COLUMBUS ASTRONOMICAL SOCIETY

Prime Focus

Volume 57 Number 11 November 2008
The Columbus Astronomical Society Newsletter

Contents

Notice to CAS Members

On November 8th, 2008, during the general meeting at Perkins Observatory, there will be a reading of the proposed amendments to the Articles of Incorporation, the Constitution and bylaws approved for submission to the CAS membership on September 13th, 2008 by the Board of Trustees. A "reading" means that the membership can ask questions of the proponents of these proposed amendments, and debate the procedural and substantive issues. CAS members should be aware that any member may submit his or her own proposed amendment(s) to the articles, constitution and bylaws (*see Article 14*) provided they do so **in writing** at any general meeting. Voting on the published proposed amendments will take place on December 13th, 2008 at the CAS general meeting.

See the text of the proposed amendments online at Files > CAS Official Documents > 080913_ProposedAmendments.pdf at http://tech.groups.yahoo.com/group/The_CAS/ as well as a copy of the current Articles, Constitution and Bylaws. The text of the proposed amendments showing both the old and proposed new language was published in the October ***Prime Focus*** as per Article 14. See Ted Saker, Jr's "Open Letter" in this issue for further explanation.

Respectfully submitted,

Byron Winchell
Secretary

From the President

Greetings fellow stargazers:

We have some very important club business to conduct at the November CAS meeting. Last month, the Prime Focus included a supplement with proposed changes to the CAS Constitution. I hope everyone had the opportunity to review the supplement and voice any concerns or suggestions. This month, you will find a letter from Ted Saker attached to the PF that summarizes the proposed changes. Next month, if all goes well at the November meetings, we'll vote to ratify the changes into CAS law. We will need a quorum at the December meeting for the vote, so c'mon out for the Christmas potluck dinner and participate in this important CAS business.

Q: Why is it necessary to change the Constitution?
A: Because the O&T failed to assemble a quorum at 3 consecutive meetings last summer which brought the constitutional definition of "quorum" into question. Ted Saker recognized language and definitions in the Constitution that needed a tune-up. He offered to revise language and standardize the definition of quorum though out the Constitution. We identified several areas that needed updated because of organizational changes we made with how the CAS conducts its business. I'll let Ted's letter and the supplement we published in the PF last month provide the details. But that's what started it.

Several distinguished CAS members voiced a concern with the ratification process. The O&T will hold a special meeting at Perkins on November 8th at 18:30 to discuss the existing ratification plan and provide an opportunity for any concerned or interested members to address the officers and trustees. We'll discuss the current plan and decide if we should deviate from the constitutionally defined ratification process. Then we'll discuss and debate the proposed changes at the general business meeting at 20:00.

See you there…

Regards,
Tom Beck
CAS, President

What's Up
Brad Hoehne

What's Near

Welcome to cloudy November. After a long run of glorious weather- the period between late August and late October is the clearest of our calendar- the clouds of winter begin to roll in. Central and northern Ohio are particularly prone to what is known as the *lake effect* in which cool, dry artic currents of air pick up moisture from relatively warm bodies of water. Downwind, this moisture condenses into thick, stubborn clouds. In Columbus, we're frequently blanketed by such clouds rising off of Lake Erie and Lake Michigan. Here is an alarming picture of this:
http://earthobservatory.nasa.gov/Newsroom/NewImages/Images/seawifs_lake_effect_lrg.jpg
The fact that that night is now longer hopefully provides a little bit of solace.

Jupiter and Venus close in on one another during November. Both can be seen in the southeastern sky right after sunset. Venus begins the month in twilight, and reaches higher and higher. Jupiter, though it creeps ever eastward across the celestial sphere, is dragged even faster into the western twilight by the merciless *sidereal* motion- the 4 minutes-a-day progression of the celestial objects westward caused by the earth's motion about the sun. On December 1, the planets meet and, by happy coincidence, are joined by a **crescent moon** in a photo-worthy conjunction.

Higher up in the early evening are **Neptune and Uranus.** In mid-November, they can be found book-ending the constellation of Aquarius in the southern sky about an hour after sunset. They are, of course, worthy telescopic objects, but whose disks require high magnification to detect.

Early risers will catch **Saturn** high in the morning sky, roughly 45 degrees off the eastern horizon at 5:00 a.m. In less than a year- on September 9, 2009- we will make a *ring plane crossing* in which Saturn's rings will appear to us completely edge on and may, for a short while, disappear from view. Unfortunately, this will occur at time when the ringed planet is very near to the sun in the sky, and very difficult to observe. We can, however, enjoy the strange sight of the rings becoming thinner and thinner over the next 8 months.

If the weather is clear, the sky is moonless, and you're observing from a good dark-sky site, you may be able to see the morning **zodiacal light** jutting up into the sky not quite perpendicular to the horizon. Under good conditions, this triangular wedge of faint light, less bright as the milky-way, may seem to reach up as high as Saturn's perch in Leo… or higher. The zodiacal light is known to be caused by the light of the sun reflecting off of trillions of tiny particles orbiting the sun roughly in the same plane as planets. However, not much *else* is known. What are these particles? Are they left over from the formation of the Solar System or are they ejected from comets and asteroids? How large are the particles? How stable are their orbits? Does the zodiacal light get dimmer and brighter over time? Most of these questions have only tentative answers.

One well-known astronomer who has done research in this area is Brian May. Brian May began his doctoral work in Astronomy in the early 1970's, but was diverted from this when he enlisted as guitar player in the phenomenally successful rock group Queen. Following a 36 year deployment as musician, he re-entered civilian life and completed his thesis in October 2007. May's work lends evidence to the idea that the *cosmic dust* (the particles that are illuminated and create the zodiacal light) is largely left over from the formation of the solar system.

What's Far

The southern reaches of the summer milky-way are being swept up in evening twilight. High overhead a new stretch of the milky-way has become prominent. From Cepheus, to Cassiopeia to Perseus, to Auriga, the late fall milky-way is less bright than the summer milky-way, but it is similarly rich in treasures. Here are some of the best ones in the heart of the milky-way. From west to east:

Midway between Delta-Cephei and the star Caiph in Cassiopeia lies the bright, rich open cluster **M52**. Easily visible in binoculars or a finder scope as a round fuzzy patch, this object swims in deep streams of milky-way stars. In small telescopes (and even large binoculars) it blooms into as many as 100 stars. Nearby, 1.5 degrees south-southeast of Caiph is another, more subtle, open cluster which, in telescopes, is one of the most lovely in the sky. **NGC 7789,** also known as "Carolyn's Cluster" after Carolyn Hershel, sister and assistant of the famous enlightenment astronomer William Hershel- is an exceptionally rich and even cluster of hundreds of stars.

At the other end of Cassiopeia lies **M103**. While this cluster is not nearly as rich as M52 or NGC 7789, it is nonetheless beautiful for the striking color three bright stars across its face: one reddish, one bluish, and the third pure white. M103 is 8,500 light years distant- rather far for such a bright open cluster.

Surrounding the bright star Alpha-Persei, also known as **Mirfak,** is a much closer open cluster. It is known, appropriately, as the **Alpha Persei association.** Near enough for its distance to be measured directly by the Hipparchus satellite, this center of this loose cluster is known to be 601 light years distant- only about 30% further out than the **Pleiades.** Unlike the Pleiades, this cluster is very large, covering roughly 25 square degrees of sky, and very diffuse. The best way to explore it is with a pair of low power binoculars. Even the most modest of telescopes has too narrow a field of view to take in its expanse.

Rising in the east, in the early evening, is the constellation Auriga, with its three bright open clusters **M38, M36 and M37.** First up is M38, which, to my eye, seems to be an average cluster in every respect. It is moderately rich, moderately diverse, and moderately colorful (look for the bright yellow-giant across its face.) Rising right behind is M36, a cluster that has been compared to the Pleiades. If the Pleiades were at the same distance as M36, roughly 4000 light years (or 10 times further away than now) the two would look very similar. Finally, M37 is the prettiest of the bunch- a distant, even patch of stars with an orange-yellow giant just off center, like a giant egg with a pinpoint yolk.

What's Faint

In the 1960s, astronomer George O. Abell, scanning the plates taken from the Palomar Sky Survey of the 1940s and 1950s, compiled a list of 86 then-not-yet-cataloged planetary nebulae. Given the fastidiousness of previous all-sky surveys by Dreyer and

others, it would seem that the crumbs left to Abell would be too faint for amateur astronomers to see. However, given clear skies, persistence, and (perhaps) large optics, you may find that this is not the case.

If we stick with Abell planetaries near the heart of the milky-way, we first come across **Abell 75**, again near Delta-Cephei. At magnitude 13.5, this one arcminute-sized disk should be an extreme challenge to those with 8" telescopes. As with the other Abell planetaries, an O-III or UHC filter helps bring out this faint object from the background. Averted vision is must for those with medium-sized optics. Those with larger scopes will find it fairly easy without a filter.

Also in Cepheus, is **Abell 81**. This object is bit smaller and a bit dimmer than Abell 75, but, in large scopes is about as easy to see, since its surface brightness is higher.

In Cassiopeia, **Abell 82** is an extreme challenge in scopes of all sizes. Because it is roughly the same brightness as, but larger than either Abell 75 or 81, it is somewhat lower in surface brightness. Even in an 18" telescope, this one is hard to pluck from the background without averted vision. However, once found, its central star, magnitude 14.9, is quite easy by comparison.

The brightest, largest, and easiest of the bunch is **Abell 84**, also in Cassiopeia. In photographs, this strange 13th magnitude planetary looks quite a bit like a stylized apple core. In all but the largest telescopes, however, it appears perfectly round and smooth. In an 18" scope, one can just begin to make out slight darkening where the "bites" have been taken from the apple, but, again, only with averted vision.

In observing objects with in the Abell planetary catalog, it is fun to realize that you are seeing things that many generations of great catalogers missed or neglected. To me, this says that for even the longest human lifetime the sky will never run out of treasures.

Have a great month!

Helix Nebula by Jason Hissong
September 2005

Column 3 of 6 on Studying the Moon
Observing Along the T: Creature Features

Michael Packer

On club night, Saturday November 8, the moon will transit around 8:40pm and Uranus will be directly 4° south. The lunation will be 11.10 days and several distinct features should be in good position along the T.

260 km wide impact crater, Sinus Iridum or Bay of Rainbows can be seen without a telescope and is one of the most enjoyed regions by amateur astronomers. Under moderate magnification the Jura Mountains which form the northwest wall of the basin, rise a surprising 18,000 ft. above the lunar bay. On the north rim, 40km Bianchini transformed a section of this range into a mass landslide that extends out in the bay and can be studied using a small refractor.

At the ends of the Jura-range rainbow are the two towering capes Laplace and Heraclide. In 1679, Giovanni Cassini first depicted the southern cape Heraclide as a moon maiden whose hair streams behind her as she gazes sunward across the bay. Using a scope and monitor, Lucy Whitehouse sketched this image of Promontorium Heraclides when she was 14.

Moon Maiden: Cape Heraclide

I myself imagine both capes as mariner landmarks, but I will save that story for the next column "Sailing the Lunar Seas".

Sometime after the formation of the Mare Imbrium 3.85 bya, the Iridum basin impact struck from the northwest. Subsequent mare lava unremittingly filled the area, faulting the Imbrium floor and taking Sinus Iridum's southeast mountain range down with it! At the mouth of Rainbow Bay, look for a few unnamed dorsa or mare ridges and you might get a hint that the basaltic lava plain of Imbrium sea is some 2000 ft. higher than the bay's.

Before I delve further into my favorite regions, Table 1 below lists the range of lunar features you'll want to familiarize yourself with.

Table 1 Lunar Features

BASIN - LARGE IMPACT CRATER	PALUS - MARSH
CRATER	PLANITIA - PLAIN
CATENA - CRATER CHAIN	PROMONTORIA - CAPE
DOME - SHIELD VOLCANOE	RAY - CRATER RAY
DORSA (DORSUM) - MARE RIDGES	RIMA (RIMEA) - RILLE
LACUS - LAKE	RUPE - SCARP OR FAULT
MARE (MARIA) - SEA	SINUS - BAY
MONS (MONTES) - MOUNTAIN	VALLIS - VALLEY
OCEANUS - OCEAN	

In this article, I have already introduced several of the features listed and for the CAS night, there's one more worth mentioning.

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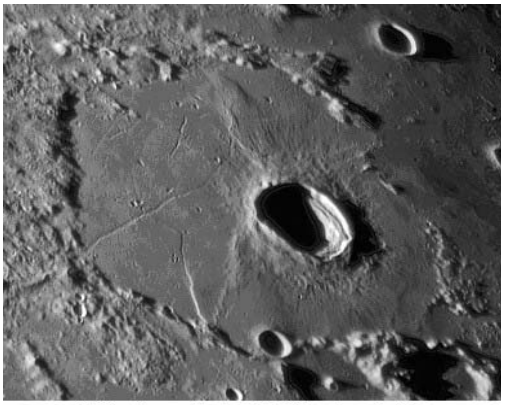
The domes Mons Gruithuisen Gamma and Delta are located about 200km south of Rainbow Bay and are thought to be more earth-like volcanic rock rich with silica. Unlike basaltic (mare) lava which flows in a more fluid manner, silica rich lava can form dome structures or shield volcanoes. At 10PM both Gamma and Delta should be visible at the T and should look positively Olympian. Gruithuisen Gamma is the more westerly of the two domes and spans 20 km in diameter, rising to 3900 ft. above the surface. In the centre of the dome is a small 900m diameter crater. Gruithuisen Delta is slightly smaller at 13 km but stands 5000 ft. above the surface (*source: esa*).

There's a lot more to see on this lunation and others so I'm going to pick up the pace. Further south along the T, look for Gassendi and the ramified rilles inside. South of Gassendi, look for "Schiller's Shoe" created by an oblique impact forming linear central peaks to the west.

Other phases other maria: There are lots of mare regions named after seas but a lake that proves as interesting anytime it's near the T is Lacus Mortis. A nice Harry Potter name meaning Lake of Death. My favorite time to observe the lake, and probably how it got its name, is around Lunation 20.30. Half the crater is then surrounded by shadows from its own mountains west and the dark terminator to the east. The basaltic lava bed inside looks murky and much darker than the Lake of Dreams just south.

And at this lunation, the network of rilles appear as scares in eerie relief. If you look at the lake a month later (remember the ½ day effect in a 29½ lunar month) you'll see the entire 104 km crater similar to the image below taken by Wes Higgins. Notice how the southern most fault appears to turn into a sunken lava tube at its northern end?! Very



104 km Lacus Mortis with 41km Bürg inside

strange and some speculation has gone into explaining the stresses that formed this rille.

Speaking of Rilles, you can see the 3 basic classes on either side of the Apennine Mountains over the course of several phases (*really*). I like lunar day 21.00 but it's a fact that studying rilles under different lighting is a must to appreciate their intricate meanderings and structure. In any case, look for Rima Fresnel (Concentric rille), Rima Archimedes (Linear fault), and Rima Conon (Volcanic or sinuous rille). The later is on the back side of the Apennines. To learn more about rilles see http://en.wikipedia.org/wiki/Rille.

Landing sites: At the base of the Apennines you can also see Rima Hadley and the Apollo 15 landing site but you'll want a medium to large scope. Also, besides a safe landing, there was rhyme and reason for the Apollo 11 landing site. The landscape is complete with interesting features with Crater Sabine, Maskelyne G and the Rimae Hypatia network to the south. To the north the shield Volcanoes Arago Alpha/Beta are superb. To the east is 5 km ALC class crater Armstrong surrounded by faint dorsa. If you're an early riser you can see this area under great illumination 5am 11/18/08 (~20.40). But the fortune in the cookie is taking in the scenery of the 1st manned mission to the moon.

Clair-obscur effects: While observing along the T, one is occasionally hit with the interplay of light and shadow giving false but fun impressions of features such as giants letters like "X" and "V", a giant staircase, and bridges. These impressions have been coined clair-obscur (French for light and shadow).

The lunar "X" and "V" can be seen on lunation 7.00 (4 hrs after 1st quarter) just inside the terminator near craters Werner and Ukert respectively. The Zeno Steps can be seen on lunation 16.00. See the-moon.wikispaces.com for more info.

But my favorite effect is O'Neil's Bridge at Promontorium Lavinium/Olivium. The effect got its name after John O'Neill (former science editor of the old NY Herald Tribune) who saw this fictitious arch one night in 1953. I found it's tricky to observe because the effect only lasts ~20 minutes. But if you see it under the right light there's little question of it resembling a bridge @ 125-175x. It's really cool because you see a sunbeam seemingly illuminate a narrows before going through the arch. The beam then emerges and leads to an area some 15 km on the other side of the terminator. If you're interested, I suggest using VMA and start observing ahead of time at 17.90.

What's next and the Copernicus crater chain: The next column will be on sailing the lunar seas followed by libration and a last column covering secondary impacts and crater ages. But I would be remiss if I did not point out at least one neat crater chain that can be seen along the T.

Like Tycho rays, crater chains are secondary impacts that delineate the considerable blast radius and energy from a ground zero crater. But not all crater chains are secondary impacts. Comet Shoemaker-Levy 9 was living proof that comets can break up and linearly strike a gravitational body. Also the craters that pepper Rima Hyginus are rimless eruptions craters rising from the linear fault. But the numerous and extensive crater chains between Eratosthenes and Copernicus are from Copernicus.

From the dimensions and class of Copernicus, Eugene Shoemaker calculated that the asteroid that formed the crater was traveling at 17 km/s. And from the observed distribution of the secondary craters, Shoemaker further calculated that the craterlets could develop from 0.1-0.5 km rock fragments ejected from this 17 km/s impact.

Now wrapped around each craterlet are herringboned shaped dunes pointing back to Copernicus. To explain this feature, experiments from the NASA-Ames were conducted and showed that two projectiles that hit a target surface at same time, as with secondary craters, form waves of expanding ejecta. This expanding ejecta in turn interferes and falls back forming herringbone shaped piles – pointing back to the source. QED! The match be-

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tween these experiments and Orbiter photos around Copernicus were dead on. (See C. Wood's book).

So - if you look under low light (lunation 22.8 days) at this crater chain, you should be able to make out these craterlets and herringbone structures. But as with ejecta rays, I strongly suggest studying this region under a variety lighting angles. It's crackerjack.

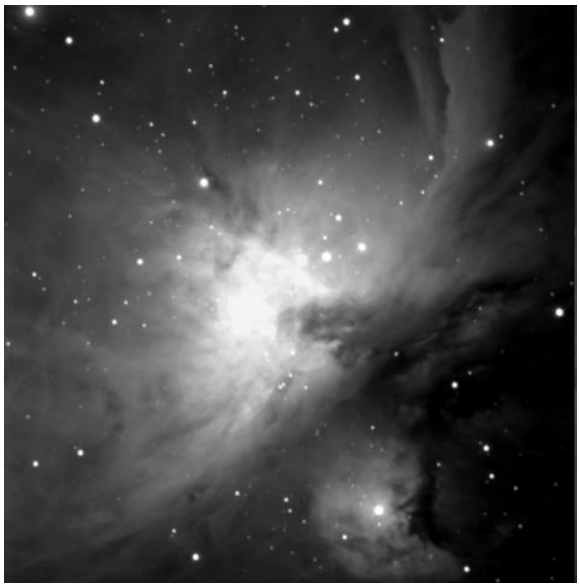
For Sale:

I have another item for sale.
New Price!

Burgess Refractor 1278 5 inch f8 1000mm
Includes rings and original 2 inch diagonal
with 2 to 1.25 compression ring adapter.
Reduced asking $250 or best offer.

Will be at next meeting, November

Email at n7xgr at excite.com
Saludos de Bruce N7XGR



Orion Nebula by Bill Cannistra
10-21-07 24" OMI Cassegrain @ f10 6,100mm. Kodak KAF09000 CCD. 5x60sec. Stack-5; Linear Stretch; Dig Dev; Levels

October 21, 2007

Bill and Ted's Excellent Astro-Pictures web site has a new home. Update your bookmarks.
http://www.eclipse-chasers.com/astro/newAstro.html

Wired for Astronomy

Time...What is time? Why does it fly when you're having fun? Here are a few sites of interest…

What is time? Here's an interesting essay that tries to answer that question:http://www.thekeyboard.org.uk/What%20is%20Time.htm

Here's another "explanation" of time: http://www.fortunecity.com/emachines/e11/86/whattime.html

http://www.astro.uu.nl/~strous/AA/en/antwoorden/tijd.html tries to answer a list of questions related to time and astronomy.

http://scienceworld.wolfram.com/astronomy/Time.html explains a number of standards used by scientists.

What does Greenwich Observatory have to do with how we measure time? Read its history here: http://www.nmm.ac.uk/explore/astronomy-and-time/astronomy-facts/history/little-known-facts-about-time-astronomy-and-the-rog

Math lovers: here's a site that deals with time and relativity (danger, equations ahead): http://galileoandeinstein.physics.virginia.edu/lectures/srelwhat.html

Interested in the history of time? Maybe this site will explain all: http://physics.nist.gov/GenInt/Time/time.html

Is the end of time coming? Mayan astronomy/astrology predicts we only have a few years left. Go to http://www.helium.com/knowledge/104317-mayan-astronomy-the-end-of-time-or-a-new-beginning-in-2012 and read all about it!

And is it true time flies when you're having fun? Here's a theory… http://news.bbc.co.uk/2/hi/health/3532195.stm

OOPS...I'm, out of time! Until next month...

The Chemical Weather Report

"Sunny tomorrow with highs in the mid-70s. There's going to be some carbon monoxide blowing in from forest fires, and all that sunshine is predicted to bring a surge in groundlevel ozone by afternoon. Old and young people and anyone with lung conditions areadvised to stay indoors between 3 and 5 p.m."

Whoever heard of a weather report like that?

Get used to it. Weather reports of the future are going to tell you a lot more about the atmosphere than just how warm and rainy it is. In the same way that satellite observations of Earth revolutionized basic weather forecasting in the 1970s and 80s, satellite tracking of air pollution is about to revolutionize the forecasting of air quality.

Such forecasts could help people plan around high levels of ground-level ozone—a dangerous lung irritant—just as they now plan around bad storms.

"The phrase that people have used is chemical weather forecasting," says Kevin Bowman of NASA's Jet Propulsion Laboratory. Bowman is a senior member of the technical staff for the Tropospheric Emission Spectrometer, one of four scientific sensors on NASA's Aura satellite.

Aura and other NASA satellites track pollution in the same way that astronomers know the chemical composition of stars and distant planetary atmospheres: using spectrometry.

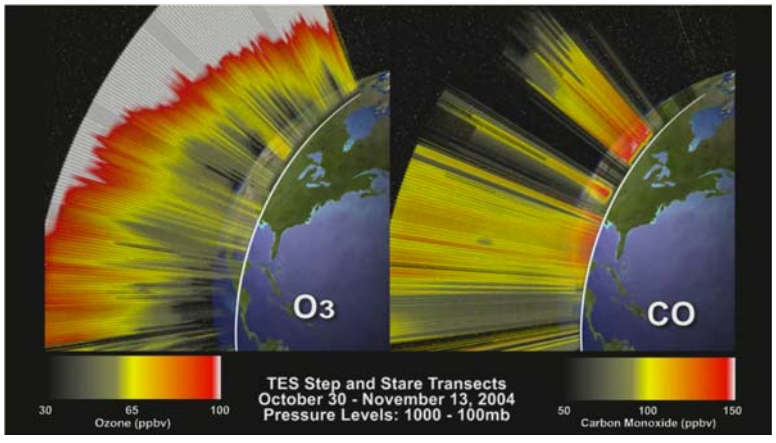
By breaking the light from a planet or star into its spectrum of colors, scientists can read off the atmosphere's gases by looking at the "fingerprint" of wavelengths absorbed or emitted by those chemicals. From Earth orbit, pollution-watching satellites use this trick to measure trace gases such as carbon monoxide, nitrogen oxide, and ozone.

However, as Bowman explains, "Polar sun-synchronous satellites such as Aura are limited at best to two overpasses per day." A recent report by the National Research Council recommends putting a pollution-watching satellite into geosynchronous orbit—a special very high-altitude orbit above the equator in which satellites make only one orbit per day, thus seeming to hover over the same spot on the equator below. There, this new satellite, called GEOCAPE (Geostationary Coastal and Air Pollution Events), would give scientists a continuous eye in the sky, allowing them to predict daily pollution levels just as meteorologists predict storms.

"NASA is beginning to investigate what it would take to build an instrument like this," Bowman says. Such a chemical weather satellite could be in orbit as soon as 2013, according to the NRC report. Weather forecasts might never be the same.

Learn more about the Tropospheric Emission Spectrometer at tes.jpl.nasa.gov. Kids can learn some elementary smog chemistry while making "Gummy Greenhouse Gases" out of gumdrops at spaceplace.nasa.gov/en/kids/tes/gumdrops.

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



Example of visualization of data from the Tropospheric Emission Spectrometer. These frames are from an animation that steps through transects of the atmosphere profiling vertical ozone and carbon monoxide concentrations, combining all tracks of the Aura satellite during a given two week period.

News Release - IYA0803: UNESCO and the IAU sign key agreement on Astronomy and World Heritage Initiative

Oct 30, 2008, Paris

A Memorandum of Understanding is to be signed today, 30 October 2008, between UNESCO and the International Astronomical Union (IAU). The IAU will be integrally involved in the process of developing UNESCO's Astronomy and World Heritage Initiative, helping to promote astronomical sites of "Outstanding Universal Value".

The world-famous UNESCO World Heritage Convention is renowned for its work protecting and promoting sites that celebrate the heritage of humanity. Examples include the Pyramids of Giza in Egypt, the Mayan city of Chichen Itza in Mexico, and the Stonehenge in the United Kingdom.

However, astronomical heritage is currently underrepresented. All too often, neglect and mistreatment cause irreversible harm. The new Memorandum will place the Astronomy and World Heritage Initiative in a better position to reverse this trend by raising awareness of the cultural importance of astronomical sites, both ancient and modern.

Adopting the successful strategy previously applied to architectural and natural sites, the new UNESCO Astronomy and World Heritage initiative will officially recognise, promote and preserve astronomical sites that are of outstanding significance to humankind. The places in question include landmarks whose design or location relate to celestial events, whether with symbolic or direct connection with astronomy. Historic sites, instruments and representations help to broaden and enhance our perception of the sky. This theme is integral to the upcoming International Year of Astronomy 2009. The initiative is therefore designated as one of the Year's key Cornerstone projects, which are being organised to increase public understanding and appreciation of astronomy throughout the coming year and around the world.

In order to fulfil its commitment to the UNESCO Initiative, the IAU has set up a new Working Group on Astronomy and World Heritage under the chairmanship of Professor Clive Ruggles, Emeritus Professor of Archaeoastronomy at the University of Leicester, UK. Ruggles, who is also Vice-President of the IAU's Commission 41 on the History of Astronomy, has already worked with UNESCO in the early stages of developing the initiative. He said: "The globalisation of human culture is proceeding at a relentless pace, and it is becoming increasingly urgent to preserve some of the more fragile aspects of our common cultural heritage. 'Fine', you might say, 'but why worry about astronomy in this regard?' The main reason, I think, is that every human culture has a sky, and strives to interpret what people perceive there. The understanding they develop inevitably comes to form a vital part of their fundamental knowledge concerning the cosmos and their place within it. Astronomy is not just a modern science but a fundamental reflection of how all people, past and present, understand themselves in relation to the Universe."

At present, States Parties to the World Heritage Convention may nominate sites for inscription on the World Heritage List for a variety of reasons; but until now, there have been few precedents and no guidelines for nominations relating principally to astronomy. Identifying and defining criteria that demonstrate "Outstanding Universal Value" in relation to astronomy is not a straightforward task. They must encompass a wide range of sites, from prehistoric monuments to modern observatories. Helping to establish such criteria is the IAU Working Group's top priority. As Ruggles says, "without such guidelines member states of UNESCO will have little motivation to put forward astronomical sites for the World Heritage List, since they will have very little idea of their chances of success."

The agreement between UNESCO and the IAU is designed to set the wheels in motion. As a result, astronomical heritage will become much better represented in the World Heritage List.

Founded in 1919, the IAU is the world's largest professional body for astronomers, bringing together almost 10 000 distinguished astronomers from all nations of the world. Its mission is to promote and safeguard the science of astronomy in all its aspects through international cooperation. The IAU also serves as the internationally recognised authority for assigning designations to celestial bodies and surface features on them.

PF editor's comment:

Should Perkins Observatory be nominated? It used to hold the largest telescope of its time. It is the home of the original "Telescope" that eventually became *Sky & Telescope*. And at one time, its backyard had a radiotelescope that captured the "Wow" signal that, while probably manmade, has not been explained to date.

We must wait and see what the criteria for nomination and recognition are, but until then, let's keep Perkins in mind for such an honor.

Columbus Astronomical Society

AN OPEN LETTER TO CAS MEMBERS FROM THE BOARD OF TRUSTEES REGARDING THE PROPOSED AMENDMENTS TO THE ARTICLES OF INCORPORATION, CONSTITUTION AND BY-LAWS

Dear CAS Member,

As a member of the Columbus Astronomical Society, you joined the club in order to learn more about astronomy, and share your love of the night sky with other astronomers and the general public. Periodically, the members are called upon to address certain business issues because under the club's organizational documents, you have the final say in the way the club conducts its business.

The club is a corporation formed and operating under the laws of the State of Ohio. It conducts its affairs according to the provisions of its Articles of Incorporation, Constitution and By-Laws. Your Board of Trustees recently conduct a review of the CAS organization documents in order to enable the club to meet current and future operational challenges and continue to grow and carry out its mission. Challenges have arisen such as the closure of COSI's planetarium, and the difficulties Perkins Observatory faces. The club is unique in its position as the premier astronomical organization in central Ohio. The Board concluded that in order to establish a firmer foundation for growth and improvement, enhance the club's ability to face present and future challenges effectively, and modernize operations in order to conserve resources, amendments to the Articles, Constitution and By-Laws are necessary.

The Board of Trustees proposes amendments to you, the members, for your consideration in compliance with Article 14 of the CAS Articles of Incorporation. They were published as a supplement to the October, 2008 issue of the *Prime Focus*, will be read at the November, 2008 general meeting, and come up for a vote at the December, 2008 general meeting. The Board recommends ratification of the amendments. Ratification requires a vote of at least 2/3 of members in good standing attending the December, 2008 meeting, provided that a quorum exists. Article 14 defines the necessary quorum of members as 25% of the total number of members in good standing. The descriptions of the proposed amendments appearing below are intended as a reference for all members to aid in understanding the changes and to assist in arriving at a decision on a yes or no vote. A yes vote is a vote for ratification and a no vote is a vote against ratification.

The following summaries of the proposed amendments are not the exact text, just a brief outline of the proposed of the amendments to the documents. The Board of Trustees strongly advises every member to read the actual text of the proposed amendments, and attend both the November and December, 2008 general meetings. The Board of Trustees has also scheduled a board meeting prior to the November, 2008 general meeting to respond to any questions concerning the amendments.

The current versions of the Articles, Constitution and By-Laws in effect, the proposed amendments, and this summary are also available for download from the files section of the club's Yahoo group at the URL:

http://tech.groups.yahoo.com/group/The_CAS/files/

Briefly stated, the amendments change the current versions as follows:

Officers and Trustees: enhanced definitions of the elected and administrative office holders; duties of board members; procedures to fill vacancies should the need arise; formal creation of some administrative officers (appointed volunteers) to handle electronic communications needs.

Definitions: clarify definitions of the minimum number of board members present and voting at board meetings to approve basic club operating tasks; inclusion of better and practical definitions of board members, their duties, terms, board meetings, board quorums, voting requirements; clarification and simplification of the process of discipline of elected officers.

Communications: authority for use of digital communications as an approved method of notification and conducting various aspects of the society's business needs; clarification of any disputes that may arise through the use of club benefits such as online discussion forums.

Expenses: enhanced and modernized definitions for maintaining smooth operation and consistent management of the club's finances; inclusion of a modest increase of the presidential spending limit in recognition of increases in costs since 1998, the last time the limit was raised, in order to better fit the current economic times; addition of more membership options to facilitate fund raising.

The above descriptions are provided as a condensed version of the proposed changes. Please take the time to read the amendments, ask questions, and, above all, attend and vote at the December meeting. Every member's opinion is important because it's your club. The Board is grateful to everyone for their past, present and anticipated future support of the CAS as we all strive to improve its efficiency so as to better meet its present and future challenges.

Thanks and Clear Skies, your Board of Trustees October 28, 2008

November 2008

Columbus Astronomical Society Calendar

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Friday and Saturday nights are Perkins guest nights. Please volunteer.						1 Vesta at opposition- 6.5 mag.
2 Daylight Savings ends 2AM Moon at apogee	3 Taurids meteor shower peak	4	5	6 	7	8 CAS Meeting 8 PM
9	10	11	12	13 	14 Moon at perigee Space shuttle launch	15
16	17 Leonids meteor shower peak	18	19 	20	21	22
23	24	25 Mercury at superior conjunction	26 PF Articles deadline	27 	28	29 Moon at apogee
30 Mercury at aphelion						

December 2008

Columbus Astronomical Society Calendar

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1 Moon occults Venus (not visible from Ohio)	2	3	4	5  Mars at conjunction	6
7	8	9	10 Pallas at opposition (8th mag.)	11	12 	13 CAS Annual holiday dinner Genminids peak
14	15	16	17	18	19 	20
21 Winter solstice	22 Ursids meteor shower peak	23	24	25	26	27 
28	29	30	31 PF Articles deadline	Have a great holiday season and a very Happy New Year!		

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/.
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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 Email instead of USPS
Total: _____

Please Print
Name_____
Address_____
City _____State _____ Zip _____
Phone _____ (E-Mail) _____
Today's Date _____

NIGHTTIMES

The Newsletter of Perkins Observatory Nov. 2008

'Tis the Season . . .

. . . when Perkins Observatory needs your help the most! For starters, please come to a program and see all that the universe has to offer -- and visit our gift shop to pick up a few inexpensive stocking stuffers for the holiday season.

Need to find a gift for the recipient who already has everything? By participating in our 2,000 Points of Light program, you can get his or her (or your) name up on our big star map downstairs. Half of your gift will go toward our operating fund, and half goes to our Endowment program, which will help to keep the "O" going long into the future.

Or how about adopting some part of the Observatory in his or her name? Certificates can be sent to either you or the honoree. Enclosed is a copy of the brochure, which outlines the myriad adoption opportunities. You can also download a copy from our web site: <http://www.perkins-observatory.org>.

Members of Friends of Perkins Observatory, now is the time to renew your memberships. Come spring, Saturn will be visible at our weekend programs, and current members can attend all those programs for free. Please see the handy form on the reverse to renew (or join) FOPO.

Donations to our endowment provide a permanent source of funding for the "O" and are tax deductible at the same time. Donations to the Operating Fund help us with immediate needs -- for example, to pay utility bills, which average $20,000 per year!

Please help in any way you can!

NightTimes by Email: Last Call

Starting with the December newsletter, the cost of mailing will increase dramatically.

You can help us to continue and enhance our public activities at Perkins by receiving NightTimes by email. **Just send an email to <perkinsw@owu.edu> (note the "w" after "perkins"), and we'll email you a copy of the newsletter every month.**

November Skies

The Schottland Reflecting Telescope stands ready to show you the splendors of our crisp autumn nights.

Rising high are the best objects of autumn. The gorgeous globular M15 in Pegasus provides a great view. Stare with starry-eyed wonder at the Double Star Cluster in Perseus. Look deeply into space at the Great Galaxy in Andromeda, which is over two million light years away.

Later in the month, we should be able to give you a glimpse of the splendors of winter, including the unforgettable Great Nebula in Orion.

On cloudy nights, we'll tell you all about those objects using our computer-projection pseudo-planetarium and regale you with stories about the history of the observatory while we show you the beauty of the place.

Through the end of the year, programs happen every Friday and Saturday night at 8 P.M., except for the second Saturday of the month, which is the meeting of the Columbus Astronomical Society.

Program attendance is free for members of the Friends of Perkins. A small fee is charged to everyone else. Advanced tickets are strongly recommended. Members of FOPO, please call ahead to let us know you're coming. All others can order tickets by mail or by phone using a major credit card. Please call (740) 363-1257 for details.

Public Programs, 2009

Those of you who received our 2009 brochure with this newsletter will note some changes in the schedule. During 2009, we will no longer have scheduled public programs on Saturday nights.

The change will allow us to schedule special groups on Saturdays and hold impromptu observing sessions for the Friends of Perkins and the Columbus Astronomical Society. We'll also be expanding our Friday-night activities to include some holiday weekends.

Recent Gifts

A lack of space prohibits us from listing all the contributions we received last month. Many thanks! We'll acknowledge your kind efforts next time.

This month, we received several notable gifts of equipment. (Yes, we can really use your old computer equipment and telescopes.)

Scott Callahan of Powell donated a box of computer equipment, including drives, motherboards and CPU's which we will build into several computers for public use.

Patricia Demarco of OWU's English Department gave us a very nice ink-jet printer.

Maria Poeth, wife of the late Dean Poeth, contributed three of Dean's beautiful, fully loaded refracting telescopes: a 80mm Celestron First Scope, a Meade 90mm refractor, and most notably a gorgeous Meade 127mm apochromatic refractor. All will be used at our public programs in memory of Dean and his skilled and dedicated service to Perkins.

Taurus
The Bulletin Board

CAS members, please bring your telescopes to our public programs!

★November 1 (Saturday) 10 A.M.
CAS ATM group.
★November 1 (Saturday) 8 P.M.
Guest Night. Tickets available.
★November 2 (Sunday) 7 P.M.
Ohio Wesleyan Admissions program.
★November 7 (Friday) 8 P.M.
Guest Night. Some tickets available.
★November 8 (Saturday) 10 A.M.
CAS ATM group.
★November 8 (Saturday) 8 P.M.
Regular meeting of the Columbus Astronomical Society.
★November 10 (Monday) 7 P.M.
Fifth-grade cub scouts.
★November 11 (Tuesday) 8:30 A.M.
St. Mary's School fifth-graders.
★November 13 (Thursday) 8 P.M.
New Vistas in Astronomy, featuring Paul Martini on "The Lives of Quasars."
★November 14 (Friday) 8 P.M.
Guest Night. A few tickets available.
★November 15 (Saturday) 10 A.M.
CAS ATM group.
★November 15 (Saturday) 8 P.M.
Guest Night. Sold out.
★November 18 (Tuesday) 10 A.M.
Columbus Jewish Day School fifth and sixth graders.
★November 21 (Friday) 8 P.M.
Guest Night. Some tickets available.
★November 22 (Saturday) 10 A.M.
CAS ATM group.
★November 22 (Saturday) 8 P.M.
Guest Night. Plenty of tickets available.
★November 27 - 29 (Thursday - Friday)
No programs. Enjoy your turkey.

Lots of Ways to Reach Us

Phone:
(740) 363-1257
Mail:
P. O. Box 449, Delaware, OH 43015
Email:
tlburns@owu.edu
Web site:
www.perkins-observatory.org
Fax:
(740) 363-1258

2,000 Points of Light

Perkins Observatory Needs Your Help

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.

Please don't lay this newsletter aside. We need you help today. If you become a Point of Light, Perkins can continue its public stargazing sessions for many years to come.

___ **Yes, I want to be a Point of Light (@ $200 per "Point").** Amount enclosed: _____

___ Yes, I want to donate to the Perkins Endowment. Amount enclosed: _____

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

Name _____

Honoree(s) for "2,000 Points of Light" _____

Address _____

City _____ State _____ Zip Code _____ Phone: _____

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

Friends of Perkins Observatory

Membership in FOPO entitles you to attend any or all of our weekend public programs.

___ 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 _____ Phone: _____

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