GLPA Newsletter

2019

4 issues — 198 pages
STATE MEETINGS

IL - APRIL 13 - ILLINOIS STATE UNIVERSITY PLANETARIUM
IN - APRIL 13 - HOLCOMB OBSERVATORY & PLANETARIUM
MI - MAY 18 - MICHIGAN SCIENCE CENTER
OH - APRIL 27 - COSHOCTON HIGH SCHOOL PLANETARIUM
WI/MN - APRIL 12-13 - BELL MUSEUM PLANETARIUM
IMAGE CREDITS

Cover Design: Emily Hromi

As a tribute to the Opportunity Rover, which finally succumbed to the elements after 5,498 days on the Martian surface, we offer this self-portrait taken on sol 180 (July 26, 2004) by the rover’s front hazard-avoidance camera.

Credit: NASA/JPL-Caltech

The current design of the GLPA Newsletter incorporates small sections of several NASA images for its page mastheads. These and other images can be accessed from NASA websites such as Mars Exploration, Scientific Visualization Studio, and Hubble Space Telescope websites at www.spacetelescope.org/images/, heritage.stsci.edu, and hubblesite.org/gallery. And because all these photos are from NASA, they are free to use (with proper credit).

Image Credits page background image: NGC 2074 in the Large Magellanic Cloud
Credit: NASA, ESA, and M. Livio (STScI)

Image Credits page inset image: M96: A Galactic Maelstrom
Credit: ESA/Hubble & NASA and LEGUS Team

State News Masthead: Young stars in the “wing” of the Small Magellanic Cloud
Credit: NASA, ESA, CXC and University of Potsdam, JPL-Caltech, and STScI

Credit: NASA, ESA, and Hubble Heritage Team (STScI/AURA)

IPS Update Masthead: Big Blue Marble Earth
Credit: R. Stockli, A. Nelson, F. Hasler, NASA/ GSFC/ NOAA/ USGS
Helping planetariums and planetarians succeed is the core of the GLPA’s mission. Our annual conference is the main event, but there are so many ways we can network and learn between conferences! State meetings are coming up, April through May, but there are many opportunities year round. Check out the following opportunities, and send any new ideas our way!

- **State Meetings:** ([https://glpa.org/states](https://glpa.org/states)) Informal, affordable spring gatherings by location. You don’t have to be a GLPA member to participate, so consider bringing a non-member friend!

- **Online Seminars:** ([https://glpa.org/monthly-online-seminars](https://glpa.org/monthly-online-seminars)) GLPA partners with the Pacific Planetarium Association to facilitate online seminars on roughly a monthly basis. Participate live, or go back and watch previous seminars.

- **GLPA Newsletter:** ([https://glpa.org/newsletter](https://glpa.org/newsletter)) This newsletter is a great way to learn and share. Check out past issues, and consider contributing an article!

- **The Dome Dialogues:** ([https://www.facebook.com/groups/domedialogues/](https://www.facebook.com/groups/domedialogues/)) This isn’t a GLPA function, but it’s a closed Facebook Group open to planetarians. It’s an active group — browse, ask questions, share answers.

- **GLPA Website:** ([https://glpa.org](https://glpa.org)) Use the site’s search function to mine our online home for treasure, and you’ll find links to relevant papers and posters in our Conference Proceedings, or perhaps a Tips Booklet in our Resources section.

(continued on page 21)

As you probably know, 2019 marks the 50th anniversary of Apollo 11 and mankind’s first footsteps on the Moon. However, this spring is also the 50th anniversary of its two very important preparatory missions — Apollos 9 and 10.

Coming just two months after Apollo 8’s historic first lunar orbiting mission, Apollo 9 was less dramatic but just as important if the United States was to successfully place astronauts on the Moon before the end of the 1960s. For the first time ever, the Apollo Lunar Module (nicknamed Spider) was flight tested with the Apollo Command Module (nicknamed Gumdrop) in low Earth orbit starting on March 3, 1969. Since the LM was unable to operate in the 1g Earth environment, this LM test had to work properly for NASA’s aggressive time table to succeed. The Apollo 9 crew, consisting of James McDivitt, David Scott, and Rusty Schweickart, spent ten days in low Earth orbit and successfully tested all the necessary systems, setting the stage for the full “dress rehearsal” of Apollo 10.

Coming two months later (May 18-26, 1969), the flight of Apollo 10 served as a final test of all systems necessary for a lunar landing, and did just about everything but land. Piloted by Tom Stafford and Gene Cernan, the Apollo 10 Lunar Module (nicknamed Snoopy) came within 10 miles of the lunar surface before firing its ascent engines to rejoin John Young in the orbiting Command Module (nicknamed Charlie Brown). The success of these two lesser known Apollo missions made it possible for Neil Armstrong and Buzz Aldrin to plant their history-making footprints in the soil of Mare Tranquillitatis in July.

(continued on page 21)
Digistar 6 creates realistically rendered real-time black holes. Now you can demonstrate proper gravitational lens distortion including Einstein rings when stars appear behind the event horizon. Digistar settings allow you to choose different characteristics including accretion disk on/off and disk color. It's just one of countless astronomy options in Digistar.
Illinois State Meeting
Date: Saturday, April 13, 2019
Location: Illinois State University Planetarium, Normal, Illinois
Host: Tom Willmitch (trwillm@ilstu.edu)

On March 7th, Chicago’s Adler Planetarium hosted Annette S. Lee, Director of the St. Cloud State University Planetarium [see image on page 7], for a talk on indigenous Native American stories and understandings of the stars and constellations. This talk, co-presented with the Archeological Institute of America, took 200 members of the AIA, Adler’s Friends of the Webster Institute, and the general public on a search through the varied histories of our night sky, and raised awareness of the Native Skywatchers Initiative. On December 1st, Adler experimented with a concept called Adler Book Club. Three Adler astronomers paired up with three local sci-fi authors for a series of one-to-one conversations about their most recent books, and the scientific underpinnings and inspiration behind them. [see image on page 7]. Upwards of 1,800 people braved single-digit temperatures in an attempt to observe the January 21st total lunar eclipse from the Adler. Even though totality was totally clouded out, guests enjoyed Moon-related activities throughout the building and their newest sky show, Imagine the Moon.

The William M. Staerkel Planetarium at Parkland College in Champaign will be showing the live Spring Prairie Skies, Two Small Pieces of Glass, and Flight Adventures. Their last James B. Kaler Science Lecture will be on April 5th and will address advances in artificial intelligence. On April 20th, they will host another all-day session of the Artemis Bridge Simulator. The AVI exhibit called “Many Inspired Steps” appears in the lobby. Work continues on new school programs for Champaign schools’ 5th grades. They are also making plans to address the new girl scout badges (Explorer, Adventurer, and Investigator). Plans are also in the works to assist the local forest preserve district on acquiring “Dark Sky Park” status for the Middle Fork River Forest Preserve, the first DSP in Illinois. There have been a lot of summer requests for their space suit outreach program given the 50th anniversary of Apollo 11.

Earth and space science is now a major offered by the Department of Chemistry and Geosciences in the
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- IT'S ABOUT TIME (AVAILABLE JUNE 2019)
College of Arts and Sciences at Olivet Nazarene University, home to the Strickler Planetarium. The Bachelor of Science (B.S.) in Earth and Space Science is a balance of theory, laboratory skills and techniques, planetarium operation training, and research. The degree is designed to provide a foundation in the sciences for those who want to use science at the intersection with other disciplines.

Peoria’s Dome Planetarium hosted four sold out Romance Under the Stars events for Valentine’s Day, their most popular year for this show yet! This spring, they will host their 20th annual Interplanetary 5K race, in which participants run to Mars and back in their Community Solar System Scale model [see image below], as well as a Space Explorers Day Camp in the dome. They are working on creating a live show using Uniview to celebrate the 50th anniversary of the Apollo 11 moon landing, and they will be celebrating the Apollo program all year. In May, they will premiere We Are Astronomers and will run it as part of their daily schedule throughout 2019.

The Illinois State University Planetarium in Normal, Illinois is offering two different public shows on weekends through May 4th. The first is Incoming!, which explores asteroids in our solar system. Their second show is Phantom of the Universe, which examines the mysteries of dark matter. [See image below].

Above Left: Annette Lee, Director of the St. Cloud State University Planetarium, recently spoke at Chicago’s Adler Planetarium.

Above: The Adler Book Club featured three Adler astronomers paired with three local sci-fi authors for a series of one-to-one conversations about their most recent books, and the scientific underpinnings and inspiration behind them. At the end of the event, the full group gathered to answer questions.

Above: This spring, Peoria’s Dome Planetarium will host their 20th annual Interplanetary 5K race, in which participants run to Mars and back in their Community Solar System Scale model.

Right: The recently renovated ISU Planetarium will host the Illinois State meeting on Saturday, April 13th.
Imagine the Moon

See the Moon in a whole new light with Adler’s newest sky show!

Planet Nine

The search is on.

For licensing information, please contact Mike Smail at the Adler Planetarium. msmail@adlerplanetarium.org
Indiana State Meeting
Date: Saturday, April 13, 2019
Location: Holcomb Observatory and Planetarium, Butler University, Indianapolis, Indiana
Contact: Jeff Bowen (jeffb@bowentechnovation.com) and Brian Murphy (bmurphy@butler.edu)

Indiana planetarians invite their colleagues from Indiana and other states to attend their state meeting on April 13th to see the completed work on the planetarium and observatory. Among other things, the meeting will feature a demonstration of the imaging system and how the telescope can be operated from anywhere during the daytime. In addition, telescope viewing will be held on the nights of Friday, April 12th and Saturday, April 13th.

The Brown Planetarium at Ball State University reports that they recently hosted a special family month where two family picks were offered on select Fridays and Saturdays in January. For their youngest astronomers, One World, One Sky: Big Bird’s Adventure was offered. For the slightly older astronomers, they presented Earth, Moon, & Sun. Many hands-on activities were set out for visitors, including some activities from the NISE Network, balloon rockets, moon investigations, and sending postcards from the moon. [See images below]. In other news, Ken Miller and Mark Webb from GOTO INC visited the Brown Planetarium in January. They were surprised to see that Sarah Vise (Ball State undergraduate student and planetarium worker) had the GOTO CHRONOS II star projector tattooed on her arm. [see image ➔]. Since Sarah is graduating in May, she said she wanted to do something special since “working at the planetarium has been one of [her] favorite experiences at Ball State.” The Brown Planetarium utilizes a HYBRID system that includes the GOTO CHRONOS II star projector.

Finally, the Brown Planetarium and Ball State University astronomers are hosting a very unique series of public telescope events in March and April. What makes it unique is that the telescopes are located at dark observing locations in Arizona, South America, and the Canary Islands. Collectively, these telescopes span seven time zones and will give attendees access to the Southern Hemisphere sky and an assortment of star clusters, nebulae, and galaxies in real time. BSU is part of the Southeastern Association for Research in Astronomy (SARA) that operates these research instruments through the Internet.
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The First Stargazers, a production from the Milwaukee Public Museum, is just one of several ways that the Kalamazoo Valley Museum Planetarium is connecting families with the night sky this spring. On April 12th, KVM will participate with Michigan State University’s Science Festival for “State Wide Astronomy Night” (SWAN). The activities planned for SWAN include Stargazing for Families, a live session under the dome that will discuss how a family can interact with the night sky using the unaided eye or simple tools like a planisphere and binoculars and tips on using a simple telescope. In addition to other planetarium presentations (First Stargazers, Max Goes to the Moon, and Dawn of the Space Age), Eric Schreur, former KVM planetarium coordinator, will present Photographing the Night Sky. This will be followed by Glen Swanson’s presentation Michigan’s Ties to the Space Program. Swanson, a native of Michigan, was both a NASA Historian and the original publisher of Quest Magazine. Other programming at KVM for this spring includes In My Backyard and two shows that examine the last days of the Cretaceous Period, Dinosaurs at Dusk and Did an Asteroid Really Kill the Dinosaurs.

The Longway Planetarium has two big projects at the moment. The first is their first fulldome feature production on forces. It’s a look at Newton’s three laws of motion aimed at a third grade audience. They’ve written about half of the script and are already at work on some modeling for the show. The other project is a fulldome vignette for the 50th anniversary of the lunar landing coming later this year. They plan on hosting an event and want something special to show off to their patrons. Their idea is to cut together some historical NASA footage into their own montage to use with the public for the day.

Depending when you read this, the new U-M Museum of Natural History will either be open or about to open. Over 2,000 school children were booked for the dome in the four weeks after the April 14th public opening. Actually, the April opening is the second of three. The main entrance and Atrium have been open for a while now as a teaser. April will see the opening of the Dome, Museum Store, Forum Theater, and some of the exhibits. Opening will conclude in November with three more galleries. The Dome has been busy with over 60 department and administrative demos of what it is, how it works, and what it can do. The staff has also been busy programming, training, and learning, and are about as ready as they can be. The staff offers a special thank you to fellow Michigan planetariums at MSU, Kalamazoo, Grand Rapids, Flint, and Bay City, as well as Matt Turnbull, who came to Michigan with his wife to pursue her doctorate degree.

The Grand Rapids Public Museum’s Roger B. Chaffee Planetarium is surviving winter (despite Polar Vortex weather closures) with high attendance during Snowflake Break and the return of Concerts Under the Stars. As this is being written, the first two concerts have seen sold out crowds, and the upcoming shows expect similar success. In February, GRPM hosted Roger That!, an annual collaboration with Grand Valley State University that celebrates space travel and honors Roger B. Chaffee. The two-day event includes a free academic conference, guest speakers, and hands-on space-themed activities. Chaffee Planetarium staff are currently working on their next live school production, an as-yet-untitled “choose your own adventure” show that explores the solar system and utilizes clicker technology.

The Hurst Planetarium at Ella Sharp Museum in Jackson is getting back into full swing for 2019. After many renovations to the inside and the exterior, the staff hosted a successful “relaunch party” in January, as well as a well-attended lunar eclipse viewing party on January 21st. 2019 is the 50th anniversary of Hurst Planetarium and Apollo 11, so Ella Sharp Museum is featuring the planetarium and science as the primary components in their upcoming programs, such as Sugaring & Shearing & Science, a new “First Fridays” event series, a museum exhibit on the history of space in Jackson, and more.

The Abrams Planetarium has begun its celebration of the 50th anniversary of the moon landing with very local connections. In 1969, East Lansing artist Alixandra Summit painted three paintings commemorating the big event. They were intended to be displayed in blacklight. So, what better place to bring them out of storage than their blacklight gallery?! They are on display through at least the summer. They are also about to roll out a telescope borrowing program, partnering with the Capital Area District Library’s Library of Things. The planetarium is providing the modified
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Biennial IPS conferences bring together hundreds of planetarium professionals from around the world for paper sessions, invited speakers, workshops, panel discussions, vendor demonstrations, and exhibits. Our next conference will be held 18-25 June 2020 in Edmonton, Canada.

Dues for individuals are US $65 for one year or US $100 for two years. For more information or to join IPS, contact Ann Bragg, IPS Treasurer/Membership Chair, at ann.bragg@marietta.edu. Join electronically by visiting the IPS website at www.ips-planetarium.org.

Just imagine what we can do together.
The Delta College Planetarium in Bay City is continuing to make good use of its recent upgrade to **Digistar 6** by creating new custom content for special live programs. These include presentations on the Apollo 8 anniversary, observational astronomy techniques, and the Northern Lights. Exhibit and program development continue for the 50th anniversary of Apollo 11. Beginning in May, they will be among the first to debut the new show *Capcom GO: The Apollo Story* produced by NSC Creative. In addition to the “Many Inspired Steps” exhibit by Tom Lesser, planetarium staff are developing supportive displays to go into its Space Explorers Hall and main lobby.

The Michigan Science Center will be hosting this year’s Michigan State Meeting on May 18th. Spitz and E&S have been generous enough to sponsor and Spitz will be installing a temporary SciDome system. If anyone is interested bringing content or presenting, please contact Paulette Epstein at paulette.epstein@mi-sci.org.

### Ohio State Meeting
**Date:** Saturday, April 27, 2019  
**Location:** Coshocton High School Planetarium, Coshocton, Ohio  
**Host:** Ron Derewicki ([ron.derewecki@gmail.com](mailto:ron.derewecki@gmail.com))

Let’s go in reverse alphabetical order by planetarium name this time, beginning in Erie, where Jim Gavio reports that on November 1, 2018, Astronaut Mike Fincke [pictured below] visited the **Yahn Planetarium** at Penn State Behrend for the fourth time in his career. Mike did a presentation in a nearby lecture hall to standing room only. His topic was “Space Exploration: The I.S.S., Moon and Mars.” Astronaut Fincke has been a longtime friend of the planetarium and has helped educate the local public and students in the latest NASA happenings. He has done two radio connections with students in the planetarium while on Station and has even taken Erie items to space. A good friend indeed! Jim’s current spring shows are *From Earth to the Universe* and *The Sky Above Mister Rogers’ Neighborhood*. He is also working with the Digital Arts students on campus to create content not only for the planetarium but for other campus classes as well.

Curt Spivey reports that the **Ward Beecher Planetarium** at YSU had a phenomenal weekend at the end of January. Friday and Saturday was “Rock the Dome Weekend.” Rather than rent a laser system, they used SkySkan’s Milkdrop program in Digital Sky 2 to present 14 shows. They had 1,739 visitors through their 145-seat planetarium in 48 hours and are now close to 1,000 visitors ahead of last year’s public show attendance pace, when they had 10,000! By a show of hands, it looked like a third to half of the attendees had not been there before, making it a great promotional tool to get folks back for regular shows! In other news, Director Dr. Patrick Durrell is on FIL this semester, so Dr. John Feldmeier is interim director until May. Pat and his wife Kathy also just became naturalized U.S. citizens (from Canada, eh). YSU is also prepping for the 50th anniversary of Apollo 11. [See their main lobby display case in the photo ➔]. Their display was adapted
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GOTO is proud to announce that Mark Webb, Theaters Director at the Adler Planetarium for 23 years, has joined Ken Miller on the GOTO U.S. team. They are committed to helping you make the future of your planetarium the best it can be.

Make a commitment to reach out to GOTO today and start a conversation about the future of your dome.

We may already be friends, if not let me introduce myself, I’m Mark Webb. I’m still using Chicago as my home base in my new role representing GOTO in North America. Please feel free to contact me or say hello the next time we meet at a conference. If you are visiting Chicago let me know and we can try to meet up, maybe even visit the Adler together. If you are thinking about renovating your planetarium, or building a new one, let me know about that too because I would like nothing more than to listen to your plans.

For details, please see my self introduction on Goto’s website.

Sincerely,
Mark Webb
from AVI’s free display “Many Inspired Steps.” Curt jazzed it up a bit and culled it down; it covers the whole of space travel history. They are having 3D models made by YSU’s additive manufacturing lab to add over the next month or two. See also the 36-inch Saturn V [see photo ➔] that Curt is preparing to paint and detail. A CM and an LEM are on the way. Ward Beecher will also be running Ott’s great show First and Furthest in April and again a few weeks ahead of the anniversary in July. Last but not least, they just had a 12-inch Dob donated to the planetarium to add to their growing telescope inventory. They’re getting ready for 2024!

Scott Oldfield reports that the Vandalia-Butler Planetarium at Smith Middle School followed the 50th anniversary theme shows of X-Marks the Spot and Mercury! with successful productions of Gemini—Double the Fun and Moon Mysteries. Moon Mysteries examined lunar firsts: artwork, photos, landings, Apollo 1, as well as a telling of Selene mythology. January’s Apollo - God of the Sun, a trip to the Moon, was snowed out but will examine the missions up to Apollo 11 with a focus on Apollo 8 and then some tales of the Sun god in February. March’s The Loneliest Men in the Universe will celebrate Michael Collins and all the unsung command module pilots along with an examination of some more obscure constellations. As always, Scott would appreciate your thoughts when deciding what to do with your old special effects projectors and constellation overlay slides as you continue your digital upgrades (even their carpet will be celebrating 50 years in 2020!).

Lois Wolf reports that the newly renovated Sidney Frohman Planetarium in Sandusky is open with a Digitarium Lambda instrument, Bowen Technovation lighting and sound, and a great new dome from Astro-Tec. Sandusky City Schools is looking for a new STEAM-oriented Planetarium Coordinator. See the notice in the Bulletin Board page of this newsletter.

Bryan Child is having what he calls a typical year at the Shaker Heights Planetarium. Unfortunately, they were unable to see the eclipse in Shaker due to solid cloud cover, causing a lot of their astronomy students to be upset; they had the next day off so it would have been a perfect time to stay up late and watch the event. The arctic blast caused two days off and then a water main break caused by the cold closed the high school on Friday. Sandusky schools sent some people over to see how Shaker operates, as a part of determining how they want to staff and operate their space.

Finishing with the head of the alphabet, at the BGSU Planetarium Dale Smith and students held a successful observatory open house for the lunar eclipse on January 20th. At least thirty visitors braved the subzero wind chills to see the eclipsed moon, M31, and Mizar and Alcor. One person even stayed through the end of closing partial phases. In the planetarium, BG-Fest is featuring week-long runs of all the classic shows BGSU created during the thirty years before installing fulldome in 2014. All the shows have been digitized — soundtracks, images, and video — and are played with the SciDome’s ATM-4 automation and Starry Night sky sequences replacing what was once shown with the Minolta star projector. BGSU mourns the passing of long-time narrator Dr. Lois Cheney, emerita from BGSU’s Theater Department. Lois narrated in more than a dozen planetarium shows over the years with her marvelous voice and interpretive skills. An excerpt of her narration was played at her funeral service in February. Dr. Cheney was an invited lecturer at the 1988 GLPA Conference in Bowling Green.
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WIMPS Meeting
Date: Friday-Saturday, April 12-13, 2019
Location: Bell Museum Planetarium, Saint Paul, Minnesota
Host: Sally Brummel (sbrummel@umn.edu)

The Barlow Planetarium at UW-Fox Valley just completed their seasonal four months of laser shows, with near capacity crowds. Field trips are continuing to be extremely popular; at the halfway point of their fiscal year, they have already taken 75% of the bookings they did last year. On the field trip front, Barlow’s science demonstration program called Orbit is continuing to grow and is now solidly the third most attended program offered – over 4000+ students participated in the program last school year and they are expecting those numbers to increase by at least 25%. Finally, the Barlow is planning on what the next generation of the Barlow will look like – many (all) equipment changes, slight architecture changes, and seating changes.

The Bell Museum’s “Year of Apollo” to celebrate the 50th anniversary of Apollo 11 is underway! The first event was a weekend-long Space Fest that concluded with the January 20th total lunar eclipse, where the Bell Museum saw over 4,000 visitors, 1,300 for the frigid lunar eclipse alone! Upcoming events include the Museum of the Moon installation in May-June, a seven-meter sphere suspended from the lobby ceiling, and the premiere of the original planetarium production One Giant Leap in June.

The Forestview Planetarium saw the installation of a Digistar 6 system in late November of 2018. A single projector system that was originally installed in 2004 was replaced with a two projector system. Sony laser projectors produce a spectacular image on the dome! Parts of shows never seen before are now amazingly brilliant. Mystery of the Christmas Star was shown nightly for two weeks in December. In February, two shows ran each night for a week: The Solar System Show, produced by the Milwaukee Public Museum, and the European Southern Observatory’s The Hot and Energetic Universe will accompany a night sky tour. The Forestview Planetarium is in year two of hosting school visits from 22 school districts that surround Brainerd. This is done at no cost to the schools, including transportation due to funding from Sourcewell in Staples, Minnesota. Thanks to Sourcewell, thousands of children are getting the opportunity to experience a planetarium, many for the first time!

The Manfred Olson Planetarium at UW-Milwaukee finished Birth of the Universe with record attendance of 900+ people at the end of February. In January, they hired a part-time marketing coordinator, who is helping them publicize the planetarium on campus and the community. In spring, they are starting a new production titled Arabian Nights to celebrate Arabian contributions to astronomy, learn more about Arabian culture, and to share with our audience some of the stories from the One Thousand and One Nights.

DON’T MISS OUT
To be included in the summer issue’s State News column, please forward news from your facility to your state chair in the latter half of April.

If you have a digital picture of a newsworthy event held at your planetarium, please e-mail it to the Editor at bart.benjamin@icloud.com for possible inclusion in the IPS Planetarian’s “International News” column.

WHO DO I CONTACT?
If you ever have a GLPA-related question, but are not quite sure to whom you should direct that question, GLPA may have your answer.

The GLPA website has a page that provides a helpful way to determine who best could answer your question. To use it, please visit glpa.org/contacts
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The **Stiftung Planetarium Berlin** finished out 2018 with the Premiere of *Nachtflug* (Night Flight), a multi-media collaboration with the Dutch video-artist Julius Horsthuis and local electronic musicians Parra for Cuva, and Aparde and Apparat. The program uses the many modern systems of the Zeiss-Großplanetarium (ZEISS UNIVERSARIIUM Modell IX and VELVETs, Evans & Sutherland Digistar 6, 3D sound system, and laser system) to create a musical and visual trip through city nightlife to fractal fantasy worlds, dissolving the barrier between reality and fiction. *Nachtflug* has been received with extremely positive reviews and continues to be popular into 2019.

SPB has enjoyed a strong start to 2019 and it promises to continue being an exciting year. In January, the Zeiss-Großplanetarium celebrated a great milestone — reaching 500,000 visitors since its grand re-opening in August 2016! Like our colleagues in the United States, SPB had the lunar eclipse to celebrate in January too. Coffee and croissants were provided for the viewing (the eclipse was from 3:36 a.m. through sunrise) to keep observers energized for the event. Unfortunately, the event was clouded out in Berlin, but that didn’t stop eager visitors from attending and partaking in activities at both the Wilhelm-Foester-Sternwarte (observatory) and the Archenhold-Sternwarte.

January also featured *Die Kuppel in der Kuppel* (The Dome in the Dome). This was a special event where the INTENSE Project set up the 6m mobile planetarium inside the 20m dome at Planetarium am Insulaner (PAI). The event allowed both the Public and the Friends of the PAI Association to see what the INTENSE Project is about and experience the programs first hand. The event was very successful, enabling the INTENSE team to show not only the science programming in the dome (everything from astronomy and the ISS to the energy production and natural science) but also some of the programs for older students that bring in an element of technology and programming using fisheye lenses to create 360° videos for the dome.

As the year progresses, SPB will remain quite busy. Between a full lineup of programs at all three large houses and with the INTENSE dome in the community, the 50th Anniversary of Apollo 11 and the Transit of Mercury, the staff is looking forward to serving the community and visitors to Berlin.
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What’s Next?

Exclusive Chinese sky culture art.
As of writing this, *Morrison Planetarium* at the California Academy of Sciences is only a few days away from another program shift. *Journey to the Stars* will be ending its daily run and will be replaced by *Passport to the Universe* from the American Museum of Natural History. The Morrison Planetarium presenter team will be featuring a new live portion to go along with *Passport* that explores how protoplanetary disk composition and mass influence the types of planets in exoplanet systems. Also continuing are *Incoming!* and *Expedition Reef*. A new members-only live show, *Tour of the Moon*, will highlight some history of Moon exploration, the Apollo missions, and what we hope to explore in the future, all in time for the Apollo landing anniversary in July. Hohfeld Hall is now more than a month into its run of *Learning from Light*, a live, interactive presentation about light, color, and how we use spectroscopy to learn about the Universe. This show includes interactive elements such as spectrosopes, element lamps, and multi-colored flashlights. The Visualization Studio team took another trip down to Chile in January to start filming fulldome shots for the upcoming show focused on astronomy in Chile. Check out the Morrison Planetarium at the California Academy of Sciences Facebook page at [https://www.facebook.com/morrisonplanetarium](https://www.facebook.com/morrisonplanetarium) for some updates they shared during their trip (including some pictures immediately following a 6.7 magnitude earthquake!) The Benjamin Dean astronomy lectures this spring featured Seth Shostak from the SETI Institute, Daniella DellaGiustina from NASA’s OSIRIS-REx mission, and Shami Chatterjee from Cornell Center for Astrophysics and Planetary Science and the Carl Sagan Institute. Recordings of all Dean Lectures are available on iTunes U.

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**PRESIDENT’S MESSAGE  (continued from page 3)**

- **GLPADomes:** ([https://groups.google.com/group/glpadomes](https://groups.google.com/group/glpadomes)) Post a question or answer a question on our email discussion group. Subscribe if you are not already a member of this group.
- **GLPA Social Media:** ([https://glpa.org/resources/socialmedia](https://glpa.org/resources/socialmedia)) Join our communities on Facebook, Twitter, Slack, and Instagram.
- **Dome-L:** ([http://groups.google.com/group/dome-l](http://groups.google.com/group/dome-l)) This international email group often has lively discussions. It is another great place to post questions. Its archives are a great resource too.

If you want to get in touch with a particular person, search for them in our Current Members list ([https://glpa.org/civicrm/profile?reset=1&gid=19](https://glpa.org/civicrm/profile?reset=1&gid=19)). We don’t give out their contact information, but you can send them a message. Planetarians are famous for helping each other. We love to help. We love to teach and share. Don’t be shy — jump in and ask questions. Participate in this wonderful community all year long. Thanks for sharing!

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**EDITOR’S MESSAGE  (continued from page 3)**

Spring is the time for GLPA state meetings, and I encourage you to attend yours. The dates, locations, and contact names are given at the beginning of each state’s report in the State News section, or by visiting GLPA’s State Organizations webpage at [glpa.org/states](http://glpa.org/states).

Please note that the deadline for the summer issue of the *GLPA Newsletter* is **May 1, 2019**. Please submit your facility reports to your State Chairs by late-April. Have a wonderful spring and enjoy your state meeting!
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Order *The StarGazer* through the GLPA Online Store at glpa.org/online-store.

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**Save the Date**

**WAC 2019**

July 31st - Aug 3rd

Omaha, NE

The University of Nebraska Omaha Mallory Kountze Planetarium would like to invite all of the planetariums of the Western Alliance to meet in Omaha, Nebraska. Conference dates will be July 31 – August 3, 2019. The whole family is invited to visit Omaha.

**Banquet: Omaha’s Henry Doorly Zoo and Aquarium**

Consistently ranked one of the world’s best zoos, Omaha’s Henry Doorly Zoo and Aquarium is the ultimate interactive zoo experience. Walk through the world’s largest indoor desert and the largest indoor rainforest in North America. Explore exotic locations and underground caves to see thousands of animals from across the globe in their natural habitat.

Accommodations:
CoCo Key Resort Hotel and Convention Center

CoCo Key Resort Hotel is located in the heart of Omaha, this hotel is 2.9 mi (4.7 km) from University of Nebraska-Omaha.

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Cosmic Colors
An Adventure Along the Spectrum

Cosmic Colors: An Adventure Along the Spectrum is a dynamic new planetarium show from the Great Lakes Planetarium Association (GLPA) that will take you on a wondrous journey across the entire electromagnetic spectrum. Get ready for an amazing adventure under a rainbow of cosmic light!

31 minutes in length  Target audience: 5th grade and up

Ordering information:

FULLDOME VERSION: $300 for a full dome masters at 4K x 4K (need 1 TB hard drive)
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For FullDome versions, each planetarium must ship an appropriate hard drive to GLPA. Show encoding is the responsibility of each planetarium.

TRADITIONAL VERSION: $100 for traditional version with two discs -- a playable Cosmic Colors show DVD and a DVD data disc containing all-sky images, digital JPEG images, audio tracks, flattened video scenes, teacher guides, and documentation.

Order Cosmic Colors through the GLPA Online Store at glpa.org/online-store.
GLPA CONFERENCE SCHOLARSHIP

Each year since 2011, GLPA’s Executive Committee has awarded a pre-determined number of scholarships for the next fall conference. Each scholarship waives the registration fee and meal package for the award recipient.

Before applying, please read over the Conference Scholarship eligibility and instructions webpage at glpa.org/conference_scholarship_eligibility.

Applicants should complete and submit the online application form at glpa.org/conference_scholarship_application. Applications received by August 15 will receive full consideration. Applications received after August 15 may still be considered at the discretion of the Scholarship Committee, contingent upon availability of funds.

PLANETARIUM COORDINATOR POSITION

Sandusky City Schools is looking for a new STEAM-oriented Planetarium Coordinator, as opposed to a Director, as that position is being eliminated. If you are interested in the position, please call Sandusky City Schools at (419) 626-6940 and ask for Dr. Vilicia Cade’s office. She is the Chief Academic Officer.

This image of the recent total lunar eclipse is offered to my planetarium friends, especially those who were clouded out. 😊

It was taken near the mid-point of totality (5:13 UTC on Jan. 21) and reveals hues of magenta in addition to the more typical red and copper colors seen during totality. I enjoyed clear skies but a temperature of only +4º F from my observing location in the suburbs of Chicago.

Bart Benjamin
The IPS Education Committee is offering a new service — a communication tool for planetarians and teachers needing help or suggestions on how to teach a topic in the planetarium. Visit www.ips-planetarium.org/page/helpteaching and a member of the IPS Education committee will help you with ideas from planetarians around the world on best practices for presenting content or leading activities under the dome.

IPS has also updated their membership model and is now using the ‘anniversary’ model for memberships, meaning that expirations are 1 year (or 2 years) from the join date. Previously, they used the ‘annual’ model where all memberships expired on 12/31/YYYY. As a result, most long-time memberships do still have December 31 expiration dates. Log into your account at ips-planetarium.org to check your membership status; there’s a 50/50 chance your account expired at the end of 2018!

In addition to offering a sizable amount of free fulldome content to planetarians over the years, the European Southern Observatory (ESO) is now offering ready-made exhibit panels, digital web apps and more for planetarians’ use under Creative Commons licensing. Find the full details at www.eso.org/public/news/eso1901/.

In June, GLPA’s IPS Representative Mike Smail will attend the IPS Council meeting in Reykjavik, Iceland. At this meeting, Mike will cast GLPA’s vote for either Houston, USA, or St. Petersburg, Russia as IPS 2022 host site. Many of you shared your thoughts directly with Mike, or voted in a straw poll at GLPA 2018 in East Lansing. If you have further questions, or preferences about which site you feel GLPA should support, please email Mike at msmail@adlerplanetarium.org.

IPS2020 will be held June 18-25, 2020 at Telus World of Science Edmonton, Canada. Registration is currently targeted at $490, official hotels cost $110-$160, and lower priced university rooms will also be available. There hasn’t been a North American IPS since Baton Rouge in 2012. The Canadian dollar is currently down vs the U.S. Dollar, which, coupled with the closer geographic proximity to GLPA, means this is shaping up to be the most inexpensive IPS in several years. The IPS2020 website is now live; visit ips2020.twose.ca for more information.

The IPS Planetarium Centennial Task Force is still seeking input on activities to celebrate the centennial of our profession. Many good ideas came up during a brainstorming session at the recent IPS Conference in Toulouse, but the Task Force is still open to additional ideas. Learn more about their work at www.ips-planetarium.org/page/centennialtaskforce.
GLPA’s 44th newsletter and the first issue of 1979 contained the following articles and columns:

★ This issue of the newsletter began by providing two pages of tables that gave the heliocentric longitudes of the planets out to Saturn and the apparent positions of the Sun and planets for every two weeks of 1979.

★ It was announced that *Sky & Telescope* published an article by Jeanne Bishop titled “The Committee of 10,” in which she described this politically powerful group of educators whose report to the National Education Association in the late 1800s had a profoundly adverse effect upon astronomy education for many decades thereafter. [Ed: See Jeanne’s title page in *S&T* ➞]

★ Darrell Hoff from the University of Northern Iowa in Cedar Falls wrote an article titled “Update on Some Recent Happenings in Astronomy.” [Ed.: Darrell Hoff’s article, which he gleaned from various scientific journals, read like a short version of GLPA’s current Astronomy Update].

★ Roger Grossenbacher from the Peters Planetarium in Lancaster, Ohio described two ideas for planetarians. The first, which he dubbed “Cars in the Stars,” played on the fact that many popular automobiles are named for celestial objects. The other, titled “The Smell of the Moon,” tried to re-create the smell of freshly oxidized Moon dust, as described by the Apollo astronauts.

★ Sig Wieser from the Centennial Planetarium in Calgary wrote an article that expressed the mathematics behind the calculation of Easter.

★ Two pages of the newsletter were devoted to an Astronomy Quiz by Bob Andress of Warrensville Heights, Ohio and an astronomy Astro-Gram puzzle by Duane Allman.
GLPA’s 123rd newsletter and the first issue of 1999 contained the following articles and columns:

★ This issue of the GLPA Newsletter was particularly rich in articles. First, Gary Tomlinson reflected on the recent 1998 GLPA Conference that was hosted by Dan Goins and his “Little Planetarium that Could” in Nashville, Indiana. That was GLPA’s first conference without a planetarium facility. What it did offer, Tomlinson remembered, was observing with a 20-inch telescope, beautiful fall colors in a rustic setting, no bus trips, covered bridges, a cookout with square dancing, and a wonderful recital during the Spitz Banquet by the Martinsville High School Choir.

★ Alan Pareis proudly reported the successful completion of the GLPA Russian Slide Project that he has labored on for more than four years. In the end, the chairperson of the Russian Association of Planetaria received 36 slide sets with complete documentation and letters of greetings in Russian.

★ Mitch Luman, who was then curator of the GLPA Slide, Tape, and Software Bank, described the Hubble Slide Service that GLPA began offering in 1997. Mitch described the process of how he would receive slides directly from the Space Telescope Science Institute (STScI), copy them onto rolls of slide film, develop the slides, and re-mail them to members who subscribed to the service.

★ In Illinois state news, the Cernan Earth & Space Center hosted the cast and crew of the CBS television series “Early Edition” for an upcoming episode. [Ed.: “Early Edition” stars Kyle Chandler and Kristy Swanson and a dozen or more production crew members descended upon the Cernan Center late one Friday-Saturday night to film the opening scene of an episode in the planetarium theater].

★ This issue’s “Planetarian Profile” featured GLPA’s President Dan Francetic, who described his 28 years at Euclid High School’s planetarium in Euclid, Ohio, how one of his students persevered through many failures to become an Aerospace Engineering Professor at West Point, and his other great passion — fly fishing in Ohio, Colorado, and Pennsylvania.

★ Finally, Eric Schreur provided readers with detailed highlights for the upcoming fall conference in Kalamazoo, Michigan.
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“From the day that we were born we were destined to be together in this room today…”
THE GREAT LAKES PLANETARIUM ASSOCIATION (GLPA) offers membership opportunities to all individuals in any way connected with the operation of planetariums regardless of geographic location. GLPA is an affiliate of IPS (International Planetarium Society), NSTA (National Science Teachers Association), and IMERSA (Immersive Media Entertainment, Research, Science & Arts). Membership dues are $20 annually, payable at the time of the Autumnal Equinox. General correspondence should be addressed to the Secretary, and requests for membership should be addressed to the Membership Chair (see below). The quarterly GLPA Newsletter is received by all members in good standing. Ideas and opinions expressed in the GLPA Newsletter are not necessarily those of GLPA, its membership or the editor. Deadlines for contributions fall on the 1st of February, May, August, and November. Send information to GLPA Newsletter Editor (address below). Copyright © 2019.

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UPCOMING CONFERENCES:
2019 October 23 - 26
Toledo, Ohio
2020 October 21 - 24
Kalamazoo, Michigan

Astronomical photographs used within the GLPA Newsletter are courtesy of NASA and the Space Telescope Science Institute (STSci).

PLEASE NOTE:
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**IMAGE CREDITS**

**Cover Illustration:** On April 10th, news broke that a team of international astronomers had captured the first-ever image of a black hole. It is located at the center of the M87 galaxy, which is 55 million light-years from Earth in the Virgo cluster. The image quickly went viral as even non-astronomers marveled at the achievement. The image was obtained by the Event Horizon Telescope (EHT), a planet-scale array of eight ground-based radio telescopes that was specifically designed to capture this type of image. You can read more about it at [https://go.nasa.gov/2W5FOxX](https://go.nasa.gov/2W5FOxX) (NASA JPL) and [http://bit.ly/2XfOOlb](http://bit.ly/2XfOOlb) (European Southern Observatory).

**Cover Design:** Emily Hromi (ehromi@grpm.org)

The current design of the *GLPA Newsletter* incorporates small sections of several NASA images for its page mastheads. These and other images can be accessed from NASA websites such as Mars Exploration, Scientific Visualization Studio, and Hubble Space Telescope websites at [www.spacetelescope.org/images/](http://www.spacetelescope.org/images/), [heritage.stsci.edu](http://heritage.stsci.edu), and [hubblesite.org/gallery](http://hubblesite.org/gallery). And because all these photos are from NASA, they are free to use (with proper credit).

**Image Credits page background image:** NGC 2074 in the Large Magellanic Cloud  
**Credit:** NASA, ESA, and M. Livio (STScI)

**Image Credits page inset image:** M96: A Galactic Maelstrom  
**Credit:** ESA/Hubble & NASA and LEGUS Team

**State News Masthead:** Young stars in the “wing” of the Small Magellanic Cloud  
**Credit:** NASA, ESA, CXC and University of Potsdam, JPL-Caltech, and STScI

**Bulletin Board Masthead:** M13: A Celestial Snow Globe of Stars  
**Credit:** NASA, ESA, and Hubble Heritage Team (STScI/AURA)

**GLPA Elections masthead:** Supernova remnant E0102 explodes within the Small Magellanic Cloud  
**Credit:** NASA, ESA, and the Hubble Heritage Team (STScI/AURA)

**Software Review Masthead:** Newborn stars within the Prawn Nebula  
**Credit:** European Southern Observatory

**IPS Update Masthead:** Big Blue Marble Earth  
**Credit:** R. Stockli, A. Nelson, F. Hasler, NASA/ GSFC/ NOAA/ USGS
President's Message

GEOFF HOLT

Planetariums are nothing without people. Our ability to communicate, educate, and entertain hinges on our capacity to connect with people. Even a technician who doesn’t interact directly with the general public still needs to interface with coworkers.

At the conference last fall, Dr. Jessica Garcia helped us to grow in our people skills, especially concerning our implicit biases — guarding ourselves against going into automatic response mode when we meet and interact with people. Psychologist, neurologist, and author Viktor Frankl puts it this way: “Between stimulus and response there is a space. In that space is our power to choose our response. In our response lies our growth and our freedom.” Wise words. In that moment, we can pause to reflect on any generalizations or assumptions we automatically make, and think again from that fresh perspective.

I find that this mental skill doesn’t come automatically with the initial intellectual understanding of the concept. I need to practice. I like moments that remind me to practice the intentional thought process before responding. Writing this is even a reminder for me: I hope reading this is a reminder for you.

I came across another great reminder this past weekend. It was a recording of an excellent Ted Talk by novelist Chimamanda Adichie called The Danger of a Single Story, which can be found at

https://www.ted.com/talks/chimamanda_adichie_the_danger_of_a_single_story

She reminds us that people are more complicated than we can perceive in a first impression — a single story. She said something that really caught my eye: “The single story creates stereotypes, and the problem with stereotypes is not that

[continued on page 25]

As we prepare for our 55th annual conference and our biennial election, this issue of the GLPA Newsletter is chock-full of articles, candidate profiles, meeting minutes, and facility news.

Beginning on page 26 Bob Bonadurer’s article titled Sports & Space: A Day at the Ballpark provides an illustrated article on Soref Planetarium’s participation at “Weather Day” in Miller Park, which provides a unique opportunity to present a space lesson for 10,000 children at once! Beginning on page 17, thanks to the great work of Waylena McCully and the Nominations Committee, we offer candidate profiles for the upcoming election of officers. And thanks to the great work of GLPA’s Secretary Dan Tell, the minutes of the spring Executive Committee meeting begin on page 43.

As I’ve noted before, there are many different pathways to the planetarium profession. For some like me, it started with a love of the nighttime sky and a serious devotion to my local astronomical society. I was especially drawn to those sky events that are rare and visually dramatic, such as lunar and solar eclipses, bright comets, Transits of Mercury and Venus, and lunar occultations. For us as educators, these less frequent sky events are “astronomy gold,” because they have the potential to draw people simply because of their scarcity, visual appeal, and “wow factor.”

My article, titled Celestial Rarities and When to Find Them (page 29), explores sky events that are rare and visually dramatic. No living human has seen all of the rarities on this list. How many have you seen? A companion article (page 39) reviews a little-known (and free!) piece of software that can be used to calculate these type of events anytime and anywhere in the world. My articles also mark the debut of GLPA Newsletter Plus, an online extension of this newsletter that I created to house supplementary documents too lengthy for a newsletter article, but still informative and relevant to that topic. The bottom section of page 30 explains it more.

Please note that the deadline for the autumn issue of the GLPA Newsletter is August 1, 2019. Please submit your facility reports to your State Chairs by late-July. Have a wonderful summer!
The LED Dome Has Arrived

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www.es.com/DomeX
Like many museums, Chicago’s Adler Planetarium hosts a monthly 21+ night. For the March and April events, known as “Adler after Dark,” the Adler joined up with the California Academy of Science’s Morrison Planetarium for a pair of domecasts. In these Universe Update domecasts, the two planetaria link their audio and video together, allowing staff at both locations to both narrate and control the trip around our universe. Over the course of 45 minutes, several of the biggest astronomical announcements of the previous month are discussed and visualized for audiences in both locations. The two sites have connected for about half a dozen domecasts so far, with more planned for the future. On the first Saturday of every month, Adler hosts a yoga session under their 70-foot Sky Theater dome. May the 4th’s session was appropriately Star Wars themed, as a packed house supplemented their exercise with a visit to celestial realms both near and far, far away. There’s recently been a restructuring of roles and responsibilities in Adler’s Theaters team. Familiar GLPA faces Mike Smail is now Director of Theaters & Digital Experience, Steve Burkland is Manager of Theaters and Digital Technology, and Nick Lake is Manager of Theater Experience and Presentation. [See photos from Adler on the next page].

The William M. Staerkel Planetarium at Parkland College will celebrate the Apollo anniversary with the “Many Inspired Steps” exhibition, a scale Earth/Moon model, a Lego Saturn V, and a bulletin board for people to post their Apollo memories. Notice was sent to two local retirement homes in an attempt to encourage people to email in their memories. For this summer they’ll do morning and afternoon matinees on Thursdays with The Little Star That Could, Earth, Sun & Moon in June and then One World, One Sky: Big Bird’s Adventure and In My Backyard in July. Friday nights bring Summer Prairie Skies and Dawn of the Space Age. In August, they’ll run Solar Superstorms. Director Dave Leake retires on June 30 after 30 years of service at Staerkel. For his efforts, Dave will be the grand marshal of the 4th of July parade. A new director has been chosen and an announcement will be made soon, pending approval by the college board of trustees. Operations manager Cindy Reynolds was awarded a 2019 Tourism Impact Award by the local convention and visitors bureau in early May. On June 1, Staerkel helped
the local Champaign County Forest Preserve District celebrate Illinois’ first Dark Sky Park at the Middle Fork River Forest Preserve, northeast of Rantoul.

This summer at the Peoria Riverfront Museum’s Dome Planetarium is all about the 50th anniversary of Apollo 11. They will offer a daily live show running called To the Moon and Beyond in which they review the Apollo missions to the moon, and fly to other fascinating moons in the solar system. They are planning a family day and an evening party on July 20th, called “One Small Step, One Giant Party” where guests can step back to 1969 and relive the moon landing. Planetarium Director Renae Kerrigan will be traveling to Chile in July to work on a NSF funded planetarium show and project, and luckily, will also get to view a total solar eclipse! Finally, the staff will be testing out a new program in the dome this summer and fall with a series of four concerts, called Deep Space.

The Illinois State Meeting was held at the Illinois State University Planetarium in Normal on Saturday, April 13. [A few photographs from that meeting appear on the next page].

Top Left and Right: Imagery on the dome from Adler Planetarium’s May 4th-themed yoga session.
Bottom Left: Mark SubbaRao describing temperature fluctuations in the early universe to guests during Universe Update.

Photos courtesy of Adler Planetarium.
For the record: The Indiana State Meeting that was to be held at Butler University on April 13th was cancelled due to low attendance.

With the Apollo 11 Anniversary in full swing, the Koch Immersive Theater & Planetarium in Evansville developed a new program, *The Eagle Has Landed*, which is being presented in parallel with a commemorative Apollo 11 exhibit it curated and is now on display at their museum. The live show makes use of their Digistar 5 system and a live presenter. The fulldome movie *Space Next*, distributed by Big & Digital, was added to its lineup. These two programs are currently in rotation with six other fulldome movies and one other live show offered every hour that they are open. The planetarium conducted its second annual International Drone Film Festival in April awarding film makers from around the world $2,000 in cash prizes and providing its audience a chance to screen the award-winning films inside their dome. Using rented equipment from Audio Visual Imagineering, evening laser light shows were offered in early June. This year, a laser light show workshop for teens and adults was offered using software from Pandolin Laser Systems. Participants had the opportunity to see the laser shows they created on the planetarium dome at the conclusion of the workshop.
On April 14, the new U-M Museum of Natural History in Ann Arbor opened. There had been a total of four opening event day and evening activities leading up to the opening, including 400 area educators and their families. Special programs presented during the four opening events were a big hit, and 21 shows were presented on opening day. But perhaps the most amazing aspect of the opening was the response by teachers, which began in late 2018. From the last two weeks in April through the start of the weekday public shows in July, they have approximately 7,500 school children booked, with many more calls coming each day. From April 25 through the middle of June, there are school, private group, or public shows every day, except Memorial Day! However, it’s not quite back to “normal” business, because three more galleries are set to open this November!

After ten exciting years, Howard George has left the Michigan Science Center in Detroit to work with the planetarium division of Seiler Instrument. Howard thanks his many mentors in GLPA for their inspiration, guidance, and generosity.

Fifty years ago, a six year old boy had just finished Kindergarten and was fortunate enough to have had a teacher who was excited about the space program. Those memories of Mrs. Kellicut, her age-appropriate explanations, and her plastic models used to prepare her students for the first Moon landing left a lasting impression on Kalamazoo’s Planetarium Manager Mark Reed that has continued to fuel his interests today. To celebrate the spirit of Apollo, the Kalamazoo Valley Museum Planetarium will feature Dawn of the Space Age by Mirage 3D and NSC Creative’s new show CAPCOM GO! The Apollo Story this summer. The combination of these two shows will share how we got to the Moon with the Apollo program and yet chronicle the Space Race between the United States and Soviet Union. In addition, Dome3D’s Space Park 360 will support “Amusement Park Science,” a traveling exhibit and presentations of Phantom of the Universe: The Search for Dark Matter, Black Holes: The Other Side of Infinity, and Max Goes to the Moon as part of their Hands-on Wednesday’s and Explorations for the Curious Mind time slots.

The Grand Rapids Public Museum’s Roger B. Chaffee Planetarium finished Concerts Under the Stars with five sold out (or very nearly sold out) performances, including a special double performance to close out the 2019 season. GRPM collaborated with the Grand Rapids Amateur Astronomical Association to celebrate Statewide Astronomy Night at the Veen Observatory, which was fairly well-attended despite cloudy skies. GRPM and its Roger B. Chaffee Scholarship Fund chose the 52nd Chaffee Scholar, and invited sculptor J Brett Grill to speak at the award ceremony; Grill is the artist who created the bronze statue of Roger B. Chaffee that was unveiled in Grand Rapids in 2018. The Chaffee Planetarium’s current projects in the works include Solar System Adventure, a short Apollo show for the 50th anniversary of Apollo 11, and an ever-evolving segment for astronomy-related current events.

The Delta College Planetarium in Bay City opened the new show Capcom GO! – The Apollo Story on May 4, as well as a number of new exhibits and displays to celebrate the 50th anniversary of the Apollo 11 moon landing. These included an Apollo A7L-B moon suit (wearable!), simulated moon rocks from JSC, Apollo memorabilia and memories wall, an 82-inch TV with Apollo footage, local artwork, and more. By Memorial Day, the lobby will have a 15-foot high replica of the Saturn V rocket by Patrick Barrie, who did many similar displays for the Michigan Science Center in Detroit. An original live production titled First on the Moon will play several times in July, including July 20th, the actual anniversary date. Thanks go to the Chaffee Planetarium at the Grand Rapids Public Museum for their collaborative efforts on the live content. Bay City is host to the “Tall Ships Festival” from July 18-21, when 100,000 people from 38 states and 22 countries will descend on the waterfront next to the planetarium, making for a unique opportunity to draw extra-large crowds.

Everyone is very excited for the Moon Landing Anniversary! The Abrams Planetarium in East Lansing currently has three paintings on display by Alixandra Summitt. She is a local artist who painted black-light paintings in the week
leading up to the moon landing in 1969 to celebrate this achievement. They are also planning a “MoonFest” with WKAR, their PBS station on campus. Details are being worked out, but in addition to their regular shows they will have additional programming including a Pop-Up Stories segment where people will tell personal stories about the moon landing. This will air on WKAR. They will also have an artist talk with Alixandra Summitt, a talk about the history of the space race called “Shoot the Moon” with Abrams’ John French, and a moon landing themed Spartan Young Astronomers Club. They are making the entire weekend of July 20th by donation only to help people celebrate this historic anniversary. They are also going to be filming moon facts with a member of the WKAR Curious Crew that will air throughout the summer on television. Abrams’ current public feature show is Adler’s Imagine the Moon for the 50th anniversary and their family show is We Are Stars from NSC Creative.

About 40 planetarians gathered in the newly renovated Coshocton Schools Planetarium on Saturday, April 27 for the greater Ohio spring meeting. Coshocton Planetarium was first installed in 1962 and ran until 2013 when the former planetarium director, Ron Derewecki, had the foresight to save the equipment and dome. In 2018, Ron and other Coshocton County advocates hired Ash Enterprises to repaint and hang the original dome. Ash also fully updated the Spitz A3P projector, added a new East Coast Control panel, ChromaCove lighting, new seating, and Ash’s Warped Media fulldome projection system. The agenda was filled with many informative papers and presentations. Sue and Buck Batson demonstrated how they teach constellation mythology in their portable planetarium. Matt Young spoke about illusion vs. reality in his use of mythology in the planetarium. Katie Downing illustrated free AR resources available from NISE net. Jim Gavio outlined hopeful NASA plans for a return to the Moon. Mike Smail gave an update on IPS activities. Doug Fowler described how the minerals in lunar rocks reveal the Moon’s history. Larry McHenry detailed four historic observers of planetary nebulae. Sharon Shanks described efforts to create a resource of articles showing the educational value of planetarium programs. Tiffany Stone Wolbrecht showed astronomical sites in Chile. Dale Smith outlined his efforts to create a 100-show roster of classic and fulldome programs. Ron Derewecki and David Hurd performed a live constellation program for elementary school students. Lisa Akers showed the school’s observatory and telescope. The buffet for the mind was joined by buffets for the body. A continental breakfast was sponsored by Bowen Technovation and lunch was sponsored by Ash Enterprises. After the meeting, many delegates gathered for food and conversation at a nearby farm house owned by Jeanne Bishop. [A few photographs from that meeting appear on the next page].

Curt Spivey reports that the Ward Beecher Planetarium at Youngstown State University wrapped up its public show season and for the second year in a row set a record for attendance — 11,088! This is the highest attendance they have on record, going back 17 years. They are now gearing up for the 2019-20 season, will select a feature show soon, and are in the process of creating a variant show to their popular Halloween show Nightlights, which has been running since 1974! The new variant will be call Night LITE and will be a more family-friendly version for Saturday afternoons with several unique songs not found in their evening performance. They are also selecting and arranging two live lectures for the 2019-2020 season. One of those will be professional science communicator Moiya McTier to help students and the public improve their lives by thinking like a scientist. This event is underwritten by a mini grant obtained by Tiffany Stone Wolbrecht, who is still deeply involved with field trips, which will continue well into June. As she discussed in her talk at Coshocton, Tiffany has officially released her Eyes Over Chile Skies show kit. Anyone interested in her materials should contact her! Two long time student employees, Nick DeLuca and Ashley Lemasters, graduated from YSU on May 11 and will be missed. Three new students have been hired to pick up the slack. It is the season of the telescope donation. The planetarium has had two 12-inch Dobsonians donated in the last few months, one new and one well used. The used telescope needs its mirror re-silvered. [See his photographs on the next page].

Bryan Child has wrapped up another successful year at the Shaker Heights Planetarium with about 6,500 field trip visitors and two sections of high school astronomy that met daily in the planetarium.

Ritter Planetarium at the University of Toledo held a celebration on May 18 for both Astronomy Day and Earth Day. The event used material from NISE, the National Institute for STEM Education, and was organized by Heidi Kuchta, Ritter Planetarium’s graduate student. Director Alex Mak and crew are also preparing for an exciting GLPA conference in Toledo from 23 to 26 October. Finally, they debuted Capcom Go! The Apollo Story this May and will continue running it
through July for the 50th anniversary of Apollo XI.

At the Bowling Green State University Planetarium, Dale Smith and students completed a semester of week-long runs of digitized versions of all the classic shows created at BGSU before the installation of their Spitz SciDome fulldome system.

Top: Group Photo from the Ohio State Meeting in Coshocton. Above: Planetarians gather in the dome during the Ohio State Meeting. Photos by Dale Smith. Right and Below: Apollo XI exhibits adorn the lobby at the Ward Beecher Planetarium at Youngstown State University.
WIMPS met on April 12 - 13 at the Bell Museum in St. Paul, Minnesota. As always, it was a good meeting with colleagues and friends. Some of the many highlights were a session on engaging those who believe in a Flat Earth by Paul Larson from Mayo High School Planetarium. Paul set up an experiment to measure the Sun from various locations across the globe at the same date and time to create arguments based on observational data to see which model the data better supported. This was a respectful and methodical step-by-step process to engage with Flat Earthers. Other highlights were touring the new Whitney and Elizabeth MacMillan Planetarium and Bell Museum, and sessions on more ideas to increase revenue and programming options. [See their group photo below].

It's About Time! Cosmic Cycles We All Live By opens this June at the Soref Planetarium in Milwaukee. An original MPM production, the show targets public families and school groups grades 3 and up. On April 17, Soref staff and volunteers worked with the Milwaukee Brewers to teach Solar System weather as part of their Weather Day event for 10,000 school kids. [See article on page 26].

The University of Wisconsin – Oshkosh, Fox Cities Campus’ (previously University of Wisconsin – Fox Valley) Barlow Planetarium had a very exciting year. First, the school year was very busy having 5% more bookings than the previous school year with nearly all the morning programs were completely booked by early March. The weather, as it was for most places, was a challenge this year with multiple days of cancellations due to snow, cold and ice. The last cancellation was finally made up on May 10! Second, the Barlow is continuing to grow its non-planetarium S.T.E.M. programming with its Orbit Science Demonstration program – this year serving approximately 4,000 students. Third, on May 11, in partnership with the NEWStar Astronomy Club, the Barlow hosted Astronomy Day 2019 with a full day of programs that included planetarium shows, science demonstrations, telescope displays, a partially-constructed Gemini capsule, a DeLorean time machine, and telescope viewing! Finally, the most exciting news, the Barlow will be adding a full-time professional position – Planetarium Coordinator/Educator – to help expand its field trip offerings to other S.T.E.M. topics, re-envision the public programming, and prepare for the next version of the Barlow Planetarium.

The University of Wisconsin – Eau Claire’s L.E. Phillips Planetarium is co-hosting “Astronomy Day for the Chippewa Valley” again this year on the first Saturday of May. Short planetarium shows are offered throughout the event. Due to university staff reductions a couple of years ago, there are no other public shows offered during the year.

The University of Wisconsin-Milwaukee Manfred Olson Planetarium finished the Arabian Nights series, celebrating Arab culture and its astronomical contributions. Plans are underway for the “Lunar Party” on July 20, 2019 to celebrate the 50th anniversary of the first manned mission to the Moon.
The Williamsville Space Lab Planetarium is celebrating its 50th anniversary this year! The local press has featured stories about the planetarium and its history already. They will be hosting a special event in May featuring the lunar samples on loan from NASA, displays of the Many Inspired Steps posters and a special viewing of CAPCOM GO! The Apollo Story. They are hoping to make a BIG deal out of their anniversary and the 50th anniversary of the Apollo 11 moon landing this summer. The WSLP will also be pioneering a summer camp for the first time ever thanks to GLPA member Jackie Baughman. Jackie moved to Western New York a couple years ago and is doing many great things in her new dome home.

By the time this summer issue is released, Morrison Planetarium at the California Academy of Sciences will have wrapped up programming connected to the Academy’s “Dino Days” festival. At the end of May, the 4:30 p.m. daily show switched from Incoming! to the live Tour of the Moon, which highlights some history of Moon exploration, the Apollo missions, and what we hope to explore in the future, all in time for the Apollo landing anniversary in July. The presenter team will be heading to the USS Hornet Museum with their GeoDome portable planetarium on July 20. A shorter version of Tour of the Moon will be presented in the GeoDome, while simultaneous Apollo programming will be happening back at the Academy. The Sunday morning members-only show switches to a Summer Tour of the Night Sky June through August. Hohfeld Hall has switched over to Beyond Boundaries, a live presentation about how boundaries in space act as protective layers for life. Beyond Boundaries is the planetarium’s tie-in to the new “Skin” exhibit, opening in June. Presenters start out on Earth talking about how our human skin is a protective layer that shields us from a number of things, including radiation from the Sun. They then fly out to space to explore how the Earth’s atmosphere, the ISS, Earth’s magnetic field, etc. also act as a protective “skin” for life. The show ends by discussing the new black hole image from the Event Horizon Telescope and exploring how black holes have a type of backwards boundary: you want to stay outside their boundary to be protected. While September currently feels like a lifetime away, it of course will sneak up faster than we expect, so the Morrison team is well into planning and production for a few new programs in the fall. In September, a new Hohfeld Hall show exploring patterns in nature will be the second half of the planetarium’s tie-in to the “Skin” exhibit. Also in September, Morrison will be featuring a brand new members-only show on Sunday mornings. Planning is still in the works for that new members show. And lastly Hohfeld Hall will also begin featuring a second program geared towards early childhood learners in October, which is being developed in partnership with the Astronomical Society of the Pacific as well as the Academy’s Public Programs department. The Benjamin Dean astronomy lectures this summer featured (or will feature) Jackie Faherty from the American Museum of Natural History in May, Tony Tyson from UC Davis in June, Rosalba Bonaccorsi from SETI in July, and Luisa Rebull from SPITZER in August. Recordings of all Dean Lectures are available on iTunes U.

DON’T MISS OUT

To be included in the autumn issue’s State News column, please forward news from your facility to your state chair in the latter half of July.

If you have a digital picture of a newsworthy event held at your planetarium, please e-mail it to the Editor at bart.benjamin@icloud.com for possible inclusion in the IPS Planetarian’s “International News” column.

WHO DO I CONTACT?

If you ever have a GLPA-related question, but are not quite sure to whom you should direct that question, GLPA may have your answer.

The GLPA website has a page that provides a helpful way to determine who best could answer your question. To use it, please visit glpa.org/contacts
Cosmic Colors
An Adventure Along the Spectrum

Cosmic Colors: An Adventure Along the Spectrum is a dynamic new planetarium show from the Great Lakes Planetarium Association (GLPA) that will take you on a wondrous journey across the entire electromagnetic spectrum. Get ready for an amazing adventure under a rainbow of cosmic light!

31 minutes in length  
Target audience: 5th grade and up

Ordering information:

FULLDOME VERSION:  
$300 for a full dome masters at 4K x 4K  
$250 for full dome masters at 2K x 2K  
$200 for full dome masters at 1K x 1K  
(need 1 TB hard drive)  
(need 500 GB hard drive)  
(need 100 GB hard drive)

For FullDome versions, each planetarium must ship an appropriate hard drive to GLPA. Show encoding is the responsibility of each planetarium.

TRADITIONAL VERSION:  
$100 for traditional version with two discs -- a playable Cosmic Colors show DVD and a DVD data disc containing all-sky images, digital JPEG images, audio tracks, flattened video scenes, teacher guides, and documentation.

Order Cosmic Colors through the GLPA Online Store at glpa.org/online-store.

GLPAGear online store

Shop for T-shirts, Polos, Hats, Fleece, Outerwear, Backpacks, Bags, Blankets, & more . . . all embroidered with the GLPA Logo (b&w or color)

https://glpagear.qbstores.com

GLPA has created an online store via Queensboro.com that provides a much wider range of items, styles, colors, and sizes than has ever been offered in the past at very reasonable prices. Queensboro will produce your item when you order it, and ship it directly to you. Their quality is outstanding! Check it out for yourself!

For more complete instructions, please visit https://glpa.org/glpagear.
To begin shopping, please visit https://glpagear.qbstores.com.
GLPA CONFERENCE SCHOLARSHIP

Each year since 2011, GLPA’s Executive Committee has awarded a pre-determined number of scholarships for the next fall conference. Each scholarship waives the registration fee and meal package for the award recipient.

Before applying, please read over the Conference Scholarship eligibility and instructions webpage at glpa.org/conference_scholarship_eligibility.

Applicants should complete and submit the online application form at glpa.org/conference_scholarship_application. Applications received by August 15 will receive full consideration. Applications received after August 15 may still be considered at the discretion of the Scholarship Committee, contingent upon availability of funds.

GLPA OBITUARIES PROJECT

The GLPA Obituaries page, which can be found at glpa.org/history-obituaries, contains written obituaries of past GLPA members. The GLPA Historian welcomes submissions to this GLPA Obituaries Project to document the professional contributions of past GLPA members. Please send information about member deaths (both recent and past) to Garry Beckstrom at garrybeckstrom@comcast.net.
CORRECTION

A correction has been made to the Treasurer’s Report that appeared in the minutes of both the Autumn 2018 Executive Committee Meeting (winter issue, page 19) and the 2018 Annual Business Meeting (winter issue, page 37). The figures for Additional Collected Conference Revenue, Conference Expenses, and Totals less expenses were placed in the wrong column. The following is the corrected version of this table:

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CANDIDATES FOR GLPA OFFICES

Voting will occur at the Annual Business Meeting of the GLPA Conference in Toledo, Ohio or by absentee ballot following GLPA requirements.

Thanks to the great work of the Nominations Committee (Katy Accetta-Downing, Jackie Baughman, Chris Janssen, Melinda O’Malley, and Eric Schreur) and the gracious service of our candidates, they have what they believe to be a great slate of candidates for the fall elections. The people below have accepted the nominations from the committee:

**President-Elect:**
- Dan Tell
- Mark Percy

**Secretary:**
- Shannon Schmoll
- Tiffany Stone Wolbrecht

**Treasurer:**
- Steve Burkland
- Keith Davis

**IPS Representative:**
- Mike Smail
- Anna Green

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**Candidates for President-Elect**

**Name:** Dan Tell

**Institution:** California Academy of Sciences

**Email:** dtell@calacademy.org

**Member of GLPA for how many years?:** 14

**Educational Experience:** Undergraduate Studies in English, Grand Valley State University

**Current and Past Service to GLPA:** Secretary 2013-present; Conference Host, 2005; Chair, Michigan Planetarium Organization 2009-2011; Chair, Technology Standards Committee 2011-2013; co-editor, Fulldome TIPS booklet; annual workshop presenter on free software production 2009-2014 & 2017; Pleiades Conference Planning Committee, 2017

**Member of the Following Organizations:** International Planetarium Society (2012-2013, 2015-present); Digistar Users Group (2006-2012); Uniview Users Group (2012-present); March for Science, San Francisco (2017-2018)

**Honors and Achievements:** Fellow, Great Lakes Planetarium Association; President, March for Science, San Francisco (2017-18) (participated planning one of the largest protests of scientists and third largest individual March for Science
with 55,000 attendees)

**Statement:** I’ve told a lot of people: 14 years ago, at my first conference, GLPA and its members showed me I could pursue planetarium profession as my career. Since then, I have considered it a duty and honor to pay forward the opportunities and inspiration GLPA provided me to other planetarians. To that end, the success, growth, and quality of GLPA and its conferences has been a driving force for my service to the organization.

Over my terms as Secretary, I have worked to improve the openness and transparency of GLPA’s Executive Committee, as well as our responsiveness to the members and sponsors of this excellent organization. As President-Elect I’d like to continue this work, improving the affordability, accessibility, and inclusiveness of conferences while continuing to keep GLPA (and more future collaborative Pleiades-style conferences) a go-to conference for 21st-century planetarians to discuss education, production, technology, and how we can best serve modern audiences. Similarly, I want to create more opportunities for enthusiastic members of GLPA to serve the organization and have a say in the direction we take as we continue to grow in the second half-century of our organization’s existence, encouraging our talented members to become part of the leadership of GLPA today and tomorrow.

It would be a privilege to serve GLPA in this role, and it is an honor to be nominated and considered.

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**Name:** Mark Percy  
**Institution:** Williamsville Space Lab Planetarium  
**Email:** mpercy@williamsvillek12.org  
**Member of GLPA for how many years?:** 18  
**Educational Experience:** BA (Chemistry/Education), University at Buffalo; MSEd (Earth Science Education), SUNY/Buffalo State; Postgraduate coursework in Education and Astronomy at UB and SUNY/Buffalo State; Blender Training, Novice and Advanced, Weber State University, 2009 & 2010; Various online training in Astronomy and Planetarium operations (ongoing)  
**Current and Past Service to GLPA:** Member of the Technology Committee; Paper and poster presentations at GLPA conferences; Attended most GLPA conferences while serving as Planetarium Director; Adapted Dayle Brown’s Skylory: Orion book into planetarium shows and made them freely available to other institutions  
**Member of the Following Organizations:** International Planetarium Society; Middle Atlantic Planetarium Society; International Dark Sky Association; Digital Sky Academy; Buffalo Astronomical Association; Penn-Dixie Paleontological Park and Nature Reserve; Challenger Learning Center – O/N/E counties; Planetarium Association of Western New York; Founder of the Buffalo Eclipse Consortium  
**Honors and Achievements:** Winner IPS 2019 Pages of Stars contest; Keynote speaker at the 2017 Stars, Space and Future Conference in Turks & Caicos; National Association of Geosciences Teachers Eastern Section State Award for Excellence in Earth Science Teaching 2014; Buffalo Astronomical Association College of Fellows Achievement Award for leading the region-wide efforts to observe the 2012 Transit of Venus; Host for March 2011 Mini-MAPS conference in Western New York; Air Force Association 2005 New York State Aerospace Education Teacher of the Year  
**Statement:** When I assumed the role as Planetarium Director in 2001, I joined several organizations and began attending conferences so that I could learn and make the best use of our facility. No other organization has been more valuable for my professional development than GLPA. The annual conferences are truly awe inspiring, and the friendships I have made are invaluable. This wonderful group of outstanding professionals and educators keeps me energized and feeling like there is always so much more that I should be doing for my students and community. For many years, my involvement with my children through activities such as being a BSA Scoutmaster have prevented me from serving in a GLPA leadership role, but now both of my children are graduated from college. I remarked many times recently that I should be doing something more to give back to GLPA. It was an enormous honor to be nominated for the role as President-Elect by the nominations committee. If elected, I will aspire to live up the task and serve the members and
organization that have helped me in countless ways with diligent and thoughtful leadership.

Candidates for Secretary

Name: Shannon Schmoll
Institution: Abrams Planetarium
Email: schmoll@pa.msu.edu
Member of GLPA for how many years?: 4.5 years
Educational Experience: BS (Astronomy, with Honors), University of Washington; BS (Physics, University of Washington); MS (Astronomy and Astrophysics), University of Michigan; PhD (Astronomy and Astrophysics and Education), University of Michigan; Certificate, Museum Studies, University of Michigan
Current and Past Service to GLPA: Current State Chair for Michigan; Working on revising document on educational uses for the planetarium; Hosted the 2018 GLPA conference in East Lansing
Member of the Following Organizations: GLPA, IPS
Honors and Achievements: Education Committee for IPS; American Association of Physics Teachers 2012 Outstanding Teaching Assistant; Grant from the Dart Foundation for touchscreen kiosks at Abrams Planetarium; Community Champion Award for the Greater Lansing Visitors Bureau, February 2017; Institute and Library Services Grant for an exhibit on Michigan Meteorites at Abrams Planetarium; Co-PI and lead for educational research on a National Science Foundation Advancing Informal Science Learning grant for creating a planetarium show about astronomy in Chile and related activities
Statement: I am honored to be nominated for Secretary and to have a chance to continue to serve GLPA. I have felt very welcomed by GLPA since joining nearly five years ago and can see it is a valuable and amazing organization for planetarium professionals. Serving on the Executive Committee as Secretary requires you to work with people with different viewpoints while recording and organizing information. The job also requires you to provide feedback and ideas for the future of the organization. I believe I hold these skills as demonstrated by the 2018 conference I hosted at Abrams Planetarium with my amazing team. This conference showcased my ability to organize a large event, respond to the needs of the members and sponsors, organize many moving parts, work successfully with many different people and requirements, and manage a team of people to run a successful conference. I also helped President Geoff Holt organize and gather necessary data to host a workshop on implicit bias and begin a larger conversation in GLPA about diversity and inclusion within our field. This skillset and the relationships I built with members, sponsors, and the Executive Committee during the 2018 conference will support me in successfully serving GLPA as Secretary.

Name: Tiffany Stone Wolbrecht
Institution: Ward Beecher Planetarium, Youngstown State University
Email: tiffany.wolbrecht@gmail.com
Member of GLPA for how many years?: 5 years
Educational Experience: BS (Physics, minor in mathematics), Penn State Behrend; MEd (Secondary Instruction), Edinboro University
Changes

In the planetarium world, change is the constant. That is, nothing stays the same forever. New innovations, new ideas, aging equipment, and even aging people(!) trigger changes. And at GOTO, we embrace change as the way we move forward.

Kurashiki Science Center Renovation

In Kurashiki Japan, GOTO has recently replaced a GOTO HELIOS star projector from the 1990’s with a new GOTO CHIRON III projector (special color for Kurashiki), and synchronized it with a 4K Virtuarium X fulldome system and 10K video panorama in a HYBRID configuration! This change brings a whole new range of presentation possibilities. Now operators of live programs can use the CHIRON III to show the most realistic and beautiful night skies as seen from earth, or can use GOTO’s Virtuarium X fulldome system to fly through the cosmos, or use both systems together to offer a complete, immersive sky visualization system.

THEATER 360 Upgrade

GOTO was proud to produce the Earthvision 360 degree theater for the international Expo 2005 in Aichi Japan. Going farther than fulldome, this was the first full SPHERE installation, with video images flying and moving all around - above and below - for the first time ever. After the Expo, the 11 meter sphere was moved to Japan’s National Museum of Nature and Science in Tokyo and is called Theater 360. It amazed throngs of visitors daily for over a decade, and in March 2019 received a total make-over using new, higher resolution video projectors and an improved Virtuarium X system. With those changes, it now plunges children and adults into the oceans, out into space, and even backward and forward in time in exciting, totally immersive adventures!

A Retirement and a New Face

And finally, two more big changes have happened. For the past 19 years Ken Miller has acted as GOTO INC’s liaison to the western world. But in May he retired to a life of fun, family, and travel. Ken says, “It has been a true honor and pleasure to represent GOTO to the planetarium world. In retirement, I’m now looking forward to visiting the cities, countries, and planetariums I’ve come to know, and reconnecting with so many friends. I hope I’ll see you all again soon!” Ken has now passed the GOTO liaison torch to Mark Webb, formerly of Adler Planetarium, who will carry it into the future, introducing new products and listening for ways that GOTO can continue to change and improve.

Are you ready for a change? Talk to GOTO.

GOTO INC
4-16 Yazakicho, Fuchu-shi, Tokyo 183-8530 Japan
E-Mail: info2@goto.co.jp Tel: +81-42-362-5312
URL: www.goto.co.jp/english/

GOTO USA LIAISON
4044 N. LINCOLN, 204 CHICAGO, IL 60618
E-Mail: mark@goto-stars.com Tel: +1 773 757-6497
Contact: Mark Webb
Current and Past Service to GLPA: Attended every state, regional, and national conference in my years as a member, bringing along 3 new and active GLPA members so far; Served on GLPA’s nomination committee (2016); Paper and/or workshop contributions every year since 2015

Member of the Following Organizations: Great Lakes Planetarium Association; International Planetarium Society; Mahoning Valley Astronomical Society; Oil Region Astronomical Society; Phi Kappa Phi Honor Society

Honors and Achievements: 2018 ACEAP Ambassador; Distinguished Service Award (2019); Published two papers in IPS’s The Planetarian (Sep 2018, Mar 2019); Designed and produced live show kit Eyes Over Chile Skies freely available; Working on a team to produce and freely distribute a planetarium show with many curricular resources about astronomy in Chile

Statement: Like many of you, GLPA is largely responsible for my path to becoming a planetarian and it continues to be the foundation of my growth. It is time I give back to this truly remarkable organization and believe I can do that best in the role of Secretary. In line with Secretary duties, I would like to enrich communication between the Executive Committee and its members by providing both detailed and quickly digestible versions of meeting minutes and by being a point of contact for any GLPA member with questions about the organization. Maintaining transparency and empowering members to share their expertise with the GLPA community are top priorities for me.

I am humbled to have been nominated and would consider it a great honor to serve as GLPA’s Secretary. I encourage anyone to reach out to me via phone or email for further discussions.

Candidates for Treasurer

Name: Steve Burkland
Institution: Adler Planetarium, Chicago Illinois
Email: sburkland@adlerplanetarium.org
Member of GLPA for how many years?: 5 years
Educational Experience: B.S. (Physics)
Current and Past Service to GLPA: Member of the GLPA Technology Committee; Member of the GLPA Newsletter Team; Presented several papers at various annual and semi-annual conferences
Member of the Following Organizations: Great Lakes Planetarium Association; International Planetarium Society; Sigma Pi Sigma
Honors and Achievements: Published condensed matter research on carbon monoxide bonding to silver nanoclusters – Journal of Physical Chemistry A; Co-creator of AdlerCaps, a web-based and open source closed captioning system
Statement: Although GLPA is a great resource of content and support for planetariums across the region, I find its highest value to be in connecting astronomy educators so they can share their challenges, successes, and insight. My role at the Adler Planetarium includes introducing technology into our industry in meaningful and effective ways, which is something I wouldn’t be able to do without help from fellow GLPA members. We brainstormed, prototyped, and tested ideas and equipment that gave rise to things like open-source closed captioning, and regularly domecasted lectures concurrently streamed to YouTube. Through collaboration, GLPA ensures that future guests to our institutions gain deeper understanding into how the universe works, and what our place is in it. My place used to be supporting our efforts as a member, but I feel the time has come to explore a new place in GLPA, using my project management and organizational skills to help secure our financial future. Let’s continue moving forward, together!
Name: Keith Davis  
Institution: University of Notre Dame  
Email: kdavis10@nd.edu  
Member of GLPA for how many years?: 10  
Educational Experience: BS (Applied Mathematics), University of Tulsa; MS (Physics), Clemson University; PhD (Physics), Clemson University  
Current and Past Service to GLPA: Nominating Committee 2017, 2015; Host of GLPA Indiana State Meeting 2015; Planning and Host of GLPA Conference in 2010; Regular presenter at GLIPSA as invited by organizer; Regular presenter at Indiana State meeting  
Member of the Following Organizations: GLPA; IPS  
Honors and Achievements: Recipient of Notre Dame Insider Award to fund two undergraduate students trip to International Planetarium Society meeting summer of 2018; Host of Live Interactive Planetarium Symposium (LIPS) 2012; Organizing Committee for LIPS 2013 and 2014  
Statement: Soon after starting my professional career as a planetarium director at Notre Dame, I was tasked with hosting the 2010 meeting of the GLPA conference. Hosting that meeting was a crash course into the history and traditions of GLPA, and a quick introduction to a host of members that I now consider great friends. I consider myself lucky to have had that intense introduction to such a successful organization. There are challenges and opportunities in the future as GLPA responds to the changing planetarium field, and it’s an honor to be nominated to help such a strong organization meet them. The knowledge that planetarians share with their audiences is more available to the public than ever, but the public needs guides to create clarity. I believe GLPA can support planetarians’ role as a source of community and education for its planetarium members. If elected Treasurer, I will ensure that GLPA maintains its clear and well-managed financial details, and will prioritize ensuring that the Executive Committee has clear understanding of our financial position. Organizations of GLPA’s size and history operate best when their leaders and membership know what is possible within their means and can plan effectively for their future.

Candidates for IPS Representative

Name: Mike Smail  
Institution: Adler Planetarium  
Email: msmail@adlerplanetarium.org  
Member of GLPA for how many years?: 6½  
Educational Experience: Undergraduate studies in Politics and Government, Ohio Wesleyan University  
Current and Past Service to GLPA: Serve as GLPA’s IPS Representative 2016-current; create and post content as the GLPA Twitter presence @GLPAsocial 2015-current; presented paper sessions at 2013-2018 GLPA conferences; gave Adler and IPS-related talks at 2014-2019 Illinois, 2017-2018 Indiana, 2018 WIMPS, 2018-2019 Ohio, and 2019 Michigan state meetings; hosted IPS 2012; hosted 2003 Ohio state meeting, will host 2020 Illinois state meeting  
Member of the Following Organizations: GLPA, IPS, IMERSA, Digistar Users Group, Museum Computer Network
Honors and Achievements: GLPA Fellow; Organized and hosted the 2012 IPS conference; presented over a dozen invited and accepted talks at museum and planetarium conferences around the country; have been fortunate enough to educate young children, Moonwalkers, and everyone in between on the beauty of the night sky and our place inside of it.

Statement: Over the past few years, I’ve been extremely honored and humbled to represent and share the amazing work that each of you perform day-in and day-out for your local audiences, on the world stage to the International Planetarium Society. Beyond the IPS conference, I strive to share the best of the IPS’ resources and offerings with you through presentations and conversations at conferences and state meetings, in my quarterly column in the GLPA Newsletter, and via the GLPA Twitter account.

This position also involves serving on the GLPA Executive Committee, to which I’ve both positively contributed, and enjoyed. It’s great when your ‘job’ is fun, right? In my actual day job at the Adler Planetarium, I work alongside current IPS President Mark SubbaRao. Being under the same roof allows for invaluable information sharing between our region and IPS, allowing us to work smarter together.

As you hopefully already know, IPS is restructuring to a more-streamlined, organizational structure that minimizes the direct influence of the current regional representatives. As such, GLPA will be sunsetting the IPS Representative position at the close of this elected term (Vernal Equinox, 2022). But until then, there is much important work to be done, bridging between our two organizations. This fall, in Toledo, I’d like to ask for you to again place your valued trust in my communication and leadership abilities, and vote for me to return for a final term as your IPS Representative.

Name: Anna Green
Institution: Stiftung Planetarium Berlin
Email: agreen@planetarium.berlin
Member of GLPA for how many years?: 6 years
Educational Experience: MA (Museum Studies, with a focus on Education, especially in Planetaria, leadership and administration); Professional Educator License Illinois Special 10 K-12 with endorsements in French (K-12), German (K-12) and Music (9-12); BA (French, German and Music with a concentration in Vocal Performance)

Current and Past Service to GLPA: Official GLPA Conference Photographer (2018-Present); Planned and Hosted the 2017 Pleiades National Planetarium Conference, in which GLPA and the other six regional planetarium professional organizations of the United States participated (plus some members of IPS); Presented papers in paper sessions and a poster paper session at the 2018, 2017 (Pleiades NPC), 2016, 2015, and 2013 GLPA Conferences; Presented at the 2015 and 2016 Illinois State Meetings

Member of the Following Organizations: International Planetarium Society (IPS); Great Lakes Planetarium Association (GLPA); Gesellschaft Deutschsprachiger Planetarien (Society of German Speaking Planetariums) (GDP)

Honors and Achievements: Presented over a dozen invited and accepted talks worldwide in English, German and French for the planetarium, astronomical and museum communities (2013-present); Became head of IPS Vision 2020 Goal #6 (2019); Named a Fellow of GLPA (2018); Provided historical research for the Saint Louis Science Center’s expansion of the Smithsonian Institution National Air and Space Museum’s Destination Moon exhibition (2018); Hosted the Pleiades National Planetarium Conference (2017); Planning a multi-day and multi-site (both in and out of totality) event for the Saint Louis Science Center to celebrate the 21 August 2017 Great American Solar Eclipse (2017); Created the James S. McDonnell Planetarium’s first French Language Live Planetarium Show (2017); Named January 2017 STEMinista of the Month from the Michigan Science Center’s STEMinista Program (Detroit, MI, 2017); Joined the IPS Publications Committee as the Social Media Editor for IPS (2016); Awarded the Gateway to Space Award from Saint Louis Space Frontier work work furthering the study of space science in Saint Louis (Saint Louis, MO, 2015); Created the first program for visitors who are blind for the James S. McDonnell Planetarium (2013); Senior French Excellence Award (University of Illinois at Urbana-Champaign, 2008); Pi Delta Phi French Honors Society (University of Illinois at Urbana-Champaign, 2008).
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GLPA ELECTIONS  
Summer Solstice, 2019

Champaign); Delta Phi Alpha German Honors Society (University of Illinois at Urbana-Champaign)

Statement: It is truly an honor to be nominated for the office of IPS Representative and to be offered the chance to serve both GLPA and the global planetarium community. We have been making great strides in working not only within our GLPA community, but the global community as well. I feel that I have strong qualifications that make me a fit for this role.

I have been in the planetarium community now for 9 years overall and have experience working both in the United States and abroad. I speak English fluently of course, but I am also proficient in French and German as well. With my knowledge of other regional planetarium organizations around the world (APLF, GDP, IPS) I believe I would be the perfect representative for our region.

This family of professionals, especially GLPA, has given so much to me, and I am humbled by the opportunity to be able to give my services to GLPA. I appreciate the chance to represent you in the international planetarium community.

President’s Message [continued from page 3]

they are untrue, but that they are incomplete. They make one story become the only story.” She warns that if we see or hear only a single story about a person, we risk significant misunderstanding and potential disrespect. Our lives and our cultures are made from many overlapping stories. However, don’t take my word for it — watch her Ted Talk. “Stories matter.”

The main goal of the Great Lakes Planetarium Association is to help planetariums and planetarians grow and thrive. We hope to have another workshop at the 2019 conference pick up where we left off in Dr. Garcia’s 2018 workshop. If we can make our planetariums more inclusive, celebrate and utilize diversity, and more respectful to all people, then we will come ever closer to succeeding in our goal. People matter.

GLPA Executive Committee Meeting [continued from page 59]

AV Curator’s Report (Dave Leake): Dave Leake reported there is little activity since the last meeting. Streaming has been more popular than expected. Tom Dobes has created space to host GLPA shows and videos on the website, even all resolutions of Cosmic Colors, and they are working on a way to distribute downloads appropriately.

Dave Leake said when he retires he will close the current AV bank accounts, but he will still be available for assistance with purchases using Purchase Order numbers.

Old Business: No old business.

New Business: No new business

Adjournment: Dan Tell moved to adjourn, Bart Benjamin seconded the motion. The motion carried. The meeting adjourned at 4:50 p.m.
Sports & Space: A Day at the Ballpark

Bob Bonadurer (bonadurer@mpm.edu)
Soref Planetarium, Milwaukee Public Museum

It’s wild and a bit daunting to present a space education lesson in front of 10,000 kids — all at the same time! But that’s what the Soref Planetarium has been doing for the past seven years as part of “Weather Day” at Miller Park baseball field in Milwaukee.

Each spring the Milwaukee Brewers team hosts “Weather Day.” They get local meteorologists and museums to provide an educational program for three hours before one of their early afternoon baseball games.

It’s strange mix of business and education. The baseball team sells lots of tickets to schools under the umbrella of an education event. Milwaukee is not the only city to link sports and science. Kansas City Royals do a similar event named “School Day.” The Colorado Rockies in Denver call theirs “Weather & Science Day.” Saint Louis, Chicago and Arlington, Texas all have Weather Day events.

The program comes in two parts, each about 90 minutes long. Up first is the live program on the field hosted by the local TV station’s meteorology team. Kids are pre-selected to help with various science experiments or answer trivia questions. We museum people act as “guest experts.”

Most years, the Soref Planetarium brings its 10-foot Sun down on the field. We have students guess the size of the Earth and its distance from our shrunken Sun. Two years ago, we modeled eclipses.

One year we had all the students do a meteor demonstration. We showed meteors — aka shooting stars —on the ballpark’s huge video screen and explained a few facts about what’s going on. Then we did the meteor demo with 10,000 kids — right from their seats. It goes something like this:

“Ok everyone, a meteor is simply a very small rock burning up as it rubs against the Earth’s atmosphere. Friction! You guys know friction. Put your two hands together and rub them very slow. Now, rub them a little faster. And faster! Rub them as fast as you can……..and STOP! What happened? Yep, exactly. Our hands get hot — friction! Two solids things get hot pretty quick. But the meteor is rubbing against the Earth’s air — so hold up one hand. Wave it back and forth against the air in this big baseball stadium. Rub it as fast as you can — without bunking your neighbor on the head! What happened? Did your hand get hot? No, it just got tired. So why then — does the meteor burn up — and not your hand? Because the meteor is going very……..fast! How fast? About 20 miles per……(lots of kids say hour)……second! If you could wave your hand at 20 miles a second, it would start on fire!”
The second part of Weather Day is like a science fair. The Planetarium has a big exhibit area with about 3 staff and 8 volunteers. The students — mostly grades 3-8 — stop over and we engage and inspire them the best we can. It’s sort of a mad rush. Hundreds come over for these 90 minutes. It can be exhausting, but very rewarding. Our demos and display include our shrunken Solar System, rocket launches, black hole gravity, reason for the seasons, and meteorites.

After the 3 hours of intense space education, we tear down and pack up and then watch the ball game. The Brewers are very appreciative of all our efforts. They show their thanks by letting us into one of their private suites — free food and beverage! Sweet!

All photos provided by Bob Bonadurer and the Milwaukee Public Museum.
SciDome includes an ever-growing library of educational applications, all designed to teach STEAM subjects in fulldome. Explore Earth and deep space, tour the human body, interact with 3D physics, stream 4K video to the dome, easily show and explore Unity models, and much more. Powerful teaching apps, and Spitz SciDome IQ projection systems, deliver the ideal solution for dome education.
PREFACE

During my high school years, a series of celestial rarities like the recent total lunar eclipse transformed my fledgling interest in astronomy into a passion. I use the term “celestial rarity” to mean an astronomical event that occurs infrequently, whether that be every few years or every few centuries. With computers and fulldome systems, it’s now possible to re-create such special celestial events on screens and domes, but seeing such events in the real sky with one’s own eyes is extra special, and can spawn stories and memories that last a lifetime.

For me, the seminal event was a pre-dawn occultation of Venus that occurred when I was 16 years old. The celestial circumstances that early morning were perfect — a waning crescent Moon with enough Earthshine to easily see the Moon’s dark limb, very comfortable temperatures (it was July), crystal clear skies, and only a hint of twilight. The event’s climactic event occurred when the Moon’s eastward motion uncovered a dazzling bright Venus on its dark (but visible) limb. I observed with three other enthusiastic members of the Peoria Astronomical Society from their historic Northmoor Observatory, which no doubt raised the level of excitement that morning even more!

I was so impressed by this experience that I began timing lunar occultations and sending my reports (by mail) to the international clearing house (then at the Herstmonceux Castle in England). I also joined the International Occultation Timing Association (IOTA) and even planned a few multi-observer grazing occultation expeditions along rural roads in central Illinois. This burgeoning interest in astronomy undoubtedly fueled my decision to become a planetarian years later.

Collectively, my observations of occultations and eclipses fueled a fascination with rare celestial events. A few choice articles in Sky & Telescope (especially Mutual Occultations of Planets: 1557 to 2230 by Steven C. Albers in the March, 1979 issue) and Jean Meeus’ information-packed reference book titled Astronomical Tables of the Sun, Moon and Planets reinforced my interest. I was always fascinated by the work of Jean Meeus, a Belgian meteorologist who gained notoriety in the field of astronomy because of his expertise in celestial mechanics, mathematical astronomy, and calculating celestial events with extremely long periodicities. The idea occurred to me to use available software to compile a list of these celestial rarities and effectively extend a portion of Meeus’ fine work into a more visual realm.

PART 1: CELESTIAL RARITIES CHECKLIST

My Celestial Rarities Checklist contains a wide variety of celestial events involving the Sun, Moon, planets, their satellites, and Earth’s atmosphere. Virtually all planetarians and serious amateur astronomers have observed some of these celestial gems. A few of us have been fortunate enough (and old enough) to have experienced a majority of these. But none of us have seen them all, and a few of these celestial rarities haven’t been seen by anyone now alive.

Although my Celestial Rarities Checklist is largely an exercise in observational astronomy, the information contained therein could form the basis of a lecture, a series of lectures, or a planetarium show. Our
visitors may be unfamiliar with many of these lesser known sky events, but their striking and uncommon appearance offers a dramatic flair not often found in visual astronomy. People who shun astronomy because they believe that “it’s always the same sky” may be surprised to learn that exceptionally rare, dramatic, and beautiful sky events do occur and are well worth the effort to observe. And for a select few of your audience members, learning about these celestial rarities may even kindle a lifelong interest in astronomy, just as that pre-dawn lunar occultation of Venus did for me so many years ago.

Getting back to the list, I tried to avoid those events that occur too frequently, like single shadow transits on Jupiter or regular meteor showers, which often (sadly) fall short of expectation. Notice that “Super Moons” appear nowhere on this list; they occur annually and are visually unremarkable.

Are there any celestial events that I missed? If so, please let me know. I especially welcome your own stories of spectacular sky observations, which I may include in a future issue of this newsletter. Happy hunting! Here’s to celebrating the beauty of the sky and the uniqueness of every celestial event!

PART 2: LAST AND NEXT OCCURRENCES

. . . But wait. . . there’s more! To supplement my list and make my research a more valuable resource, I’ve also created a document titled Last and Next Occurrences, which provides details about the last time that each celestial rarity was observable from the central United States and the next time that such an event will be visible. [Thank you to John Foerch for suggesting this additional section].

In the case of occultations, this is not necessarily a list of all events that are theoretically visible. I’ve omitted those events that occur in daylight, during very strong twilight conditions, or occur at sky altitudes less than 10 degrees. In other words, I made sure that each event could realistically be observable with modest equipment. That said, celestial events don’t always occur at hours convenient to our circadian rhythms. A great celestial event is just as likely to occur at 3 a.m. as it is at 9 p.m. Such are the trials and tribulations of an observational astronomer!

PART 3: ONLINE SUPPLEMENTARY MATERIALS

The research that was required to write this article generated far more information than could be included in an introductory article. However, for those few readers who may be particularly interested in this subject, I have created two additional documents that can be downloaded from a newly established GLPA Newsletter Plus webpage, which is located at https://glpa.org/newsletter/plus.

The Gallery. My first PDF bonus document is a four-page gallery that renders a few of the more spectacular celestial rarities using sky simulation software (either Starry Night, Stellarium, or SkySafari). For each simulated image, I provide an informative caption that includes observing location, date, time, and GMT offset to enable readers to re-create the event for themselves, their students, or their audiences.

Significant Occultations and Eclipses through 2040. My second PDF bonus document is a 15-page document that expands my Last and Next Occurrences section into a listing of all significant occultations and eclipses visible from the central United States (for occultations) and throughout the world (for solar and lunar eclipses) for the next 21 years. The list makes much additional use of the Occult software, which I review beginning on page 39 of this issue, and EclipseWise.com, which is a wonderful online resource that I’ve linked to each lunar and solar eclipse on the list.
Celestial Rarities Checklist

☐ Total Solar Eclipse (i.e. within the path of totality) 4
☐ Annular Solar Eclipse (i.e. within the path of annularity) 4
☐ Partial Solar Eclipse
☐ White light solar flare (i.e. visible with a white-light solar filter)

☐ Total Lunar Eclipse 4
☐ Partial Lunar Eclipse

☐ Lunar occultation of Venus 4
☐ Lunar occultation of Mars 4
☐ Lunar occultation of Jupiter 3, 4
☐ Lunar occultation of Saturn 3, 4

☐ Lunar Occultation of Aldebaran, Antares, Spica, or Regulus 1, 4
☐ Lunar Occultation of the Pleiades (M45) 3, 4

☐ Grazing Lunar Occultation of Aldebaran, Antares, Regulus, or Spica 1
☐ Grazing Lunar Occultation of any planet
☐ Grazing Lunar Occultation of any star brighter than mag. 4.0

☐ Occultation of a star by a planet 3
☐ Occultation of a star by a minor planet

☐ Transit of Mercury 4
☐ Transit of Venus 2, 4
☐ Partial Transit of Mercury

continued on next page ➔
Perihelic opposition of Mars
Double shadow transit on Jupiter
Triple shadow transit on Jupiter
Jupiter with no moons visible
Ringless Saturn (rings edge-on and invisible)
Pluto visually seen through a telescope
Fireball (mag. -4 or brighter) or Bolide (mag. -14 or brighter) meteor
Spectacular meteor shower (multiple meteors per minute)
A significant auroral display
Zodiacal Light
Gegenschein
Naked eye Comet (e.g. Comet Hale-Bopp in 1997)
The Green Flash (or the even rarer Blue Flash)
Meteor strike upon the Moon
Mutual occultation of two planets

1 Aldebaran, Antares, Spica, and Regulus are the only four first magnitude stars that can be occulted by the Moon in the current era.
2 After the recent Transits of Venus in 2004 and 2012, the next such events will occur in 2117 and 2125.
3 A simulated image of this type of event is featured in the online Gallery document.
4 The most recent and next occurrences of this event visible from the central U.S. are listed in both the Last and Next Occurrences document and the online document Significant Occultations and Eclipses through 2040.
Last and Next Occurrences
as seen from the central United States

**Total Solar Eclipse**
Last event: 2017 August 21 (Great American Eclipse)
Next event: 2024 April 08 (Mexico, United States, E Canada)
After that: 2045 August 12 (U.S., Caribbean, N South America)

**Annular Solar Eclipse**
Last event: 1994 May 10 (Mexico, United States, E Canada)
Next event: 2023 October 14 (W U.S., Central America, South America)
After that: 2048 June 11 (E U.S., Canada, Iceland, Scandinavia)

**Online Resource:** Catalog of Solar Eclipses: 2001 to 2100

**Total Lunar Eclipse**
Last event: 2019 January 21 from 3:33 to 6:50 UT
Next event: 2022 May 16 from 2:27 to 5:55 UT
After that: 2022 November 08 from 9:09 to 12:49 UT

**Online Resource:** Lunar Eclipses: 2021 - 2030

**Lunar occultation of Venus**
Last event: 1978 December 26 at 12:14 UT
Next event: 2031 September 13 at 9:21 UT

**Lunar occultation of Mars**
Last event: 1974 March 01 at 1:13 UT
Next event: 2022 December 08 at 3:09 UT

**Lunar occultation of Jupiter**
Last event: 2004 December 07 at 9:55 UT
Next event: 2026 October 06 at 9:17 UT

**Lunar occultation of Saturn**
Last event: 2002 February 21 at 0:04 UT
Next event: 2037 January 05 at 12:24 UT

**Lunar Occultation of Aldebaran**
Last event: 2017 December 30 at 23:12 UT
Next event: 2034 November 26 at 10:23 UT

**Lunar Occultation of Antares**
Last event: 1991 February 08 at 10:13 UT
Next event: 2023 August 25 at 2:28 UT

**Lunar Occultation of Spica**
Last event: 1995 January 23 at 11:46 UT
Next event: 2024 July 14 at 3:09 UT

**Lunar Occultation of Regulus**
Last event: 2017 October 15 at 10:27 UT
Next event: 2026 February 03 at 2:41 UT
Lunar Occultation of the Pleiades

Last event: 2006 October 10 at 5:50 UT
Next event: 2025 January 10 at 0:54 UT

Mutual Occultation of Planets

Last event: 1818 January 03 from 21:44 to 21:57 UT  (best: Manila, Philippines)  Venus and Jupiter
Near event: 2037 September 15 at 21:27 UT  (best: Manila, Philippines)  Mercury and Saturn
Next event: 2065 November 22 from 12:38 to 12:46 UT  (best: C. Indiana, USA)  Venus and Jupiter

Note: Although these are not the rarest of predictable celestial events, we live in a very unfavorable age to observe one. (see S&T, March, 1979, p. 220). After a lapse of 247 years, the next event will take place in 2065. However, sooner than that, there will be an extremely close (10 arc seconds) approach of Mercury to Saturn on 2037 September 16, which unfortunately will not be visible from the United States.

Transit of Mercury

Last event: 2016 May 09 from 11:12 to 18:42 UT
Next event: 2019 November 11 from 12:35 to 18:04 UT
After that: 2049 May 07 from 11:03 to 17:44 UT

Transit of Venus

Last event: 2012 June 05-06 from 22:09 to 04:49 UT
Next event: 2117 December 11 from 00:02 to 05:41 UT (not visible from U.S.)
After that: 2125 December 08 from 13:19 to 18:52 UT

Jupiter with no moons

Last event: 2009 September 03 from 4:43 to 6:29 UT
Next event: 2019 November 09 from 12:15 to 13:00 UT (not visible from U.S.)

Note: Callisto is the only Galilean satellite to not eclipsed during the course of each revolution. During each Jovian “year,” there are two series of eclipses of Callisto, which occur at intervals of about six years. “Moonless” events can only occur during these times. Ironically, this particular “moonless” event marks the very beginning of the next 33-month series of occultations and eclipses of Callisto by Jupiter that runs from 2019 November 09 until 2022 August 10.

Saturn with no rings (Earth’s ring plane crossing)

Last events: 1995 May 22 (68° solar elongation), 1995 Aug 10 (143° elong.), and 1996 Feb 12 (30° elong.)
Next events: 2038 October 15 (29° solar elongation), 2039 Apr 01 (163° elong.), and 2039 Jul 09 (66° elong.)

Note: The ring plane crossing of 2025 March 23 is essentially unobservable, with a solar elongation of only 10°.
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Passport to the Universe was developed by the American Museum of Natural History, New York (amnh.org) in collaboration with the National Aeronautics and Space Administration (NASA). Major support for new version provided by California Academy of Sciences, San Francisco.
The StarGazer

This three-part personal look at astronomy begins with a child’s curiosity, moves on to the science of gravity, light, the spectrum, and how they help us decipher the lifestyles of the stars, then ends with reflections on the deeper meanings of astronomy in our own lives.

37 minutes long

Narrated by Dr. James Kaler (University of Illinois astronomer) and Nichelle Nichols (Uhura from the original Star Trek)

$150 — 4K resolution
$100 — 2K resolution
$50 — playable movie file

Customers can claim a $25 credit if they own the original version of The StarGazer. Each planetarium must ship an appropriate hard drive to GLPA. Show encoding is the responsibility of each planetarium.

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PLANETARIUM SOCIAL MEDIA RESOURCES

GLPA’s Facebook page
www.facebook.com/glpasocial/

Administrators: Renae Kerrigan, Michael McConville, Tom Dobes, Paulette Epstein, Emily Hromi, Bart Benjamin

GLPA’s Twitter page
twitter.com/GLPAsocial

Administrator: Mike Smail

GLPA’s Instagram page
www.instagram.com/glpasocial/

Administrators: Emily Hromi, Michael McConville

Slack (Planetarians team)
planetarians.slack.com

Workspace Owners (for #glpa): Derrick Rohl, Mike Smail, Steve Burkland

The Dome Dialogues
www.facebook.com/groups/domedialogues

Administrators: Michael McConville, Derek Demeter, Anna Green, Renae Kerrigan, Dan Tell
July 31 is the deadline for applications to the ‘Week in Italy for an American Planetarium Operator’ professional development opportunity supported by the International Planetarium Society. The winner of this 10-day program will work with English-speaking students in several northern Italian communities and give several planetarium and astronomy-content presentations during their visit. GLPA members Stephen Case, Dave Weinrich, and Kevin Milani are all recent winners of this contest; you can learn more at https://www.ips-planetarium.org/page/italy.

Inspired by GLPA’s ‘Live from the Planetarium’ video series, the IPS Education Committee is still soliciting submissions of videos detailing the teaching of astronomical concepts. These are not meant to be shown in a planetarium, rather, to help inform planetarians of effective teaching methods. Submit videos, or simply learn more at https://www.ips-planetarium.org/page/EdCommVideo. If video’s not your thing, consider submitting an audio recording to the IPS ‘Voices from the Dome’ project. The goal of Voices is to collect a multi-lingual archive of audio recordings that can be used in planetarium shows, or as professional development. Get all the details at https://www.ips-planetarium.org/page/voicesintro.

The IPS Education Committee is also offering a new service — a communication tool for planetarians and teachers needing help or suggestions on how to teach a topic in the planetarium. Fill out the form at https://www.ips-planetarium.org/page/helpteaching and a member of the IPS Education committee will help you with ideas from planetarians around the world on best practices for presenting content or leading activities under the dome.

IPS has also updated their membership model and is now using the ‘anniversary’ model for memberships, meaning that expirations are 1 year (or 2 years) from the join date. Previously they used the ‘annual’ model where all memberships expired on 12/31/YYYY. As a result, most long-time memberships do still have December 31 expiration dates. Log into your account at ips-planetarium.org to check your membership status; there’s a 50/50 chance your account expired at the end of 2018!

In addition to offering a sizable amount of free fulldome content to planetarians over the years, ESO, the European Southern Observatory, is now offering ready-made exhibit panels, digital web apps and more for planetarians’ use under Creative Commons licensing. Find the full details at https://www.eso.org/public/news/eso1901/.

IPS2020 will be held June 18-25, 2020 at Telus World of Science Edmonton, Canada. Registration is currently targeted at $490, official hotels cost $110-$160, and lower priced university rooms will also be available. There hasn’t been a North American IPS since Baton Rouge in 2012. The Canadian dollar is currently down vs the U.S. Dollar, which, coupled with the closer geographic proximity to GLPA, means this is shaping up to be the most inexpensive IPS in several years. The IPS2020 website is now live; visit http://ips2020.twose.ca for more information.

The IPS Planetarium Centennial Task Force is still seeking input on activities to celebrate the centennial of our profession. Many good ideas came up during a brainstorming session at the recent IPS Conference in Toulouse, but the Task Force is still open to additional ideas. Learn more about their work at www.ips-planetarium.org/page/centenniachallenge.

The 2016 winner of the ‘Week in Italy’ program Stephen Case from Strickler Planetarium in Bourbonnais, Illinois, with the staff of the Serafino Zani Observatory.
Reach for the stars... and beyond.

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True Hybrid with brilliant stars and perfect renderings from a single source

ZEISS powerdome IV brings many new features to your star theater: an integrated planetarium for earthbound and extraterrestrial astronomy with seamless transitions between optical and digital star fields (True Hybrid) | The universe from Earth via the solar system and Milky Way galaxy to the very edge of the observable space | Stereo projection | 8k performance | 10 bit color depth for smooth gradients | HEVC codec for efficient video renderings free of artifacts | All constellation figures, individually and in groups without any mutual overlapping | Telescope function for deep-sky imagery applying Astronomy Visualization Metadata | Complete image set of all Messier objects | Customizable polar lights, comets with gas and dust tails, and shooting stars with a great variety of parameters for location, brightness, colors and appearance | Simulation of day and night with dusk and dawn coloring of sky and panorama images | Customizable weather effects such as clouds, rain, fog, snow, rainbow, halos, air and light pollution effects | Digital rights management to secure your productions | Remote service for quick help, and much more from the only company serving planetariums for nearly a century.

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We planetarians are often regarded as the local experts of astronomy, space science, sky phenomena, cloud forecasting, and “what was that bright thing in the sky I saw last night?” We’ve all fielded questions from the public ranging from the thought provoking to the ridiculous. Most public queries can be answered with the knowledge we carry in our heads. Occasionally, however, we receive an inquiry that requires our own research, and in the search for that answer, we sometimes learn something new ourselves.

For decades, yearly ephemerides and Observer’s Handbooks were our only research tools, and many of our planetarium libraries still contain a shelf or two of these dust covered time capsules of celestial events. Today, it’s far more likely that planetarians will turn to astronomical software or Google searches for answers.

This is a review of a lesser-know piece of freeware software that I recently re-discovered. Occult is its name, and it’s not particularly well known to planetarians. In fact, its name sounds more like software for conjuring black magic, but in reality it is a powerful astronomical calculator developed by an Australian named David Herald for the International Occultation Timing Association (IOTA), whose members are a small but dedicated subset of mostly non-professional astronomers who observe, time, and record lunar and asteroidal occultations. My thinking is that planetarians could also benefit from the calculating power that Occult offers, and it could be used to develop an astronomical lecture, a series of lectures, or a planetarium program on rare but spectacular celestial events.

Occult v4 is available as a free download from lunar-occultations.com/iota/occult4.htm. Detailed installation instructions are found on that same webpage. The program will run on any platform that supports the .NET V4.5 framework, which includes most versions of Microsoft Windows and Linux. It should also run on a Windows emulator installed on MacOS. Its interface looks rather dated, with icons that harken back to the 1990s, but its quaint facade covers a veritable Swiss army knife of astronomical calculation.

Not surprisingly, Occult’s primary function is to develop detailed lists of lunar occultations visible within a specified range of dates for any observing location in the world. To create such a list, you need only click the Lunar predictions button on the main page (Figure 1), then click on Predictions for single sites. On the Lunar occultation predictions page that opens, you can select a nearby major city, or enter your own latitude, longitude, and elevation to generate results specific to your exact location. The program is very “international” and caters as well to observers in Europe, Asia, and Australia as it does for most of our members who live and work in the United States. You can shorten or expand the list by checking or unchecking the star catalog magnitude range, apply a filter that eliminates certain
conditions (like daylight or bright limb events), or by checking/unchecking object boxes for stars, planets, and asteroids. These lists can also be saved to disk or printed.

**Occult** can also be used to look for occultations of a specific celestial object (e.g., Jupiter, Aldebaran, Alcyone, etc.) by clicking on the Lunar predictions button on the main page, then clicking on Predictions of Single objects. (Figure 1) On the page that follows (Figure 2), you first enter a range of dates, select your desired object, and click on Find [Star, Planet, Asteroid, or other Object]. The program almost instantly calculates all the occultations of said object that occur during the specified range of dates from any place on Earth. To determine which events can be seen from your observing location, you can click Plot all listed events, which generates a new window that displays a matrix of visibility maps (Figure 3) showing all those events. These world maps are color coded, which further assists in the selection process. Red dotted lines indicate the zone where the Sun is above the horizon, while blue similarly indicates twilight, and white indicates a dark sky. Reviewing the output of several years is interesting, for it reveals the geographic progression of occultation events from the polar regions to equatorial zones and back again, somewhat akin to the progression of solar eclipse paths during a full Saros series. Once you’ve determined which events are worthy of your attention, you can right-click any of those and select the Plot as world map option, which quickly generates a small world map for just that one occultation. If a more detailed map is preferred, the program can then generate an HTM or KML file that can be saved, then loaded into Google Maps or Google Earth, respectively.

By clicking the Eclipses & transits button, the program can calculate eclipse events for one or multiple sites and display the visibility zones of upcoming partial, annular, and total solar eclipses. It can do the same for penumbral, umbral, and total lunar eclipses. The data can similarly be ported to Google Maps or Google Earth. (Figure 4). **Occult** can also calculate contact events for solar transits of Mercury and Venus. [Don’t forget the upcoming Transit of Mercury on **2019 November 11**], portions of which will be visible in the Americas, Europe, and Africa].

**Occult** also offers significant resources for asteroidal occultations, which is currently the most scientific important aspect of occultations. For those functions, simply click on the Asteroid predictions button on the main page.

If occultations and mathematical astronomy don’t
appeal to you, there is another aspect of the *Occult* program that may — its astronomical ephemeris. Accessed from the main screen as *Ephemerides* (Figure 5), *Occult* offers an array of basic astronomical calculations, including celestial coordinates of planets, asteroids, comets; orientation of planetary satellites; days and times of upcoming moon phases; central meridians of Mars, Jupiter, and Saturn; a diary of astronomical phenomena; rise and set times of the planets; moonrise and moonset; a calculator of planetary conjunctions; a Julian Date calculator, and more.

Finally — and rather unexpectedly — *Occult* also provides direct access to an outstanding cloud forecasting service (*7Timer* at [www.7timer.info](http://www.7timer.info)) which resembles the Canadian Meteorological Centre’s better known Clear Sky Clock, but works for locations throughout the world. (Figure 6).

This feature is accessed by the *Weather icon* near the top of *Occult*'s main page.

To provide a working example, I used *Occult* to find the dates of upcoming planetary occultations for my *Celestial Rarities* article on page 29. After the program generated each list, I selected those events that were visible from the central United States, and then plugged this information into *Starry Night*, *Stellarium*, or *SkySafari* to re-create the sky event. *Occult* could similarly be used to develop a lecture series or planetarium program about rare astronomical events. And — back to the beginning of this article — it could be used to answer one of those more challenging question posed by our planetarium patrons. After all, an “expert” is often just a person who has access to good research tools and knows how to use them.

In closing, I would be remiss to not thank Waylena McCully for her suggestion to check IOTA’s resources after I explained the problem that I was having in developing a list of past and future occultations. Although I was well familiar with IOTA, my memory of *Occult* was that of a much earlier version that was not nearly as powerful as version 4. Waylena’s suggestion formed the basis for this software review and solved the problem that I was having with my other article on celestial rarities.

*Occult* can be downloaded from [lunar-occultations.com/iota/occult4.htm](http://lunar-occultations.com/iota/occult4.htm).

IOTA’s Home Page can be found at [lunar-occultations.com/iota/iotandx.htm](http://lunar-occultations.com/iota/iotandx.htm).

IOTA’s observer’s manual explains the scientific value of occultations: “Modern occultation observations are routinely used to refine the orbit of the Moon, analyze the positions of stars and the coordinate system they represent, detect new stellar companions, pinpoint the position of X-ray and radio sources, determine the size and shape of lunar mountains, determine stellar diameters, and the recent hot area of determining the size and shape of asteroids in our solar system. In 1985, Pluto’s atmosphere was discovered by the occultation technique. In March of 1977, the occultation of a bright star by the planet Uranus resulted in the discovery of its ring system.”
Make a difference.
Join the largest organization of planetarium professionals in the world.

Why Join IPS?

You can connect with experienced people who use the dome every day to educate students at different grade levels and with different learning styles. You can find out about the trends and innovations that are popular with public audiences in domed theaters.

IPS members receive the quarterly journal Planetarian, filled with insightful articles and a wide range of feature columns and other items. You can write for Planetarian and share your insights around the globe.

IPS members are a vital part of the society. As volunteers, they head committees, spearhead projects, and contribute. As a member, you can make a difference.

Biennial IPS conferences bring together hundreds of planetarium professionals from around the world for paper sessions, invited speakers, workshops, panel discussions, vendor demonstrations, and exhibits. Our next conference will be held 18-25 June 2020 in Edmonton, Canada.

Dues for individuals are US $65 for one year or US $100 for two years. For more information or to join IPS, contact Ann Bragg, IPS Treasurer/Membership Chair, at ann.bragg@marietta.edu. Join electronically by visiting the IPS website at www.ips-planetarium.org.

Just imagine what we can do together.
Present: Geoff Holt (President), Dayle Brown (Past President), Waylena McCully (President-Elect), Dan Tell (Secretary), Cheri Adams (Treasurer), Mike Smail (International Planetarium Society Representative), Bart Benjamin (Publications Chair), Tom Dobes (Technology Chair), Gary Tomlinson (Conference Planning Chair), Paulette Epstein (Membership Chair), Peggy Hernandez (Education Chair), Dave Leake (Development Chair, A/V Curator)

Observing: Renae Kerrigan (Deputy Conference Planning Chair), Janet Beckstrom (Registrar), Garry Beckstrom (Historian), Alex Mak (Conference Host), Heidi Kuchta (Conference Host)

Call to Order: The Meeting was called to order at 9:04 a.m. CDT, Geoff Holt Presiding.

Approval of the Minutes (Dan Tell): The minutes from the Fall Executive Committee Meeting were published for review by the membership in the winter 2018 GLPA Newsletter.

Cheri Adams had a correction to the minutes; the account balances from the Treasurer’s report were reproduced incorrectly and should instead appear as follows:

<table>
<thead>
<tr>
<th></th>
<th>31 March 2017</th>
<th>30 September 2017</th>
<th>31 March 2018</th>
<th>30 September 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Checking</td>
<td>$105,319.43</td>
<td>$130,546.16</td>
<td>$96,600.26</td>
<td>$99,112.46</td>
</tr>
<tr>
<td>Conference</td>
<td>$1,926.67</td>
<td>$1,926.67</td>
<td>$1,926.67</td>
<td>$1,926.67</td>
</tr>
<tr>
<td>PayPal</td>
<td>$14,665.30</td>
<td>$143,671.07</td>
<td>$9,585.49</td>
<td>$67,715.43</td>
</tr>
<tr>
<td>Image Bank</td>
<td>$3,721.83</td>
<td>$3,721.83</td>
<td>$3,585.66</td>
<td>$4,182.93</td>
</tr>
<tr>
<td>Gift Shop</td>
<td>$129.74</td>
<td>$129.74</td>
<td>$304.00</td>
<td>$304.00</td>
</tr>
<tr>
<td>Gift Shop Inventory</td>
<td></td>
<td>$504.00</td>
<td></td>
<td>$504.00</td>
</tr>
<tr>
<td>GS Online Store</td>
<td></td>
<td>$7.12</td>
<td></td>
<td>$7.12</td>
</tr>
<tr>
<td>Total</td>
<td>$125,762.97</td>
<td>$279,995.47</td>
<td>$112,513.20</td>
<td>$173,752.61</td>
</tr>
<tr>
<td>Additional Collected Conference Revenue</td>
<td></td>
<td>($168,498.16)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conference Expenses</td>
<td></td>
<td>($3,065.32)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Totals less expenses</td>
<td></td>
<td>$108,431.99</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Dan Tell implemented this correction.

Cheri Adams moved to dispense with the reading of the minutes and approve them. Mike Smail seconded. The motion carried.

Treasurer’s Report (Cheri Adams): Cheri Adams presented the account balances:

<table>
<thead>
<tr>
<th></th>
<th>31 Mar 2018</th>
<th>30 Sept 2018</th>
<th>31 Mar 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Checking</td>
<td>$96,600.26</td>
<td>$99,112.46</td>
<td>$92,673.19</td>
</tr>
<tr>
<td>Conference</td>
<td>$1,926.67</td>
<td>$1,926.67</td>
<td>$1,926.67</td>
</tr>
<tr>
<td>PayPal</td>
<td>$9,585.49</td>
<td>$67,715.43</td>
<td>$13,458.56</td>
</tr>
<tr>
<td>Image Bank</td>
<td>$3,585.66</td>
<td>$4,182.93</td>
<td>$4,230.63</td>
</tr>
<tr>
<td>Gift Shop</td>
<td>$304.00</td>
<td>$304.00</td>
<td>$304.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$112,002.08</strong></td>
<td><strong>$173,241.49</strong></td>
<td><strong>$112,573.05</strong></td>
</tr>
</tbody>
</table>

Geoff Holt said it is nice to now be able to directly compare fiscal years for the organization.

Cheri Adams reviewed details of the numbers including conference revenues, including some delayed repayment from the Pleiades conference, and expenses for the 2018 conference, which had been invoiced somewhat confusingly. Gary Tomlinson observed the final numbers show the East Lansing Conference broke even? Cheri Adams confirmed so.

GLIPSA’s expenses were also reviewed, including the extra cost for bussing that was paid by GLPA.

Layout costs for the *Proceedings* were discussed. Geoff Holt asked why the *Proceedings* had a layout cost. Cheri clarified there is a person at Bowling Green State University, Wade Kemp, who has been doing the layout for the *Proceedings* for several years while Dale Smith does the editing. Dan Tell said this brings up the layout issue of the *Proceedings* as a whole, and that there is another individual another degree removed from the Executive Committee who is doing the layout. Geoff Holt tabled this for discussion later in the meeting.

Cheri Adams categorized every PayPal transaction for the last year to come up with a complete picture of conference revenue. Cheri also moved membership fees out from conference revenue, so her report correctly reflects only the conference.

Geoff Holt notes this is the first time in a long time we have broken even. Cheri said this is the first time we could pinpoint every penny of the conference’s transactions. Overall GLPA broke even for the 2019 fiscal year. Usually GLPA makes some money on the conference, and there have been active attempts for GLPA to charge less. Geoff Holt observed this doesn’t leave much room for GLPA’s operating expenses. Dan Tell says we have done a great job hitting the minimum income bar and now we can correct to the optimal point. GLPA needs approximately $7,000 for operating expenses in addition to the conference.

Paulette Epstein asked if PayPal could automatically generate reports? Cheri said it could not. Tom Dobes asked if he could change transaction type names in PayPal to help? Cheri Adams said the transaction names are sufficient currently.

Forms for travel reimbursement were distributed and the proposed budget was reviewed and updated final expenses for 2018-19. Overall expenses were lower than budgeted, but so was revenue.

GLPA did not fund a production in 2019 but this remains in the budget in the event a proposal is approved.

Some costs for Technology appear elevated because of the change in fiscal year, so some expenses were paid in both April of 2018 and March of 2019, causing some expenses to show up twice in the same fiscal year. Similarly there were 5 newsletter printings in the previous FY. This will not be the case going forward.
Conference Planning (Gary Tomlinson): Gary Tomlinson welcomed Renae Kerrigan as the Deputy Conference Planning Chair. Gary has thanked Renae for doing a lot of things he didn’t know how to do, and her volunteering to take on a variety of tasks for the committee.

Selection of the Spitz Lecturer was discussed. The Committee asked Gary Tomlinson if he would turn down an invitation for himself to present the lecture again? He said he would not.

Paulette Epstein suggested since the conference is in Ohio this year if there might be an opportunity for an astronaut to speak? Geoff Holt suggested this could also be done as another invited speaker.

Renae Kerrigan also observed the proposed list of lecturers is very heavily male. Of 51 Spitz Lecturers only 7 are women and we should consider creating more balance and inclusivity. Geoff Holt agrees.

Mike Smail reviewed the suggested speakers list and noted that many are astronomers who do not necessarily have much connection to the planetarium field in specific.

Peggy Hernandez asked what the intention of the Spitz Lecture is. The Committee agreed it is about inspiring planetarians and usually is someone connected to the planetarium profession. Dan Tell said there has been a history of treating it as a lifetime achievement award recently, but historically it was professionals of any age in their career.

Gary Tomlinson has been proposed for Spitz lecturer.

The Astronomy Update was discussed. Renae Kerrigan ran a survey of the membership about continuing the Astronomy Update with Ron Kaitchuck stepping down. It had been suggested that planetarians can more easily keep up to date on astronomy news than ever and the update may no longer be as valuable. 60% of respondents voted in favor of keeping the update. A smaller proportion was actively interested in discontinuing the lecture.

Geoff Holt asked if we should discuss who could be the lecturer before discussing whether it should be continued? Dan Tell agreed that the Astronomy Update strongly relies on the personality of the lecturer, both with Ron and Jim Kaler before him, less on the content of the news, so having an engaging speaker is the keystone.

Renae also said there were a surprising number of comments in favor of the Astronomy Update, which changed her own opinion to be more in favor of the Update.

Dave Leake asked if a compromise might be reducing the length of the Update? It has been 1:15 in the past, with questions.

Geoff Holt also asked if choosing a new speaker meant we were choosing someone in perpetuity? Dan Tell recalled with Ron the Committee voted on re-approval for a few years until deciding to vote on a perennial invite until Ron or the Committee decided otherwise. There is a possibility of rotating lecturers, or trial years for a new lecturer. Gary Tomlinson added the invitation could clarify this to candidates.

Cheri Adams proposed a different format like “top 10 stories.” Bart Benjamin felt that might also distinguish it well from the existing Update. Heidi Kuchta suggested focusing it on more scientific stories and less on popular science. Dan Tell agrees that diving into the science was what Ron and Jim Kaler before him did well. Paulette Epstein said that most planetarians do have the ability to do that research themselves.

Geoff Holt summarized discussion thus far: we should try to make something that will provide deeper insight to everybody, that is shorter and covers less ground, but does it in more detail. Depth over breadth. He asks if that is sufficient feedback on structure for the Conference Planning Committee, given we can identify some speakers?

Alex Mak said that Dale Smith approached Alex about using a University of Toledo professor to do the Update. Geoff Holt again suggested professors are better for invited speakers. Dave Leake said candidates might be more willing to agree to the lecture knowing they can cover fewer news stories.

The list was reviewed. Paulette Epstein spoke in favor of Shannon Schmoll, who is a great speaker, has a lot of astronomy background and is an excellent researcher. Dan Tell suggested this could be a rotating position. Renae Kerrigan agreed that could be healthy for it — not to say excellent speakers couldn’t be invited back for repeats. Geoff Holt asked the Committee’s opinion, and general assent was given to invite Shannon Schmoll as an Update speaker.

The possibility of a new name will be left to the Conference Planning committee. Geoff Holt will introduce it at the conference. Gary Tomlinson will revise guidelines to send to the Committee with a new length of likely 45 minutes plus 15 minutes for questions and answers.

Bart Benjamin moved to invite Shannon Schmoll as the 2019 Astronomy Update lecturer. Waylena McCully seconded. The motion carried unanimously.

Gary Tomlinson was impressed with the results of doing a digital conference survey instead of a printed one. He received
107 responses, instead of a usual 60. Discussing questions for 2019, Gary said one question would be what GLPA should do with the International Planetarium Society Representative. Dan Tell said it would actually be better to already have a plan in place and have it on the ballot this fall so the necessary by-law changes take effect for the 2021 election. Geoff Holt also added we should keep in mind we can do online surveys if we need to, and also that we need to publish a notice about this in the newsletter, this will be discussed later.

Feedback on the Hospitality Suite was discussed. Dan Tell said maybe we need to clarify to the membership that GLPA has grown too large for the traditional “room party” Hospitality Suites and in recent years has had to have more formally operated Hospitality Suites. Geoff Holt said maybe this should be announced at the President’s Welcome or the end of the first night’s dinner. Gary Tomlinson asked if the Committee has a preference on how Hospitality should be handled — should John Hare continue doing it as requested? Paulette Epstein expressed that it’s not the individual that matter so much as the style of service. Renae Kerrigan asked if this year’s hotel has restrictions on Hospitality Suite service? Alex Mak said it does not and we will be able to have conventional service style supplied by us.

Dan Tell and Gary Tomlinson reviewed that in 2015 the Committee voted on a $500 reimbursement limit per night for hosting a Hospitality Suite.

Registration was discussed. A 7-hour meeting was held in on October 28, 2018 to discuss these issues with GLPA registration.

CiviCRM’s utility was questioned, but Tom Dobes has determined GLPA is very deeply invested in CiviCRM so we are unlikely to be able to improve on it. Tom Dobes will be doing a clean install of the software, which may help. Paulette Epstein said her biggest issue is the database query is not very good and a lot of Membership and Registration’s work has to be done manually. Tom hopes the clean install will let this work better, and he will either continue trying to improve CiviCRM or pursue other solutions. He added this will be an iterative year-over-year process. Geoff Holt added that CiviCRM is much closer to what was envisioned many years ago when CRM software was first discussed for GLPA. Paulette Epstein and Tom Dobes coordinated about manually cleaning and re-uploading the membership database.

Gary Tomlinson announced the Registrar will be retiring and a new one must be found, but it is a very labor intensive position, so Gary wanted to be very selective and consider people based on their skill and dedication, not just opening it up to the membership as a whole and has worked with Renae Kerrigan to produce a list of candidates. Paulette Epstein added that doing this job well requires database experience. Geoff Holt volunteered for the position after his presidency concludes. Paulette also suggested we might be able to better structure the position so the Registrar will miss less of the conference. Geoff Holt and Janet Beckstrom felt most of the work is concentrated on Wednesday and there are on-site helpers who can significantly lighten the load, especially without on-site registration.

Gary Tomlinson said that Gregg and Barb Williams were also interested. Geoff Holt suggested they might be well suited to be assistant registrars. Cheri Adams volunteered that she will not be running for Treasurer again, but Barb could be a great candidate given her background as a CPA.

Technology has a request for its own dedicated computers to better handle streaming. Geoff Holt opened up this request to discussion. GLPA has tried to avoid buying equipment and having the liability of ownership, instead treating the videographer stipend as a rental fee. Tom Dobes feels computers are different from the A/V equipment in this regard. Dan Tell suggested that although we have avoided the liability of ownership for insurance purposes, we could treat ourselves as self-insured for the purchase of laptops. Cheri Adams agreed.

The committee agreed the purchase of the laptops would be factored into this year’s conference budget. New equipment fees can be added in the future, as replacement is necessary.

It has been suggested an electronic version of the conference notebook be created. Gary Tomlinson asked how that should be handled: would the delegate specify if they wanted printed or electronic at registration? Bart Benjamin asked what should be printed regardless? Renae Kerrigan said the pocket schedule should be printed. Geoff Holt also said the quality and usefulness of the electronic version — whether a simple PDF or a more advanced app-based solution. Geoff said the AAS conference app was very useful. GLPA has considered conference apps before, but some of these solutions were quite costly. Paulette Epstein said a low-cost one was used at MSTA. Paulette and Tom Dobes will request a demo and continue to research that. Mike Smail said this is something we can keep improving on, year after year, and supplement with features like mobile map accessibility, scheduling assistance, and push notifications. Tom Dobes said some of this is being built into the new website already. Geoff Holt listed its desired features:

- My schedule
- Daily Schedule
- Paper Abstracts
- Participants list
- Sponsor list
Minutes of the GLPA Executive Committee Meeting (cont.)

Renae Kerrigan said she was envisioning just a PDF binder to start. Some things will still need printed but we can overall reduce the number of binders and paper ordered. Dan Tell suggested the options could be “I want the full printed conference binder” and “I want the minimal printed conference kit and electronic binder.” Waylena McCully said for the first year we could give people both.

Gary Tomlinson said historically the host has assembled the binder, which goes to Conference Planning for editing. Who would produce the electronic version? Bart Benjamin observed that the printed version is already a printing of a digital file. Renae Kerrigan said adding links to the PDF would be a minimal addition to improve usefulness.

Gary Tomlinson asked if the code of conduct should be included every year. The committee said it should be.

Gary confirmed that the committee desired the pocket schedule should be printed for all delegates. Dan Tell asked if a sponsor logo on the pocket schedule could be an a la carte add-on option. Gary Tomlinson and Janet Beckstrom said there is not enough room.

Gary Tomlinson asked if there should be an instructional meeting for paper moderators. Janet Beckstrom thinks that would be a great idea. Renae Kerrigan said she has been a paper moderator for five years and it seems like there is always some confusion about rooms and clocks.

Paulette Epstein said the new clock this year was good, but the preceding event running long before one of the sessions threw off the system. The guidelines also say that people have to be cut off and speakers can’t be swapped, so we need to make sure everyone is on the same page. Dan Tell added that it helped a lot this year having experienced members moderate paper sessions. The electronic instructions sent out ahead of time and printed instructions in the binders were reviewed. The Committee still favored an in-person meeting and Dan Tell suggested Thursday breakfast could be a good time for that.

Gary Tomlinson reviewed that on the conference survey some members said they watch the business meeting streaming from their rooms rather than in person attendance. It was asked if members can attend the business meeting remotely? Dan Tell said we can’t verify membership with remote attendees, nor currently count their votes for business.

Mike Smail reviewed this is why we had previously discussed moving the business meeting away from Saturday morning. Dan Tell said Friday afternoon would still be better in his mind. He also suggested recording but not streaming the business meeting to require in-person attendance, arguing this is the most important part of the Conference (from an organizational standpoint). Renae Kerrigan suggested we also improve the messaging around this. Paulette Epstein added before she was on the Executive Committee she didn’t understand the importance of the business meeting.

Dan Tell suggested Friday lunch could be a good time for the business meeting to capture maximum attendance without making it as easy to skip (but also not necessarily requiring the full attention of attendees). Renae observed that would require microphones and projection in the lunch room. Alex Mak said that would be available. Geoff Holt said we might need to be careful with balloting, since non-members might be at lunch, but we can do a separate card to trade in for ballots.

Members have asked for the schedule and registration/hotel/meal prices to be posted as early as possible. Conference Planning will make this a goal. Conference Planning was encouraged to have an estimate with buffer as soon as possible. Mike Smail and Paulette Epstein said an estimate that’s within $100 of the actuals would be better than nothing.

Special interest groups were discussed. Existing special interest groups include History, Technology, and Education. Garry Beckstrom wasn’t sure if there was a need to continue the History one now that most of the missing historical documentation and photos have been gathered. Peggy Hernandez said the Education SIG should continue. Waylena McCully said the same for Technology. Paulette Epstein said a Diversity and Inclusion SIG could be a good addition, with a focus on how to make GLPA a more inclusive environment. Software SIGs could also be useful to members; Dan Tell suggested we could allow sponsors to gather their users at the conference as a SIG. Renae Kerrigan asked what SIGs are for. Dan Tell reviewed they had been established to achieve specific projects — many of which had been achieved. Waylena McCully added they could allow for targeted networking. The Special Interest Group meeting has typically been held at one of the lunches, Dan Tell observed if we do the Business Meeting at Friday lunch then we can’t do SIG meetings then. Geoff Holt said Thursday or Saturday lunch might work.

Alex Mak delivered his presentation on the 2019 Conference. The conference will be held October 23-26 in Toledo, Ohio at University of Toledo. Most events will be at the Park Inn by Radisson, on the riverfront, adjacent to the ballpark.

Most of the conference will be at the hotel. Helms-Briscoe was very helpful with negotiations. Alex Mak’s only
concern was a communication lag between them, but they were probably instrumental in negotiating the prices.

The hotel will host the following: sponsor space, Wednesday reception, poster papers, all breakfasts, nightly hospitality suite, and all Friday activities including the Banquet.

Sponsor space will be on the mezzanine level of the Park Inn, in three adjacent rooms (a combination of ballrooms and multipurpose conference rooms). The smaller rooms may be combined to make it two larger rooms. Poster papers will be in the same location. There is freight elevator access and wide doors, but unfortunately no space for portable domes, which will have to be at the university. Both floor space and ceiling height are issues.

The hotel is 4 miles from the University campus, and the route is not walkable. Parking will be available at University of Toledo with a reserved lot. The hotel does not have dedicated parking; there is a municipal garage for $10/day near the hotel.

University activities will be at 3 buildings: Ritter Planetarium, the adjacent McMaster Hall (the physics building), and the Student Union. Student Union is a 4-minute walk from the others, and golf carts will be provided for accessibility. Planetarium seating capacity is 96 so there will be split vendor sessions.

The University will host the following: all planetarium activities, all portable planetariums, most likely workshops, lunches & dinners (except Friday), telescope tours, all Thursday activities, and possibly all Saturday activities.

Portables planetariums have been the biggest issue. The Student Union has floor and ceiling height for up to 3 or 4 portables. Portables can be set up Wednesday night but must be taken down Thursday night. There will be dedicated portable dome time to compensate for limited access.

Alex Mak is also looking into booking a diversity and inclusion speaker again.

Mike Smail asked attendance should be capped at 192? This would lock the conference into only having 2 simultaneous plenary sessions using the planetarium. Dan Tell observed GLPA has never hit 192 attendance (excluding Pleiades and other collaborative conferences) so the cap could probably be created without needing much concern.

Renae Kerrigan asked what other invited speakers are being considered. Alex Mak said they are also considering inviting a professor who was at the 1977 GLPA meeting to do a short 10-15 minutes presentation.

Renae Kerrigan also asked where papers will be presented. All venues will host paper presentations, depending on the day.

Dan Tell reminded the committee that in 2015 the membership did ask the Executive Committee to not have too many invited speakers and to focus on delegate presentations.

Gary Tomlinson reported on the progress of the 2020 Kalamazoo Conference. A/V with the hotel is still being negotiated and Tom Dobes is being very helpful in suggestions to reduce cost and provide external equipment, but there are some difficulties with the hotel.

A 2021 host has not been decided yet. Minneapolis has been suggested. Gary Tomlinson asked if there would be interest in a GLPA/WAC in Minneapolis? The Committee would like to pursue this suggestion.

The honorarium for printed text from invited speakers was discussed. It was reviewed that printed text must not be required for invited speakers, and that additional honorarium should be a bonus. Gary Tomlinson asked if we should transcribe these talks? Dan Tell said we now have a video recording so a written transcript is less important than it was in the past.

Development Report (Dave Leake): Dave Leake reviewed the conference survey for sponsors. Overall the a la carte system was received positively with only one sponsor advocating for the old system. There were a few issues with deadlines, registration, and the exhibit hall, but overall reception was positive.

Dan Tell asked if we should raise the fees slightly? The system worked well but revenue was down slightly. Dave Leake said yes, and we will have to deal with additional table charges from the hotel next year. Alex Mak added the hotel is charging us for room use which will also need factored into sponsorship levels.

Dan Tell asked if late night dome shows would still be offered. Teardown issues by another sponsor interfered with late night shows in 2018. Alex Mak said they might be able to do these shows earlier in the evening this year. Dan Tell said if these shows are running at prime time they we might charge slightly more for them.

This led to an aside on paper sessions. Saturday paper sessions were discussed. Dan Tell suggested avoiding concurrent sessions could be a good change. Splitting up delegates between two venues last year affected paper attendance. Paulette Epstein added GLPA is getting to a point where we will have to judge papers and reject some. Mike Smail agreed, saying we could decide not to do concurrent sessions on Saturday and set our schedule based on that.
Paulette Epstein said she would prefer quality of papers over quantity of papers and would be fine, personally, if she were encouraged to submit a poster instead of a paper. Tom Dobes reported there were 32 paper submissions last year, and about 10 posters.

Mike Smail added the way planetarium conferences treat posters as “also-rans” is not the norm for professional conferences. If we have to enforce a cap we should make it more worthwhile and rewarding to do a poster.

Development is working with Emily Hromi and Tom Dobes to improve the vendor registration sections of the website. Some updates have been made to the vendor policy as GLPA will no longer provide mailing information for delegates beyond what is listed in the conference binder.

The meeting recessed for lunch at 12:08 p.m.

The meeting reconvened at 12:51 p.m.

President’s Report (Geoff Holt): Geoff Holt expressed his appreciation to the Executive Committee for their service to GLPA.

A loophole was discovered in the Week-in-the-US for an International Planetarium Operator grant provided by GLPA where a host institution could join GLPA just to get the grant money. Paulette Epstein, Dan Tell, and Dave Leake discussed that adding language such as “higher consideration will be given to members with three years of membership” might be worthwhile. Cheri Adams agreed she would rather see the grant passed on if the applicant was not someone with GLPA experience. Peggy Hernandez added even a year of GLPA membership and involvement might be sufficient. Paulette Epstein suggested that maybe it should depend on when the applicant’s membership became active. Renae Kerrigan asked if conference attendance could be factored in. Geoff Holt agreed that “participating member” might be the right language and Peggy Hernandez agreed.

The grant program is available to institutions that agree to host international planetarians to help defray the hosting cost, with the intent of helping GLPA members become involved as hosts in the program. Geoff Holt will draft a new policy to be voted on after the meeting.

Dan Tell asked how membership length factors in, since the by-laws stipulate membership runs from October 1-September 30, which might be sufficient for avoiding situations like this in the future. Geoff Holt said there is a date in the system when it flips between late payment for the current year and early payment for next year.

Geoff Holt reviewed the new website privacy policy. Gary Tomlinson said the policy seems long. Dan Tell said this is by necessity.

Paulette Epstein moved GLPA shall adopt the proposed website privacy policy. Bart Benjamin seconded. The motion carried unanimously.

Geoff Holt reviewed this privacy policy was part of our move towards GDPR Compliance, and GLPA is almost there. Tom Dobes has built the mechanism to switch in the GDPR compliant personal information opt-in selections. Bart Benjamin sent out a request to known European Union citizens to fill out the opt-in form.

Geoff Holt reviewed progress on the Committee’s task list. He reminded the committee that they can feel free to recruit additional committee members. When special web access or private information is required it should be coordinated with the President. The President should still be informed of new committee members for information purposes.

Task management software was discussed. Geoff Holt will try some software packages. Waylena McCully suggested the Committee should then do group training. Geoff Holt will make time for this at the Fall Meeting.

Geoff Holt said that Dr. Jessica Garcia’s Diversity, Equity, and Inclusion presentation at the 2018 conference was well received and plans are being made for a similar presentation at this year’s conference.

President-Elect’s Report (Waylena McCully): Waylena McCully suggested to keep the goal for scholarships this year at 10, and handle any exceptional situations over email. Waylena McCully has assembled the President-Elects Committee’s:

Scholarship Committee: Emily Hromi, Steve Burkland, Paulette Epstein (Membership Chair), Dayle Brown (Past-President), Waylena McCully (President-Elect)
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Nominations Committee: Katy Accetta-Downing (Ohio), Jackie Baughman (Beyond the Lakes), Chris Janssen (WIMPS), Melinda O’Malley (Indiana), Eric Schreur (Michigan)

There was, at the time of the meeting, one candidate for President-Elect, two for Secretary and one for International Planetarium Society Representative. There were not yet any accepted nominations for Treasurer.

Geoff Holt said since this will be the final term for the International Planetarium Society Representative, is a second nominee necessary, or can this be left as a write-in? The Committee agrees this is a special situation. Any member can still run, but this is wrapping up the loose threads as IPS changes policies.

Cheri Adams asked if we need to handle scholarships different. For most years in the past GLPA has just written off the cost of scholarships, but in St. Louis it had an actual cost. Cheri Adams said this might reflect how things need to be handled in the future since some things are paid, like meals. Gary Tomlinson asked if this should come from the general budget or conference budget. Cheri Adams thinks scholarships should be paid from the conference budget. Geoff Holt agreed we should put the ten scholarships in the conference budget.

Dan Tell moved to approve 10 scholarships for the 2019 GLPA Conference. Dayle Brown seconded the motion. The motion carried unanimously.

Geoff Holt brought up changing the rubric to reflect a grading impact for having received previous scholarships. Paulette Epstein said there has been discussion about having a more objective scale for ranking applications. Geoff Holt asked what the intent would be? Paulette said she would like to encourage new members or existing members who have had a sudden disruption of funding to use the scholarship, not for the same individuals to receive the scholarship year-after-year. To assist with this Paulette is writing a guide for how to use grants to supplement conference attendance. The rubric was discussed more. Gary Tomlinson advocated that the committee chair should also obscure some information on applications to anonymize them to the committee. Dan Tell advocated for a clear rubric to avoid a situation where a chair might skew the scholarship results (this has not happened to GLPA knowledge, but is worth presenting for transparency).

Secretary’s Report (Dan Tell): Minutes from the Fall Executive Committee Meeting and Business Meeting were prepared for Publication in the winter GLPA Newsletter.

The following online votes were conducted between the fall meeting of the Executive Committee and the spring meeting:

Dan Tell moved that GLPA will reimburse LIPS $508.38 for cost overruns related to bussing for the GLIPSA event ahead of the 2018 GLPA Conference. Paulette Epstein seconded. The motion carried unanimously.

Peggy Hernandez moved that GLPA shall enact an ongoing (yearly) financial support of $500 for the Week in the US for an International Planetarium Operator program. Bart Benjamin seconded. The motion carried 8-1.

Dave Leake moved that GLPA shall provide a $200 honorarium to the Merrillville Community Planetarium for hosting the Executive Committee meeting. Dan Tell seconded. The motion carried with 8 yeas and 4 abstentions.

Treasurer’s Report, Non-Financial (Cheri Adams): Cheri Adams reviewed GLPA’s insurance policy. The policy is on a three-year term. Cheri Adams needs to supply the number of members to our insurer. The insurance agency is still in Dayton and is happy to continue to insure GLPA after the election of a new Treasurer.

The CPA Cheri Adams has been working with will also be willing to keep working with a new Treasurer. Cheri feels there would not be a major disadvantage to a new Treasurer working with this CPA remotely, she already works only by phone and email with the insurance agency, and with the CPA most of the work is done electronically as well.

International Planetarium Society Representative’s Report (Mike Smail): International Planetarium Society board members will be elected at next IPS election at end of 2019. Current IPS reps will have two more meetings, one this summer and a second just before the Edmonton Conference in 2020, and will be observers thereafter.

Discussion was opened on what to transition the IPS Representative position into. Some Committee members expressed a desire to keep the balance between 6 appointed standing committee chairs and 6 elected officers to prevent too easy of a presidential takeover of the organization. Geoff Holt agreed that he liked the balance. The idea of an Inclusion and Outreach Officer was proposed. Paulette Epstein advocated that as an elected individual they would
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Dan Tell reviewed the schedule for by-law updates. If necessary, we can publish the proposed by-law changes in the fall newsletter. In addition to changes for the IPS Representative, there was also a typo that needs changed from the 2017 amendments.

From the October 2017 Minutes: *We also need to change: The by-law ballot was prepared and published in the Summer Newsletter (on page 33) in accordance with the by-laws, but there is a typo in the Treasurer’s Duty (a redundant “shall” in Art. VI, § 8, E, 5), so a future vote will need to be held to revise it. But it’s only a typo and not a procedural issue.*

Geoff Holt formed a by-law change proposal committee of Dan Tell (Secretary), Dayle Brown (Past-President), Garry Beckstrom (Historian), and Gary Tomlinson (Conference Planning).

Mike Smail reviewed new initiatives and resources available from the International Planetarium Society and its partners.

IPS is featuring a “planetarium of the month” on its Facebook page.

NASA has opened up an online toolkit (https://www.nasa.gov/specials/m2m-toolkit/) full of multimedia content that you can use to discuss and promote upcoming Moon and Mars exploration initiatives.

NASA Museum Alliance members also have access to an extensive set of resources (https://informal.jpl.nasa.gov/museum/apollo-50th-resources) surrounding the in-progress 50th Anniversary of the Apollo program. Museum Alliance membership is free.

In June, GLPA’s IPS Representative Mike Smail will attend the IPS Council meeting in Reykjavik, Iceland. At this meeting, Mike will cast GLPA’s vote for either Houston, USA, or St. Petersburg, Russia as IPS 2022 host site. Many members shared thoughts directly with Mike, or voted in a straw poll at GLPA 2018 in East Lansing. Those with further questions or preferences should contact Mike at msmail@adlerplanetarium.org with subject line “IPS2022.”

IPS2020 will be held June 18-25, 2020 at Telus World of Science Edmonton, Canada. Registration is currently targeted at $490, official hotels cost $110-$160, and lower priced university rooms will also be available. There hasn’t been a North American IPS since Baton Rouge in 2012. The Canadian dollar is currently down vs. the U.S. Dollar, which, coupled with the closer geographic proximity to GLPA, means this is shaping up to be the most inexpensive IPS in several years. The IPS2020 website is now live; visit http://ips2020.twose.ca for more information.

The IPS Education Committee is offering a new service — a communication tool for planetarians and teachers needing help or suggestions on how to teach a topic in the planetarium. Click this link (https://www.ips-planetarium.org/page/helpteaching) and a member of the IPS Education committee will help you with ideas from planetarians around the world on best practices for presenting content or leading activities under the dome.

In addition to offering a sizable amount of free fulldome content to planetarians over the years, ESO, the European Southern Observatory, is now offering ready-made exhibit panels, digital web apps and more for planetarians’ use under Creative Commons licensing. Find the full details on the ESO website (https://www.eso.org/public/news/eso1901/).

The IPS Planetarium Centennial Task Force is still seeking input on activities to celebrate the centennial of our profession. Many good ideas came up during a brainstorming session at the recent IPS Conference in Toulouse, but the Task Force is still open to additional ideas. Learn more about their work at www.ips-planetarium.org/page/centennialtaskforce.

**Education Report (Peggy Hernandez):** Peggy Hernandez gave an overview of the planetarians’ webinar series. Although GLPA’s partnership with the Pacific Planetarium Association has not increased live viewership, many have watched the recorded webinars afterwards. Renae Kerrigan said it would be nice to post the YouTube archive to the GLPA Facebook page. Peggy will send Renae the link. Geoff Holt says once GLPA has contributed enough he will make a request to change the name of the YouTube channel, which is currently “PPA President.”

Peggy Hernandez has done some work on project grants, making an electronic version of the paper application form. Peggy effectively defines a grant as anything that an institution would like to do that costs more money than they might supply individually and that would benefit the broader community if it were shared. The grant program will also need advertised. It was suggested some of the previous projects be listed. Dan Tell suggested listing all previous projects. Geoff Holt observed if we included all the previous projects, GLPA could list the amount awarded for that grant. A paragraph description of all previous grants that could include some examples of guidelines. Peggy Hernandez notes there
were some guidelines that were created in 2015. Paulette Epstein proposed a landing page for GLPA projects that lists criteria, past projects, and has the application.

Peggy Hernandez will keep working on wording. She will get in touch with Bob Bonadurer and Dave DeRemer about previous grant projects, as they worked on several.

Peggy Hernandez asked about the project review committee: there is currently a structure put in place for a committee consisting of 3 GLPA members not on the Executive Committee and the Education chair. There was another document that said 2 members. Dan Tell reviewed the minutes and confirmed in 2015 the Committee voted on wording with 3 members at large and the Education Chair, so that is standing policy. Geoff Holt asked if it makes sense to have a subcommittee if the Executive Committee has approval as well. Dan Tell said this was planned to avoid the appearance of the Committee approving projects for itself, a criticism that has happened in the past. Paulette Epstein also feels like there are people who could serve on committees that may have a better handle on some topics than the Committee, but we should still have final approval. Peggy likes the idea of sticking with the three members-at-large and the review committee can make recommendations to the Executive. Waylena McCully and Gary Tomlinson agreed it will also give more opportunities for more people involved. Peggy also agrees it would be good to have school educators and someone from informal education.

The Year in the US for an international planetarium operator was revisited. GLPA will send the $500 grant directly to IPS when there are approved applicants. Geoff Holt asked if we needed a motion for this year’s funding. Dan Tell reported we had already approved the funding, and there is no reason under current rules not to accept this years applicants. Cheri Adams confirmed what was approved is what will now be spent? Geoff Holt affirmed.

Peggy Hernandez researched the idea of offering a certificate of completion for Continuing Professional Development Units or Continuing Education Units. It would be possible: GLPA could become a certificate of completion granting provider. GLPA could be the provider, but this would be a lengthy application, the organization would endure an audit, and there would be continuous careful tracking. Peggy reports this could also be done through a school district as the granting body, but this might not be possible to do for the whole conference. GLPA would also have to be very strict about enforcement to meet the qualifications. The survey revealed interest is relatively low. Dan Tell asked if GLPA’s incorporation in Michigan would affect which states school districts would recognize these credits? Peggy Hernandez said this would not be a problem. The Committee agrees this is probably not worth pursuing, if interest does develop GLPA should work with a third party to provide the credits.

Paulette Epstein asked if this would attract other planetariums that are part of schools to join and attend GLPA? Mike Smail asked if we can survey some school planetariums to get more information. Paulette Epstein will do some research in the Detroit area. Dan Tell noted from the above discussion there has been a 20-person drop in school planetarians in GLPA over the last 5 years. Is this attributable to the services we offer to teachers, or is it reflective of funding cuts to education beyond GLPA’s ability to help?

Peggy Hernandez feels good about the current status of the GLPA’s NGSS alignment documents and they will be stored in the same, accessible place.

Membership Report (Paulette Epstein):

<table>
<thead>
<tr>
<th>Total Members</th>
<th>175</th>
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<tbody>
<tr>
<td>IPS</td>
<td>84</td>
</tr>
<tr>
<td>Fellow</td>
<td>77</td>
</tr>
<tr>
<td>Retired</td>
<td>26</td>
</tr>
<tr>
<td>New</td>
<td>34</td>
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Worldwide Membership  Location

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<tr>
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<td>5</td>
</tr>
<tr>
<td>North / South / Central America / Caribbean</td>
<td>175</td>
</tr>
<tr>
<td>Asia / Pacific</td>
<td>6</td>
</tr>
<tr>
<td>Middle East / North Africa</td>
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GLPA Members by State

<table>
<thead>
<tr>
<th>State</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illinois</td>
<td>23</td>
</tr>
<tr>
<td>Indiana</td>
<td>20</td>
</tr>
<tr>
<td>Michigan</td>
<td>32</td>
</tr>
<tr>
<td>Minnesota</td>
<td>6</td>
</tr>
<tr>
<td>Ohio</td>
<td>29</td>
</tr>
<tr>
<td>Wisconsin</td>
<td>25</td>
</tr>
<tr>
<td>Other</td>
<td>125</td>
</tr>
</tbody>
</table>

Membership is obviously down since Pleiades but there was a sharp drop this year because sponsors are no longer required to register as members. Only 12 have opted to do so.

Geoff Holt asked if more ongoing trends can be reported, like Dan Tell just identified with school planetarium membership. Paulette Epstein said yes. She also noted a drop in student memberships.

No external nominations for awards were received this year.

Fellow hopefuls were reviewed.

Paulette Epstein reviewed the need to re-create the membership brochure as part of her budget. $100 was budgeted for the brochure. The Awards budget is expected to be the same as last year.

Publications Report (Bart Benjamin): Bart Benjamin reports the publication of the GLPA Newsletter continues to operate smoothly. Bart also manages a private Slack channel in Slack’s Planetarians workspace for coordinating the publication and providing updates to key individuals. Bart also expressed his thanks to Emily Hromi for her design work on the Newsletter covers.

The most recent issue of the GLPA Newsletter was GLPA’s 203rd and Bart Benjamin’s 125th as editor.

Bart Benjamin will soon debut a new feature called GLPA Newsletter Plus, which will be a webpage containing supplementary (or bonus) documents that augment authors’ articles. The page will be at glpa.org/newsletter/plus.

Distribution has been simplified, there are now only two options: printed or electronic. All individuals will be notified of the electronic version of the Newsletter. Along with this, Bart Benjamin questions if we should keep calling it the “electronic” version or if it would be better to call it the “digital” version. The Committee agrees to use “digital.”

Currently 124 members opt to download the digital version of the newsletter only, and 46 members receive a printed copy. These figures are relatively unchanged since last year.

The GLPA Newsletter currently has 11 contractual advertisers, occupying 10½ pages and providing annual revenue of $6,390, which is close to the cost of printing.

Bart Benjamin thanks the state chairs for their help: Renae Kerrigan (Illinois), Barb Williams (Indiana), Shannon Schmoll (Michigan), Dale Smith (Ohio), Jean Creighton (WIMPS), and Mary Holt (Beyond the Lakes). Beyond the Lakes has been quite successful so far, attracting news from a growing number of facilities beyond the Great Lakes states.

Bart Benjamin and Tom Dobes may work together to create GLPA’s own link shortening using the additional domains that are owned to avoid the need to use external link shorteners like bitly.

Bart Benjamin reviewed the work of the GLPA Design Committee and their work on proposing a new logo, which has been discussed by the Executive Committee since the Fall Meeting. The existing discussion over the logo was briefly covered. Dan Tell and Geoff Holt then walked the Committee to through a series of straw votes to consider the designs, presented below. Of the four proposed options, a strong majority of the committee would favor proposed Option #1 as a new logo, a refined version of the existing logo.

The specific design variants of this logo were then reviewed in straw vote. Version 1 had the most support, followed by Version 3. Based on discussion during the voting, Bart Benjamin will communicate with Emily Hromi about
trying out a few different color saturations on this logo as well as making monochrome versions for Executive Committee consideration for final approval.

There have been some issues with how the Conference Proceedings have appeared in the past. In the week preceding the meeting Dale Smith, Geoff Holt, and Bart Benjamin held a discussion to review how this can be improved. Dale and Bart will expand the Instructions to Authors webpage. Paulette Epstein said this should include instructions on columns and indenting, and that overall a publishing format needs to be clearly defined. Dan Tell suggested including a downloadable template. Geoff Holt says Dale Smith has said templates have not worked in the past. Dan Tell and Paulette Epstein object that this should be a resolvable problem. To further resolve issues, authors will be encouraged to contact the Proceedings Editor if they are unhappy with the final product, even after publication.

In 2019 GLPA will offer the Conference Proceedings as both the all-in-one PDF and broken up as individual downloadable PDFs for each paper, poster, and talk.


GLPA’s social media entities now all fall under the Publications Committee. GLPA continues to grow its
Santa’s Secret Star is an original fulldome production of the University of Toledo Ritter Planetarium Fulldome Studio. It is based on a script developed at the Ritter Planetarium in 1989. An analog version ran successfully for nearly fifteen years. We have re-created the program with all new fulldome visuals, a new narration, and an original musical score.

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presence on Facebook, Twitter, Instagram, and also uses Slack. Statistics are as follows:

**Facebook** = 595 total follows. Administrators: Renae Kerrigan, Michael McConville, Tom Dobes, Paulette Epstein, Emily Hromi, Bart Benjamin.

**Twitter** = 567 followers. Administrator: Mike Smail.

**Instagram** = 65 followers. Administrators: Emily Hromi, Michael McConville. GLPA is almost done posting all photos to the Facebook page

**Slack** = 34 members of #glpa channel. Workspace Owners (for #glpa): Derrick Rohl, Mike Smail, and Steve Burkland.

Bart Benjamin thanks all of these individuals for their valuable service to GLPA.

Renae Kerrigan has completed the process of uploading almost all historical GLPA conference photos to Facebook. Bart Benjamin has also created a database of all historical members of GLPA. Renae Kerrigan and Bart Benjamin are working on a contest to guess the total number of members.

**Technology Report (Tom Dobes):** Tom Dobes has complete several technology projects to improve the GLPA website:

- GLPA’s server has been upgraded to PHP 7.3 to handle a required update to CiviCRM. Tom asks people to keep watch for any unexpected behavior on the site, although he has yet to encounter any problems.
- The GLPA Handbook has been migrated to Google Docs.
- One-time-use URLs for wire transfer info system is built.
- GLPA contact forms will now hide email addresses by default.

Tom Dobes is continuing work on the membership database for GDPR compliance. European Union Citizens have been contacted for how information will be listed and the back-end programming has been done to present this information as requested.

A photo directory for membership list and conference attendees have been created and will show up next to the member list. This will need advertised to the membership. Geoff Holt said the utility of this directory will depend on participation so we as exec should look into how we can provide encouragement and technical assistance.

Tom Dobes is also doing significant back-end work to ensure the back-end infrastructure and hosting of the website is stable and secure. He is also continuing to work on the possibility of a new responsive web theme and, ultimately, and improved theme overall for better access.

Tom Dobes is working on a cleanup of the conference database and will re-import the data onto a clean install of CiviCRM. The goal is to eliminate an issue last year where financial data became disassociated from registration data. This will hopefully provide a stable foundation to continue to improve CiviCRM in the future and add many of the requested features.

Tom Dobes is still planning to use MediaGoblin to create a digital asset repository on the website. Tom has installed the software and is working on making it work. The next opportunity to work on it will likely be after the Conference.

Tom Dobes would like to budget for renewal of GLPA’s CiviCRM membership, which will enable access to the long-term support version of CiviCRM, which has better stability when new features are added.

The Committee complimented Tom Dobes for how quickly he got the conference videos online last year. Paulette Epstein asked if the social media feed does not update every day? Tom said this is a work in progress.

GLPA maintains glpa.org, glpa.us and glpaweb.org as domains.

From October 4, 2018 – April 1, 2019 Google Analytics for the website report:

- 3,081 users totaling 14,926 pageviews
- 47% navigated directly to the site, 38% from a web search, 10.3% from a referral link, and 4.7% arrived from social media.

Since the conference, the edited conference videos have seen 145 views. During and immediately after the conference there were 202 views of the live conference videos. Facebook has seen 1,791 views since the conference, although this number may be inflated by autoplay.
GLPA’s 45th newsletter and the second issue of 1979 contained the following articles and columns:

★ The lead story of that year’s summer newsletter described the upcoming conference, which would be hosted by Maxine Haarstick and her colleagues from the Minneapolis Planetarium.

★ An abridged version of the minutes of the spring Executive Committee meeting was printed. Highlights included the announcement of a new Conference Planning Chair (Bob Gardner), the completion of two Tips booklets, plans for additional Tips booklets on “Planning the Planetarium Facility,” “Tips on Astronomical Accuracy in the Planetarium,” and “Tips on Interdisciplinary Use of the Planetarium.” Gail Bouslog would be replacing Don Knapp as manager of the GLPA Script Bank. Newsletter Editor Dave Hoffman announced two new newsletter columns, titled “Resource Corner” and “Personnel Problems.” The GLPA logo was also discussed, with a vote expected at the fall conference to either select a new logo or retain the current one. [Ed. At the fall 1979 Annual Business Meeting, a new logo was indeed adopted. According to the minutes published in the winter 1979 newsletter, four proposals were presented to the membership by Dave DeBruyn, a vote was taken, and a new logo decided. This new logo would gradually be phased in, finally replacing the old logo on the newsletter’s cover page in the winter, 1980 issue.]

Forty years later, GLPA is once again considering changing its logo. See the Publications Report in the GLPA Executive Committee Meeting minutes for details.

★ It was noted that David Parker had become the new curator of the GLPA Slide Bank, replacing Gary Mechlert.

★ Spring meetings in Ohio, Michigan, and Indiana were briefly described. A number of GLPA members attended a University of Michigan seminar that featured Skylab astronaut Jack Lousma and Dr. Frank Drake, then Director of the Arecibo Radio Telescope.

★ The final six pages of the newsletter (one-half of the issue) were devoted to a GLPA membership list. The list contained the names and addresses of 139 members from 16 states and one foreign country (West Germany).
GLPA’s 124th newsletter and the second issue of 1999 contained the following articles and columns:

★ The summer cover highlighted the upcoming total solar eclipse of 1999 August 11, the path of which crossed much of central Europe. [Ed. While observers in parts of Spain will enjoy the tail end of totality on August 12, 2026, only the very young in our profession will likely see the next total solar eclipse that crosses the heart of Europe, which occurs on September 3, 2081].

★ In the State News section, Chicago’s Adler Planetarium announced that it had presented its 1,000th show in their StarRider Theater since opening their Sky Pavilion addition in January [1999]. Their original Sky Theater would be refurbished that summer, with a re-opening set for October 1st.

★ A Bulletin Board notice informed the membership that Geoffrey Holt of Madison, Wisconsin was assuming the duties of Instructional Materials Chair. He replaced Gary Sampson, who stepped down from that position after nine years. [Ed. Now, of course, Geoff Holt is President of GLPA].

★ Candidates for GLPA Offices were presented to the membership. [Ed. At the 1999 fall conference, Gary Sampson would be elected President-Elect, Bob Bonadurer would be re-elected as Secretary-Treasurer, and Sue Reynolds Button would be re-elected as IPS Representative].

★ At GLPA’s spring Executive Committee meeting, Dave DeRemer handed out a rough draft of GLPA’s new K-1 grade show Zubenelgenubi’s Magical Sky, which would be a basic introduction on what can be found in the day and night sky. DeRemer noted that their plan was to complete the show in time for the 1999 conference in Kalamazoo.

★ Also at the spring Executive Committee, it was announced that the 2000 GLPA conference would be held in Chicago at the newly redesigned Adler Planetarium. The Executive Committee also voted to co-host the 2001 conference with SEPA in June of 2001 at the Hummel Planetarium in Richmond, Kentucky.

★ April Whitt wrote an article describing a nationwide program to educate the general population about the International Space Station (ISS). Three GLPA members participated — April Whitt from the Fernbank Science Center in Atlanta, James Wallace II from the Children’s Museum of Indianapolis, and Gary Tomlinson from the Chaffee Planetarium in Grand Rapids. During this three day workshop, participants toured the Johnson Space Center’s research labs for the ISS, received background information on the ISS, and trained on presenting demonstrations and sharing techniques.
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THE GREAT LAKES PLANETARIUM ASSOCIATION (GLPA) offers membership opportunities to all individuals in any way connected with the operation of planetariums regardless of geographic location. GLPA is an affiliate of IPS (International Planetarium Society), NSTA (National Science Teachers Association), and IMERSA (Immersive Media Entertainment, Research, Science & Arts). Membership dues are $20 annually, payable at the time of the Autumnal Equinox. General correspondence should be addressed to the Secretary, and requests for membership should be addressed to the Membership Chair (see below). The quarterly GLPA Newsletter is received by all members in good standing. Ideas and opinions expressed in the GLPA Newsletter are not necessarily those of GLPA, its membership or the editor. Deadlines for contributions fall on the 1st of February, May, August, and November. Send information to GLPA Newsletter Editor (address below). Copyright © 2019.

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UPCOMING CONFERENCES:
2019 October 23 - 26
Toledo, Ohio

2020 October 21 - 24
Kalamazoo, Michigan

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PLEASE NOTE:
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GLPA NEWSLETTER
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ONE SMALL STEP,
MANY INSPIRED PLANETARIANS

IN THIS ISSUE

- Expanded Edition of State News, with Photos from WIMPS, IL, & IN
- Proposed Amendments to the GLPA By-Laws
- Articles from Recipients of IPS’ “A Week in the United States” Program
The current design of the *GLPA Newsletter* incorporates small sections of several NASA images for its page mastheads. These and other images can be accessed from NASA websites such as Mars Exploration, Scientific Visualization Studio, and Hubble Space Telescope websites at www.spacetelescope.org/images/, heritage.stsci.edu, and hubblesite.org/gallery. And because all these photos are from NASA, they are free to use (with proper credit).

**Image Credits page background image:** NGC 2074 in the Large Magellanic Cloud  
**Credit:** NASA, ESA, and M. Livio (STScI)

**Image Credits page inset image:** M96: A Galactic Maelstrom  
**Credit:** ESA/Hubble & NASA and LEGUS Team

**State News Masthead:** Young stars in the “wing” of the Small Magellanic Cloud  
**Credit:** NASA, ESA, CXC and University of Potsdam, JPL-Caltech, and STScI

**Bulletin Board Masthead:** M13: A Celestial Snow Globe of Stars  
**Credit:** NASA, ESA, and Hubble Heritage Team (STScI/AURA)

**Articles Masthead:** Newborn stars within the Prawn Nebula  
**Credit:** European Southern Observatory

**IPS Update Masthead:** Big Blue Marble Earth  
**Credit:** R. Stockli, A. Nelson, F. Hasler, NASA/ GSFC/ NOAA/ USGS
The annual conference is just around the corner! I hope you can join us in Toledo, Ohio. It looks like it is going to be another great conference. The Ritter Planetarium staff and the Conference Planning Team have been working hard to get everything ready. I wanted to call your attention to a few aspects of the conference related to the organization.

● **Annual Meeting:** Our Annual Business Meeting takes place during lunch on Saturday. It is important that you attend this meeting. We need a quorum to fulfill our by-laws and requirements for maintaining our non-profit status. Also, we will be making important decisions regarding by-law changes and the election of our officers.

● **Electing Our Officers:** At the Annual Meeting during lunch on Saturday, we will hold elections for officers who will begin their term next year. You can learn more about the candidates by reading their statements in the summer newsletter. If you are unable to attend the conference, you can request an absentee ballot by contacting the Membership Chair. You can do this while renewing your membership.

● **By-law Changes:** The Executive Committee is bringing before you several minor recommended changes to our By-laws. Most of them are suggesting language changes to be more precise, consistent, and inclusive. We are also proposing a new officer position to replace the IPS (International Planetarium Society) Representative. This position was eliminated due to changes in the IPS governance structure.

Despite the long hours and extra work that Apollo 11’s 50th anniversary likely meant for many of you, I hope you were able to enjoy the opportunity to visit (or re-visit) that watershed moment in the history of space exploration, when a significant portion of the world’s population stood transfixed in front of a television or radio to witness events that would have seemed impossible only a few years before.

Although Apollo 11 became the space mission that most Americans today know something about, the Apollo program didn’t end there, and we owe it to our audiences and to history to explain to our visitors that Neil and Buzz’ sojourn onto the lunar soil that day may have been the end of one amazing goal to reach the Moon, but it was also the beginning of an equally important goal of exploring the Moon and deriving scientific value from our visits there. We should remind ourselves and explain to our audiences that significant scientific achievements and discoveries were made during the five additional lunar landing missions. Amazingly, these missions extended the time that astronauts explored the Moon’s surface from Apollo 11’s 2½ hours to a grand total of 3½ days of accumulated EVA exploration by the time Gene Cernan and Jack Schmitt closed the hatch of their LM for the final time on December 13, 1972! We should remember — even if our visitors don’t — that the 50th anniversaries of Apollos 12 through 17 will resume this November and don’t end until December of 2022.

Students often complain that history is just a series of memorized names and dates. That said, was Project Apollo more than three astronauts and the events of July, 1969? You bet it was! We can better serve history and the legacy of Apollo by not making it a singular event, but explaining that in the early 1970s, NASA undertook a series of increasingly complex space expeditions that explored five additional regions of the Moon, created an entirely new science of
CHRONOS II has a new blue home

On July 5, 2019, the new Galileum Planetarium in Solingen Germany was officially opened with a series of enthusiastic community celebrations. The road to that opening began in 1921, when local high school science teacher Walter Horn formed the Astronomical Club of Solingen, which built a small observatory. The Walter-Horn Society has continued serving its community for nearly 100 years, and now its members embark on the next 100 years of sharing the wonders of the cosmos.

The fundraising that created that first small observatory was repeated on a much larger scale in the past decade. Hoping to build a planetarium, the club obtained land and an unused, 62 year-old gas storage tank for use as their new home. Various governmental agencies provided roughly 2/3 of the funding, but club members had to do an amazing amount of work to raise the rest. After years of crowdfunding appeals, performances of a famous German science comedian, approaches to local corporations, and even selling various promotional items, finally construction began in 2016.

The 85-seat planetarium features a GOTO CHRONOS II HYBRID system which links a 4K RSA Cosmos Sky Explorer 4.0 fulldome system with the beautiful, ultra-high resolution stars, sun, moon, and planets of the opto-mechanical projector. Programming is a mixture of live performances in which club members utilize the GOTO HYBRID control console to give tours of the night sky, automated HYBRID programs, pre-rendered shows on diverse topics, and even alternate uses such as live concerts and other community presentations.

An 8-story tower building was constructed beside the tank, with a bridge leading into the tank at its equator. Atop the tower are 35.5cm and 25cm telescopes which have a totally unobstructed view of the entire horizon. Inside the tower are meeting rooms, offices, the society’s library, a small café, and exhibits. And inside the 26 meter tank is a 12 meter, horizontal Astro-Tec dome housing what is arguably the most exciting planetarium in Europe.

For as long as most people could remember, the big steel ball near the Solingen Hbf train station was just an industrial oddity. But now it has become the icon signalling an exciting new future for the Galileum Solingen!
The William M. Staerkel Planetarium welcomed new director Erik Johnson this summer. [See photo below] Erik is no stranger to the Staerkel staff, as he’s been using the planetarium to instruct his college students since 2011. He is also very actively involved with the Champaign-Urbana Astronomical Society and has helped to run both regional and state Science Olympiad tournaments for several years. Erik started his new role by adding his Lego Lunar Lander to the Lego Saturn V lobby display. He’s now working with Operations Manager Cindy Reynolds, Producer Waylena McCully, and Presenter Tania Swigart to learn his way around and to plan for the coming school year. Both Erik and Waylena will attend the GLPA conference in Toledo. The planetarium held an open house celebration in July. Speakers included college administration and retired director Dave Leake. Community members and college staff learned about the past and present while looking forward to the future. The James B. Kaler Lecture Series continues this fall with talks on soils science, CubeSats, and diverse organism adaptations. Fall marks the return of Solar Superstorms, Solar System Safari, Dark Matter Mystery, and holiday shows Season of Light and Santa’s Secret Star.

Strickler Planetarium, located on the campus of Olivet Nazarene University in Bourbonnais, Illinois, reports that they updated their Digistar 3 system to a Digistar 6 in August.

**STATE NEWS**

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The Cernan Earth & Space Center of Triton College in River Grove had a very successful summer of rocket classes. [Read more about them in Kris McCall’s illustrated article on page 29]. The last two days of rocket camp overlapped with the start of several exciting planetarium upgrades. First, the Cernan Center staff worked with McKay from E&S to install new computers and Digistar 6 software to drive their existing JVC projector. [See photo →]. Bowen Technovation visited last September to install a subwoofer and digital signal processor and came back in late-June after E&S left to install left and right rear and front center speakers, improving the dome to audio 5.1. Kris reports that “you can feel the difference!” Planetarium Technician Joe Schultz spent the last twelve months putting together and installing a DIY cove lighting system, including a rubber trough around the dome perimeter. While this has been a lengthy and piecemeal process and waiting has been hard, the staff is looking forward to maximizing the impact that these new capabilities will have on visitors. To increase awareness and attendance in a big city full of big museums, the Cernan Center sponsored the “Summer of Space” on WTTW PBS Chicago. Every time “Chasing the Moon,” NOVA, and other related programs aired, viewers saw a 30-second video produced by the Cernan Center staff before and after each show. You can see the video at bit.ly/33Rhm8w. Kris McCall, Director of the Cernan Center, reported that they saw an immediate impact on attendance and look forward to expanding their programming. She added, “This video would not have been possible without the generous assistance of the producers of awesome planetarium content and one composer musician. Thank you all.”

The Deep Space concert series at the Dome Planetarium in Peoria has been a big success! Thank you to Emily Hromi for the inspiration. Their first two concerts of the series sold out, and the staff enjoyed great feedback from guests. Two more concerts were planned for August and September. The Peoria Riverfront Museum is continuing to celebrate the 50th Anniversary of the Apollo 11 moon landing. A giant timeline commemorating the many steps of human spaceflight was installed this summer [← See photo] and in September they will open an exhibition titled MOON, curated by Renae Kerrigan. The exhibit features artwork and artifacts related to early lunar mapping, human exploration, artwork inspired by the Moon, and a 13-foot diameter moon artwork by the British artist Luke Jarram. They were able to borrow objects from several GLPA planetariums to add to our exhibition.

Each month, Chicago’s Adler Planetarium hosts Adler After Dark (AAD), a 21+ night event at the museum. The June AAD was Pride-themed, highlighting and celebrating the fusion of queer art and science and importance of identity, understanding, and self in the cosmos. The highlight of the night was Drag Me to the Stars, a drag show ‘in space’ visualized under the dome of the historic Sky Theater. [See photos A and B on page 9]. The July AAD was understandably Moon-themed, and for it the Adler partnered with The Washington Post to create a planetarium show that accompanied an exclusive premiere listen of the first episode of “Moonrise,” the Post’s new Space Race podcast. Over the course of the night, 600 people were able to see the show, and 200 more participated in a panel discussion with the podcast’s creators and space experts to dive deeper into the Moon landing and the Apollo program. On July 20th, Adler also facilitated a discussion between Gemini and Apollo astronaut Jim Lovell and Virgin Galactic’s Chief Astronaut Trainer Beth Moses. Despite having previously never met, their instant chemistry led to a thrilling sold out talk about the history of lunar exploration, the present of low-Earth study,
SciDome includes an ever-growing library of educational applications, all designed to teach STEAM subjects in fulldome. Explore Earth and deep space, tour the human body, interact with 3D physics, stream 4K video to the dome, easily show and explore Unity models, and much more. Powerful teaching apps, and Spitz SciDome IQ projection systems, deliver the ideal solution for dome education.
and the future of human exploration elsewhere in the Solar System. [See photo D below]. Continuing the popular lunar theme, Adler is hosting an installation of UK artist Luke Jerram’s “Moon.” This inflatable, internally lit display hangs in the Adler’s north stairwell, where it can be observed from almost all sides, and makes a stunning selfie spot. [See photo C below]. This summer marked the third year of Adler’s Sky Show Summer Camp, in which a group of 6th-8th grade students spent a week at Adler Summer Camp, and conceptualized, wrote, and presented their own short sky show to their family and friends. This year’s campers created shows exploring Saturn, galaxies, nebulae, and the stellar life cycle. For more information on Sky Show Summer Camp, read pages 98-100 of GLPA’s 2018 Conference Proceedings.
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In addition to creating a special Apollo 11 planetarium show and a museum exhibition over the summer, the Koch Immersive Theater & Planetarium in Evansville participated in the “On the Moon Again” public observing event on June 12-13. Over one hundred people stopped by for a look at the moon through telescopes provided by the local astronomical society. [See photos below]. The planetarium also hosted a community “Moon Festival” featuring special activities, programs, and a lecture on July 20th and a “Super Saturday” highlighting the Moon on July 27th. Graphic design student Erika Wrzesinski temporarily joined the Evansville team as an artist/intern over the summer.

The staff at the Longway Planetarium in Flint is coming down from what they referred to as “Apollopalooza.” Like many of their colleagues, the Longway staff made a day of it with food trucks, a special in-house feature, classroom activities, and solar observing. The staff hopes that everyone else’s events went over as well as theirs but now they’re back to regular time without the local news cameras and such. That means they’re back to show production for their children’s show on Newton’s Laws. The staff believes their last report mentioned that they have the main character rigged and ready to be animated. Now, they’re working on scene environments. One staff member is building a hockey arena, while another is working on a bird flying through the woods. Longway’s portable planetarium business has picked up lately. Is this a state trend or just a local one? Bussing costs have skyrocketed in recent years and perhaps that accounts for much of the uptick in their portable planetarium bookings. By the time you read this, they will have opened Oceans: Our Blue Planet, so cross your fingers that attendance numbers for their recent shows are good.

At this writing, three months after opening, the staff at the UMMNH Planetarium in Ann Arbor is settling into the new museum. The last three exhibit galleries are ramping up now toward their November opening, which will generate yet more opening events. The one constant all this time has been the dome. The planetarium has enjoyed large audiences, even with the inevitable slowdown from the opening. Star talks remain the most popular, although California Academy of Science’s Exploration Reef has been very popular. The staff looks forward to exploring audience reactions to various kinds of programs. They will continue with their new schedules and costs until next April, when they will assess what has happened after one year.

The Delta College Planetarium in Bay City completed a very successful “Summer of Apollo” celebration with new exhibits, shows, and specials, but the celebration won’t stop with Apollo 11. As they reach the 50th anniversary of successive Apollo missions, planetarium staff will present a new in-house program on each one, beginning with Apollo 12.
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in mid-November. A number of exhibits will stay on display, including its new 1/25th scale Saturn V rocket by Patrick Barrie. Plans are underway with the Saginaw Valley Symphony Orchestra to do a small Chamber Orchestra event under the dome. Other specials combining music, art, and nature are also being considered.

The Grand Rapids Public Museum’s Roger B. Chaffee Planetarium just finished a limited run of a 15-minute show about Apollo 11, which played before most of the feature presentations during the months of June and July. Thank you to Delta College Planetarium for their sharing of ideas and effects! A collaborative event with the Grand Rapids Amateur Astronomical Association on July 20th brought about 50 visitors (despite unfavorable weather and several road closures) to the Veen Observatory to hear NASA historian Glen Swanson speak about Michigan’s involvement in the Space Race. Summer at the Chaffee Planetarium included hosting the June edition of CreativeMornings (a breakfast lecture series for the creative community), and GRPM’s annual July 4th event “Front Row for the Fireworks.” At the beginning of July, Camp Curious kids learned to be Planetarium Masters during a summer camp that teaches campers to operate the Chaffee Planetarium, research an astronomy topic, and present a 5-8 minute show at the end of the camp to their family and friends. Ongoing projects still include Solar System Discovery (a choose-your-own-adventure school program) and Space News (short features on current events in astronomy).

As daylight decreases by minutes each day and shadows grow longer, the Kalamazoo Valley Museum Planetarium will present the Charles W. Brown Planetarium’s Halloween: Celestial Origins as its Seasonal Stargazing Show to share some of the astronomical connections that mark this cross-quarter day. In addition, California Academy of Science’s Habitat Earth and Moorhead’s Earth, Moon, and Sun will round out their weekday presentations until the holiday changeover in late November. Weekend presentations include Ooky Spooky and The Queen Show: From Mercury with Love (both from the Longway Planetarium), Measuring the Night (written and produced by Eric Schreur) and Fate of the Maya (Houston Natural History Museum). Beginning on Black Friday, KVM will once again offer holiday favorites to its patrons that include Mystery of the Christmas Star, Let It Snow, Season of Light, and new for this year, George and Oatmeal Save Santa from the Ward Beecher Planetarium.

The Hurst Planetarium at Ella Sharp Museum is celebrating two 50th anniversaries this year. The first, of course, was the 50th anniversary of the Apollo 11 Moon landing. On July 20th, they hosted children’s book author Dean Robbins, where he presented to children on his fantastic illustrated books, Margaret and the Moon and The Astronaut Who Painted the Moon. The second celebration is the 50th anniversary of their own Hurst Planetarium! In 1969, local industrialist Peter F. Hurst presented the Jackson community with a state-of-the-art planetarium facility. On September 20, 2019, Ella Sharp Museum will be celebrating the Hurst Planetarium’s half century of providing stimulating educational and entertaining programs to the Jackson community. The celebration will be free to the public and host a multitude of fun activities, including live and interactive laser shows, rocket launches from the Jackson Model Rocketry Club, science demos, planetarium shows, and more!

**DON’T MISS OUT**

To be included in the winter issue’s State News column, please forward news from your facility to your state chair in the latter half of October.

If you have a digital picture of a newsworthy event held at your planetarium, please e-mail it to the Editor at bart.benjamin@icloud.com for possible inclusion in the IPS Planetarian’s “International News” column.

**WHO DO I CONTACT?**

If you ever have a GLPA-related question, but are not quite sure to whom you should direct that question, GLPA may have your answer. The GLPA website has a page that provides a helpful way to determine who best could answer your question. To use it, please visit glpa.org/contacts
Jason Heaton reports that the **Boonshoft Museum of Discovery** in Dayton will be hosting the 2019 Digistar Users Group conference. Three days of pre-conference training begin September 9th, followed by an exciting conference that formally begins on September 11th. The conference will feature user demos, workshops, and presentations, including discussions on how to add Echo devices to live presentations and how to create quality visuals with free software.

At the **Bowling Green State University Planetarium**, Dale Smith and students ran *Dawn of the Space Age* on July 19th, 20th, and 21st to capacity crowds to celebrate the 50th anniversary of the Apollo 11 moon landings. In the remarks and Q&A time after the show, Dale told of watching the liftoff from the Moon as a rising college senior at a NASA workshop at Columbia University in New York. The TV was tuned to CBS and Walter Cronkite. Walter knew that once Neil Armstrong and Buzz Aldrin reached an altitude of eight miles above the lunar surface, Michael Collins could effect a rescue if something went wrong, but below that altitude, no rescue would be possible. As Neil and Buzz crossed the eight-mile threshold, the tension in Walter’s voice relaxed and he exclaimed, “Hot dog! They made it!”

In July 2019, the **Bell Museum** celebrated its one year anniversary, having doubled attendance expectations in the first year by serving 230,000 visitors! The Whitney and Elizabeth MacMillan planetarium staff produced over a dozen original shows for school and public audiences, including *One Giant Leap* to honor Apollo 11 and the future of human spaceflight. Two more feature shows are in production for debut in 2020.

In July, the **Manfred Olson Planetarium** at the University of Wisconsin-Milwaukee held a Lunar Party, which drew more than 500 space enthusiasts to celebrate the 50th anniversary of the Apollo 11 landing despite the heat and thunderstorms. People of all ages joined in the fun: from face-painting to virtual reality, from Purple Moon ice cream to space experts, from selfies with a replica astronaut to jumping in a Bounce House. [See photos, right and below]. The planetarium will continue the celebration of the 50th anniversary of Apollo 11 with *Moonshots Then and Now: Why Google isn’t NASA* on September 25th and *Space Crazy? Kids’ Letters to Astronauts in the Early Space Age* on October 16th. *Creepy Cosmos* will capture the spirit of Halloween and a new production *Celestial Celebrations* will highlight all the ways holidays around the world are associated with astronomical phenomena.
The **L.E. Phillips Planetarium** on the University of Wisconsin-Eau Claire campus will resume public planetarium shows in February, 2020. The UWEC department of physics and astronomy has been able to hire one additional faculty member, after losing two positions due to budget cuts to the UW system.

The **Mayo High School Planetarium** has been quiet from the *GLPA Newsletter* for a few years. Larry Mascotti retired after the 2013-2014 school year; Paul Larson took over and has spent the last five years preserving Larry’s legacy and expanding the capabilities of the Mayo High School Planetarium. In that five years, the planetarium computer has been upgraded three times. The dome projector has also been upgraded three times. It has gone from a truncated projection to currently being a laser powered F80 2400 x 2400 fulldome projector. Wow, did that make a difference! Since Paul was able to focus his efforts entirely on planetarium content and programs, and not having to divide his time with teaching classes as Larry did, annual attendance has increased every year, going from 9,865 guests to 17,595. Not quite the heyday of Howard Schriever back in 1971 when the annual attendance was 24,210, but Paul is working on it. Total presentations during the 192-day work year have gone from 243 presentations to 467 presentations. The fulldome movie library has increased from a handful of movies to over 30 fulldome movies. It has been an incredible opportunity to participate in this planetarium community. Paul hopes to match Larry’s career of 29 years and he also looks forward to the continued collaboration with this group that allows them to maximize the potential of their facilities. Recently, the Mayo High School Planetarium has gone a little Star Wars crazy. [See photos below]. The guests are greeted by a four-foot tall Stormtrooper that points the way to their seats; X-wing fighters are battling Darth Vader and other Tie Fighters across the dome; AT-ATs are crushing Snow Speeders; and good is conquering evil across the galaxy.

The **Gary E. Sampson Planetarium** received an upgrade of its fulldome projection system in July, including a new, higher-resolution projector and IG high-performance tower. This upgrade replaced the Canon WUX600 projector, using 1920 x 1200 truncated projection to a Barco F80 mounted for 2400 x 2400 fulldome projection. In addition, the new projector is mounted on a track system that allows it to roll aside when the Spitz A4 optomechanical projector is used, then slide back into position when the optomechanical projector is lowered into the well. Thanks to the Elumenati for the outstanding service on engineering, production, and installation of this comprehensive system upgrade!

*Spooky Space* will thrill Halloween audiences once again at the **Soref Planetarium** at the Milwaukee Public Museum. Its own production *It’s About Time! Cosmic Cycles We All Live By* will continue until early January.
GLPA’s Facebook page
www.facebook.com/glpasocial/
Administrators: Renae Kerrigan, Michael McConville, Tom Dobes, Paulette Epstein, Emily Hromi, Bart Benjamin

GLPA’s Twitter page
twitter.com/GLPAsocial
Administrator: Mike Smail

GLPA’s Instagram page
www.instagram.com/glpasocial/
Administrators: Emily Hromi, Michael McConville

Slack (Planetarians team)
planetarians.slack.com
Workspace Owners (for #glpa): Derrick Rohl, Mike Smail, Steve Burkland

The Dome Dialogues
www.facebook.com/groups/domédialogues
Administrators: Michael McConville, Derek Demeter, Anna Green, Renae Kerrigan, Dan Tell
Asheville Museum of Science (AMOS) in Asheville, North Carolina offers three Star Stories shows in its Star Dome every Sunday afternoon. This summer, AMOS is offering a wide range of on-site Summer Science Camps. It is also providing off-site library programs featuring the Star Dome in connection with the theme “A Universe of Stories” and the 50th Anniversary of the first piloted lunar landing. Once each month, AMOS participates in Science Pubs with the Collider to promote “Sustainable Communities through Healthy Building Design, Clean Living, and Land Stewardship.”

Pisgah Astronomical Research Institute (PARI) in western North Carolina has suspended public programming until autumn in order to concentrate on its resident summer camps. Camps include “Camp Above and Beyond” (two-week camps) and “Astro Explorer Camp” (one-week camps featuring 3-D printing) as well as research opportunities for selected Duke University TIP (Talent Identification Program) students. Meanwhile, PARI’s AdventureDome has gone on the road to provide planetarium programming for such summer camps as “Camp High Rocks” in Brevard.

Mayland Community College’s “Earth to Sky Park” in Burnsville, North Carolina participated in the statewide ScieNCe Festival Star Party” on April 13th with tours of the Park and of the Park’s Bare Dark Sky Observatory, featuring the largest public telescope (34”) in North Carolina. Unfortunately, inclement weather forced the postponement of groundbreaking for the Park’s new planetarium until a later date to be determined. Phil Groce of Helping Planetariums Succeed has been consulting with College and College Foundation officials to advise them on design considerations.

The Williamsville Space Lab in Williamsville, New York has been busy this summer. Director Mark Percy joined the Milwaukee Public Museum’s expedition to Chile for the July 2nd total solar eclipse. The skies were perfectly clear and the eclipse was spectacular! The group was camping in a remote location away from any light pollution which made for truly spectacular night skies as well. Mark got to see the Southern Cross, Alpha Centauri, Canopus and other southern sky delights for the first time. This was also good practice for 2024 when the path of totality will pass right over the Williamsville Planetarium. After that trip, it was all about Apollo 11. The WSLP sold out two shows on July 20th which featured a planetarium show and a guest speaker. Dr. Tracy Gregg from the University at Buffalo discussed the geological findings from the lunar samples. The program capped off with a laser show featuring music from 1969. The Williamsville Space Lab also hosted several summer camp visits. Most notably, GLPA native Jackie Baughman ran their first-ever weekly camp for younger learners. Jackie’s creativity and skill with young kids kept them engaged through six sessions that featured planetarium shows and hands-on activities. Way to go Jackie!

As of writing this, the presenter team at Morrison Planetarium (California Academy of Sciences in San Francisco, California) started a bit of a breather in terms of programming in the dome, moving from the summer “peak” schedule with daily shows every 45 minutes to a weekday schedule of shows every hour. Those extra 15 minutes always feel like such a treat after a busy summer! Things remain busy in terms of programming, with the team prepping for several new shows starting after Labor Day. The live Sunday morning members-only show will be switching to a brand new program about stellar evolution called White Dwarfs and Black Holes, which will run September through November, followed in December by the perennial Tour of the Night Sky: Winter Edition. The daily late afternoon show will be switching to a live Tour of the Solar System show and will be the first time ever using OpenSpace in a daily show in the Morrison. The fall season will also see two new programs in Hohfeld Hall. The first new Hohfeld program will be Patterns in Nature, the second half of the planetarium’s tie-in to the “Skin” exhibit, running from September through November. The second new Hohfeld program is Shine and Seek, a new Pre-K program that departs from the usual 15-minute long live presentation style of most Hohfeld Hall shows and instead will give young guests the opportunity to explore and learn about shadows. Shine and Seek will be incorporating many aspects and supplies from the “Bear’s Shadow” Astronomical Society of the Pacific (ASP) activity. A huge shout-out to ASP for their collaboration and advising for this program! The Morrison’s Visualization Studio has been very hard at work wrapping up production for the NSF-funded show Big Astronomy: People, Places, Discoveries which showed at the Macon Film Festival this last weekend in Georgia! The team is on track for the show’s official release next year. A few staff and volunteers from the Morrison team had a great time participating in the “Splashdown 50” celebration on July 20th at the USS Hornet Museum in Alameda. They showed short 10-15 minute long live Moon tours using OpenSpace every half hour to groups of around 30 people each showing.
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Why Join IPS?
You can connect with experienced people who use the dome every day to educate students at different grade levels and with different learning styles. You can find out about the trends and innovations that are popular with public audiences in domed theaters.

IPS members receive the quarterly journal Planetarian, filled with insightful articles and a wide range of feature columns and other items. You can write for Planetarian and share your insights around the globe.

IPS members are a vital part of the society. As volunteers, they head committees, spearhead projects, and contribute. As a member, you can make a difference.

Biennial IPS conferences bring together hundreds of planetarium professionals from around the world for paper sessions, invited speakers, workshops, panel discussions, vendor demonstrations, and exhibits. Our next conference will be held 18-25 June 2020 in Edmonton, Canada.

Dues for individuals are US $65 for one year or US $100 for two years. For more information or to join IPS, contact Ann Bragg, IPS Treasurer/Membership Chair, at ann.bragg@marietta.edu. Join electronically by visiting the IPS website at www.ips-planetarium.org.

Just imagine what we can do together.
The National Informal STEM Education Network (NISE Network) announces that applications for the free physical Explore Science: Earth & Space 2020 toolkits are due on November 1, 2019. The application will open by September 1, 2019. The 2020 toolkit will ship in two parts and will include an immersive Moon game as well as hands-on activities. Learn more about the application process by visiting [www.nisenet.org/earthspacekit-apply](http://www.nisenet.org/earthspacekit-apply).

Digital versions of 2017, 2018, and 2019 toolkits are available as a free download from [www.nisenet.org/earthspacekit](http://www.nisenet.org/earthspacekit). For more information, please contact Frank Kusiak, NISE Net West Regional Hub Coordinator, The Lawrence Hall of Science, University of California, Berkeley at frank_kusiak@berkeley.edu or by phone at (510) 643-7827.
**REMINDER: RENEW YOUR MEMBERSHIP**

Members not attending the GLPA conference should still renew their annual GLPA membership by visiting [glpa.org/membership](http://glpa.org/membership) and follow the instructions in either the Purchase Membership Online or Purchase Membership by Mail sections.

**ABSENTEE BALLOT FOR GLPA ELECTION**

Members who will not be able to attend the conference and who have paid dues for the upcoming year may request an absentee ballot from the Membership Chair. However, they must do so before October 8th (two weeks before the conference). Candidate information was printed in the summer issue of the *GLPA Newsletter*, beginning on page 17.

**STATE CHAIR ELECTIONS**

Elections for State Chairs will be held this fall during the GLPA Conference’s state meeting sessions. If you would like to run for election or re-election as State Chair, please contact Waylena McCully at [waystar@gmail.com](mailto:waystar@gmail.com) to make certain that your name is on the ballot for your state.
IMAGINE THE MOON

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For licensing information, please contact Mike Smail at the Adler Planetarium. msmail@adlerplanetarium.org
Eric Schreur, retired from the Kalamazoo Valley Museum Planetarium, assembled this composite image of the July 2nd total solar eclipse in Chile. Eric traveled with the Milwaukee Public Museum eclipse tour, led by Bob Bonadurer, to a campsite near Vicuna, Chile.

Photo details: Nikon D5500 body, 600mm Sigma mirror lens. Partial: 1/100 sec @ f/8, ISO 200. Totality: composite of 7 frames ranging from 1/400 sec to 1/2 sec. Tracked with an iOptron SkyTracker on a lightweight tripod.

**Website Profile Photos:** We are asking each member to consider adding a photo to their website profile. We are requesting this to aid in networking, which is one of our goals as an organization. In addition to our usual group photo, we would like to produce a yearbook-style photo array of conference attendees. Look for instructions on how to add your photo — we will be sending them out via email and in conference literature.

I look forward to our conference in Toledo. I hope to see you there.

**President’s Message (continued from page 3)**

astrogeology, laid the groundwork for the development of robotic planetary exploration, and established a science-based process to better understand our own planet and solar system. Indeed. . . Project Apollo was much more than one historic day and one iconic footprint!

Please note that the deadline for the winter issue of the *GLPA Newsletter* is **November 1, 2019**. Please submit your facility reports to your State Chairs by late-October. Enjoy the early weeks of autumn and safe travel to everyone attending the conference in Toledo.
A WONDERFUL EXPERIENCE IN THE U.S.
by Guilherme Marranghello

I left my small town, Bagé, [Brazil] on April 1st, taking a bus to Porto Alegre and some flights to São Paulo, Miami, Denver, and finally arriving at Casper on April 3rd. During two weeks, I learned a lot about planetariums. I spent some days at Casper and Laramie, but Michele also arranged a visit to Denver on my way back home. During this time, I was thinking about what I would write for the Planetarian. So, I split this text in two: my planetarium experience and my personal experience. I hope both parts will encourage the readers to apply to the next edition of “A Week in the U.S.”

I’ve worked with a portable planetarium for six years and with a fixed dome for less than two years, so I’m pretty new to this business. This trip to the U.S. was a wonderful experience to learn about how people do their work. At Casper, I met Michele, Rod, and all the Casper Planetarium staff. Knowing the way Michele works with students producing their own shows was really amazing. They do a great job and I truly believe we’ll incorporate some of this ideas in the Unipampa’s Planetarium. However, the most interesting things I’ve learned in Casper was when Michele and I were sharing lessons that we present to young kids from pre-school to 10 years-old.

During the time in Casper, I visited some schools, including a special Science Mountain School, where I developed an activity I’ve learned in the Space Awareness Program and which was originally from London Museum — the Mystery Boxes. That’s an activity I really like and can be used to talk about science. In the Casper Dome, I presented a show about Brazilian Indigenous Skies, their constellations, and relations to nature. Remembering that this is the International Year of Indigenous Languages, I talked about Jaceí, Guirá-Nhandu and Tuya’i, as well as how they are related to nature, fishing, seasons, and rains.

I also presented this show in Laramie, but changing from a School District Planetarium to a planetarium built inside the university campus was also a great experience. My planetarium is also inside a university, but the work we do is much closer to the one Michele does at Casper and so it was complementing my first visit. I also had the opportunity to meet Paul Taylor and learn about Aborigine’s Sky. It is amazing how cultures separated by thousands of miles can get together through the sky.

Finally, Michele arranged a meeting with Dan Neafus at Gates Planetarium in Denver. It made a complete experience because I got the chance to see a completely different work inside the Denver Museum of Nature and Science. On my way back home, I still had to stop in Los Angeles and, of course, during the few hours I had there, I visited the Griffith Observatory, but this time as a tourist.

Although it was a wonderful experience and I learned a great deal that I’ll try to keep in mind and implement, the best experience of all was meeting people, sharing cultures, and making our world smaller. When I arrived, Michele hosted me at her house, where I met Cordell and their grandchildren, Duncan and Summer. We had some family meetings, dinners, and anniversaries. They drove me to Jackson Hole to show me the Tetons, moose, elk, coyotes, and mountain goats. More than that, they let me get inside their family, learning about their way of life and their culture.

In Laramie, I met a great guy too. Jordan is a PhD student that is doing a great job in the planetarium. He showed me the university and he taught me how to operate the planetarium system. He also kindly drove me to Denver, where we spent a wonderful afternoon with Dan Neafus, another great man who showed us everything about the museum and the planetarium, including the backstage. I can’t name everybody who I met during these two weeks, but I’m sure these three people — Michele, Jordan and Dan — will spread my thanks to all people involved.
Guilherme Marranghello’s Photo Album
from his WONDERFUL EXPERIENCE IN THE U.S.
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THE WONDERFUL EXPERIENCE OF HOSTING
Michele Wistisen (michele310@myncsd.org), Casper Planetarium Supervisor
and Jordan Taylor, University of Wyoming

This year, the Casper Planetarium in Casper, Wyoming had the opportunity to host Dr. Guilherme Marranghello from Brazil as the winner of the “Week in the United States.” We chose to host him because we were interested in his presentation about the indigenous stories of the southern skies. Guilhereme not only brought his stories, but he also brought his chimarrão, which is an important part of the Brazilian culture.

Guilherme’s visit to Wyoming started on April 3rd. After a visit to the planetarium to prepare for his presentation, we took him out to eat lunch at one of our local restaurants called The Little Shop of Burgers. We were sure he didn’t have anything like this in Brazil. Of his time spent in Casper, we think his favorite culinary experience was apple pie a la mode from a local 50s diner.

It was a pleasure sharing the American and Wyoming culture with him. He now has experience with snow in April, buffalos, moose, and even a bear. Things we can take for granted here in Wyoming become much more interesting when you share them with someone who never has experienced them before. While in Casper, Guilherme gave a public presentation at the Casper Planetarium and to students at several schools. It was a valuable opportunity for us to see a colleague interacting with a variety of audiences. Not only did we learn about the southern skies, but we also learned about how the indigenous people use the sky as a calendar. Beyond the educational exchange, we will be adopting several of his ideas about promoting our planetarium.

As part of this exchange, Guilherme also visited the University of Wyoming and worked with their planetarium staff for a number of days.

My text does not begin to describe what a wonderful opportunity this was. When you host, you learn and share on multiple levels. In addition to that, my staff, teachers from my district, and my family now consider Guilherme as their friend and colleague.

If you want to have a great collaborative experience, you should apply to host a planetarium colleague from another country. Through hosting, you are able to share and glean ideas that you may not have time for at a conference. It really is a two-way sharing opportunity.

The following is from Jordan Taylor at the University of Wyoming:

“It was great having Guilherme visit us here at the University of Wyoming! It was a very unique opportunity to have someone from another planetarium, let alone someone from another country, see what we do here and learn what they do at their planetarium. We learned a lot from Guilherme — not just little individual things but also big picture ideas to make our planetarium better at educating and entertaining its patrons. I really hope Guilherme learned at least one thing from us because we definitely learned a lot from him! It was also wonderful for us to be able to host Guilherme’s Brazilian Indigenous Constellations shows so that the citizens of Laramie could experience it. A number of junior high school groups also got to see his show where they definitely learned about a culture they would never hear about otherwise. Guilherme’s visit also allowed for me to visit the Gates Planetarium at the Denver Museum of Nature & Science. I think Guilherme and I both gained a lot from that visit! It was great to exchange ideas with others who are so passionate about not just planetariums, but education and promoting science! Thank you to the Casper Planetarium for setting up this visit for us!”
GLPA has created an online store via Queensboro.com that provides a much wider range of items, styles, colors, and sizes than has ever been offered in the past at very reasonable prices. Queensboro will produce your item when you order it, and ship it directly to you. Their quality is outstanding! Check it out for yourself!

For more complete instructions, please visit https://glpa.org/glpagear.
To begin shopping, please visit https://glpagear.qbstores.com.

Cosmic Colors: An Adventure Along the Spectrum

Cosmic Colors: An Adventure Along the Spectrum is a dynamic new planetarium show from the Great Lakes Planetarium Association (GLPA) that will take you on a wondrous journey across the entire electromagnetic spectrum. Get ready for an amazing adventure under a rainbow of cosmic light!

31 minutes in length
Target audience: 5th grade and up

Ordering information:

FULLDOME VERSION:  
$300 for a full dome masters at 4K x 4K (need 1 TB hard drive)  
$250 for full dome masters at 2K x 2K (need 500 GB hard drive)  
$200 for full dome masters at 1K x 1K (need 100 GB hard drive)

For FullDome versions, each planetarium must ship an appropriate hard drive to GLPA. Show encoding is the responsibility of each planetarium.

TRADITIONAL VERSION:  
$100 for traditional version with two discs -- a playable Cosmic Colors show DVD and a DVD data disc containing all-sky images, digital JPEG images, audio tracks, flattened video scenes, teacher guides, and documentation.

Order Cosmic Colors through the GLPA Online Store at glpa.org/online-store.
The Cernan Earth and Space Center at Triton College in River Grove, Illinois has been crazy busy. Everyone was celebrating the 50th anniversary of Apollo 11, but we had extra excitement on top of that.

Our third annual five-day rocket camp sold out and culminated with more than 40 rockets successfully launched on June 28th. Johnathan Nelson, Planetarium Educator, has cultivated several dedicated high school volunteers, one of which has been here all three summers. One additional complication for launching rockets aside from campus safety concerns is that Triton College lies five miles as the crow flies from O’Hare International Airport, so we have to get FAA permission to launch rockets even though our maximum altitude is less than 500 feet. We also have to call the O’Hare tower when we start and finish launching. Thank you to the nice people at the FAA and Air Traffic Control.
Votes of the Membership at the Annual Business Meeting

In addition to the election of officers, members will also be voting on two other items. The Executive Committee is proposing several changes to our By-laws. The by-law changes question will be on the ballot. The other vote will be regarding how decisions get made regarding the conference schedule.

Please familiarize yourself with the Sample Ballot on page 33. It lists the candidates for office and explains the other two questions that members will be asked to vote on at the upcoming election.

The proposed by-laws changes are printed below:

Shall the Great Lakes Planetarium Association make the following amendments to the by-laws of the Association?

Strikethroughs represent deleted clauses, added or modified text in bold.

1. **Article III, Section 1:** Membership shall be open to all individuals and organizations interested in and supportive of the purposes and activities of the Association upon payment of dues. Membership shall not be denied because of race, color, creed, sex, or national origin.

   **Rationale:** GLPA no longer has organizational membership

2. **Article III, Section 4, Item C:** Senior Members shall be those individuals currently 55 or more years old and/or retired from regular employment.

   **Rationale:** This clarifies Senior Membership should be available to planetarians 55 or older, but who may still volunteer or participate part-time in the profession.

3. **Article III, Section 5:** Membership dues for each Membership category shall be established by the Executive Committee and (except for Sponsor fees) approved by the Members of the Association. The dues for Student Members shall be one-half the dues for Regular Members rounded up to the nearest whole dollar.

   **Rationale:** the previous use of “vendor” has been replaced with “Sponsor” for consistency

4. **Article IV, Section 1:** At least once each calendar year, the Association shall hold a Conference for its Members and exhibiting Sponsors.

   **Rationale:** Capitalization of “Sponsors” for consistency
5. Article VI, Section 1: The Officers of the Association shall be:
A. President
B. President-Elect
C. Past-President
D. Secretary
E. Treasurer
F. International Planetarium Society Representative, Inclusion and Outreach Officer

Rationale: The International Planetarium Society and its members voted to transition to a board model, as a result of which the council as we know it based on affiliate representatives will cease to exist. GLPA is seeking to replace the now defunct position with a new position to further the growth of GLPA while retaining GLPA’s existing balance between elected officers and appointed standing committee chairs.

6. Article VI, Section 5, Item A: In the event of a vacancy in the Office of President, the President-Elect shall become President and serve the remainder of the term plus the term for which he/she was elected.

Rationale: Removal of gendered pronouns

7. Article VI, Section 5, Item C: In the event of a vacancy in the Office of President-Elect, Secretary, Treasurer, or International Planetarium Society Representative, Inclusion and Outreach Officer, the President shall nominate a replacement to be approved by a vote of the Executive Committee.

Rationale: With the discontinuation of the International Planetarium Society Representative, succession and office vacancies must be updated for a new office.

8. Article VI, Section 3. The Officers shall be elected at the Annual Meeting of the Association and shall serve a term of two (2) years. The President-Elect shall become President at the conclusion of his/her term as President-Elect and become Past-President at the conclusion of his/her term as President.

Rationale: Removal of gendered pronouns

9. Article VI, Section 8, Item E: The Treasurer shall:
1. Be responsible for all receipts and disbursements of the Association.
2. Prepare financial statements for all Annual Meetings and meetings of the Executive Committee and at other times as required by the Executive Committee.
3. Be responsible for any audit as required by the Executive Committee.
4. Be responsible for the Organization’s tax filings, 501(c)(6) tax-exempt status and incorporation status.
5. Shall be responsible to maintain liability insurance for the Association and Executive Committee.
6. Perform other such duties as may be assigned by the President or Executive Committee.

Rationale: The shall in number 5 is redundant with the header of Item E.
10. Article VI, Section 8, Item F: The Inclusion and Outreach Officer shall:
1. Oversee efforts to improve diversity, equity, and inclusion and build the culture we strive for in GLPA, planetaria, astronomy, and science.
2. Coordinate communication with the International Planetarium Society and other regional and affiliated planetarium associations.
3. Oversee GLPA’s social media, astronomy outreach events/efforts, GLPA brand consistency, and communication of GLPA’s mission.
4. Report to the Members at the Annual Meeting.
5. Be responsible for forwarding news of the Association to the designated individual(s) of the International Planetarium Society.
6. Perform other such duties as may be assigned by the President or Executive Committee.

Rationale: This item must be completely replaced for the duties of a new officer. With the IPS Representative position discontinued new duties must be assigned to the Inclusion and Outreach Officer.

11. Article VII, Section 4: The President shall have the authority to appoint or replace the Chairs for all Committees serving during their term except for the Nominations Committee with the approval of the Executive Committee. Committee Chairs shall serve an annual term ending on the Spring Equinox, or until replaced. Chairs may be reappointed under successive Presidents.

Rationale: There has been historical confusion about the interpretation of the appointing power and term of standing committee chairs. The intent of this revision is to align the by-laws more to GLPA practice, giving the President the right to appoint and replace chairs of the standing committees during their term. Since these appointments may not always happen at the start of the President’s term, a fixed term-length for the standing committee chairs has been removed, but it has been clarified as succeeding Presidents may keep the preceding President’s committee chairs.

12. Article XIII, Section 1: Any individual (and heirs, executors, and administrators of such individual) made or threatened to be made a party to any action, suit, or proceeding by reason of fact that he/she is they are or was were a member of the Executive Committee shall be indemnified by the Association against any and all liability and the reasonable expenses (including attorneys’ fees) and disbursements incurred by him/her them (or by his/her their heirs, executors, or administrators) in connection with the defense or settlement of such action, suit, or proceeding, or in connection with any appearance therein, except in relation to matters as to which it shall be adjudged in such action, suit, or proceeding that such member of the Executive Committee is liable for negligence or misconduct in the performance of his/her their duties.

Rationale: Removal of gendered pronouns
President-Elect:

☐ Mark Percy  ☐ Dan Tell

Secretary:

☐ Shannon Schmoll  ☐ Tiffany Stone Wolbrecht

Treasurer:

Please note:

☐ Steve Burkland  ☐ Keith Davis

IPS Representative:

☐ Anna Green  ☐ Mike Smail

Shall the Great Lakes Planetarium Association make its recommended amendments to the by-laws of the Association?

☐ Yes  ☐ No

In 1990, a vote of the membership restricted the schedule to Thursday through Saturday afternoon, with only optional activities on Wednesday evening. We have been using Wednesday night for regular conference activities for many years, so this already needs to be changed in order to match what we currently do. While the Executive Committee doesn’t plan to change the conference schedule right now, they have received requests to expand the conference schedule. The committee plans to survey the membership on whether the schedule should stay the same as it is now, or whether it should be expanded. A vote to repeal the 1990 decision will allow the Executive Committee to follow the desires of the membership.

Shall the membership of the Great Lakes Planetarium Association overturn the membership vote of 1990 and restore conference scheduling authority to the Executive Committee in coordination with the conference host?

☐ Yes  ☐ No
This spring, IPS announced their first new regional affiliate organization since 2011, the African Planetarium Association! This group currently claims 16 members in mostly sub-Saharan Africa, but the north-African planetariums may soon transition over to this organization as well.

In June, I attended the IPS Council meeting, held at the Perlan Museum in Reykjavik, Iceland. While most of the weekend was spent sequestered in a meeting room, we had a small amount of time to visit the museum, including their new digital planetarium and exhibits. Most impressive was the walkthrough recreation of an ice cave and the immersive exhibits that followed it.

The most prominent news to come from the Council Meeting was the selection of Planetarium 1 in St. Petersburg, Russia as the host of the IPS 2022 conference. While it was not the preferred site of the majority of GLPA delegates, and there are significant concerns about the safety of LGBT+ attendees, Evgeny and the Planetarium 1 team are striving to host an unforgettable event. St. Petersburg is the cultural capital of Russia, and touts the Hermitage, the Museum of Cosmonautics, the Mariinsky Ballet, and the world's largest planetarium, a 37-meter dome inside a 150 year-old gas storage facility. Registration is targeted at $350, with 10 preferred hotels that range from $50-100/night.

IPS has also announced three new working groups, focused on Indigenous Astronomy, the History of the Planetarium, and Equity, Diversity and Inclusion. The Vision 2020 working group, which has played a crucial role steering the organization for the past five years, will also be phased out, with their work continuing on through existing IPS committees and task forces.

As you may remember, IPS is transitioning from the existing affiliate representation model to a continental elected board. Board elections will take place this fall, and the transition will be complete at the IPS Council meeting next June in Edmonton. If you are an IPS member, you will see the familiar names of GLPA's Dayna Thompson from Ball State University and Jean Creighton from the University of Wisconsin-Milwaukee on the IPS Board Member ballot. I strongly encourage you to vote for both these candidates, as they will do a fantastic job representing our organization at the international level. At our conference in Toledo, I will be running for one final term as IPS Representative. After that, GLPA will be re-tooling the position into a new role that will be more relevant and impactful for our membership.

IPS2020 will be held June 18-25, 2020 at Telus World of Science Edmonton, Canada. Registration is officially open, visit www.ips-planetarium.org/page/ips2020-registration for more information. In addition to being paired with a Fulldome Film Festival, IPS2020 will also feature a one-day IMERSA Summit and one-day LIPS workshop on adjacent days. It's shaping up to be a fantastic professional development opportunity for planetarians of all stripes.
Above Left: A recreation of an ice cave, featuring actual ice is one of the highlights at the Perlan Museum.

Above Right: Situated on a hill above Reykjavik, the Perlan (or Pearl) glistens throughout the day and night.

Left: Planetarium 1 CEO Evgeny Goodov showing off some of the special events hosted under their dome.

Below: Large scale immersive exhibits help teach about the geography and geology of Iceland.
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Transit of Mercury: 2019 Nov 11

Greatest Transit = 15:19:47.7 UT1

Sun at Greatest Transit
(Geocentric Coordinates)
R.A. = 15h05m53.9s
Dec. = -17°28'55.2"
S.D. = 00°16'09.3"
H.P. = 00°00'08.9"

Mercury at Greatest Transit
(Geocentric Coordinates)
R.A. = 15h05m56.1s
Dec. = -17°28'46.0"
S.D. = 00°00'05.0"
H.P. = 00°00'13.0"

Transit Series = 247
Sequence No. = 11 of 19

For more information, please visit http://www.eclipsewise.com/oh/tm2019.html
GLPA’s 46th newsletter and the third issue of 1979 contained the following articles and columns:

★ The upcoming 1979 GLPA Conference in Minneapolis was previewed. The tentative schedule included presentations by Astronaut Deke Slayton talking about the Space Shuttle, Don Hall (Strasenburgh Planetarium) titled “Know Your Audience,” Dr. Edward Purdy Ney (University of Minnesota) titled “Fritz Zwicky Paranoid Papa of Super Condensed Matter and Neutron Stars Today,” and Andrew Fraser (Science Museum of Minnesota) titled “Eclipse Roundup.” Maxine Haarstick presented the Armand Spitz Lecture.

★ It was noted that the question of GLPA’s official logo would be decided at the October conference. Members were encouraged to submit their proposals to Dave DeBruyn for GLPA’s consideration.

★ The William L. McKnight-3M Omnitheater, which opened in September of 1978, was described in text and a photograph. It was one of the facilities that delegates would visit at the 1979 conference.

★ Dave DeBruyn reviewed a book titled The Messier Album. Described as a book written by amateur astronomers for amateur astronomers, this new book, published by Sky Publishing Corporation, presented the Messier objects by way of photographs, pencil drawings, and text descriptions. DeBruyn recommended the book, adding that he wished that he had owned a book like this when he first started looking for Messier objects in his early days as an amateur astronomer.

★ GLPA’s Script Librarian Gail Bouslog reported the acquisition of 11 new planetarium show scripts.
GLPA’s 125th newsletter and the third issue of 1999 contained the following articles and columns:

★ Chuck Bueter appealed to the membership for Paper Plate Astronomy submissions. By that, he meant any and all ideas on how paper plates can be used for demonstrations, models, dials, teaching tools, or games. A few of his suggested topics were sundials, constellations, eclipses, sky lore, sundials, and the Moon illusion. Some of the submitted plates would be displayed at GLPA’s 1999 Annual Conference in Kalamazoo.

★ The Minneapolis Planetarium described its new show, *The Magical Millennium Tour*, which explored the history of timekeeping and issues related to the upcoming changeover from 1999 to 2000. [Ed. Schools, companies, and government facilities around the world were upgrading their computers at this time to avert problems associated with the much-feared Y2K “bug” that posed a potentially serious problem to computer networks and computer programs when calendar year “99” rolled over to “00.” As it turned out, problems associated with the new millennium were not nearly as bad as many had feared].

★ At the time of the 1999 conference, Dan Francetic was GLPA’s President, Jeanne Bishop was President-Elect, April Whitt was Past President, Bob Bonadurer was Secretary-Treasurer, and Sue Reynolds [later Button] was IPS Representative.
The Great Lakes Planetarium Association acknowledges the following companies and organizations for their generous support in Fiscal Year 2018 - 2019:

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**UPCOMING CONFERENCES:**
2019 October 23 - 26
Toledo, Ohio

2020 October 21 - 24
Kalamazoo, Michigan

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GLPA Home Page: 
[glpa.org](http://glpa.org)

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Astronomical photographs used within the *GLPA Newsletter* are courtesy of NASA and the Space Telescope Science Institute (STScI).

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For a replacement copy of this newsletter, please contact Dale Smith at dwsmith@bgsu.edu.
The current design of the *GLPA Newsletter* incorporates small sections of several NASA images for its page mastheads. These and other images can be accessed from NASA websites such as Mars Exploration, Scientific Visualization Studio, and Hubble Space Telescope websites at www.spacetelescope.org/images/, heritage.stsci.edu, and hubblesite.org/gallery. And because all these photos are from NASA, they are free to use (with proper credit).

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**Image Credits page background image:** NGC 2074 in the Large Magellanic Cloud  
**Credit:** NASA, ESA, and M. Livio (STScI)

**Image Credits page inset image:** M96: A Galactic Maelstrom  
**Credit:** ESA/Hubble & NASA and LEGUS Team

**State News Masthead:** Young stars in the “wing” of the Small Magellanic Cloud  
**Credit:** NASA, ESA, CXC and University of Potsdam, JPL-Caltech, and STScI

**Bulletin Board Masthead:** M13: A Celestial Snow Globe of Stars  
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**Articles Masthead:** Newborn stars within the Prawn Nebula  
**Credit:** European Southern Observatory

**IPS Update Masthead:** Big Blue Marble Earth  
**Credit:** R. Stockli, A. Nelson, F. Hasler, NASA/ GSFC/ NOAA/ USGS
Committee, I wish you all a happy holiday season and a wonderful start to 2020! Please submit your facility reports to your state chairs by mid-January. On behalf of GLPA’s Executive Ritter Planetarium for an outstanding fall conference!

I too would like to congratulate Alex Mak and the staff of the

congratulations to Mike Smail, who will be serving out the final IPS Representative term. Special thanks to Gary Thank you, Cheri Adams, for your work as our Treasurer, and we welcome Steve Burkland as he takes over. And congratulations to Mike Smail, who will be serving out the final IPS Representative term. Special thanks to Gary Tomlinson and Dave Leake who are stepping down as chairs of Conference Planning and Development. Serving in those

you all for the growth you made possible through your time and efforts. Gary, Janet, and Dave all received Service Awards as a token of our appreciation for their years of work.

Thank you also to the amazing Executive Committee members. It has been a pleasure and an honor to serve you as President for the past two years. I look forward to supporting President Waylena McCully in my role as Past President starting when we pass the torch on March 19th.

Due to elections and people stepping down from their roles as chairs, we have some changes to report on the Executive Committee. Most of these transitions take place on the Vernal Equinox. Thank you, Dayle Brown, for your leadership and service as you transition out of your Past President role, and we welcome Dan Tell as the new President-Elect. Thank you, Dan, for your service as Secretary, and we welcome Tiffany Stone Wobbrecht as the new Secretary. Thank you, Cheri Adams, for your work as our Treasurer, and we welcome Steve Burkland as he takes over. And congratulations to Mike Smail, who will be serving out the final IPS Representative term. Special thanks to Gary Tomlinson and Dave Leake who are stepping down as chairs of Conference Planning and Development. Serving in those

I would like to express a special thanks to our hosts for the 2019 GLPA Conference — Alex Mak, Heidi Kuchta, Michael Cushing, and all of their local volunteers who assisted. Thanks also to our Conference Planning Committee members: Gary Tomlinson (Chair), Renae Kerrigan (Deputy Chair), Janet Beckstrom (Registrar), Mark Reed (Workshop Coordinator), April Whitt (Paper/Poster Coordinator), Anna Green (Photographer), Tom Dobes (Webmaster and Lead Videographer) and team, Kris McCall (Door Prize Coordinator), Dale Smith (Proceedings Editor and Group Photo Key Designer), and Dave Leake (Development Chair). What a team! Thank

(continued on page 11)
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Tom Willmitch from the ISU Planetarium in Normal is the new Illinois State Chair.

Illinois, Indiana, Wisconsin, and Minnesota will hold a joint state spring meeting on Saturday, May 16, 2020 at the Adler Planetarium, with Mike Smail (msmail@adlerplanetarium.org) serving as host.

At the William M. Staerkel Planetarium, public shows resume on January 17th with Winter Prairie Skies, From Earth to the Universe, and Amazing Stargazing. The James B. Kaler Science Lecture Series continues with talks on supermassive black holes, tornadoes, and birds of east central Illinois. Director Erik Johnson is halfway through his first year as planetarium director. Last October, he attended his first GLPA conference and came back with lots of information and ideas. The planetarium staff is working on a number of new projects. Producer Waylena McCully and Earth Science instructor Julie Angel are revamping their plate tectonics presentation for potential use as a school program. Parkland astronomy instructor Ricardo Covarrubias is working on details for presenting some special event programs in Spanish. Tania Swigart, part-time planetarium presenter and full-time school teacher, is developing sensory-friendly options for several shows.

This winter, the Dome Planetarium at the Peoria Riverfront Museum will be playing Santa’s Secret Star (a GLPA door prize!), We Are Astronomers, Perfect Little Planet and their daily live shows, Stars Over Peoria and To the Moon and Beyond. Special events planned for the winter include Pub Night, Wine and Cheese, and Romance Under the Stars programs, Laser Light Nights, and Space Family Nights focused on current lunar exploration and planned mission to Mars. The staff wishes their coworker Jack Daleske the best of luck as he moves on to become the Planetarium Manager at the Grand Rapids Public Museum. At the time of the newsletter news submission, the Peoria Riverfront Museum is accepting applications for a Planetarium Educator position.

At the Strickler Planetarium, the staff is still learning the ins and outs of their new Digistar 6 system, which was installed this past summer. In October, they ran The Ooky Spooky Light Show, a community favorite that they premiered last year. Their November public
shows included *One World, One Sky: Big Bird’s Adventure.* In December they will be running a live show of their own creation called *Skywatch Live* that will feature an interactive tour of the universe with a focus on the winter skies. The staff recently hosted an observing event on campus for the Transit of Mercury. Despite uncooperative weather, they had approximately 50 students, faculty, and staff show up to see the live-stream of the event on the planetarium dome and learn about transits.

The **Cernan Earth and Space Center** at Triton College west of Chicago is looking for a full time Planetarium Educator. Imagine opportunities for professional growth, creativity, and variable hours plus the challenge of working with Kris McCall. Details can be found at [bit.ly/2Opoxz2](http://bit.ly/2Opoxz2).

In October, Chicago’s **Adler Planetarium** began the process of replacing the primary telescope in its Doane Observatory. Construction crews used a crane to remove the 20-inch diameter Cassegrain reflector and its mount in several heavy pieces. This telescope was installed in 1987, replacing the original 16-inch reflector from the Observatory’s opening in 1977. The new telescope, a 24-inch Corrected Dall-Kirkham from PlaneWave Instruments is scheduled to be installed in mid-December. The Doane Observatory is the largest aperture publicly-accessible telescope in the Chicagoland area, and with this upgrade will continue to show the wonders of the universe to generations of Adler guests. The seventh and final Kavli Fulldome Lecture was presented at Adler on Nov 1-2, featuring Drs. Chris Lintott and Laura Trouille of the online citizen science platform, Zooniverse. Focusing on a theme of “A Universe of Surprises” the presenters led audiences through Hanny’s Voorwerp, Boyajian’s Star, intriguing exoplanets and other cosmic mysteries recently discovered by citizen scientists. At the November “Adler After Dark,” the staff hosted two sold-out performances of *Sphere.* This innovative fulldome performance featured live music from award-winning composer Robot Koch, paired with dramatic space-inspired visuals from artist Mickael Le Goff.  

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**STATE NEWS**

Winter Solstice, 2019

Melinda O’Malley of the PHM DVT/Planetarium/Air and Space Museum in Mishawaka is the new Indiana State Chair.

Indiana, Illinois, Wisconsin, and Minnesota will hold a joint state spring meeting on Saturday, May 16, 2020 at the Adler Planetarium, with Mike Smail (msmail@adlerplanetarium.org) serving as host.

The **Koch Immersive Theater and Planetarium** offered a public viewing of the Transit of Mercury on a hillside overlooking the Ohio River at sunrise on November 11th. An Astronomy/Science Day was recently held at the Museum and two Girl Scout badge evenings occurred, with over 100 girls attending. Two new graphic design interns, Drake Calvert and Mason Flake, have temporarily joined the planetarium team as artists this semester. The planetarium’s part-time science team currently consists of retired science teachers James Price and Bruce Hatfield and graduating college senior Brittany Edmonson. The ESA’s *Mayan Archaeoastronomy* show is Evansville’s newest fulldome offering.

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*Right: Science Day at the Evansville Museum on October 5th offered solar observing.*
Adler Planetarium photo album

Above (left 3 images): Removal of the 20-inch Cassegrain telescope.
Above (rightmost image): The new telescope that will be installed in the Doane Observatory in December.

Left: Laura Trouille discusses the idea that a dust disc is responsible for strange light output from Boyajian’s Star during a Kavli Lecture rehearsal.
Right: Kavli participants were taken to construction site of the Large Synoptic Survey Telescope (LSST).

Above: Scenes from the Sphere fulldome performance.

Images courtesy of Société des arts technologiques.
Paulette Epstein from the Michigan Science Center in Detroit is the new Michigan State Chair.

Michigan’s spring state meeting will be held at the University of Michigan’s Museum of Natural History. The date is still pending. Matt Linke (mlinke@umich.edu) will serve as host.

In August, the Grand Rapids Public Museum’s Roger B. Chaffee Planetarium welcomed a new presenter, Stephen King. The team has been developing their core product of live planetarium content, including the ongoing Space News introductions, which over the summer and fall included features on the Perseid meteor shower, Jupiter, Saturn’s new moons, and the Mercury transit. They will continue their “Concerts Under the Stars” series this winter (starting mid-January) and are currently in the planning stages. In September, the Grand Rapids Amateur Astronomical Association hosted Dr. Shane Larson for a talk on gravitational waves in GRPM’s Meijer Theater. The Chaffee Planetarium has recently been utilized for a variety of GRPM events, such as Native American Culture Days, the AMM/MMA Conference, the 6C’s Conference, and several weddings. Emily Hromi has left her role as Planetarium and Theater Manager, and GRPM welcomes Jack Daleske as her successor, formerly of the Dome Planetarium at the Peoria Riverfront Museum.

Abrams Planetarium is actively working on their new meteorite exhibit that will feature the most complete collection of Michigan meteorites. The staff recently acquired the Edmore meteorite’s main mass. This was the one that was found near Grand Rapids and used a door stop for 50 years! The exhibit will officially open next fall, but they will host a soft opening in the summer. It will also include a Lunar, Martian, and Vesta meteorites people will be able to touch. The staff is also happy to announce the addition of a new team member, Dr. Jesica Trucks. She will be joining Dr. Shannon Schmoll on the Big Astronomy project as a post-doctoral researcher.

Ohio’s spring state meeting will be held on Saturday, April 18, 2020 in Canton at McKinley Museum’s Hoover-Price Planetarium. Suzie Dills (suzieastro@yahoo.com) will serve as host.

Let’s start o-o-m-o (out of mainland Ohio) this time, as Gene Zajac writes from Put-in-Bay that things have settled down after a summer of Apollo presentations and 15 programs at Perry’s Monument and libraries. His astronomy activities no longer involve a planetarium, but on July 20th he had two Apollo presentations. Gene was recently in Sandusky preparing for an afternoon program at the public library and went to a box store since he was early. Wearing his Apollo anniversary shirt he was greeted by a shopper who said, “Happy Anniversary!” As they talked, Gene learned her father was a friend of Neil Armstrong and he was one of the four members of the Mississippi Moonshiners with Neil! She shared four stories about Neil during his high school days. Her dad passed away a year ago. Her stories are now part of Gene’s programs.

Lois Wolf writes from Sandusky that Ms. Taylor Hines has been named the Sandusky City Schools new STEAM Coach/planetarium facilitator, replacing Lois, who served as Sidney Frohman Planetarium director for 18 years. Lois is continuing part-time during the transition period.

Alex Mak reports that the Ritter Planetarium will be featuring two programs during the holiday season, including The Alien Who Stole Christmas and their own Santa’s Secret Star. They are also putting the finishing touches on an exciting new display at the Brooks Observatory. Alex thanks all of the delegates and sponsors who attended the GLPA conference at Ritter Planetarium in October. Now that you know where Ritter is, Alex invites you to please stop in when your travels bring you his way!

Steven Wild reports that the Newhard Planetarium at the University of Findlay has upgraded its computer and sound systems, including adding a Starry Night Podium with many visualization features. Steve has also overseen several outreach events, including use by art history classes, American Chemical Society public events, a biology talk, and two “Waste to Energy” workshops. See his poster text in the Conference Proceedings for more detail.

Howard Hale and Nishan Adhikari have been adding some fresh pizzazz to events at YSU’s Ward Beecher Planetarium. They have featured live music, have partnered with the Mahoning Valley Astronomical Society, have
hosted a Harry Potter themed event, and added many features to the annual Halloween Nightlights show, including a kids version. See their text in the Conference Proceedings for more detail.

Bowling Green State University Planetarium began the fall semester with the double-feature of Did an Asteroid Really Destroy the Dinosaurs? (from Milwaukee) and We Choose Space (from Houston) and later ran FireFall (from GeoGraphics). Dale Smith and crew attempted a Transit of Mercury open house on Nov. 11th, but were clouded out and ran a webcast in the planetarium instead.

Wisconsin, Minnesota, Illinois, and Indiana will hold a joint state spring meeting on Saturday, May 16, 2020 at the Adler Planetarium, with Mike Smail (msmail@adlerplanetarium.org) serving as host.

In February-March 2020, The Whitney and Elizabeth MacMillan Planetarium at the Bell Museum is presenting, in partnership with Theatre Pro Rata, the play Silent Sky. It is about Henrietta Leavitt and a group of women “computers” pursuing astronomical research at the Harvard Observatory under the supervision of a male scientist. The achievements and difficulties of a woman scientist in a challenging historical period combine in this thought-provoking and engaging play by Lauren Gunderson.

The Manfred Olson Planetarium at UWM in January is starting the year with an open house and a new production called Scale of the Universe and in March will have a special series Under African Skies that will showcase the different constellations visible from different latitudes of different African countries.

The L. E. Phillips Planetarium on the University of Wisconsin-Eau Claire campus will one again have some public shows beginning in February, 2020. They expect to offer some shows for school field trips and probably have public shows weekly.

The Soref Planetarium in Milwaukee will bring back their original production Defying Gravity: It IS Rocket Science! Next up will be a new show called Constellations! Adventures Connecting Earth & Sky which is set to open in March.

The Horwitz-DeRemer Planetarium, as part of the Waukesha public school district, has 4-6 classes per week. Starting in September, they have offered two public programs on Saturdays. At the end of September, the planetarium — part of the Retzer Nature Center — offered multiple programs during the annual “Applefest.” To support the featured book “Lab Girl” during the local library’s reading program, they had a guest speaker member of the ICE telescope project speak and then showed the program Chasing the Ghost Particle. During their first Scout night, ninety Brownies and Girl Scouts attended. Also for “Howl-ween” night, ghosts and goblins and few Darth Vaders stopped by to catch Spooky Space. Participants explored the theme science by the numbers during “ScienceFest” and showed old favorites and premiered Max Goes to the Moon. In December, the planetarium will feature George and Oatmeal Save Santa and The Mystery of the Christmas Star. For Friends of the Planetarium supporters, the staff will offer a retro show by using the old Spitz 512 and showing the slide show Tis the Season.

The Barlow Planetarium is currently busy becoming part of the University of Wisconsin-Oshkosh. The changes have been significant, with over 75% of the systems that they’ve had in place being significantly changed or adjusted. The root of all the challenges is that nothing like the Barlow exists on the UW-Oshkosh campus – the Barlow’s annual attendance exceeds all the other programs on campus including athletics. Stay tuned as they continue on this exciting (yet challenging) transition. In July, the Milwaukee PBS production team from Around the Corner with John McGivern was highlighting Menasha and selected the Barlow as one of the featured Menasha locations; that program will air sometime in the upcoming season. The Barlow is excited to announce that in August, Ellis “Ty” Westbrook was promoted to Planetarium Educator & Technician. Ty is Barlow’s longest employee (15+ years), serving under each of the two Barlow directors and allowing the Barlow to have the successes it has realized over the years. As part of this new position – the first new professional position created at the Barlow since its opening – the Barlow will be installing a permanent Audiovisual Imagineering Skylase FX system, allowing them to have lasers available for the entire year and to create their

Winter Solstice, 2019
Things are busy as ever at Morrison Planetarium at the California Academy of Sciences! Mary Holt and Dan Tell recently attended the 2019 GLPA conference in Toledo and shared some updates with the Academy’s work with OpenSpace. The daily 4:30 p.m. show in Morrison Planetarium has been a live Tour of the Solar System using OpenSpace. **Tour of the Solar System** will run at that time slot until May 2020, when Morrison’s programming will be completely turned over. **Expedition Reef** will be replaced by **Habitat Earth**, **Tour of the Solar System** will be replaced by **Tour of the Universe**, and the planetarium team is very excited to premiere **Big Astronomy** on May 2nd, which will replace **Passport to the Universe**. In Hohfeld Hall, the planetarium team was featuring **Patterns in Nature**, which was a departure from the usual space-themed shows and instead focused on how scientists look for patterns on Earth or in space and use math to make predictions, re-create patterns we see, and understand complex patterns we find in animal fur or skin. Recently, Hohfeld Hall’s programming switched over to the perennial **Solar System Safari**, where presenters can explore their choice of objects from the Solar System such as planets, dwarf planets, moons, and more. The members-only show on Sunday mornings was featuring **White Dwarfs and Black Holes** since September, which is a live show exploring stellar evolution. In December, the members show will switch to **Tour of the Night Sky: Winter Edition**. The Benjamin Dean astronomy lectures this fall and winter featured (or will feature) Juna Kollmeier from Carnegie Institution for Science in September, Michael Busch from SETI Institute in October, Belinda Wilkes from Chandra X-ray Center and Center for Astrophysics/Harvard and Smithsonian in November, Laurence Doyle from SETI in December, and Catherine Espaillat from Boston University in January. Recordings of all Dean Lectures are available on Apple Podcasts.

The **Fernbank Science Center** in Atlanta, Georgia continues to celebrate the Apollo anniversaries. After a successful Apollo 11 program in July, Apollo 12’s celebration was in mid-November. Guest lecturer Thom Orlando from Georgia Tech spoke about going back to the Moon and the technology required. Another Apollo party is planned for April, 2020. Cosmosphere’s (in Hutchinson, Kansas) Apollo mission control exhibit arrived in time for the Apollo 12 celebration. It’s located next to their Apollo 6 capsule, and is full of interesting information. Visitors enjoy hearing about the people behind the program. Fernbank Science Center has been fortunate to host students from high school and local colleges, shadowing their team in the planetarium, observatory, and outreach programs. The students are interested in a science career, particularly in the planetarium field. The more, the merrier!

The **Williamsville Space Lab Planetarium** has been continuing their celebration of the Apollo missions with a series of programs about each of the missions after Apollo 11. In November, Jackie Baughman created a program for the 50th anniversary of Apollo 12. Next spring, they are planning a movie night in the planetarium with Apollo 13. In addition to those programs, Steve Dubois ran a program in October explaining how we know that the Earth is round. Tim Collins created a program for December about Jupiter’s Great Red Spot and its recent mysterious behavior. Each of the programs has sold out and the audiences have been fascinated.

The **Haile Planetarium** on the campus of Northern Kentucky University has closed due to outdated equipment that failed. They are currently fundraising, and will reopen when they have enough money to replace the system. They are pursuing many avenues of funds: grants (NASA’s TEAM II and others), large donations, and a crowdfunding project. Hopefully they will find the funds quickly and can reopen soon. Until they do reopen, they are still doing astronomy outreach, although limited, through Schneider Observatory and the NISE network 2019 toolkit activities.
The Sudekum Planetarium in Nashville, Tennessee would like to start by welcoming their newest full-time planetarium educator, Bill McClain, to their crew. Bill has plenty of planetarium experience, most recently at Liberty Science Center. This summer, Adventure Science Center opened its newest permanent exhibit, “soundBox,” where visitors can explore the science of sound and music. Since they’re located in Music City, they couldn’t just stop there! Live music performances are springing up several times a week, and a couple of those have even made it into the planetarium. On a special Classical Music Day, “Chatterbird,” a local classical ensemble, improvised live accompaniment to their live sky tour. Later that afternoon, SONUS Choir performed several choral pieces set to fulldome scenery. In the spirit of making live music a regular and welcome occurrence in the dome, they purchased live sound equipment, including a PreSonus digital mixer, an assortment of Shure microphones, a Nord Piano 4 keyboard, as well as a mobile stage to set up in the dome for performances. The stage and sound equipment have already served them well for performances like classical music day, improv performances, and Leadership Music Nashville, and they look forward to using it for other live performances in the dome, including a forthcoming series in partnership with The Bluebird Cafe. New to their show lineup is Dark Universe, with a week of previews for Adventure Science Center members preceding a November 29 (Black Friday) public opening. To counterpoint all that deep cosmology, Polaris: the Space Submarine and the Mystery of the Polar Night returns for some wintertime fun.

President’s Message (continued from page 3)

I believe we’ve made some good progress over the past two years, growing as individuals and as an organization. But there is still plenty of room for us to grow, and GLPA is in good hands. I am very thankful for what GLPA has been able to do for me in my career so far, and it has been my pleasure to give back to GLPA. Thank you all for your support.

Don’t Miss Out

To be included in the spring issue’s State News column, please forward news from your facility to your state chair in the latter half of January.

If you have a digital picture of a newsworthy event held at your planetarium, please e-mail it to the Editor at bart.benjamin@icloud.com for possible inclusion in the IPS Planetarian’s “International News” column.

Who Do I Contact?

If you ever have a GLPA-related question, but are not quite sure to whom you should direct that question, GLPA may have your answer.

The GLPA website has a page that provides a helpful way to determine who best could answer your question. To use it, please visit glpa.org/contacts
This European Southern Observatory image shows the sparkling blue baubles of the Christmas Tree star cluster in the constellation of Monoceros, with the Cone Nebula topping the tree. It was taken at ESO’s La Silla Observatory, situated 2400 meters high in the Atacama Desert of Chile. This image shows a region of space about 30 light-years across. For this holiday portrayal, the original ESA image was enhanced in contrast and inverted to portray the “Christmas Tree” in a “tree up” orientation. ESO’s original image may be found and downloaded from https://www.eso.org/public/images/eso0848a/.

HAPPY HOLIDAYS AND BEST WISHES FOR 2020 FROM THE GLPA NEWSLETTER!
JEFF POTTER OBITUARY

Jeff Potter, who worked at the Ritter Planetarium in Toledo, Ohio and the Alexander Brest Planetarium in Jacksonville, Florida, died on February 24, 2019. He was only 49 years of age.

Jeff was a student worker at the Ritter Planetarium from 1994 to 1997. Upon graduation from the University of Toledo, he took a position at the Alexander Brest Planetarium in Jacksonville, Florida. In 2000, he returned to Ritter as their Education Specialist. Three years later, he was forced to leave Ritter and the planetarium industry when the planetarium lost the funding for his position.

Anyone whose life was touched by Jeff deeply mourns his passing.

DOCUMENTARY FILM TO FEATURE OHIO PLANETARIUM

The Vandalia-Butler Planetarium in Dayton, Ohio has some interesting news to share. Journalist and documentary filmmaker Brad Lee is producing a documentary film titled Last One to Leave, Turn Out the Stars, which will highlight the historical and educational significance of the planetarium, not only in Ohio but throughout the world. Mr. Lee first met Planetarium Director Scott Oldfield 13 years ago, when he was in the third grade, and that visit helped to spur his love for astronomy. The film project is currently self-funded, early in production, and should be completed by 2021.
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Hi! I’m Kara, a student worker at the Delta College Planetarium. I’m a full-time student at Delta, and I have interests in double majoring in astronomy and biology once I transfer from Delta. I started work at the planetarium in the fall of 2018, and shortly after I began, I was asked to think about ideas for an astronaut suit demo. The planetarium had acquired a spacesuit for educational display and was planning to use it as a possible activity for school groups.

To be honest, I was confused why the manager, Mike Murray, was asking me for ideas. I was a clueless student worker who had spent maybe six weeks in the planetarium while in my first-ever astronomy class. Mike started listing endless possible questions for thought, such as: “What do astronauts have to be prepared for?” “What makes an astronaut suit special?” “How do we make something that kids can touch and interact with?” The gears started turning in my head, but within a few moments, I realized that I had no clue what even went into an astronaut suit. This was a gap in my knowledge, and I knew I needed more information before I could contribute anything meaningful.

After reviewing a few articles, I couldn’t help but think, “Why isn’t there something just demonstrating the layers of an astronaut suit?” The suit is an iconic part of the astronaut, of the space missions, and space exploration in general. That’s when I remembered my time in biology classes, with the diagrams displaying the layers of a human epidermis. Why not make something similar, but more interactive? After bouncing some ideas around, I finally had a completed concept. Imagine a small book, but every page is instead a layer of the modern Extravehicular Mobility Unit. This would enable people to just flip through the layers of the suit and discover for themselves what makes this exceptional suit a true pinnacle of engineering.

Like any endeavor, there were struggles. The process started with attempting to gather the wide assortment of materials. With 14 layers, there was hunting to be done. eBay proved to be immensely helpful in the search with a near infinite collection and reasonable prices without having to buy in bulk. However, eBay shipping certainly takes its time. I also had to figure out a way to make this with my extremely limited sewing/crafting skills. The solution was to use fabric tape borders. With this technique, I only had to get mostly perfect squares rather than exact, and my lack of sewing skills couldn’t ruin anything.

The external layer is the micrometeoroid garment; it was designed to be strong enough to withstand any high velocity debris that could be encountered while on spacewalks in low Earth orbit or walking on the Moon. This outermost layer is an Ortho-fabric that is also waterproof and

[continued on page 17]
fire-resistant. While this seems like a peculiar combination, it’s so that the suit can handle extreme temperatures at both ends of the thermometer. The Ortho-fabric seems to be a secret recipe, so I just settled for a fire-resistant carbon fiber as my substitute.

Behind the outermost layer is about seven layers of Mylar, which makes up the multi-layered insulation (MLI). Obviously, this keeps the astronaut at a stable temperature.

Underneath the MLI is the ripstop. Ripstop is, true to its name, resistant to rips and tears. Then there’s the restraint layer, which keeps the air bladder layer beneath in a certain shape around the astronaut so that the suit doesn’t stretch obnoxiously. The air bladder layer stretches to maintain internal pressure within the suit. Finally, underneath the air bladder is the liquid cooling and ventilation garments. The layers were then organized on a ring. This way, the astronaut suit could be explained from inside to out, or outside to in.

As soon as I finished the project, it made its debut at the local library’s “Summer of Space” party. I finally got to explain what I had been working on for months. The spacesuit textile book was well received everywhere it went, and I’d consider it a success. I spent a lot of time on this project, and although it’s not by any means perfect, I’m proud of it. It’s something I did on my own and is helping my community learn about spacesuits and the engineering challenges that are faced when humans brave the final frontier.
GLPAGear online store

Shop for T-shirts, Polos, Hats, Fleece, Outerwear, Backpacks, Bags, Blankets, & more... all embroidered with the GLPA Logo (b&w or color)

https://glpagear.qbstores.com

GLPA has created an online store via Queensboro.com that provides a much wider range of items, styles, colors, and sizes than has ever been offered in the past at very reasonable prices. Queensboro will produce your item when you order it, and ship it directly to you. Their quality is outstanding! Check it out for yourself!

For more complete instructions, please visit https://glpa.org/glpagear.
To begin shopping, please visit https://glpagear.qbstores.com.

Cosmic Colors
An Adventure Along the Spectrum

Cosmic Colors: An Adventure Along the Spectrum is a dynamic new planetarium show from the Great Lakes Planetarium Association (GLPA) that will take you on a wondrous journey across the entire electromagnetic spectrum. Get ready for an amazing adventure under a rainbow of cosmic light!

31 minutes in length
Target audience: 5th grade and up

Ordering information:

FULLDOME VERSION: $300 for a full dome masters at 4K x 4K (need 1 TB hard drive)
$250 for full dome masters at 2K x 2K (need 500 GB hard drive)
$200 for full dome masters at 1K x 1K (need 100 GB hard drive)

For FullDome versions, each planetarium must ship an appropriate hard drive to GLPA. Show encoding is the responsibility of each planetarium.

TRADITIONAL VERSION: $100 for traditional version with two discs -- a playable Cosmic Colors show DVD and a DVD data disc containing all-sky images, digital JPEG images, audio tracks, flattened video scenes, teacher guides, and documentation.

Order Cosmic Colors through the GLPA Online Store at glpa.org/online-store.
In the aftermath of the IPS2022 site selection process at the June 2019 IPS Council meeting, the IPS Officers are working to better define the balloting and voting process, and to increase transparency of the entire process. Related, the IPS Council has also approved two changes to the IPS standing rules. The first change elevates the Equity, Diversity, and Inclusion (EDI) Working Group to the status of a standing committee. The second change requires conference bidders to include a statement on EDI, and requests that conference keynote speakers reflect the diversity of IPS.

Planetarium 1 in St. Petersburg, Russia will be the host site for the IPS2024 conference. St. Petersburg is the cultural capital of Russia, and touts the Hermitage, the Museum of Cosmonautics, the Mariinsky Ballet, and the world’s largest planetarium, a 37 meter dome inside a 150 year old gas storage facility. $350 is the planned registration fee, with 10 preferred hotels that range from $50-100/night.

IPS2020 will take place June 21-25, 2020 at Telus World of Science Edmonton, Canada. Registration is now open, with early-bird rates set at $479. The conference will be preceded by a two-day Fulldome Festival (June 18-19, $100), a one day IMERSA (June 20, $99), and a one day LIPS Workshop (June 21, $35). The official hotels cost $110-$150/night, and lower priced university rooms are also available ($60/night, not within walking distance of the conference). This will be the first North American IPS since Baton Rouge in 2012. The Canadian dollar is currently down vs. the U.S. dollar, which, coupled with the closer geographic proximity to GLPA, means this is shaping up to be the most inexpensive IPS in several years. Visit ips2020.twose.ca to register, or for additional conference information.

I have accepted a position on the IPS Planetarium Centennial Task Force. Through a handful of in-person and Skype meetings, the members of this task force are pushing forward with constructing a website that will host Centennial-related content and information for all planetarians. Starting in 2023, this site will shift to highlight public-facing events around the world. The Centennial Task Force has also decided on a Centennial slogan, “The stars were only the beginning.” GLPA’s Emily Hromi recently won the Centennial logo design contest; be on the lookout for the public release of that design soon! Finally, there will be an educational session at IPS2020 in Edmonton about the Centennial.
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Passport to the Universe was developed by the American Museum of Natural History, New York (amnh.org) in collaboration with the National Aeronautics and Space Administration (NASA). Major support for new version provided by California Academy of Sciences, San Francisco.
Present: Geoff Holt (President), Waylena McCully (President-Elect), Dan Tell (Secretary), Cheri Adams (Treasurer), Mike Smail (International Planetarium Society Representative), Bart Benjamin (Publications Chair), Tom Dobes (Technology Chair), Gary Tomlinson (Conference Planning Chair), Paulette Epstein (Membership Chair), Peggy Hernandez (Education Chair), Dave Leake (Development Chair, A/V Curator).

Observing: Renae Kerrigan (Deputy Conference Planning Chair), Janet Beckstrom (Registrar), Garry Beckstrom (Historian), Alex Mak (Conference Host).

Call to order: The meeting was called to order at 9:05 a.m. on Wednesday, October 23, 2019, Geoff Holt presiding.

Approval of the Minutes: Cheri Adams moved to dispense with the reading of the minutes from the last meeting. Waylena McCully seconded. The motion carried.

Dave Leake moved to approve the minutes from the April 6th Executive Committee Meeting. Mike Smail seconded. The motion carried.

Financial Report: Cheri Adams

Cheri Adams reviewed GLPA’s taxes and her work with GLPA’s CPA as part of succession planning for the next Treasurer.

Cheri Adams reviewed the balances of GLPA’s accounts:

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<th>GLPA Treasurer Report</th>
<th>Account Balances</th>
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</table>

The overall totals for the last year have held stable, so we have a good handle on GLPA’s costs, and things are balancing out. The conference account has not been used frequently, in the last few years as Cheri Adams has often been paying by credit card or handling receipts directly from GLPA checking. The image bank is zeroed out after Dave Leake retired from Parkland College. Payments previously made to the AV account now go directly into the GLPA checking account.

The PayPal account now handles most giftshop transactions, with a small amount remaining held in the gift shop account.

Gary Tomlinson inquired if seed money is still included in conference expenses? Cheri Adams said we have not paid seed money in several years: generally she directly handles payments for the host with GLPA’s credit card since
Imagine the Moon

See the Moon in a whole new light with Adler's newest sky show!

planet nine

the search is on.

For licensing information, please contact Mike Smail at the Adler Planetarium. msmtp@adlerplanetarium.org
almost all payments can be done by credit.

Traditionally, GLPA transfers power at the vernal equinox, but our fiscal year ends 10 days later. Cheri Adams said she would like to work with the new Treasurer to complete this transition smoothly so they are not thrown into finishing taxes abruptly. The committee agreed this makes sense. Cheri will also be cancelling the credit card associated with her name on the GLPA account. The new treasurer will have to open their own. Cheri will be happy to go to their location to assist with this.

Cheri Adams adds that she has always left Geoff Holt on the account so there is someone with redundant access in case of emergency.

Cheri Adams does not have the final budget assembled, but individual officers can provide their budget items and she will compile after the meeting.

The PayPal balance was reviewed. Some things with PayPal statements come in an unusual order which threw off some bookkeeping slightly last year, but she has made accommodations for this.

There were $65,640 in funds incoming from the conference, not including fees to PayPal or refunds. $28,995 of this were sponsor fees.

Geoff Holt thanked Cheri Adams for all of her work over the last six years as Treasurer. Cheri Adams will update her Handbook pages as part of completing her service.

President’s Report: Geoff Holt

Geoff Holt thanked the committee for working with him during his presidency and for what the committee has accomplished, particularly the goals that have been met on inclusion, year-round professional development, and task management. Geoff specifically called out the second workshop by Dr. Garcia at this year’s GLPA and the focus on improving the inclusion and diversity of the conference and fields as a whole and the pronoun sticker idea from Paulette Epstein. He applauded Peggy Hernandez’s work with the Pacific Planetarium Association on the Planetarians Webinar Series. Tom Dobes’ work on the yearbook-style photo directory was also praised.

President-Elect’s Report: Waylena McCully

The Scholarship Committee consisted of Paulette Epstein, Emily Hromi, and Steve Burkland. 13 scholarship applications were received and 10 were accepted. Scholarship evaluation went much more smoothly this year thanks to discussion on how to better weigh the applications.

The Nominations Committee consisted of Katharine Acetta, Jackie Baughman, Chris Janssen, Melinda O’Malley, and Eric Schreur. The Committee had a hard time finding candidates to fill all positions, however, ultimately two candidates were balloted for each office. The final candidate slate is:

President-Elect: Mark Percy  
Dan Tell  
Secretary: Shannon Schmoll  
Tiffany Stone-Wolbrecht

Treasurer: Steve Burkland  
Keith Davis  
IPS Representative: Anna Green  
Mike Smail

Members of the Nominations Committee will also assist with the state elections in their respective states. The state chair elections will be held at the state meetings. Not all states had candidates for preparation of ballots ahead of time. Waylena McCully still has time to prepare ballots if there are interested parties. She is very pleased we are moving to a system that makes it more transparent and encourages more candidates to run. Illinois and Indiana’s current chairs are also stepping down.

Secretary’s Report: Dan Tell

Minutes from the Fall Executive Committee Meeting were prepared for publication in the summer GLPA Newsletter. The Secretary chaired the By-Laws Review Committee, which reviewed several suggested changes to the By-Laws for the membership to vote on at the 2019 Business Meeting. These changes were submitted to the Executive Committee in accordance with the By-Laws and approved for the ballot.
The following online votes were conducted between the Fall Meeting of the Executive Committee and the Spring Meeting:

**Geoff Holt nominated Dave Leake for the GLPA Service Award. Waylena McCully moved to accept the nomination. Bart Benjamin seconded the motion. The motion carried.**

**Dave Leake moved that GLPA provide a $200 honorarium to the Merrillville Community Planetarium for hosting the Spring Executive Committee Meeting. Dan Tell seconded the motion. The motion carried with 8 ayes and 1 abstention.**

**Peggy Hernandez moved that GLPA modify its wording for its grant for the IPS Week in the United States for an International Planetarium Operator to require recipients be active in GLPA for at least 3 years and the $500 will be paid directly to IPS. Waylena McCully seconded the motion. The motion carried with 9 ayes and 1 nay.**

**Mike Smail moved to accept the proposed By-Laws changes by the By-Laws Review Committee for balloting to the membership at the Fall 2019 Business Meeting. Bart Benjamin seconded the motion. The motion carried.**

**Mike Smail moved that GLPA shall provide a letter of support for the Bell Museum’s application for a NASA Grant to produce a show that would be distributed at cost. Waylena McCully seconded the motion. The motion carried.**

**Dan Tell moved the Executive Committee add the following question to the ballot at the business meeting: “Shall the membership of the Great Lakes Planetarium Association overturn the membership vote of 1990 and restore conference scheduling authority to the Executive Committee in coordination with the conference host?” Mike Smail seconded the motion. The motion carried.**

**Bart Benjamin moved that GLPA adopt the Conference Photo and Video Policy as submitted on July 25, 2019. Mike Smail seconded the motion. The motion carried.**

**Dan Tell nominated Gary Tomlinson for the GLPA Service Award. Tom Dobes moved to accept the nomination. Paulette Epstein seconded the motion. The motion carried.**

**Dan Tell has not made significant progress on Decisions and Actions in the last year. He would like to finish uploading those for the ones the last few meetings, but historical ones may be transferred to the new Secretary-elect. Geoff Holt thanks Dan Tell for his work above and his service during his term as Secretary, beyond simply taking the minutes.**

**Treasurer’s Report, Non-Financial: Cheri Adams**

GLPA is incorporated in the state of Michigan. The appropriate documents have been updated and renewed. GLPA’s six elected officers are listed as its board members on its tax documents.

Cheri Adams noted this was her last Executive Committee meeting for the first time in 14 years. She thanked the Committee for working with her for so long, and is excited to continue attending the conference. Geoff Holt thanked Cheri for all of her work organizing the Treasurer’s role, documents, and paperwork.

**International Planetarium Society Report: Mike Smail**

The International Planetarium Society’s transition from the council model to the board model is currently underway. Elections for board members are in progress and open through December. The transition will occur next summer in Edmonton. There are two candidates from the GLPA region running for the North America board seat: Dayna Thompson and Jean Creighton. GLPA, as a region, has the largest contingent of IPS members, so there is some concern GLPA may overwhelm the other North America regional and dominate representation. That said, Mike Smail thinks it is in GLPA’s interest to encourage the membership to vote for the candidates from our region.

Assuming the proposed by-law changes pass during the election, this term will be the final term for an IPS Representative in GLPA.

Bart Benjamin asked if this next IPS Representative would serve a full two years? Mike Smail says yes, they would serve in GLPA for two years, but since GLPA hands over offices at the vernal equinox there will be only a few
months of official service in IPS before the Edmonton meeting. IPS is making a faster transition than originally planned, affiliate representatives can attend as observers at Edmonton but will not be officially seated in any capacity.

Dan Tell noted he has spoken to members who have not gotten the information on the IPS board election and encouraged Mike Smail to review the voting process at the Business Meeting.

Geoff Holt and Mike Smail reviewed that the IPS Representative position for GLPA will remain a GLPA board member for their elected term and will still have a role communicating between the North America board members and GLPA.

Bart Benjamin asked when the results for the election would be announced? Mike Smail said probably shortly after the polling closes on December 1, 2019.

Mike Smail will be working more closely with the IPS Planetarium Centennial Task Force. Through a handful of in-person and Skype meetings, the members of this task force are pushing forward with constructing a website that will host Centennial-related content and information for all planetarians. Starting in 2023, this site will shift to highlight public-facing events around the world. The Centennial Task Force has also decided on a Centennial slogan, “The stars were only the beginning.” GLPA’s Emily Hromi recently won the Centennial logo design contest; and the new design will be released soon. There will be an educational session at IPS2020 in Edmonton about the Centennial.

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Cheri Adams asked if there were any budget requests? Mike Smail said he would like to see funding continued for the “Week in the United States” for an International Planetarian program. He will supply budget numbers for IPS 2020 to Cheri.

**Conference Planning Report: Gary Tomlinson**

Gary Tomlinson thanked the members of his committee whose hard work make the conferences possible:

- Renae Kerrigan - Deputy Conference Planning Chair
- Janet Beckstrom - Registrar
- Mark Reed - Workshop Coordinator
- April Whitt - Paper Chair
- Tom Dobes - Videographer
- Anna Green - Photographer
- Kris McCall - Door Prize Chair
- Todd DeZeeuw - GLPA Gift Shop
- Dale Smith - Group Photograph Key Designer

With discussion of a longer conference, the question of two day registration was raised. There is currently no mechanism in CiviCRM for handling two day registration.

Paulette Epstein suggested this could be a good opportunity to look into different registration software, possibly
Since the debut of VIRTUARIUM, the first fulldome planetarium, in 1996, GOTO has been developing and improving their fulldome software.

Dozens of Hybrid installations across Japan currently use VIRTUARIUM X as their software engine of choice to run the planetarium.

Now GOTO is releasing VIRTUARIUM X - the latest version of their fulldome astronomy software platform - in the western hemisphere for the first time.
separate from our Customer Relations Management software, but there may be packages that connect. Paulette says the system is too complicated and there are existing software packages that should make this easier without needing as much custom coding. Geoff Holt agreed looking into this would be good. Dan Tell adds that having to use cloud-hosted software may be inevitable given the direction of the marketplace. Paulette said she will also talk to other organizations, namely that ASTC doesn’t custom build their registration each year. Renae Kerrigan said it would be great if there were a software package that could handle multiple (but a restricted number) users for redundancy and workload sharing. Geoff Holt recalled one of the other problems we originally ran into was the low flexibility of other systems for our complicated requirements. Paulette asked how long ago GLPA adopted CiviCRM? Dan Tell said it was about 10 years ago. Paulette said there may be more software on the market that could meet our needs now. Geoff cautioned that we do want a proven product and nothing at risk for discontinuation. Paulette agreed.

Gary Tomlinson returned to the topic of partial registration. Geoff Holt agreed this would be good to implement. Dan Tell read from the Spring 2018 minutes which was the last discussion of a partial registration:

The discussion of adding a one-day registration option for the conference, priced at 60% of the total cost was revisited. Gary Tomlinson, Tom Dobes, and Janet Beckstrom will continue to work out implementation. At the time of the meeting it was not intended to be available through the website, but will be available only directly through the Registrar.

Renae Kerrigan said there were a few one-day registrations this year.

Mike Smail agreed that partial registration is a good idea, but the conference schedule is not consistent from year-to-year so the schedule would need to be ready well ahead of time. Dan Tell asked if there might be a problem of delegates registering for the days of the conference with less sponsor content? Geoff Holt said possibly. Paulette Epstein observed some members would come just for the sponsor presentations as well.

Mike Smail asked if this could create quorum issues for the business meeting? The by-laws don’t have a clear mechanism for this, so the Executive Committee agrees on the interpretation that only delegates registered for the day of the business meeting would be counted towards the quorum according to Article IV, Section 5.

Paper acceptances this year were delayed by computer issues at both home and work for the Paper Chair.

Renae Kerrigan, Geoff Holt, Janet Beckstrom, and Tom Dobes will be having a website meeting to hopefully make 2020 registration easier.

It was announced that Geoff Holt has agreed to take on the role of Registrar after Janet Beckstrom steps down after this conference.

Gary Tomlinson turned the topic to sponsor-led Special Interest Groups. A sponsor requested getting together an assembly of their customers — does the Committee see this as a problem? Gary Tomlinson sees it as a benefit for the sponsors coming to the conference. Mike Smail said it is a little different from a SIG, depending on the sponsor, like how Sky-Skan ran a Digital Sky Academy the day before the conference in 2013, or the Uniview Users Group meeting before Pleiades. Dan Tell also noted there was user-driven interest in the Uniview users meeting this year, so there are variations from sponsor-down and user-up.

Renae Kerrigan noted this interest was driven by a sponsor asking for the list of delegates, which is not our current policy to provide. Dan Tell reviewed this overlapped with the GDPR discussion of the last year and we should not be providing delegate lists. Geoff Holt agreed we should keep it that way, but there might still be a way we can help coordinate with their customers to facilitate meetings.

Bart Benjamin asked if we can just set aside the time for Special Interest Groups, and let sponsors know they can host their own and contact their customers directly? Mike Smail thinks that would be good if that’s what the sponsors want.

Dave Leake asked why they couldn’t just submit commercial workshops? Bart Benjamin agreed maybe that should be encouraged. Geoff Holt asked if it would be problematic to hold multiple SIG meeting times, one for traditional GLPA SIGs and one for sponsors/other ad hoc SIGs? Mike Smail and Waylena McCully think that would be a good idea. Renae Kerrigan observed it might be troubling to find spaces for the hosts since some sponsors have larger customer bases than others.

Mike Smail suggested we can follow up with the sponsor who asked this in the spring. Geoff Holt agreed we could wait but added that, selfishly, he would like to attend sponsor-led SIGs. Dan Tell observed we do now have several
Minutes of the GLPA Executive Committee Meeting (cont.)

potential options for how a sponsor can host a meet-up.

Dave Leake leaned most towards the workshop idea since it would allow them the most time. There was some concern by the Committee there is already too much choice between workshops. Dan Tell said we probably need more workshop time in the schedule so there are fewer concurrent workshops and panels as they have become more popular. Renae Kerrigan said we should see if this trend continues. Mike Smail suggested that perhaps instead of treating workshops and papers as separate things, we treat them all as delegate presentations and that gives us more flexibility for making arrangements with available time formats. Gary Tomlinson pointed out that workshops are decided on in the spring to be listed in registration. Mike Smail asked if we need to have workshops decided that far in advance? Dan Tell suggested maybe workshops that require registration for materials and supplies can be scheduled in advance, but there could still be room for delegate submission at registration for longer-format panels and workshops that wouldn’t be able to be pre-registered for. Mike Smail agreed with having pre-registered workshops, but perhaps panel discussions could be created later in the game. Geoff Holt said this could all be done in parallel to paper session blocks too. Dan Tell said a longer conference would probably be needed to make this work. Gary Tomlinson confirmed: these could be scheduled simultaneously with pre-registered workshops and paper sessions? Geoff, Gary and Dan confirmed it they could be.

Mike Smail outlined two categories: workshops/courses that require preparation and pre-registration and workshops and panels that can be done more ad hoc by user submission. Renae Kerrigan said the committee will also need to talk to April Whitt and Mark Reed to see how it will impact the schedule. Gary Tomlinson suggested putting more of the responsibility for scheduling papers and workshops on April and Mark would also be beneficial.

Tom Dobes said there could be logistics issues for A/V. Geoff Holt said if we stick to our rules on concurrency, but have more room in the schedule by virtue of an extra day we could make it work. Dan Tell added we might have to reject more delegate submissions. Gary Tomlinson said he hates doing too much of that. Dan Tell said maybe it makes sense that longer format panels and workshops need to cross a higher threshold for acceptance than papers do. Geoff Holt asked if there are currently multiple reviewers for paper acceptance? Gary Tomlinson said not currently. Geoff Holt observed this is a lot of work on one person, and while April Whitt has great judgement, more perspectives will be good to have in the future. However, Geoff suggested keeping the system as-is for now.

Dave Leake said he will do some follow-up on the interest in Sponsor SIGs.

Gary Tomlinson reported the new digital conference notebook option saved about one-third on printing costs. Gary assumes these savings will grow. However, as the message wasn’t fully transmitted, 190 notebooks were accidentally printed. Janet Beckstrom said it had previously been discussed to not give notebooks to sponsors who aren’t members, should that be changed due to the excess? The Committee agrees on no change. Paulette Epstein thought many members who registered for digital-only don’t want a paper one. If they ask, they could be provided one. The registrar will keep the binders for future reuse.

Gary Tomlinson also asked if there is a problem with the sponsor display in the digital notebook being lesser than the printed? Renae Kerrigan notes the first page of the digital notebook is the same as the sponsor cover of the printed notebook. Geoff Holt suggested we could implement new benefits in the future, like pages on the website. Dan Tell suggested the digital conference program could have pages of sponsor content printed in the notebook as well.

Gary Tomlinson asked if we should continue to include the lists of Fellows and other Awardees in the binder? Paulette Epstein felt this was not necessary with the information on the website. Mike Smail suggested making a history page in the digital notebook that links to these pages on the website. Gary Tomlinson confirmed the consensus was to remove this page? The Committee agreed, but noted that Mike Smail’s idea to replace it with a history page with links would be ideal.

The discussion from earlier meetings of moving the Business Meeting to Friday was resumed. Gary Tomlinson checked: was this to help ensure a quorum? Dan Tell affirmed. Paulette Epstein added the quorum issue is somewhat lightened now that sponsors aren’t required to become members and stay. Dan Tell noted even with that we barely made quorum in 2018. Geoff Holt agreed that as long as the Business Meeting is on the last day of the conference, attendance will be a problem. Gary Tomlinson asked if moving the banquet to be the last thing, other than some optional activities the following morning, is something the Committee is interested in? Dan Tell said he thought it made a lot of sense. Gary asked what optional activities might make sense the following morning? Geoff and Dan suggested a late breakfast, with the banner transfer, door prizes, and storytelling, wrapping up by 11 a.m. for hotel check-out and departure. Gary remains concerned about members needing to spend an extra hotel night at the conference. Dan Tell observed Pleiades was an
extra night and still had extra attendance, and GLPA is the largest regional conference, so hopefully as long as we provide valuable content, it will be worth the extra day. Waylena McCully added that informal time on the last morning can also provide really good networking time.

It was discussed whether sponsors would stay for Saturday if the conference were to run through Saturday night. The feeling was if there was a full day of Saturday with time with customers this would incentivize staying. The half-day nature of Saturday to this point has been discouraging. Dave Leake will ask sponsors if they would be interested in this time on Saturday if it were worth their while.

2019 Conference Report: There were some difficulties working with the University. Dan Tell observed we might need to host more events at the conference hotel in general and less at the host facilities. The days of donated facilities from hosts are likely coming to an end as rentals become more important to institutions. We should also discourage hosts from renting their spaces to us, unless competitively priced — we shouldn’t be enriching hosts from renting space to the conference. Discussion continued from this, but the Committee is agreeable that the format for the conference may need to change to include doing most events at the hotel/convention spaces and going to the planetarium for a single night.

This year 15 delegates declined meal packages. 22 sponsors took the full meal package, and 40 signed up for the banquet. It was asked again if the meal package should remain separate from registration or be combined, but a decision was not reached.

The conference will feature 20 submitted papers, down from 31 last year, and only 3 posters instead of 8. But there were 10 workshops instead of 7.

Alex Mak joined the meeting. He reported everything in his memory is going well. The planetarium looks excellent with 6 fulldome projectors in the facility and security providing extra patrols. Busing is taken care of. The biggest challenge is just the size of the planetarium.

The conference has 181 attendees (including speakers and guests), of which 56 are sponsor representatives.

Geoff Holt thanked Alex Mak for all his hard work as host.

2020 Conference: Dan Tell brought up discussion from the summer where Mark Reed said the schedule for the conference was already set. Dan felt that locking in the schedule a year ahead of time is not desirable because it doesn’t leave time to incorporate changes and improvements from the feedback this year, so it would be great if we could restore more flexibility to the conference.

2021 has no current host. Gary Tomlinson is talking to some potential hosts but has no commitments.

Geoff Holt said it has come up a few times that it would be good to have a committee of people who can do site visits at host institutions. It would not be necessary for the entire Executive Committee to be at the host facility, but if a small team could do it on their own schedule, and do it earlier than the Spring Executive Committee Meeting that would be valuable. Gary Tomlinson and Dave Leake discussed that this committee should include the Conference Planning Chair and Deputy, the Development Chair, Technology Chair, and Registrar.

Dan Tell moved GLPA fund a conference site visit by the relevant committee members ahead of the conference. Bart Benjamin seconded the motion. The motion carried.

The Bays Mountain Planetarium in Tennessee is hosting SEPA in 2021 and they are potentially interested in inviting additional regions. MAPS may also be joining them. Mike Smail observed GLPA could approach them about joining as well. It would be on a SEPA schedule, so held in the summer. Dan Tell noted that Tennessee’s HB 1151 which, even if the host institution can guarantee the safety of all delegates, may still make the state itself an exclusionary and undesirable environment. Paulette Epstein agreed this would be an issue.

Gary Tomlinson asked if the honorarium for submitted texts from invited speakers should be increased from $250. Dan Tell asked if we had a problem receiving written texts from invited speakers, or anticipated this being a problem in the near future? The discussion among the group suggested this was not a current problem, and there will be no change.

The Committee recessed for lunch at 11:35 a.m.

The meeting resumed at 12:17 p.m.
The Revolutionary LED Dome.

“When I saw DomeX in person the image was so close to perfection – it was so real, with very high resolution and contrast. I was looking at the next generation of planetarium technology.”

-Jean-Francois Delorme

www.es.com/DomeX
Development Report: Dave Leake

<table>
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<th>Year</th>
<th>#sponsors</th>
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<td></td>
<td>$26,665</td>
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Plenary time increased slightly this year, as did revenue. In reviewing historical trends, it was noted that in 2016 sponsor meal packages were included in the revenue figure, artificially inflating it by $7,800.

Alex Mak allotted 3 hours for fulldome shows and they were almost completely booked up. There were some other scheduling issues this year, but they were resolved.

Returning to an earlier discussion: Spitz requested a delegate list ahead of the conference. GLPA has not been providing this info partly for GDPR compliance and partly because of the difficulty with last-minute registrations. Dan Tell suggested maybe we could add an “RSVP” option on the website, where delegates could optionally select to have their RSVP to the conference visible on the website when they register, allowing their colleagues and sponsors to see they are attending.

Sponsor fees and the overall budget and income as well as other sponsorship opportunities were discussed. It was agreed that sponsor fees should likely be slightly raised to account for inflation and growing conference costs.

Bag items for top level sponsors were discussed with how it is handled on the technology side. The system may need to be simplified and some of the free benefits of top-level sponsorship may need to be broken out to become paid options.

Sponsor access to the member directory was discussed. Dave Leake advocated that access to this directory is a perk of membership, and if sponsors would like this perk it is a worthwhile reason for them to choose to become members. The Committee agrees.

Gary Tomlinson asked for clarification: should a sponsor need to be a member to present a Special Interest Group or Commercial workshop? Geoff Holt thinks it would be fine for them to run this as an exhibiting sponsor if they don’t want to be a member. But attending workshops and presenting papers is still a members-only perk.

The sponsor questionnaire will be digital for the first time as well, following the trend from the conference survey.

Dave Leake will be stepping down as Development Chair and passing the reins to Kris McCall. He thanks the Executive Committee for their encouragement, particularly Conference Planning.
Membership Report: Paulette Epstein

Total Members: 234

- IPS: 103
- Fellow: 82
- Retired: 28
- New: 33

Number of GLPA Members

MEMBERSHIP BY TYPE

- Regular, 153, 66%
- Senior, 26, 11%
- Student, 24, 10%
- Honorary, 31, 13%
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You can connect with experienced people who use the dome every day to educate students at different grade levels and with different learning styles. You can find out about the trends and innovations that are popular with public audiences in domed theaters.

IPS members receive the quarterly journal *Planetarian*, filled with insightful articles and a wide range of feature columns and other items. You can write for *Planetarian* and share your insights around the globe.

IPS members are a vital part of the society. As volunteers, they head committees, spearhead projects, and contribute. As a member, you can make a difference.

Biennial IPS conferences bring together hundreds of planetarium professionals from around the world for paper sessions, invited speakers, workshops, panel discussions, vendor demonstrations, and exhibits. Our next conference will be held 18-25 June 2020 in Edmonton, Canada.

Dues for individuals are US $65 for one year or US $100 for two years. For more information or to join IPS, contact Ann Bragg, IPS Treasurer/Membership Chair, at ann.bragg@marietta.edu. Join electronically by visiting the IPS website at www.ips-planetarium.org.

Just imagine what we can do together.
Membership is stabilizing post-Pleiades and with sponsors no longer required to be members. However it is currently very hard to pull a list of which sponsors are members in the system.

Dan Tell addressed that in the spring we discovered a drop in school planetarium membership over the last several years: a decline from about 50 to 30. However, this year we are still around 30 school planetarians but without the delegation of students from Merrillville, which suggests a slight increase in school registration. He asked if we can we directly engage with more school planetarians who have joined to get feedback on what they get out of GLPA and what we can provide? Paulette Epstein said she has done some direct outreach to school planetariums around Detroit and they are most excited about joining the network of planetarians, even without the direct benefits of the conferences or other resources: just having a network to talk to. Geoff Holt also tasked Peggy Hernandez to investigate this at the Education Special Interest Group.

Geoff Holt also said we should start including system vendor information in the member registration to help members with similar technology connect to each other. Paulette Epstein said this could help facilitate conversations between planetarians outside of the conference too. Peggy Hernandez will also discuss this at the Education SIG.

Geoff Holt addressed that currently Development and Membership are the only committee chairs without any subcommittee members right now. Both chairs are encouraged to recruit committee members for succession planning, emergencies, and workload sharing. Bart Benjamin also suggested that whenever any member of the Committee hears someone say they’d like to be more involved that the Committee should add them to a list that all members can use for recruitment. Paulette Epstein said she usually directs interested members to the relevant chair.
Publications Report: Bart Benjamin

Advertisements for the *GLPA Newsletter* continue to be sufficient to cover printing costs with a slight surplus of approximately $440 annually. There are currently 10½ pages of advertisements.

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Newsletter distribution remained relatively consistent, with 74.8% of members opting for the electronic version and 25.2% opting for the printed version.

The most recent issue was GLPA’s 205th and the 127th issue edited by Bart Benjamin.

For the first time, this year the *GLPA Conference Proceedings* will have individual PDFs of each paper broken out from the whole. Bart Benjamin will include the title page on the individual papers. Geoff Holt also suggested linking these individual papers from the abstract page.

The upcoming edition will be the 36th publication of the *Conference Proceedings* and the 32nd edited by Dale Smith. As in recent years, it will be available only electronically as a downloadable PDF from the website.

Social media stats were reported as follows:

**Facebook** = 620 total follows, up from 595 last autumn. Administrators: Renae Kerrigan, Michael McConville, Tom Dobes, Paulette Epstein, Emily Hromi, and Bart Benjamin.

**Twitter** = 590 followers, up from 567 last autumn. Administrator: Mike Smail.

**Slack** = 45 members of #glpa channel, up from 34 last autumn. Workspace Owners (for #glpa): Derrick Rohl, Mike Smail, and Steve Burkland.

**Instagram** = 80 followers, up from 65 last autumn. Administrators: Michael McConville. Emily Hromi has stepped down as one of its administrators, and a replacement is currently being sought.

On behalf of GLPA, Bart Benjamin thanked each of these people for their valuable service to GLPA.

Bart Benjamin also thanked the state chairs: Jean Creighton, Mary Holt, Renae Kerrigan, Shannon Schmoll, Dale Smith, and Barb Williams for their service collecting and compiling state updates for the newsletter.

Design revisions to the GLPA logo were reviewed and discussed. Following previous rounds of discussion and evaluation, Emily Hromi has prepared new drafts of the GLPA logo for approval.

As the Committee prepared to vote on the logo, Gary Tomlinson asked if there were any concerns about existing printed material using the old logo. The Committee agreed that existing material can be used until it runs out, even if a new logo is adopted.
After an iterative review process, the Committee narrowed down the choice to the following logo revision:

Dan Tell moved GLPA accept the revised logo design as the new logo for the Great Lakes Planetarium Association. Paulette Epstein seconded the motion.

**Discussion:** Gary Tomlinson asked if “GLPA” and “Great Lakes Planetarium Association” can still be put to the side of the logo instead of the lower semicircle. Geoff Holt said we can make that an option in our style guidelines. Bart Benjamin asked if there should be a phase-in timeline? Paulette Epstein said it can be used as new materials are created.

**The motion carried unanimously.**

GLPA will work with Emily Hromi to make guidelines for use and have it available publicly for download and view for creation of conference materials, including the use of an open source font as the official font.

Gary Tomlinson asked about the monochrome version of the logo (seen below): should the lines in it be removed. Dan Tell referenced that historical minutes refer to the three colors in the GLPA “sky” as representing Ohio, Indiana, and Illinois whose outlines are less clear from the outline of the Great Lakes, and would advocate for leaving them in the monochrome version for this reason. Renae Kerrigan agrees this makes the logo more visually recognizable.
The question was raised if the membership had voted on the previous logo. Dan Tell researched the matter through the historical minutes:

The original logo was adopted in 1967. However early discussion for the logo suggested using the lakes with a sky above with color bands representing the three states less visible in the outline of the lakes (Indiana, Illinois, and Ohio).

In 1976 a new logo was used for the Adler Planetarium conference as designed by Linda Granke. The logo was so popular that the membership voted to ask the Executive Committee to consider new logo designs.

Three designs were presented at the 1977 Toledo conference for consideration, but not yet voted on.

In 1978, this was opened up as a submission contest to the membership with a deadline for submission by January 1, 1979 (it seems no actual submissions were made even after the deadline was extended into the spring, and the three designs variants in 1977 would subsequently be the three presented for a final vote in 1979).

At the 1979 fall business meeting, four logo designs were considered, mostly variants on the Granke logo, featuring the starfield with northern constellations, one with the patterned starfield (seen on the 1980 newsletter), a variant with the states drawn in below, and the original 1967 logo. The design with the constellations won by a vote of the membership.

Because the previous vote was a vote by the membership, the Committee’s vote is invalid and the revised logo will be put before the membership for approval at the Business Meeting.
Education Report: Peggy Hernandez

The Planetarians Web Seminar continues on the last Friday of each month, in collaboration with Alan Gould of the Pacific Planetarium Association. The seminar ranges from about 18-25 attendees per month, but more people watch the recorded seminars on YouTube. The seminars are listed on the GLPA website under the “Get Involved” header and on PPA's website under “Events.”

GLPA is also investigating ways to expand the use of Zoom or Google Hangouts to hold topic focused remote Professional Learning Communities. Peggy Hernandez is seeking more ideas and input for topics.

The GLPA Grant program was discussed. Peggy Hernandez and Paulette Epstein discussed some ways the grant program’s funds may be restricted in use (such as not being used to fund staff time). Waylena McCully also suggested the page should clearly display previous funded projects to advertise what is possible on the grant. Dave Leake noted there was some precedent with Cosmic Colors using grant funds to buy clips from production houses and Stargazer paid for some staff time. Peggy and Paulette believe they can refine this anyway.

Peggy Hernandez will make a statement at the Business Meeting.

Work continues on the Next Generation Science Standards document. The goal is to have a simplified reference document that supports both planning of programs and to encourage teachers to choose a planetarium visit as a lesson, while also reflecting an articulated outline of astronomy as an integral area of science study. The subcommittee on this project includes Shannon Schmoll, Jean Creighton, Sally Brummel, and Gary Tomlinson.

Technology Report: Tom Dobes

A new membership list has been implemented, including the yearbook style photo gallery. At the same time, members also have the ability to opt out of being listed in these lists, as well as opting out from the conference notebook.

Most of the GLPA Handbook has been migrated to Google Docs. Conference Planning’s Handbook has still not been fully migrated, and this work will take a few months.

There has been discussion of membership database cleanup, but the previous plan to export as a CSV will not reflect all linked relationships in the database. Another plan will need to be formulated.

A software update for the network gateway was completed during another maintenance period, avoiding additional downtime for the website.

Tom Dobes’ report reviewed the issues with getting necessary information for registration this year, which arrived after the agreed-on deadline, pushing webpage creation further back and leading to other mistakes. Tom has requested more in-person planning as well as project management from other Committee members. Most of this discussion was covered under Conference Planning. Similarly, Tom identified that a la carte sponsor registration does not work well with CiviCRM, as was discussed earlier on looking for new registration software options.

GLPA may need to move its hosting away from the Merrillville Community Planetarium. This may result in an increase in hosting fees, but Tom Dobes thinks this will be necessary for the secure hosting of the website in the future. The Committee agrees. GLPA presently funds 50% of the cost of colocation (bandwidth and electricity) at an annual cost of $165. (This is based on usage statistics: GLPA traffic represents approximately 50% of the server’s bandwidth during non-conference months and significantly exceeds this during registration and the conference.) Offsite backups are provided using a secure server at Tom Dobes's house at no cost to GLPA. Our domain name registration is purchased through Hover.com. We presently have three domains: glpa.org, glpa.us, and glpaweb.org. We plan to continue renewing all three domains into the future for maximum visibility and to ensure continued access to G Suite (which is attached to our now-legacy glpaweb.org domain and cannot be changed). Renewal of the three domains costs $47.33 annually. Our website continues to run the latest release versions of Drupal 7 and the Extended Security Release of CiviCRM.

John Foerch has volunteered to help more in developing the digital repository and the website in general.

The extended release of CiviCRM has already been purchased, which has improved functionality of the database. Tom Dobes feels it is valuable to continue this subscription.

The Design Committee will then have more input on website skin redesign once logo decisions have been made. Geoff Holt clarifies that the Design Team will have input on the aesthetics, but the function of the responsive design will still be on the Technology Committee.

Tom Dobes reported the following website usage statistics:
For the time period of April 2, 2019 – October 16, 2019, Google Analytics reports:

• 3,595 users (formerly known as “unique visitors” in Google terminology), totaling 26,745 page views.
• Of those users, 49.78% navigated directly to our site (from a bookmark or by typing the address into their browser), 38.39% arrived from a search engine (e.g. Google or Bing), 6.60% arrived by referral (link from another web page or email), and 5.23% arrived from social media (e.g. link from Facebook or Twitter).
• The most frequently visited pages are: home page @ 13.27%, conference page @ 7.73%, 2019 conference page @ 5.39%, membership page @ 2.41%, 2019 conference registration @ 1.94%, 2019 conference schedule @ 1.65%, 2019 hotel info @ 1.53%
• 74.92% of our visitors were from the U.S., followed by 3.44% from China, 3.08% from Japan, 2.08% from India, 1.97% from South Korea, 1.61% from Canada, and 1.55% from the U.K.
• 49.49% of visitors used Google Chrome, 19.28% use Apple Safari, 11.68% use Mozilla Firefox, 10.88% use Microsoft Internet Explorer, and 3.06% use Microsoft Edge.
• 22.44% of visitors used mobile devices. Of those, 64.35% were Apple devices, 34.48% were Android devices.

A/V Curator’s Report: Dave Leake

The A/V Curator retired from Parkland College on June 30, 2019. On May 31, 2019, a letter was sent to Parkland by the GLPA Treasurer to collect GLPA A/V funds that were being stored in a college club account. A check in the amount of $4,495.24 was sent to the GLPA Treasurer, closing the account. Loch Ness show streaming revenue is now sent directly to the Treasurer. Any revenue received by the A/V Curator is also sent to the Treasurer. The A/V Curator maintains expense receipts and is reimbursed quarterly by the Treasurer.

The GLPA webmaster now has all the show files of programs GLPA offers for sale. The A/V Curator will continue to provide showkit distribution until programs can be directly downloaded from the GLPA website. The A/V Curator will continue to handle show requests that require a purchase order.

Dave Leake reviewed the uploading and availability of downloadable shows on the GLPA website. Dave Leake has some refinements on the language for terms of this service. Dave proposes the following language: The Great Lakes Planetarium Association desires to provide both traditional and fulldome programs at zero or low cost to the planetarium community. Materials must be screened and approved in advance by a small committee to ensure all materials distributed by GLPA are aligned with the mission of the organization. If you have materials you want to make available to the GLPA membership, contact the Technology Chair.

Dave Leake also proposes a small selection group for approval of hosted content.

Since the Spring Executive Committee Meeting there have been 2 sales of Cosmic Colors in 4k, 2 sales of Solar System Adventure, 2 sales of Zubenelequnibi’s Magical Sky, and one sale of Winter Wonders. Cosmic Colors has now seen 97 total sales, generating $22,145 in gross revenue, turning a slight profit from its initial grant funding.

Cosmic Colors continues to be distributed by Ash Enterprises, Evans & Sutherland, the Fulldome Film Society, Magna-Tech, Free Fall Technologies, and via Loch Ness Productions’ Fulldome On Demand streaming platform.

Old Business:

No old business.

New Business:

The Committee reviewed their schedules for the date of the Spring Executive Committee Meeting. It was determined that Saturday, the 11th of April will be the date. Location is still to be determined.

The New Members Orientation will be held at 5:30 p.m. in the Waynesfield Room next to the Sponsor Hall. Geoff Holt asked that all members of the Committee attend.

Adjournment:

Mike Smail moved the meeting be adjourned. Waylena McCully seconded. The meeting was adjourned at 2:50 p.m. on Wednesday, October 23, 2019.
GLPA ELECTION RESULTS
On Saturday, October 26, 2019 at its annual conference in Toledo, Ohio, GLPA conducted its biennial election of officers. The outcome of this election was as follows:

President-Elect:
Dan Tell

Secretary:
Tiffany Stone Wolbrecht

Treasurer:
Steve Burkland

IPS Representative:
Mike Smail

Congratulations to our new officers (who will take office on the Vernal Equinox, 2020) and a big thank you to everyone who was willing to run for office.

GLPA AWARDS
At the recent annual conference banquet in Toledo, Ohio, the Great Lakes Planetarium Association bestowed the following awards:

Fellows:
Keith Davis
Paulette Epstein
Shannon Schmoll
Buddy Stark

Honorary Life Member:
Janet Beckstrom

Service Awards:
Janet Beckstrom
Dave Leake
Gary Tomlinson

Mentor Award:
Alex Mak

Congratulations to the GLPA award winners for 2019! If you would like to nominate someone for GLPA Fellow, Honorary Life Member, Service Award, Mentor Award, or Galileo Award, please visit glpa.org/awards to read the award guidelines and download the PDF nomination forms.

THANK YOU, GLPA SPONSORS
In addition to the tireless work of the conference hosts and member volunteers, the 2019 GLPA Conference was made possible by the generosity of 21 conference sponsors (listed on page 58).

On behalf of GLPA, I offer another big THANK YOU to our generous sponsors!
4K: one projector

SciDome 4K Solo™

4096 x 4096
30,000 Lumens
www.spitzinc.com
2019 Conference Resources

2019 Conference Photographs . . .

GLPA will soon offer its members the photographs taken by conference photographer Anna Green. There will also be smaller collections of conference photographs taken by two additional delegate photographers. At press time, these photographs were not yet available, but we will let members know when they are. When they are posted, there will be two different ways to get them, as follows:

1. Conference photos will be posted to GLPA’s Facebook Page at www.facebook.com/glpasocial. Anyone can view these photos, even if they don’t have a Facebook account. Those who do have a Facebook account and follow the GLPA Facebook Page can also add their likes, comments, and tags to individual photos.

2. Conference photos will be posted to GLPA’s Conference Photos Webpage at glpa.org/history-conferencephotos. Each photographer’s complete collection of conference photos can be downloaded by anyone with a user account. There will be three Zip files, one containing all of Anna Green’s photographs, and two others containing supplementary photographs from photographers Gregg Williams and Bart Benjamin. Unlike the photographs posted to Facebook, which slightly modifies all photographs for its pages, these photographs are the original photo files in their original sizes and resolutions. Plus, you can download the whole lot at once to your computer. [NOTE: This downloading process will take a few minutes, since these Zip files are large].

Finally, on behalf of GLPA, I offer a big thank you to 2019 Conference Photographer Anna Green.

. . . AND CONFERENCE VIDEOS!

Conference Videographer Tom Dobes has already posted the original LiveStreams of many of the 2019 conference’s paper sessions and presentations to GLPA’s YouTube Channel, which can be found at bit.ly/2KLaiSX.

On behalf of GLPA, I offer another big thank you to 2019 Conference Videographer Tom Dobes and his team.
PLANETARIUM SOCIAL MEDIA RESOURCES

GLPA’s Facebook page
www.facebook.com/glpasocial/
Administrators: Renae Kerrigan, Michael McConville, Tom Dobes, Paulette Epstein, Emily Hromi, Bart Benjamin

GLPA’s Twitter page
twitter.com/GLPAsocial
Administrator: Mike Smail

GLPA’s Instagram page
www.instagram.com/glpasocial/
Administrators: Michael McConville

Slack (Planetarians team)
planetarians.slack.com
Workspace Owners (for #glpa): Derrick Rohl, Mike Smail, Steve Burkland

The Dome Dialogues
www.facebook.com/groups/domedialogues
Administrators: Michael McConville, Derek Demeter, Anna Green, Renae Kerrigan, Dan Tell
GLPA Annual Business Meeting
University of Toledo
Toledo, Ohio
October 26, 2019

Present: Geoff Holt (President), Waylena McCully (President-Elect), Dan Tell (Secretary), Cheri Adams (Treasurer), Mike Smail (International Planetarium Society Representative), Bart Benjamin (Publications Chair), Tom Dobes (Technology Chair), Gary Tomlinson (Conference Planning Chair), Paulette Epstein (Membership Chair), Peggy Hernandez (Education Chair), Dave Leake (Development Chair, A/V Curator).

This certifies a quorum with more than half of registered members in attendance.

Call to order: The meeting was called to order at 11:20 a.m., Saturday, October 26, 2019, Geoff Holt presiding.

Mike Smail distributed the by-law revisions to the membership, as published in the GLPA Newsletter.

Reading of the Minutes: April Whitt moved to dispense with the reading of the minutes. Francine Jackson seconded. The motion carried.

David Parker moved to accept the minutes as published. Ken Quinn seconded. The motion carried.

Election: Dan Tell reviewed the by-law revisions as presented to the membership and published in the autumn edition of the GLPA Newsletter. The additional ballot question “Shall the membership of the Great Lakes Planetarium Association overturn the membership vote of 1990 and restore conference scheduling authority to the Executive Committee in coordination with the conference host?” was also reviewed.

Waylena McCully distributed the ballot for the election.

Sue Batson had a question from the floor about the mechanism of the IPS Representative in the election: would the IPS Representative serve a term before being replaced by the Inclusion and Outreach Officer or not? Dan Tell and Mike Smail clarified that the IPS Representative’s term would last for two years and the Inclusion and Outreach Officer would be voted in at the next election if the by-law changes pass. The original transition plan would involve IPS affiliate representatives serving for longer but the transition has been accelerated by IPS in the last year.

Sue Button asked who would handle communications with IPS after the conclusion of the next term? Geoff Holt said it would become a duty of the Inclusion and Outreach Officer.

Francine Jackson asked if IPS will accept or acknowledge this officer? Geoff Holt clarified there would be no formal relationship, but since the IPS wants GLPA’s news updates, they would work with the Inclusion and Outreach Officer in that way. Mark SubbaRao, President of IPS clarified: IPS, of course, wants a close relationship with GLPA and it’s always the affiliates choice how close that relationship is. GLPA’s new structure will be embraced.

Financial Report: Cheri Adams

Cheri Adams reviewed the balances of GLPA’s accounts:
GLPA’s financial status is very stable. Cheri Adams also reviewed that changing the organization’s fiscal year to end on March 31st significantly improved the clarity of our bookkeeping. There is now great consistency and predictability of our expenses and revenue. Cheri noted that the Checking Account and PayPal are where most money is moved, the Conference Account is no longer used and the Image Bank account has been decommissioned with Dave Leake’s retirement from Parkland College and is now integrated with other accounts. There is no change in the Gift Shop Account’s balance, as gift shop purchases now go through the PayPal account.

Cheri Adams thanked GLPA for the opportunity to serve in the capacities she has. She looks forward to continuing to attend the conferences, but this will conclude her term as Treasurer. Geoff Holt noted Cheri did amazing work organizing GLPA’s finances. The assembly applauds Cheri’s work.

President’s Report: Geoff Holt

Geoff Holt thanked the many individuals who he had the opportunity to work with during his presidency.

Geoff Holt noted the accomplishments of the organization over the last few years. Promoting inclusion and diversity has been close to Geoff’s heart, as well as the promotion of year-round professional development, both of which have improved through the work of Geoff, along with Paulette Epstein and Peggy Hernandez. GLPA’s Executive Committee has also been holding themselves more accountable with task management. Geoff Holt thanked the committee for all their progress.

The Award Winners for the year were:

- Mentor Award: Alex Mak
- Honorary Life Membership: Janet Beckstrom
- Service Award: Janet Beckstrom, Dave Leake, Gary Tomlinson
- Fellow: Paulette Epstein, Keith Davis, Buddy Stark, Shannon Schmoll

Secretary’s Report: Dan Tell

Dan Tell reviewed the publication of the minutes from the 2018 Business Meeting in the winter 2018 GLPA Newsletter.

Dan Tell thanked GLPA for the opportunity to serve in his time as Secretary.

Treasurer’s Report, Non-Financial: Cheri Adams

Cheri Adams reviewed GLPA’s incorporation status in Michigan, which is current. She also reviewed GLPA’s insurance policy, including the general liability policy for the entire organization and the director and officers’ liability policy.
International Planetarium Society Report: Mike Smail

The IPS Council meets once per year. Notes and write-ups from the last meeting were included in Mike Smail’s article in the most recent GLPA Newsletter.

IPS has instituted its new board structure. Elections for board members are in progress and open through December 2nd. The transition will occur next summer in Edmonton. North America will have two seats on the IPS Board.

Mark SubbaRao notes that contrary to earlier maps, Greenland has been moved to the Europe region.

Dayna Thompson and Jean Creighton are both representative candidates for North America from the GLPA region. An IPS member in North America gets two votes for their representatives.

IPS2020 will take place June 21-25, 2020 at Telus World of Science Edmonton, Canada. Registration is now open, with early-bird rates set at $479. The conference will be preceded by a two-day Fulldome Festival (June 18-19, $100), a one day IMERSA (June 20, $99), and a one day LIPS Workshop (June 21, $35). The official hotels cost $110-$150/night, and lower priced university rooms are also available ($60/night, not within walking distance of the conference). This will be the first North American IPS since Baton Rouge in 2012. The Canadian Dollar is currently down vs the U.S. dollar, which, coupled with the closer geographic proximity to GLPA, means this is shaping up to be the most inexpensive IPS in several years. Visit ips2020.twose.ca to register, or for additional conference information.

Mark SubbaRao confirmed Uber and Lyft are also available in Edmonton for informal transportation needs.

The only airport in the GLPA region with nonstop flights to Edmonton is Minneapolis-Saint Paul, although it is only a 20 hour drive from Toledo!

In Iceland, the 2022 host site was selected, St. Petersburg, Russia’s Planetarium 1. St. Petersburg is the cultural capital of Russia, and touts the Hermitage, the Museum of Cosmonautics, the Mariinsky Ballet, and the world’s largest planetarium, a 37 meter dome inside a 150 year old gas storage facility. $350 is the planned registration fee, with 10 preferred hotels that range from $50-100/night.

In the aftermath of the IPS2022 site selection process at the June 2019 IPS Council meeting, the IPS Officers are working to better define the balloting and voting process, and to increase transparency of the entire process. Related, the IPS Council has also approved two changes to the IPS standing rules. The first change elevates the Equity, Diversity, and Inclusion (EDI) Working Group to the status of a standing committee. The second change requires conference bidders to include a statement on EDI, and requests that conference keynote speakers reflect the diversity of IPS.

There is a GLPA site that will be bidding for the 2024 IPS conference: one of our international sites, the Siftung Planetarium Berlin.

Mike Smail reviewed IPS benefits of membership which include the Planetarian quarterly newsletter, IPS Conferences, access to the IPS Directory, online resources, voting rights, and involvement opportunities.

Jeanne Bishop asked if there were plans to run buses in Edmonton between the venues? Mike Smail said yes, the hotels are walking distance to the convention center, but further afield from TELUS and the Queen Elizabeth II Planetarium, so there will be busing to those locations.

Conference Planning Report: Gary Tomlinson

Geoff Holt recognized that Renae Kerrigan, as Deputy Conference Planning Chair, was accidentally excepted from the conference binder. Renae received a standing ovation for her work.

Gary Tomlinson thanked Tom Dobes and the A/V Team; Renae Kerrigan; and Janet Beckstrom for their significant work on Conference Planning.

Gary Tomlinson called on each state chair to review their election results and the date and locations of their meetings.

Ohio: Dale Smith was re-elected as state chair. The Ohio spring meeting Hoover Price Planetarium in Canton, Ohio, on April 18, 2020.

Indiana: Melinda O’Malley was elected as state chair. Indiana will join with Illinois at the Adler Planetarium in Chicago, Illinois on May 16, 2020.

Wisconsin/Minnesota: Jean Creighton was re-elected state chair. Wisconsin/Minnesota will also join Illinois and Indiana at the Adler Planetarium on May 16th, 2020 with an additional gathering in Milwaukee on May 15, 2020.
Reach for the stars... and beyond.

ZEISS powerdome IV

**True Hybrid with brilliant stars and perfect renderings from a single source**

ZEISS powerdome IV brings many new features to your star theater: an integrated planetarium for earthbound and extraterrestrial astronomy with seamless transitions between optical and digital star fields (True Hybrid) | The universe from Earth via the solar system and Milky Way galaxy to the very edge of the observable space | Stereo projection | 8k performance | 10 bit color depth for smooth gradients | HEVC codec for efficient video renderings free of artifacts | All constellation figures, individually and in groups without any mutual overlapping | Telescope function for deep-sky imagery applying Astronomy Visualization Metadata | Complete image set of all Messier objects | Customizable polar lights, comets with gas and dust tails, and shooting stars with a great variety of parameters for location, brightness, colors and appearance | Simulation of day and night with dusk and dawn coloring of sky and panorama images | Customizable weather effects such as clouds, rain, fog, snow, rainbow, halos, air and light pollution effects | Digital rights management to secure your productions | Remote service for quick help, and much more from the only company serving planetariums for nearly a century.

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Mobile: 314-303-1140  
Email: crau@seilerinst.com

Ken Yager, Independent Sales Rep  
Direct: 828-649-1018  
Mobile: 828-719-2209  
Email: kyager@seilerreps.com

1.800.489.2282 | www.seilerinst.com/divisions/planetarium

ZEISS Exclusive Partner
Illinois: Thomas Willmitch was elected state chair. Illinois will meet at the Adler Planetarium on May 16, 2020.

Michigan: Paulette Epstein was elected state chair. State meeting will be at the University of Michigan Museum of Natural History. Date is to be determined.

Beyond the Lakes: Mary Holt was re-elected chair. Beyond the Lakes does quarterly remote meetings, the next one will be before the spring GLPA Newsletter comes out.

Gary Tomlinson emphasized the membership should fill out the conference survey.

Mark Reed gave a presentation on the 2020 conference in Kalamazoo.

Mark Reed and the Kalamazoo team have been planning the conference for a few years as the hotel they chose had to be booked three years out. Kalamazoo is just south of Grand Rapids, and within a drive of the Grand Rapids, Chicago, and Detroit airports. The hotel is a little more expensive, but it is right next door to the museum.

The planetarium is 50 feet in diameter with Digistar 6 and an adjacent flat screen theater space. It will be easy to flow back and forth. As the museum is one block from the hotel, there will be no buses.

The audience thanked Mark Reed for hosting next year.

Keith Davis asked: if the vote allows us to have the banquet on Saturday, would that start next year? Gary Tomlinson said it would not, because the hotel schedule is already set.

Ken Murphy asked: where will GLPAs be in the future? Gary Tomlinson said no GLPAs are scheduled after 2020, Conference Planning is still working on it.

Renae Kerrigan added, the survey contains a place to say if you would like the conference to start earlier or later for future conference planning.

Mike Smail presented on a future opportunity that it is hoped will be a next giant leap for the planetarium community: a National Planetarium Conference, building on the successful Pleiades Conference in 2017. Mike Smail delivered the pitch for the National Planetarium Conference and the ambition to offer a national planetarium conference in 2023 and invited the NPC planning team to stand.

Geoff Holt asked GLPA’s Conference Planning team to stand to be recognized. Geoff Holt also thanked the Conference Hosts. The teams were applauded.

Development Report: Dave Leake

There were 21 sponsors this year, one less than last year. In the last 11 years, the high is 28 and low is 17. Of the 56 sponsor representatives, about two-thirds chose to become members, despite it being optional. GLPA featured 6 shows on Thursday night, many people stayed and the assembly was thanked for their attendance. This was the second year for the a la carte sponsor system. The conference featured 4.4 hours of plenary time; for comparison GLPA’s all-time low was 4.2 last year, and the highest was 7.5 hours. For the first year, the sponsor survey will also be digital.

A sponsor requested a list of customers attending the conference. GLPA does not release this information, but we will allow members to opt-in with an RSVP in for future years. GLPA will also try to promote more commercial workshops. If sponsors would like to host a commercial workshop at the conference, GLPA plans to make this easier.

GLPA really appreciates the sponsorships because they also keep the conference affordable. The assembly gives a round of applause for the sponsors.

Geoff Holt thanked Dave Leake for his service as Development Chair, as Dave is stepping down at the vernal equinox.

Education Report: Peggy Hernandez

The Planetarians Web Seminars are ongoing on the last Friday of each month. Those who catch it live can ask questions, and if not with a few clicks the recorded presentations can be found on YouTube. Seminars are under the “Get Involved” section of the GLPA website. Peggy Hernandez invites interested members to contact her about presenting or otherwise getting involved.

GLPA’s Executive Committee has also been talking about having more GLPA meetups online on focused topics to keep professional development going all year long. Peggy Hernandez is creating lists of topics and notifications will be
sent out as dates are selected. The GLPA grant project is still open and there is money set aside for grant projects. The application is a Google form on the GLPA website, and there are directions online to help those uncertain about the suitability of projects. The Education Committee will provide immediate feedback before the Executive Committee sees applications to help refine concepts.

The Next Generation Science Standards Astronomy Literacy Alignment Document is still a work in progress and the subcommittee is working through it to find NGSS aligned lessons for the planetarium at every grade level. Peggy Hernandez also hopes this will be a great document to justify or explain the service planetariums and planetarians provide to their communities.

Membership Report: Paulette Epstein
Come along on a journey to the stars with a new fulldome planetarium production featuring University of Illinois astronomer Jim Kaler.

**THE STARGAZER**

_Narrated by Dr. Jim Kaler and Nichelle Nichols_

(Chief Communications Officer Uhura from the original Star Trek)

This three-part personal look at astronomy begins with a child’s curiosity, moves on to the science of gravity, light, the spectrum, and how they help us decipher the lifestyles of the stars, then ends with reflections on the deeper meanings of astronomy in our own lives.

**RE-CREATED FOR FULLDOME!**

NOW AVAILABLE through the online store

- $150 – 4K resolution
- $100 – 2K resolution
- $50 – playable movie file

Customers can claim a $25 credit if they own the original version of _The StarGazer_. Each planetarium must ship an appropriate hard drive to GLPA. Show encoding is the responsibility of each planetarium.

37 minutes duration

Order _The StarGazer_ through the GLPA Online Store at glpa.org/online-store.
GLPA’s membership is currently stabilizing at 234 members. The all time high in 2017 during Pleiades was because GLPA was the cheapest option for sponsors, since membership was required for Pleiades attendance. There is some dropoff from sponsors no longer being required to be members. There has been an increase in the number of school planetariums that are members. As GLPA moves forward with the online professional development, Paulette Epstein hopes we can reach out to more school planetariums even if they can’t make it to the conferences.

Paulette Epstein added: the Executive Committee is working on making Conferences more inclusive, and she is putting together a wishlist of what we’d like to see consistently at conferences and how to work with future conference hosts on these needs. Paulette Epstein invited comments and submissions to this either in person or on the inclusivity channel on the planetarians Slack.

President-elect’s Report: Waylena McCully

Waylena McCully thanked the Nominations Committee: Katharine Acetta, Jackie Baughman, Chris Janssen, Melinda O’Malley, and Eric Schreur.

10 scholarships were awarded this year. Where applicable committee members abstained if they had a personal connection. Waylena McCully thanked Paulette Epstein, Emily Hromi, and Steve Burkland for their work on the Scholarship Committee.

Election Results:

President-Elect: Dan Tell
Secretary: Tiffany Stone Wolbrecht
Treasurer: Steve Burkland
IPS Representative: Mike Smail

Shall the Membership approve the proposed by-law changes? Yes.
Shall the Membership return scheduling authority to the Executive Committee overturning the 1990 vote? Yes.

Geoff Holt thanked all the candidates who ran for office.
Minutes of the GLPA Annual Business Meeting (cont.)

Publications: Bart Benjamin

Bart Benjamin thanked Dale Smith for his work on the GLPA Conference Proceedings. Advertisements for the GLPA Newsletter continue to be sufficient to cover printing costs with a slight surplus of approximately $440 annually. There are currently 10½ pages of advertisements.

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Newsletter distribution remained relatively consistent, with 74.8% of members opting for the electronic version and 25.2% opting for the printed version.

The most recent issue was GLPA’s 205th and the 127th issue edited by Bart Benjamin.

For the first time, this year the GLPA Conference Proceedings will have individual PDFs of each paper broken out from the whole. Bart Benjamin will include the title page on the individual papers. Geoff Holt also suggested linking these individual papers from the abstract page.

The upcoming edition will be the 36th publication of the Conference Proceedings and the 32nd edited by Dale Smith. As in recent years, it will be available only electronically as a downloadable PDF from the website.

Social media stats were reported as follows:

**Facebook** = 620 total follows, up from 595 last autumn. Administrators: Renae Kerrigan, Michael McConville, Tom Dobes, Paulette Epstein, Emily Hromi, and Bart Benjamin.

**Twitter** = 590 followers, up from 567 last autumn. Administrator: Mike Smail.

**Slack** = 45 members of #glpa channel, up from 34 last autumn. Workspace Owners (for #glpa): Derrick Rohl, Mike Smail, and Steve Burkland.

**Instagram** = 80 followers, up from 65 last autumn. Administrators: Michael McConville. Emily Hromi has stepped down as one of its administrators, and a replacement is currently being sought.

On behalf of GLPA, Bart Benjamin thanked each of these people for their valuable service to GLPA.

Bart Benjamin also thanked the state chairs: Jean Creighton, Mary Holt, Renae Kerrigan, Shannon Schmoll, Dale Smith, and Barb Williams for their service collecting and compiling state updates for the newsletter.

Bart Benjamin thanked Emily Hromi for her design work on the newsletter, especially the covers.

Bart Benjamin discussed the GLPA Design Subcommittee, whose goal is to work on consistency of brand-related graphics and enhance the quality of all GLPA design elements. Emily Hromi is the chair of this subcommittee. The first major project has been making changes to the GLPA logo. As a result of this work, the Executive Committee is recommending a change to GLPA’s logo and is asking the membership for its approval.

Geoff Holt reviewed the proposed change to the logo.
Ken Quinn moved GLPA adopt the new design for the logo. Keith Davis seconded.

Several comments from the audience on the specifics of the design were addressed during discussion. Geoff Holt and Dan Tell clarified the new logo design was a multi-year process between the Executive Committee and the Design Subcommittee, iterations had already been reviewed and this was being presented to the Membership for approval or rejection.

The question is called by Dave Parker. The motion carried with 12 nays.

GLPA will adopt the new logo.

Technology Report: Tom Dobes

Tom Dobes thanked the Membership for all of their tweets throughout the conference. He also thanked the audiovisual team for all of their work.

Tom Dobes discussed the addition of the photo book feature to the website, which was available at registration this year.

During membership renewal next year, there will be a new option during registration to list what technology they use in their dome to help connect members with similar technology with each other.

The GLPA website hosts some freely available shows from members. If one has a free show they are seeking hosting for, GLPA may be able to provide this as a perk of membership.

The Technology Special Interest Group talked about their interest in hosting assets for show production. If there are more GLPA members interested in this project, they are encouraged to join the #glpa_tech_committee channel on the Planetarians team on Slack.

Geoff Holt complimented Tom Dobes on the amazing quality of the GLPA livestream.

Old Business:

No Old Business.

New Business:

No New Business.

April Whitt moved to adjourn the meeting. There were several seconds. The motion carried.

The Business Meeting adjourned at 12:50 p.m., Saturday, October 26, 2019.
GLPA’s 47th newsletter and the fourth issue of 1979 contained the following articles and columns:

★ At GLPA’s annual conference in Minneapolis, Mrs. Armand Spitz addressed the members who were present. She was an invited speaker, not the Spitz Lecturer. Her presentation appeared in full in that issue of the GLPA Newsletter. [Ed.: For those who want to read it, the winter 1979 newsletter (and all other past issues) can be downloaded from our GLPA Newsletter Archive page (see link on the next page). Mrs. Spitz’s talk begins on page 44 of this PDF album].

★ Maxine Haarstick from the host Minneapolis Planetarium was Spitz lecturer that year. Her lecture, titled “A Letter to Armand Spitz,” was also printed in the winter, 1979 issue. [Ed.: For those who want to read it, the winter 1979 newsletter can be downloaded from our GLPA Newsletter Archive page (see link on the next page). Maxine’s talk begins on page 46 of this PDF album].

★ In an interesting cosmic coincidence, GLPA approved a new logo at the autumn, 1979 Executive Committee meeting in Minneapolis. The new logo was chosen to be the one that featured the constellations in a recognizable star field. It was noted that the transition to the new logo will be a gradual one, since there were still membership cards, stationary, envelopes, etc. with GLPA’s [original] logo on it.

★ GLPA’s biennial election was held at the Minneapolis conference, and the 1979-1980 elected officers were Lee Shapiro as President, Eugene Jenneman as President-Elect, Dorothy Angeloff as Secretary-Treasurer, and Lloyd Bodie as IPS Representative.

★ In response to the 1974 bestseller The Jupiter Effect, the GLPA Newsletter reported a refutation of this predicted catastrophe by Belgian astronomer Dr. Jean Meeus. The “Jupiter Effect” referred to an alignment of the planets on March 10, 1982 that (according to these authors) would create a number of catastrophes, including a great earthquake on the San Andreas Fault. Writing in ASP’s Mercury magazine, Dr. Meeus noted that the planets will not really be aligned, but instead would be on the same side of the Sun that year, but never spanning a distance of less than 95 degrees. But even if the planets were to line up, their cumulative effect upon the Earth would be negligible. [Ed. As you likely guessed, nothing catastrophic occurred on March 10, 1982].
The President’s Message from outgoing President Dan Francetic rings as true today and it did twenty years ago — “I had several chances during the conference to look out at the membership. The thing that struck me most is that our association is comprised of some of the most creative people a person could ever meet. Every one of you — whether you run a one-person operation or work as a member of a large team in a major planetarium facility — is blessed with creativity. I have always said that, ‘if you gave 100 planetarians the same program to use in their facility, it would be run in 100 different ways, and all of them would be done wonderfully.’ No two planetarium facilities are identical. No two planetariums have the same sets of projectors, the same sound systems, nor the same capabilities to do special effects. A person without creativity would not be able to survive as a planetarian.”

At the GLPA Conference in Kalamazoo, six members were awarded the distinction of GLPA Fellow, including several current members — recently retired Dr. Ron Kaitchuck, recent conference host Alex Mak, incoming Development Chair Kris McCall, and 2020 Conference Host Mark Reed.

The winter 1999 GLPA Newsletter announced that IPS was now offering a slide service, which would “provide subscribers with a selection of high-quality astronomical slides. These include photos taken by the Hubble Space Telescope and space mission images released by the Jet Propulsion Lab. By special arrangement, the HST slides will be first-generation images. This centralized service replaces the former system in which the slides were distributed by the regional planetarium associations.”

In a related announcement, IPS announced that it was also offering planetarians IPS Laserdisk #1, which featured 72 minutes of superb video sequences released by the European Space Agency. The dozens of clips included a variety of launches, timelapse scenes of terrestrial weather and solar flares, several Cassini-Huygens clips, and animations of a dozen spacecraft, including Meteosat, Soho, Ulysses, and Hipparcos.
The Great Lakes Planetarium Association acknowledges the following companies and organizations for their generous support in Fiscal Year 2019 - 2020:

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MARS
ONE THOUSAND ONE

Christmas Eve 2034
THE GREAT LAKES PLANETARIUM ASSOCIATION (GLPA) offers membership opportunities to all individuals in any way connected with the operation of planetariums regardless of geographic location. GLPA is an affiliate of IPS (International Planetarium Society), NSTA (National Science Teachers Association), and IMERSA (Immersive Media Entertainment, Research, Science & Arts). Membership dues are $20 annually, payable at the time of the Autumnal Equinox. General correspondence should be addressed to the Secretary, and requests for membership should be addressed to the Membership Chair (see below). The quarterly GLPA Newsletter is received by all members in good standing. Ideas and opinions expressed in the GLPA Newsletter are not necessarily those of GLPA, its membership or the editor. Deadlines for contributions fall on the 1st of February, May, August, and November. Send information to GLPA Newsletter Editor (address below). Copyright © 2019.

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