-1258

New Vistas in Astronomy Ticket Order Form

Series Passes

_____ passes @ \$60 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 letter 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 enclosed "adoption" form or 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.