



COLUMBUS
ASTRONOMICAL
SOCIETY

Prime Focus

Volume 57 Number 10 October 2008
The Columbus Astronomical Society Newsletter

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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 on September 13th, 2008 by the Board of Trustees. Voting on the proposed amendments will take place on December 13rd, 2008 at the CAS general meeting. There must be a 2/3rds approval of a quorum to enact these amendments. There must be a quorum present of at least 10 members or one-quarter of CAS members in good standing, whichever is greater, in order for this vote to be held. Failure to assemble a quorum requires that consideration of these Amendments be tabled until the next general meeting or special meeting called for this purpose. A announcement in the Prime Focus will notify CAS members at least seven days in advance of such a subsequent vote on these amendments. See the text 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. You will receive a copy of the proposed amendments as a supplement attached in this issue of the Prime Focus.

Respectfully submitted,

Byron R. Winchell
Secretary

From the President

Greetings fellow stargazers:

I'll keep this month's letter short since we included a supplement with Ted Saker's proposed changes to the CAS Constitution. Ted recognized the need to clarify language and definitions within the constitution and volunteered to revise the document. I thank him on behalf of our society for contributing his valuable time for this important task and invite you to review the changes and then feedback any concerns to the officers and trustees.

It's important that we have a good turnout for our Christmas potluck dinner because we need a quorum in order to vote on the changes.

Last month, the O&T voted to donate \$1000 to Perkins. I presented the check to Tom Burns at the A-fair since they needed the money ASAP. We also voted to make an annual donation of \$1000 to Perkins. The CAS President will present the check to a Perkins representative each year at the Christmas dinner for as long as the two organizations maintain their strategic alliance.

Over the past three months, the O&T have voted for a few changes in how the CAS conducts business. This was part of a comprehensive plan to enable our society to make a financial commitment to Perkins without raising membership dues. It seemed reasonable to review club spending and look for ways to optimize our budget.

We voted to change the membership default delivery of the Prime Focus newsletter from snail-mail to email. The change will begin with the first issue of the PF after your annual membership renewal date. If you would like to continue receiving the PF by snail-mail, an additional \$5.00 will be added to your dues to cover postage. This will save the club a significant amount of money. I'd like to see the PF expanded to include more astrophotography and content. The e-format will make this practical. We'll begin membership newsletter conversions to email delivery starting on 11/1/2008.

On a final note, the porta-potty at Grieser Field will no longer be on site during the winter months. The CAS will save a few hundred dollars a year. Besides, it's probably lonely out there...

We'll hear Tom Klausing deliver a thorough presentation on cold weather observing at the October meeting.

Thank you,

Tom Beck
President, CAS

What's Up Brad Hoehne

Last month I talked about common designations for all the “faint fuzzies” out there. This month, we hone in on the stars themselves.

Traditional Star Names

The traditional names of stars carry with them hints of ancient stories, myths, and ways of life. While there are a few Greek and Latin names scattered about the sky, the vast majority of common stellar names come from the Arabic language, and date from a time when the knowledge of more ancient European and middle-eastern cultures was being preserved and expanded by the earliest Islamic scholars.

Unlike English and most European languages, Arabic has changed very little since the end of the first millennium, and contemporary readers of Arabic report having little trouble understanding texts from that time. However, given the difficulty in translating the sounds one language into the letters of another, many star names in the English (Roman) alphabet suggest pronunciations that bear little resemblance to the original Arabic names.

The most obvious remnant of Arabic in star names is the prefix “al” which simply means “the.” **Almach**, **Aldeberan**, and **Alberio** are examples. Most Arabic star names are simple statements of what a given star is supposed to represent within a constellation. **Zubenelgubi**, means “the Southern Claw”- a holdover from the time when the constellation Scorpius extended westward into what is now called Libra. **Mirfak** means “wrist” or “elbow” and variations of this word appear at the wrists and elbows of the most of the great heroes of the sky. Some star names are descriptive of the constellation as a whole. **Altair**, means “The flying one-“ a good description of the eagle that the constellation Aquila is supposed to represent. One name reflects traditionally modest nature of Islamic culture. The star name **Mintaka** comes from the Arabic for “The Area” which is a commonly used euphemism for “Belt” which is, itself, a euphemism for “Groin.”

Bayer Letters

In 1603 a German lawyer named Johan Bayer and his engraver Alexandar Mair produced a richly illustrated star atlas named the *Uranometria*, from the Latin for “measuring the sky.” (Its full name was *Uranometria : omnium asterismorum continens schemata, nova methodo delineata, aereis laminis expressa*.) In this atlas Bayer presented a new method of naming bright stars with Greek letters. Within each constellation, Bayer named the stars in order of “significance” beginning with Alpha and proceeding through the 24-letter Greek alphabet. Typically, the brightest star was deemed most significant, but not always. Sometimes Bayer erred in his judgment as to which star was brightest, or, for some other reason, determined that a star other than the brightest was the most significant within a constellation. For instance, Beta, not Alpha, Herculi is the brightest star in that constellation. The striking orange star Betelgeuse was dubbed “Alpha,” even though Rigel (Beta-Ori) is actually a bit brighter. As a general rule, however, the closer a star name is the beginning of the Greek alphabet, the brighter it

is. In modern atlases, some Bayer letters have been given superscripts when the “star” is actually two or more closely paired objects. Epsilon Lyrae is, for instance, broken up into Epsilon¹ and Epsilon² Lyrae.

The weakness of the Bayer catalog was that the number of stars selected was very small, and that a great number of easily seen stars, stars which were not seen to be a part of the classical constellation images, were left out. With the invention of the telescope, and the closer scrutiny of celestial real estate that it brought, the need arose for a more unbiased accounting.

Flamsteed Numbers

In the last decade of the 17th century and the first decade of the 18th, the British Astronomer Royal, John Flamsteed, took precise positional measurements of more than 2,500 stars visible to the naked eye from Brittan. Breaking from Bayer’s system in his private notes, he gave the stars numerical designations beginning with “1”, at the westernmost edge of a constellation and increasing in number as one moved eastward. Flamsteed did not publish his numbering system within his lifetime, leaving stars in the posthumously published atlas *Atlas Coelestis* without designation. Codification of his idea had to wait until 1783, when the French astronomer J. J. Lalande (who was to have yet another system named after him) resurrected it in his republication of Flamsteed’s atlas.

Unlike Bayer, Flamsteed did not concern himself with whether or not a given star seemed to be a part of a traditional connect-the-dots image, he simply charted any star bright enough for him to see. “61 Cygni” or “27 Tauri” are examples of Flamsteed designations. While both Flamsteed and Bayer designations are commonly used by astronomers today, usually, when a star has both, the Bayer designation wins out. Thus, “Gamma-Cygni” is heard more often than “37 Cygni.”

When Eugene Delaporte drew the official boundaries of the modern constellations in 1930, he made an effort to ensure that all stars with Bayer and Flamsteed designations fell within their own constellations. However, because some of the traditional star patterns overlapped one another, an occasional star fell into the “wrong” constellation. Examples include Rho-Aquili, which falls in Delphinus, 5 Ceti, which is well within Pisces, and 6 Persei, just over the border in Andromeda.

After Flamsteed, countless other astronomers and catalogers of the night sky created their own lists of stars. Most of these focus on some characteristic or use of the star. Some of the more popular ones in use today are:

The **Henry Draper (HD) catalog** was one of the earliest catalogs based on photographs of the night sky. The catalog includes not only the positions of stars, but their spectra. Compiling it was begun, with a ceremonial photograph of the star Vega, in 1872. The catalog, with its two extensions, eventually grew to contain 359,083 stars. Like the objects in the NGC catalog, the stars in the HD catalog were numbered in order of R.A., beginning at hour 0 and moving eastward. Like the IC catalog, however, the two extensions begin again at hour zero. The original catalog went to HD 225300. The first extension goes from at HD 225301 to 272150. The second extension goes to HD 359083.

The **Smithsonian Astrophysical Observatory (SAO)** catalog, was published in 1966. It focused only on stars for which *proper motions* (the slow creep of stars across the sky due to their motion relative to the Sun) had been determined. The compilers grouped the stars into 18, 10 degree wide strips of declination- like the peel from skilled apple-peeler- and then numbered them in order of Right Ascension within each of those stripes.

The latest version of the **Hubble Guide Star Catalog (GSC)** contains over 15 million stars (and possibly several million quasars), from magnitude 6 down to magnitude 16. It was compiled in order to give astronomers using the Hubble Space Telescope relatively stationary stars that the satellite's guidance systems could lock onto while photographs were being taken. Double stars, and stars with high proper motion, were specifically excluded to ensure that the telescope used only the steadiest celestial beacons.

Friedrich Georg Wilhelm von Struve, second in a long line of Russian astronomers, compiled, in the 1830s what came to be known as the **Struve catalog of double stars**. Traditionally, Struve designations are indicated by a capital Greek Sigma " Σ ". Struve ordered his doubles as he discovered them, so, like the Messier catalog, one cannot approximate the location of an object within it just by knowing the designation.

Variable Star Names

When astronomers first began cataloging variable stars in the early 19th, very few were known, and it was assumed that they would be exceedingly rare. The method of designating variable stars is a holdover from that belief. Variable stars were named in the order in which they were discovered- that is, in the order in which their variability was discovered- within each constellation. If such a variable star happened to have a Bayer designation- such as Delta Cephei- no special variable designation was given. All other variable stars were given English letter designations beginning with the letter R and proceeding to the end of the alphabet. When one sees designations such as "R Lyrae" or "R Andromedae" on a star chart, one is seeing the very first variables discovered within those constellations that did not have Bayer designations.

At first, it was assumed that the space from R to Z would provide more than enough room to encompass was then thought to be a very rare phenomenon. (The list was begun at R in order to avoid confusion with the common Bayer designations grouped at the beginning of the alphabet.) But, with the advent of photography, this system proved inadequate. Astronomers first added on to the system by doubling the letters once Z was reached. (RR, SS, ZZ, etc.,) Then, when that wasn't enough, astronomers began again at the beginning of the alphabet, going from AA to AZ, then from BA to BZ and so on. Finally, when the alphabet was tapped out, variables were given numerical designations, beginning with the number V335 as there had been 334 combinations up to this point.

Stars can have many designations. According the online astronomical database SIMBAD, the bright star Vega has at least 50! Each designation tells a story, and each expresses a different way of looking at the sky.

Column 1 of 6 on Studying the Moon:

Pick a Crater and Take Note

(Column 2 of 6 is also in this month's PF)

Michael Packer

NGC Moon: It's entire surface of impact structure is an outstanding catalogue of the kinematic morphology that still takes place in our solar system. And it is by far the Arc de Triomphe of all monuments to tribute man and woman who, in this case, were the principle observers of the moon, scientists, philosophers and even off-springs of Greek theology. You got to love that.

Indeed, pick a crater in your scope's field a view, find out its name, and I guarantee the story behind the name will come full circle back you and your relation to this hobby - at least as well as any fortune cookie.

That's certainly part of my nightly observing plan. I'm in the backyard with either Antonín Růkl's "Atlas of the Moon", or my portable running the free software "Virtual Moon Atlas". Both tools give a brief description the feature was named after. I also have wireless internet, so I can wiki the history in the driveway at the eyepiece.

But of course, learning the object's name is only the cookie.

The fact that the moon, as an object, is bright enough to see in Columbus is undoubtedly a reason to study it further. Another reason might be to take more than a cursory look at Růkl's atlas and discover that there are understated objects like shield volcanoes, fields of them, on the lunar surface. Růkl's introduction nicely depicts the range of features you'll want to look for. And in the back of the book there is a list of "50 Views of the Moon". Along with reference photographs (nice to have at the scope) this Messier-like inventory represents some of the finest examples of moon geology. Somewhere down the line you will also want to get "The Modern Moon: A Personal View" by Charles (Chuck) Wood. It is one of the few books that neatly explains lunar impact structure and compares it with surrounding features. He also runs the website LPOD, "Lunar Picture of the Day", great image resource, and the site lists his "Lunar 100" favorites.

Study the Moon: In these articles I promote the concept of studying the moon verses observing it. I say study the moon for the simple reason that most features benefit from the interplay of light and shadow with the changing phase of the moon. In microscopy, microscopes are made to produce both Bright Field (direct light) and Dark Field (oblique light) to study very different detail from the same specimen. On the moon, we're lucky to have these two lighting techniques built in. Tycho benefits from this interplay with its central mountains best seen under oblique light, 1 day after first or last quarter, while its rays are best seen under direct light around full moon.

Continuing with the "study the moon" theme, I suggest taking notes or sketches indicating lunar day or phase to 1 decimal point. This pretty much requires you to goggle the "Virtual Moon Atlas" and I'm sure you'll have it by next month's column. Anyway, as you explore the moon and find a phase that illuminates a feature well, its invaluable to note the time so you can share the view or image it later.

For example, some of you have looked at Rupes Altai and know it's, more often than not, a ho-hum object. But at lunar day 19.75, I discovered that this 275 mile long 6000ft tall escarpment looks ex-

actly like what Chuck Wood’s describes: “a place where the lunar surface ruptured as a stupendous collapse slid billions of tons of material into the gigantic cavity produced by the Nectaris impact explosion”. Seeing this object under the right light was the fortune in the cookie. The mountain range made my subsequent view of the Straight Wall look like a protruding rim of a sidewalk one might trip over. Also look for the crater chain(s) on the floor at the base of the scarp. This crater chain is ejecta from a younger impact perhaps located in the northwest.

You can observe Rupes Altai on Saturday October 18th 10PM where the fault can be seen in its entirety.

Next month’s article is titled “Observing Along the T” where you will get a more systematic approach to studying the moon. But in the mean time, why not pick a feature and explore the story behind the name. [Note: “Observing Along the T” also in this issue.]

**Column 2 of 6 on Studying the Moon
Observing Along the T: Tips and Crater Class
Michael Packer**

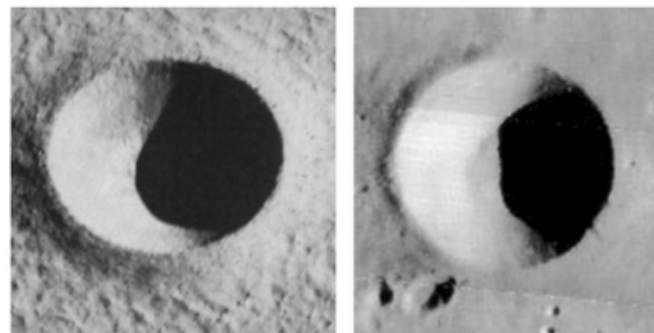
First a tip:

Observing lunar phases can be hard to nail down for the first time. You find a feature along the terminator (T) worth remembering, next month you look for it at the same phase (e.g. 1 day after 1st quarter), but it doesn’t look the same or it’s gone. The problem is not that your observation was a lucky or a rare event; you just needed to look for it 2 months later. Here’s what’s going on. A lunar month, from new moon to the next new moon, is about 29½ days and it turns out that the fraction ½ day is the issue. Say you saw the feature at 10pm. So 29½ days later you would need to look for the feature at 10am to be at the same phase. Of course that’s the daytime so the best you can do is look hours earlier or later when it’s dark. And doing that guarantees that you wont see the feature under the same light and phase. But if you wait 2 months, you’ll find things are back pretty much the way you saw them at 10pm 2 months earlier, 1 day after 1st quarter. If you want to see the feature *exactly* as you saw it than record the lunation so you can use VMA (Virtual Moon Atlas) software or other astronomy tools to get the time down to the minute. Rühl’s atlas has tables in the back.

The above is part of the reason why there’s no field book that faithfully represents what you’re seeing along the T. Also, over the course of a day/hour, observations at the moons equatorial center will see the T move about 360km/15km. The latter is the width of a plethora of central peaks and small craters. Finally, there’s no field guide that conveniently shows data that you’ve come to expect from DSO catalogues (in this case crater size, age and classifications). VMA provides a decent bit of this data for craters, rilles etc.. If you want a handy sortable catalogue, you can open the VMA file “Nearside_Named_UK.csv” found in the Database folder using Excel. One can then sort craters or features by age, size and class – very informative!

Crater Morphology: Observing along the T brings out crater structure fantastically. For instance, if you look for small craters whose floors are ½ cast in shadow, you can deduce the morphological class of the crater. And morphological class relates to impact energy. If the half shadow cast on the floor looks oval (Fig. 1a)

and the crater is < 20 km, the crater is classed as *simple* or bowl-shaped and lowest on the structure scale. If the half shadow casts



a. Simple crater (ALC type) with oval shadow b. Simple filled crater (BIO type) with flat shadow

Fig. 1

on the floor looks truncated/flat, this indicates a *simple* crater with a little more structure (Fig. 1b). In this case the steeper bowl walls succumbed to gravity leaving a partially filled floor with rim debris and melt rock. This is a common crater you will see in the 10-20 km range. A good example is 15km Hortensius, in between Kepler and Reinhold. And there is a field of volcanic domes to the north! For this level of detail, I recommend a scope of 6 inches or larger.

So here’s a good crater classification scale (Baldwin’s 1-5 is another) that Chuck Wood and Leif Andersson did (but did not publish) at Lunar & Planetary Lab:

Crater Classification	
ALC:	Simple bowl-shaped craters with smooth rims, diameters up to 20km; prototype Albategnius C.
BIO:	Simple like ALC, diameters up to 20km, but with a small flat floor; prototype Biot.
SOS:	Shallow craters with broad flat floors, narrow walls/no terraces, 5-35km; prototype Sosigenes
TRI:	Scalloped-walled craters, 15-50km with concentric slump masses in wall. Flat floor with material; prototype Triesnecker
TYC:	Multiple tiers of terraces, crenulated rim crest, large flat floor, 30-175km; prototype Tycho.

See: <http://lnk.nu/the-moon.wikispaces.com/pev> for more information

Please note the diameter overlapped in these classifications: a TRI crater maybe the size of a ALC crater. Also note that this scale is only valid for the moon with its specific mass, geology etc.. Central peaks manifest themselves in craters above diameters of 15 km. Beyond a couple of hundred kilometers diameter, the central peak of the TYC class disappear and they are classed as basins.

Observing Tips: There should be a method to lunar madness. When I begin an evening study, I quickly scan the T for highlights and beyond the T for craters that are nicely shadowed to the floor. I also observe the poles and E-W limbs for prominent features due to libration.

A later column will be dedicated to libration. However, over the weekend nights of October 18th and 19th, crater Newton and its overlapping companions D,G,A will be visible near the south pole and somewhat near the T (Monday at dawn will be better). Further south near crater Scott, the final resting environs of Lunar Prospector will also be visible at these times. The Lunar Prospector took ashes of Eugene Shoemaker on its one-way voyage to the moon and on March 5 1998, discovered water ice inside the polar craters.

Next month: Well, now were ready for a detailed look at the T but I am going to hold off and dedicate that for the 2nd half of "Observing along the T". I'll point out some noteworthy craters and my favorite objects of dorsa, rilles, mountains, domes and lakes.

My final tip on observing along the T is work systematically from either north to south or S to N looking up names of prominent/interesting features that catch your eye. Doing so reinforces memory and those dark towering objects at the T will eventually become familiar no matter the light.

For Sale:

Burgess Refractor 1278 5 inch f8 1000mm. Includes rings and original 2 inch diagonal with 2 to 1.25 compression ring adapter.
Asking \$300 or best offer.
Email at n7xgr@excite.com

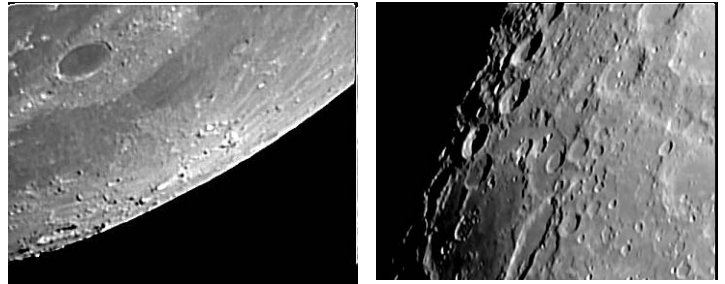


August 1, 2008 solar eclipse, second contact.

Photo by Bill Kramer

For a larger image, go to

<http://www.eclipse-chasers.com/e08/pics/e08secondcontact.JPG>



Craters Plato (left image) , Schiller, Kircher, Bettinus, Zuchius (left image)

Photos by Isaac Cruz, SAC7 webcam on the LX200GPS at f/10
Original images at

http://www.marranomusic.com/Octadome/lunar_images.htm

Wired for Astronomy

Some lunar resources:

The Association of Lunar and Planetary Observers (ALPO) is a wonderful source of information and coordination for the avid lunar observer. Their home page is:
<http://alpo-astronomy.org/>

<http://www.cmf.nrl.navy.mil/clementine/> is the home for the Clementine lunar mission, and although the mission was carried out in 1994, this site has a searchable map of the moon. <http://www3.telus.net/public/aling/clemskim/clementine.html> has a nifty program that lets you explore lunar photos located on a cd you can order from the Clementine site.

Lunar Phase Pro is a great program for those who wish to study the moon in detail. The software package includes quite a few tools in addition to maps and photos. Go to <http://lunarphasepro.nightskyobserver.com/> for ordering information and detailed description.

Virtual Moon Atlas is a program package brought to you by the folks who wrote Sky Charts. This is one of the best examples of freeware at its best. Download your copy from <http://ap-i.net/avl/en/start>.

<http://www.lpi.usra.edu/lunar/> is the lunar page for the Lunar and Planetary Institute. It offers many resources and reviews of early lunar missions.

Our satellite still has surprises in store for us. We will return to the moon. Start getting ready!



Extreme Starburst

by Dr. Tony Phillips

A star is born. A star is born. A star is born.

Repeat that phrase 4000 times and you start to get an idea what life is like in distant galaxy J100054+023436.

Astronomers using NASA's Spitzer Space Telescope and ground-based observatories have found that the galaxy gives birth to as many as 4000 stars a year. For comparison, in the same period of time the Milky Way produces only about 10. This makes J100054+023436 an extreme starburst galaxy.

"We call it the 'Baby Boom galaxy,'" says Peter Capak of NASA's Spitzer Science Center at the California Institute of Technology in Pasadena, CA. "It is undergoing a major baby boom, producing most of its stars all at once. If our human population was produced in a similar boom, then almost all people alive today would be the same age."

Capak is lead author of a paper entitled "Spectroscopic Confirmation of an Extreme Starburst at Redshift 4.547" detailing the discovery in the July 10th issue of *Astrophysical Journal Letters*.

The galaxy appears to be a merger, a "train wreck" of two or more galaxies crashing together. The crash is what produces the baby boom. Clouds of interstellar gas within the two galaxies press against one another and collapse to form stars, dozens to hundreds at a time.

This isn't the first time astronomers have witnessed a galaxy producing so many stars. "There are some other extreme starburst galaxies in the local universe," says Capak. But the Baby Boom galaxy is special because it is not local. It lies about 12.3 billion light years from Earth, which means we are seeing it as it was 12.3 billion years ago. The universe itself is no older than 14 billion years, so this galaxy is just a youngster (Capak likens it to a 6-year-old human) previously thought to be incapable of such rapid-fire star production.

The Baby Boom galaxy poses a challenge to the Hierarchical Model of galaxy evolution favored by many astronomers. According to the Hierarchical Model, galaxies grow by merging; Add two small galaxies together, and you get a bigger galaxy. In the early years

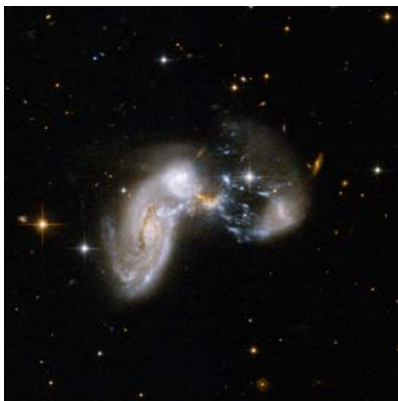
of the universe, all galaxies were small, and they produced correspondingly small bursts of star formation when they merged. "Yet in J100054+023436, we see an extreme starburst. The merging galaxies must be pretty large."

Capak and colleagues are busy looking for more Baby Boomers "to see if this is a one-off case or a common occurrence." The theory of evolution of galaxies hangs in the balance.

Meanwhile... A star is born. A star is born. A star is born.

See more breathtaking Spitzer images at www.spitzer.caltech.edu/Media/mediainages. Kids can play the new Spitzer "Sign Here!" game.

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



The "Baby Boom" galaxy loosely resembles the galaxy shown here, called Zw II 96, in this Hubble Space Telescope image. This galaxy is only 500 million light-years away, while the Baby Boom galaxy is 12.3 billion light-years away.

October 2008

Columbus Astronomical Society Calendar

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1 NASA is 50!	2	3	4 <div style="border: 1px solid black; padding: 2px; display: inline-block;">World Space week</div>
5 Moon at apogee	6 Mercury at inferior conjunction	7 	8	9 Draconids meteor shower peak	10	11 CAS Meeting 8 PM
World Space week						
12	13	14 	15	16 New Vistas Perkins program	17 Mercury at perihelion Moon at perigee	18
19	20	21 Orionids meteor shower peak	22 Mercury at greatest Western elongation	23	24	25
26	27 Vesta's closest approach to Earth	28 	29 PF Articles deadline	30	31 Venus at aphelion	

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						

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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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*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.

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

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Annual Student Membership Fee: (under 18) \$10 _____

Annual Family Membership Fee: \$25 _____

Annual Patron Membership Fee: \$50 _____

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Astronomy Magazine: \$34.00/1 year * _____

Sky & Telescope: \$32.95/1 year * _____

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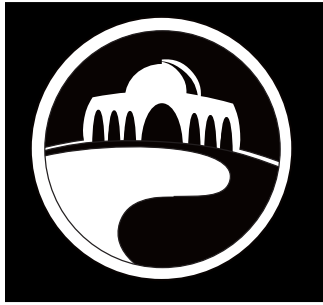
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City _____ State _____ Zip _____

Phone _____ (E-Mail) _____

Today's Date _____



NIGHTTIMES

The Newsletter of Perkins Observatory Oct. 2008

NightTimes by Email

Starting in November, the cost of mailing this newsletter to you will increase dramatically.

You can help us meet our budget and provide more funding to continue 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.**

Not only will you get it faster, but you'll help to preserve Ohio's premier public venue for stargazing and astronomy.

October at the "O"

In Central Ohio, October is reputed to be one of the clearest months of the year, which makes it a great time to bring your friends and family to Perkins Observatory. The leaves are already beginning to turn, making our 16 acres a lovely backdrop for a bit of astronomy and stargazing. (Yes, more than a few trees survived the remnants of Hurricane Ike.)

On a clear night, we should be able to give you a wondrous view of Jupiter's cloud bands and its four brightest moons lined up around the planet. Better hurry, though. Jupiter will soon be too low in the southwest to see.

Some of the more spectacular summer objects are still hanging in there: the Ring Nebula, the blue and gold double star called Albireo, and even the Great Globular Cluster in Hercules.

Stick around, and we'll observe the best objects of autumn: the Wild Duck star cluster, the Andromeda Galaxy, the Double Cluster in Perseus, and the globular cluster M15 in Pegasus. October is the perfect time to come to stargaze at Perkins.

Cloudy nights aren't so bad, either. We'll show you how to find all those glorious objects using a pair of binoculars from your own back yard and give you a tour of the "O." So come on down. Please reserve your tickets soon by calling (740) 363-1257.

Friends of Perkins

The following folks joined or renewed their memberships this month:

The fine folks at the Powell Veterinary Clinic, \$200 family sponsorship.

Mark A. Geary of Worthington, \$50 individual membership.

Membership in FOPO entitles you or your family to attend any or all of our weekend Guest Nights at no additional cost (and you help to support our public activities, by the way).

You can use the form on the back of this newsletter to join up.

Observatory Angels

Thanks to all who so kindly contributed to the "O" this last month.

Special thanks to those people who became a Perkins Points of Light. Their contribution is split as \$100 to the Endowment and \$100 to the operating and building fund:

Sally Young of Shaker Heights, \$200.

Michael & Virginia Brizendine, \$200.

Barbara McAdam Muller, \$200.

You too can become a Point of Light -- or make someone else one. Please see the form on the reverse of this newsletter.

Jim Pace made his ongoing monthly gifts to the Endowment and the Operating Fund, \$40 each. Thanks again, Jim.

Mark Geary of Worthington added \$100 to the Perkins Endowment.

The following folks donated directly to our operating fund:

The Columbus Astronomical Society, which favors us with its expert help at our public programs, \$1,000.

A truly kind soul, who wishes to remain anonymous, contributed \$5,000 to help us with roof repairs.

One of our most active volunteers, who also wishes to remain anonymous, \$250.

The Kiwanis Club of Delaware, \$100.

Ian Wilson, \$100.

Mark Geary, \$50.

A Bit of Perkins History

Hiram Perkins persuaded the National Bureau of Standards to undertake the task of casting the mirror for Perkins Observatory. After four failed attempts, a mirror was finally successfully completed. The liquid glass took eight months to cool into a "mirror blank" ready for grinding and polishing to the right curved shape, called a paraboloid.

However, instead of the 60-inch mirror originally intended, the bureau had produced a 69-inch mirror. Although it required some changes to the telescope mount, they decided to use the larger mirror.

Taurus The Bulletin Board

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

- ★October 3 (Friday) 8 P.M.
Guest Night. Tickets available.
- ★October 4 (Saturday) 10 A.M.
CAS Amateur Telescope Making (ATM) SIG.
- ★October 4 (Saturday) 8 P.M.
Guest Night. Some tickets available.
- ★October 10 (Friday) 8 A.M.
Guest Night. Tickets available.
- ★October 11 (Saturday) 10 A.M.
- ★October 11 (Saturday) 8 P.M.
Regular meeting of the Columbus Astronomical Society.
- ★October 16 (Thursday) New Vistas in Astronomy, Anil Pradhan, "The Panchromatic Universe."
- ★October 17 (Friday) 8 P.M.
Guest Night. A few tickets available.
- ★October 18 (Saturday) 10 A.M.
CAS ATM group.
- ★October 18 (Saturday) 8 P.M.
Guest Night. Tickets available.
- ★October 21 (Tuesday) 7 P.M. OWU astronomy class (Barbara Andereck).
- ★October 24 (Friday) 8 P.M.
Guest Night. Tickets available.
- ★October 25 (Saturday) 10 A.M.
CAS ATM group.
- ★October 25 (Saturday) 8 P.M.
Guest Night. Tickets available.
- ★October 31 (Friday) 8 P.M.
Guest Night. Tickets available.
- ★November 1 (Saturday) 10 A.M.
CAS ATM group.
- ★November 1 (Saturday) 8 P.M.
Guest Night. Tickets available.

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 your 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.")

PROPOSED AMENDMENTS TO THE ARTICLES OF
INCORPORATION

(Current text ~~struck through~~ and proposed new text underlined)

ARTICLE EIGHT: Board of Trustees and ~~Their~~ Duties of its
Members

A) The Board of Trustees of the corporation shall consist of nine members. The corporation's ~~have~~ four (4) officers: president, vice-president, secretary, and treasurer; each of whom shall serve as members of the Board of Trustees. is a full trustee. The ~~Board of Trustees~~ shall also include ~~be~~ five (5) "additional "at-large members" ~~trustees~~": four (4) elected at-large ("at-large trustees") and the immediate past president (the "IPP"). No person may be elected to simultaneously hold more than one office. All the officers and at-large members of the Board of Trustees ~~trustees~~ shall be current members in-good-standing of the corporation. If the membership standing of an officer or at-large member of the Board of Trustees ~~membership~~ should end for any reason during his/her term, his/her office will be declared vacant in thirty (30) days if dues are not paid.

The Board of Trustees shall have the authority to supervise the economic affairs of the corporation, the property of the corporation and its use, and such other matters as the membership may choose to bring before it. These may include, but are not limited to: the newsletter of the corporation, the programming and public relations of the corporation, the affairs of any public facility the corporation may operate, and balloting on matters of business of any organization of which the corporation is a member. The board is thus empowered to consider, at the discretion of the president, all general society business excepting amendments to these Articles, the Constitution and By-Laws of the corporation, elections of the corporation, and the setting of dues. It shall be the duty of all members of the Board of Trustees to attend regular and special meetings of the board unless excused in advance for good cause.

B) All actions of the Board of Trustees require a quorum in order to be valid and binding on the corporation. For all purposes, a quorum for a meeting of the Board of Trustees shall be defined as either 1) the attendance of at least three (3) of the five (5) at-large members or, 2) if more than three at-large members fail or refuse to attend a duly called meeting, then five (5) members of the nine (9) total members of the Board of Trustees.

C) Specifically, aAny expenditures of the corporation in excess of \$250.00, excepting only group subscriptions sent in to Sky Publishing Corporation or its assigns, dues sent in to the Astronomical League or its assigns, and such other periodicals that the trustees may contractually agree to provide the membership upon recommendation by the membership, must be approved by a majority vote of the members of the Board attending, a quorum being present under subdivision (B)(1) of this Article, or two-thirds (2/3) of the members of the Board attending, a quorum being present under subdivision (B)(2) of this Article. ~~three (3) of the "additional trustees"~~. Expenditures of less than \$250.00 need only presidential approval, provided they are budgeted or are to come from a discretionary account. The "additional trustees" at-large members shall have the authority to control the lease, sale, exchange, ~~transfer~~, or other disposal of any or all assets of the corporation, provided such resolution to reassign assets are approved by three (3) of the five (5) at-large members "additional trustees". Should the Board of Trustees "additional trustees" fail

to ~~have~~ muster a quorum under subdivision (B)(1) of this Article at any meeting called for the purpose of consideration of issues regarding any of the above situations, then the entire board then present may act in their stead under subdivision (B)(2) of this Article, ~~provided such decisions have an affirmative vote of at least two-thirds (2/3) of the entire board that is present and voting, a quorum being present.~~

~~The trustees must by the~~ On or before the last day ~~end~~ of the second month of each fiscal year, the Board of Trustees shall formally adopt, by a majority vote, a quorum being present, a majority vote of the members of the Board attending, a quorum being present under subdivision (B)(1) of this Article, or two-thirds (2/3) of the members of the Board attending, a quorum being present under subdivision (B)(2) of this Article, a budget listing proposed expenditures and expected sources of income. If a budget is not accepted by that time, the previous year's budget will be used until a new budget is adopted. This budget shall serve to authorize the expenditures listed. This budget may be amended at any time by an affirmative majority vote of the members of the Board attending, a quorum being present under subdivision (B)(1) of this Article, or two-thirds (2/3) of the members of the Board attending, a quorum being present under subdivision (B)(2) of this Article. ~~of two-thirds (2/3) of the trustees present and voting, a quorum being present.~~ The budget shall provide a discretionary account for presidentially authorized expenditures.

The right to review or rescind all decisions of the Board of Trustees or the president is reserved for the members of the corporation sitting at a general meeting. Such review or rescissions may be made only prior to implementation of such decisions and only be the approval of at least two-thirds (2/3) of those present and voting at a general or special meeting of the corporation, a quorum being present. Any action of the Board of Trustees or at-large trustees "additional trustees" to be executed effective prior to the next general meeting (or special meeting called for that purpose) shall require a motion to declare the action "urgent" and to set a date for its implementation effectiveness. This motion shall require the affirmative vote of a majority of the members of the Board attending, a quorum being present under subdivision (A)(1) of this Article, or two-thirds (2/3) of the members of the Board attending, a quorum being present under subdivision (A)(2) of this Article. at least five (5) trustees and at least two-thirds (2/3) majority of those present and voting to become effective. ~~If the motion fails, implementation of the measure at issue the action shall not occur until after the adjournment of be permitted to take effect prior to~~ the next general meeting of the corporation (or special meeting called for that purpose).

ARTICLE NINE: Officers ~~A~~ and Their Duties

The officers of the corporation shall consist of a president, vice-president, secretary and treasurer. The duties and authority of the officers shall be as follows:

A. President - The president shall be the chief executive and highest ranking officer of the corporation. The president is empowered to make decisions in all matters, not expressly reserved to those of the entire Board of Trustees, or the general membership of the corporation. The president will, within the limits set for by these articles, set the agenda of all meetings of the corporation. He/she shall supervise the other elected officials and trustees in the performance of their duties, and appoint such other officials and

committees as he/she deems necessary. The president shall be the chairman of the Board of Trustees and preside over all general, special, and board meetings.

If the president knows prior to any type of meeting of the corporation that he/she will not be present, then he/she shall see that the highest ranking official of the corporation who is available is present to carry out his/her duties and to present what reports he/she may have for the corporation. The president shall report on the activities of the corporation's officials or see that the secretary does so.

B. Vice-President - The vice-president shall be the second ranking officer of the corporation. He/she shall act in place of the president in the event of the absence or incapacity of that officer. In the event of a vacancy in the office of the president, the vice-president shall be acting president until a president is elected as specified elsewhere in these articles. At all other times the vice-president shall act under the ~~discretion~~ direction of the president.

C. Secretary - The secretary shall be the third ranking officer of the corporation. He/she shall keep the official minutes of all general, special, and board meetings of the corporation. Further, the secretary shall keep reports of the communications and other official documents of the corporation during his/her term of office. The minutes and all other records will be turned over to the corporate historian at the end of the secretary's term of office or stored in an electronic format readily accessible to the historian, board members, or general members.

The secretary will be responsible for notifying the membership of the corporation of all general, special, and board meetings of the corporation through the corporate newsletter, ~~or~~ by personal letter, or by electronic notification as described in these Articles, the Constitution or the By-Laws. He/she shall handle the correspondence of the corporation except that of the committees or other officers. Copies of correspondence by committees or officers shall be provided to the ~~s~~Secretary.

D. Treasurer - The treasurer shall be the fourth ranking officer of the corporation. He/she shall keep all moneys of the corporation, receiving and disbursing them according to the directives of these Articles, the Constitution and By-Laws, the president, and the Board of Trustees. The treasurer shall make financial reports to the Board of Trustees at least four times each year at board meetings; at least once each year to the membership through the corporate newsletter or by electronic means; and as required by the corporate trustees.

The treasurer shall, upon demand by any member, see that the current financial records of the corporation are available for examination at the next general meeting of the corporation, regardless of whether the treasurer is present at that meeting. He/she shall keep membership lists and the corporate membership book current. The treasurer will issue a roster of members to all the members of the corporation at least once a year. Further, he/she shall report new memberships or the discontinuance of prior memberships to the secretary and the editor of the corporate newsletter.

E. The ~~elect~~ at-large ~~other~~ trustees shall be ranked in order of the dates at which their terms expire with the at-large trustees whose term expires earliest being the fifth ranking officer of the corporation and so on with the trustee whose term expires ~~latest fourth~~ being the eighth ranking officer of the corporation. The ~~exception to this sequence shall be the trustee who is immediate~~ past president, who will always shall be the ninth ranking officer of the corporation.

ARTICLE TEN: Terms of Office and Elections

The terms of office of all officers shall be one (1) year. The term of the elect at-large trustees shall be four (4) years. No person shall be elected to serve in the same office or trusteeship for more than two (2) consecutive terms.

The elect trustees-at-large shall serve staggered terms with one seat on the board being open ~~elect~~ each year ~~to replace that trustee whose term expired that year.~~ The ~~IPP past president~~ shall serve until the currently serving president completes his term in that office and is replaced by a successor at general election. a more recent past president is available due to a change in the presidency. The initial at-large trustees shall serve until their terms would have otherwise expired had incorporation not occurred.

In August of each year the president shall consult with the other trustees and he/she shall appoint a Nominating Committee. The Nominating Committee shall be composed of at least three (3) members, at least one of whom is not a current trustee. The committee shall present at the ~~September-October~~ general meeting nominations for the elected officers and the at-large trustee position up for the election that year. At least one name for each post to be filled shall be presented by the committee. At the ~~September-October~~ meeting nominations from the floor will be accepted, but at the end of that meeting nominations will be closed. The list of nominations will then be published in the next issue of the corporate newsletter and prior to the next general meeting. The officers and trustee-at-large shall be elected at the ~~October~~ December general meeting and take office the January 1st following.

If any of these dates is not met, the completion of nominations and elections shall be old business at every general meeting thereafter until completed, and be the first order of old business excepting only the election of trustees to fill current vacant unexpired terms.

If, at any time before the natural expiration of the term of office of any officer or ~~trustee~~ at-large trustee, that person is unable or unwilling to continue to serve or finish his/her term of office, then until the vacancy is filled, the first item of old business at each general meeting will be to accept nominations and to set a date to elect a member to fill the vacancy. The ~~newly elected person~~ elect to fill the vacancy shall serve in office until the term of the person who previously held the office expires as scheduled. will end at the natural end of that position's term of office.

In the event of a vacancy in the position of ~~IPP past president~~, then his/her immediate predecessor in the presidency shall be offered the position on the Board of Trustees. In the event the predecessor is unable or unwilling to serve or is currently holding another elected position, the position shall be declared vacant. It will then be open to any member by election as would any other vacancy in the at-large trustee position(s). Pursuant to above procedures, a member shall be elected to fill that position. The person who takes office under either procedure Any replacement, however obtained, shall serve only until the current president succeeds to steps into the position in accordance with this Constitution.

ARTICLE ELEVEN: Meetings of the Corporation

There ~~are~~ shall be only three types of meetings in this corporation: general meetings of the membership, special meetings

of the membership, and meetings of the Board of Trustees. There shall be at least six (6) general meetings each year to consider whatever business the president or any member may wish to bring to the corporation and to consider nominations and elections when necessary. Special meetings shall occur only when specifically called by the president, the trustees, or the membership as described below. The order or petition calling for the special meeting shall specifically limit the agenda for the meeting to selected topic(s). The Board of Trustees shall meet at least eight (8) times each year to consider the general business of the corporation as set forth elsewhere in the articles.

The president shall call at least the minimum number of general and board meetings and may call additional meetings of any type at any time he/she decides they are needed. ~~The Trustees~~ may call for special or board meetings by presenting a petition for that purpose signed by at least four (4) members of the Board of Trustees to the secretary. The general membership may call special meetings by presenting a petition for that purpose signed by at least one-fifth (1/5) of the membership or eight (8) members, whichever is greater, to the secretary.

The secretary must provide notice of at least seven (7) days to all members for general and board meetings and fourteen (14) days for special meetings. Failure to provide the adequate notice will require rescheduling of said meeting at the earliest possible date for which proper notice may be given. ~~The president~~ must set the location of all meetings at a site within thirty-five (35) miles of the principal office of this corporation and notify the secretary of the chosen site.

A quorum for the conduct of business at a general or special meeting of the corporation shall be one-tenth (1/10) and one-fifth (1/5), respectively, of all current dues-paying members in-good-standing of the corporation. A majority of those voting shall decide issues, a quorum being present. Amendments, as detailed elsewhere in these Articles and the Constitution and By-Laws, may have differing quorums and voting requirements. A quorum for the conduct of business at a board meeting shall be five (5) trustees. Unless otherwise specified elsewhere, decisions of the trustees shall be by a majority of those voting, a quorum being present. The president may vote on all questions. In roll call votes, voting shall be alphabetical among the membership, and in reverse order of the rank among trustees.

ARTICLE FOURTEEN: Amendments to the Articles

These Articles may be amended at any time following ratification by the membership in a manner described below and in accordance with procedures adopted by the Secretary of State of Ohio.

Proposed amendment(s) to the Articles must be presented in writing at a general meeting or at a special meeting (called for that purpose), or presented to the membership by electronic notice through any digital communications system maintained by the corporation and made available to all members in good standing. The secretary will read the amendment(s) at the time they are introduced and then they will automatically be tabled until the next general meeting or special meeting (called for that purpose). In the meantime, the secretary shall provide proper notice of the meeting at which the amendment(s) are to be considered and notify all members in writing, or by electronic notice through any digital communications system maintained by the corporation and made available to access by all members in good standing of the text of

the proposed amendments at least seven (7) days prior to the meeting at which the amendment(s) are to be considered.

If two-thirds (2/3) of the members present at the meeting at which the amendment(s) are to be considered vote in favor of such amendment(s), then these Articles shall be so amended provided that ten (10) members or one-fourth (1/4) of the membership of the corporation, whichever is greater, is present at the meeting. If a quorum, as noted above, is not present, then voting on the amendment(s) shall be held over until the next general meeting or special meeting (called for that purpose), and so on indefinitely, with proper notice by the secretary (as described above in the second paragraph of this Article) at each delay.

ARTICLE FIFTEEN: Constitution and By-Laws; Notice Requirements

The corporation will be governed by a Constitution and By-Laws as adopted henceforth. For purposes of the corporation's Articles of Incorporation, Constitution, and By-Laws, any provision requiring the dissemination of "notice" to the members of the Board of Trustees or of the corporation shall be defined as the use of any of the following methods: a writing deposited in the U.S. Postal Service, postage prepaid, electronic notice that provides individual delivery of electronic messages ("Email") delivered or transmitted through any digital communications system maintained by the corporation and made available to access by all members in good standing. It shall be the duty of the members of the Board of Trustees and all general members of the corporation to provide to the corporation a valid electronic address to receive electronic notices. A member's failure to maintain a valid electronic address shall automatically result in a waiver of the member's right to assert any claim against the corporation, its officers, trustees, administrative officers, committee members, agents, or employees, on account of any actions undertaken by them that these Articles, the Constitution and By-Laws require the giving of notice prior to undertaking such actions.

The corporate newsletter shall likewise be transmitted in electronic form in a format in common use to the corporation's members through the use of any electronic distribution service that provides individual delivery of electronic messages ("Email") delivered to or transmitted through any digital communications system maintained by the corporation and made available to access by all members in good standing. It shall be the responsibility of all members to provide the corporation with a valid address to receive email. A member may opt to receive the corporate newsletter through the U.S. Postal Service in lieu of electronic distribution by notifying the Treasurer in writing. The corporation may impose a surcharge for postal service delivery at a rate to be determined at least annually at a regular or special meeting of the Board of Trustees.

* * * * *

PROPOSED AMENDMENTS TO THE CONSTITUTION
(Current text ~~struck through~~ and proposed new text underlined)

ARTICLE ONE: Dues And Membership

Anyone interested in astronomy is eligible for general membership by virtue of paying dues. There shall be only the following classes of general membership: Adult, Under 18, Family, Supporting, ~~and~~ Corporate, Patron and Life. An adult member may be anyone over 18 years of age. Family membership shall include only those immediate relations living at the same address.

All members shall receive one subscription to the corporate newsletter except as noted below. Each family member above two, listed on the membership rolls for the purpose of voting at corporate meetings, shall be required to pay dues additional to that of the normal Family dues rate equivalent to the subscription rate of the corporate newsletter. The family dues rate shall be set marginally above that for adult members. Each family member listed on the membership rolls for the purpose of voting shall have the same privileges as an adult member.

Patron members shall have the same privileges as adult members, but shall pay a substantially higher dues rate, to be established by a majority vote of the Board of Trustees, with or without a quorum, from time to time.

Under 18 members shall have the same privileges as an adult member but shall pay a lower dues rate set close to the actual cost of services provided to each member rather than the general expenses of the corporation.

Supporting members shall have the same privileges as Adult members but shall pay a dues rate approximately double that of a Patron member. The corporation may offer such additional periodicals and benefits to Supporting members as may be available and as determined by the membership.

Corporate members shall be available to other groups, organizations, and corporations as may desire to support the purpose and goals of this corporation. Corporate members shall have the same privileges as Support members, along with additional benefits to be determined by the membership. Corporate members shall pay a dues rate approximately four times that of a Patron member.

Life members shall have all of the privileges of Supporting and Patron members, and in exchange for a one-time dues payment, shall not be required to pay annual dues to the corporation.

The rolls of honorary members shall be modified and maintained by the ~~“additional-“at-large~~ trustees.” Honorary members cannot be required to serve on a committee. They shall be entitled to one subscription to the corporate newsletter, but shall not have a vote in corporate affairs. Honorary members shall pay no dues. Dr. J. Allen Hynek shall be the only Honorary Life Member.

Dues for each class shall be set at least annually by a vote of the membership upon recommendation of the Board of Trustees.

The voting rights of all members except as noted above, shall be the same without regard to dues classification in all corporate matters.

ARTICLE THREE: Impeachment, Censure, and Removal from Office

If, during the term of office of any officer or trustee, it is the opinion of ~~other one or more officers, at-large trustees, or general~~ members that ~~the official any officer or at-large trustee~~ has not discharged his/her duties properly as prescribed by the Articles of Incorporation, this the Constitution or By-Laws of the corporation, then such member or members (known as “relator(s)”) may make a motion to “impeach” ~~may be introduced~~ at a general meeting of the corporation. A motion to impeach shall require at least one second. The members of the society shall discuss the nature of the charges, only, at the meeting, and action postponed on that motion until the next general meeting. The secretary shall inform the member or members so charged (known as “respondent(s)”) (or another member shall do so if the secretary is charged) in writing and the membership through the corporate newsletter that such a motion has been made, the notification shall meet the qualifications specified in the Articles for amendments to that document. The ~~member so charged~~ respondent(s) shall prepare and/or instruct another person to prepare a defense of the charges to be presented at the next meeting. If more than one respondent is charged in a motion to impeach, each respondent shall be entitled to a separate defense by giving oral notice before adjournment of the meeting in which the motion is brought, or in writing given to the Secretary (or the Vice-President, if the Secretary is a respondent) not less than seven (7) days prior to the general meeting in which the motion will be considered. At that meeting in which the motion “to impeach” is considered, the membership shall debate the motion and charges, with the ~~plaintiffs~~ relator(s), the ~~defendant~~ respondent(s), his/her/their defense representative(s), and interested members being given the opportunity to speak. For purpose of hearing the charge(s) and considering the defense, a chair and secretary pro tempore shall be elected prior to the commencement of the proceeding to preside at and compile a record the proceedings, respectively, at the meeting (or part thereof) at which the motion is considered. ~~shall be chaired by a chairperson pro tempore and a secretary pro tempore elected at the beginning of the proceedings, and~~ Neither the chair nor the secretary pro tempore may be being a currently serving as a member of the Board of Trustees-trustee of the corporation. After all parties have been permitted to speak, then debate on the charges may be closed at anytime by the chair pro tempore. The general members then attending shall decide whether to overrule or sustain the motion to impeach. A quorum for ~~deciding ruling~~ on the motion shall be one-fourth (1/4) of the current voting membership of the corporation. If a quorum is not obtained after two consecutive meetings, the ~~charges motion to impeach~~ shall summarily be dropped dismissed, but may be reintroduced against the respondent(s) at a later subsequent general meeting held at least one hundred twenty (120) days following summary dismissal in accordance with the procedure contained in this Article. It shall require an An affirmative vote of at least two-thirds (2/3) of the general members then attending, a quorum being present, shall be required to successfully impeach an officer sustain the motion to impeach; otherwise, the motion is deemed to be overruled. If the motion should ~~fail~~ be overruled, then a motion “to impeach” may not be reintroduced against the respondent(s) for a period of at least not less than one hundred ~~and~~ twenty (120) days from the date of the general meeting in which the motion to impeach was overruled. During the period between the general meetings in

which the motion to impeach is made and heard. The official so charged shall continue in office. If the motion should be succeed sustained, then the impeached official ~~under question~~ may be “censured”, “removed from office”, or “acquitted”. Upon an affirmative vote of impeachment, P proceedings shall be suspended at this point until the following general meeting (or at least one month until a special meeting if there is no general meeting that month). Proceeding shall ~~continue-resume~~ with the same chair ~~person and secretary pro-tempore~~ and ~~secretary pro-tempore~~ (another chair or secretary pro tempore may be elected if ~~they either is are~~ absent). A quorum for deciding which action to take shall be one-fourth (1/4) of the current voting membership of the corporation. If a quorum is not present, then a delay of one month in resumption of the proceedings shall occur. If a quorum is not present the following month, then the official shall be summarily “acquitted”. Limited debate shall be permitted at these proceedings with each relator and respondent party present being permitted to speak at most twice. Following debate, a verdict will be considered. First, a decision to “remove from office” will be considered. If at least two-thirds (2/3) of those present vote in favor of this option, a quorum being present, then the official so charged shall immediately lose his/her office and the office shall be declared vacant. Provision for filling that vacancy shall immediately take effect. The convicted official shall be ineligible for any elected corporate office for a period of twelve (12) months. Should a sufficient number fail to vote for “removal from office”, then a vote to “censure” shall be considered immediately. If a majority of those present vote in favor of “censure” then the ~~official under charge-respondent(s)~~ shall remain in office but shall be prohibited from further actions such

as those for which he/she was charged. A notice giving the charges and the action of “censure” shall be carried-printed in the next issue of the corporate newsletter. Should the motion to “censure” fail, then the official shall stand remain “acquitted.” In the case of acquittal, the official shall remain in office and another impeachment motion may not be reintroduced for a period of one hundred ~~and~~ twenty (120) days. No subsequent motion to impeach shall be refiled against any respondent(s) that contain the same charges or specifications presented in a motion to impeach that was overruled or that resulted in acquittal.

ARTICLE FIVE: Amendments to the Constitution

Proposed amendments to this constitution must be presented in writing at a general meeting (or special meeting called for that purpose), read by the secretary at such meeting, and ~~left on the are automatically~~ tabled until the next general meeting (or special meeting called for that purpose). In the meantime, the secretary shall notify all members in writing, or presented to the membership by electronic notice through any digital communications system maintained by the corporation and made available to all members in good standing, at least seven (7) days before the next regular meeting, of the proposed amendment(s). If two-thirds (2/3) of the members present at the meeting at which amendments are to be considered, vote in favor of such amendment(s), then this constitution shall be so amended provided that ten (10) members or one-fourth (1/4) of the membership of the corporation, whichever is greater, are present.

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PROPOSED AMENDMENTS TO THE BY-LAWS (Current text ~~struck through~~ and proposed new text underlined)

ARTICLE ONE: ~~Appointed Administrative~~ Officers

There shall be ~~four (4)~~ six (6) ~~regularly appointed~~ Administrative officers of the corporation, namely:

- A. LIBRARIAN
- B. EDITOR
- C. HISTORIAN
- D. PROPERTY OFFICER
- E. WEBMASTER
- F. EMAIL LIST SERVER OWNER

~~These Administrative~~ officers shall be appointed by the president, shall serve at his/her pleasure, and their terms shall end with ~~that the term~~ of the appointing president. Unless specifically provided otherwise, the administrative officers shall report to the president, who shall periodically report on their activities to the Board of Trustees. Administrative officers shall not be members of the Board of Trustees unless he/she is a currently serving board member.

ARTICLE TWO: Duties Of Appointed Officers

+A. LIBRARIAN shall keep the corporation’s collection of books and shall be responsible for their safety and making them available for loan to members under the library rules adopted by the society corporation.

2B. The EDITOR shall be responsible for preparing and issuing the corporate newsletter on a monthly basis to all members ~~a periodical~~ containing items of interest to amateur astronomers, information on telescope making and suppliers of new parts, news of members of the society corporation, and news of meetings and events of the society corporation.

3C. The HISTORIAN shall keep the old records of the society, a file of photographs of historical interest, and a ~~chronical~~ chronicle, and shall be prepared to write a unified history of the society corporation upon need.

4D. The PROPERTY OFFICER shall maintain complete records of all property of the society corporation and its holders thereof. He shall give an inventory report annually.

E. The WEBMASTER shall maintain the corporation’s internet home page on a current basis, by adding and/or deleting content in order to keep the members informed of rapidly developing events in astronomy, the corporation’s affairs, and to provide information to the general public consistent with the mission of the corporation. The functions of Webmaster may also include management of the electronic files uploaded by officers, trustees and members to web sites owned, operated, or maintained by the corporation for the use and benefit of the membership. The Webmaster shall assist the Secretary in distributing notices as required by the corporation’s Articles of Incorporation, Constitution, and By-Laws to the members, by electronic or digital methods, as may be permitted by the corporation’s organizational documents as identified in this paragraph.

F. The EMAIL LIST SERVER OWNER shall have plenary authority to manage and moderate the corporation’s electronic mail, message board(s), forums, and other active means

of electronic communications among the members of the corporation. The Email List Server Owner may appoint moderators to assist him/her in the discharge of duties consistent with the rules of use of any web sites owned, operated or maintained by the corporation for such purpose. The offices of Webmaster and Email List Server Owner may be combined for administrative convenience at the discretion of the president. In the event that the previously described offices are combined, the person holding both offices shall be known as the "Electronic Media Officer." Depending on the web site used for the email list service and file maintenance service, the president in his discretion may assign the duties of file management to the Webmaster or Email List Server Owner, as he/she may determine to be the most efficient manner of administration. The Email List Server Owner shall assist the Secretary in distributing notices as required by the corporation's Articles of Incorporation, Constitution, and By-Laws to the members, by electronic or digital methods, as may be permitted by the corporation's organizational documents as identified in this paragraph.

ARTICLE FOUR: Minutes Of Committee Meetings

The secretary shall not be responsible for keeping the minutes of committee meetings. These shall be the responsibility of the committee chairperson, or a committee secretary should one exist.

ARTICLE FIVE: Authority In Disputes

A) The final authority in the settlement of disputes in business meetings shall be Robert's Rules of Order Revised.

B) The administrative officer charged with authority to moderate the use of the corporation's electronic messaging services shall have full discretion and the widest possible latitude in maintaining civility in communications between members, and between members and the general public; preventing abuse of the corporation's rights and privileges in and to the use of its or third party owned systems, and enforcing laws, regulations and contractual rules of use of the media. To that end, any member who uses the benefit of the electronic message services sponsored, owned, or provided by the corporation, agrees to abide by the rules of use of the corporation and any third party provider, and all applicable federal, state and local laws.

C) In the event a dispute arises as to the administration of the corporation's electronic messaging systems, file storage or other computer services, where the penalty imposed on a member involves the denial of access, use or other benefit of the systems owned, maintained or provided by the corporation, for a period that exceeds thirty (30) days, the aggrieved member shall have the right to appeal to the vice-president, who shall have the authority to affirm, reverse or modify the penalty imposed. The decision of the vice-president shall be final and binding.