

Southern Skies

Volume 39, Number 4 Journal of the Southeastern Planetarium Association Fall 2019




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Mel Blake
Department of Physics and Earth Science
University of North Alabama
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At long last, the fall edition of *Southern Skies* arrives. I had some time management issues this term that caused the delay, so to paraphrase CCR, point the cannon at me. I became the Zone 6 Councilor for the Southeast region of the Society of Physics Students, and it has turned out to be a bigger role than anticipated if I want to do it justice. I think I have things set up in a manageable way now and should be able to get *Southern Skies* out in a more timely manner.

Speaking of time, this issue marks the three year anniversary of my taking over as editor of *Southern Skies*, and it has been quite a learning experience. I have made lots of mistakes, but also made some good friends who have helped give me advice and encouragement. We have gone digital and I am learning InDesign over the holidays to try to add some colors and better look to the journal. So hopefully the 2020 issues will have a better look and feel. Suggestions are always welcome.

Three years also means that the process of getting the journal indexed can begin in earnest. I wrote previ-

ously that to get indexed you have to have three years of continuous publication. We now meet that threshold. I will be reaching out to the NASA ADS and others to see what the next steps are. The benefit of this is that it will make the journal searchable, and appear in citation indexes. People who might be interested in the history of different planetariums or and museums will be able to access and find articles easier. This will also open up the possibility of having refereed papers in the journal. Those who apply for grants to help fund their programs often need refereed publications to bolster their chances, and those who work at universities depend in part on publications for tenure and promotion. We are such a specific field that targets such varied audiences, that encouraging research on best practices is certainly needed and few papers in education journals seem to exist addressing planetariums - I've looked!

Indexing will also motivate the efforts to complete the scanning of all previous *Southern Skies* issues so that such searches can be as complete as possible. So lots to do for 2020.

Best wishes to everyone for a great 2020. I look forward to seeing you at SEPA 2020.

Mel Blake

Submit your Articles!

Do you have a great activity to engage your audiences? Have you devised a cool gadget or do-it-yourself upgrade that you would like to share? SEPA would love to hear about it and share your knowledge.

We can receive electronic files in most any format. Graphics can be received electronically or in hard-copy, including slides or photos, and will be converted to digital with sufficient resolution.

Submission deadlines: Jan 1 (Winter), April 1 (Spring), July 1 (Summer), Oct 1 (Fall).

IPS REPORT

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Vision 2020 and Restructuring issues

The Vision 2020 initiative, chaired by Jon Elvert, labored over the past 4-1/2 years researching major changes to IPS with the purpose of increased growth, and increased benefits and services to members. All components of Vision 2020 are planned to be 100% integrated by the time of the next IPS Board meeting, June 22 and 23, 2020.

IPS is in the final stages of a major restructuring plan. Current regions will retain IPS representatives, but rather than reporting directly to IPS at annual IPS meetings, will instead report to continental representatives. The continental representatives will be elected from newly determined international, regional boundaries. Note that representatives to IPS will now be called "Board" members. Under the restructured arrangement SEPA, including the other US regions as well as Canada, will elect a total of 2 individuals to represent North America. The number of representatives is based on IPS members in a given defined region. Europe and Asia will also have 2 representatives, while South America, Africa, and Australia will have 1 each.

The candidates for North America were announced by IPS after the previous issue of Southern Skies was published. The deadline for voting is midnight, December 2. The candidates are as follows:

Jean Creighton
Levent Gurdemir
Benjamin Mendelsohn
Dayna Thompson
Michele Wistisen

Candidate profiles and ballots are available at the IPS website. If you are a current IPS member, I urge you to read the profiles and vote for the two individuals that you feel will best serve the SEPA region.

SEPA Council will research changes required by the new IPS governing structure to our current position of IPS council representative.

Director of IPS Operations

Kristen Lepine Dos Santos of Managing Matters of Toronto, is the newly established, Director of IPS Operations. Dos Santos is a Certified Association Executive and is experienced in working with member-based organizations. She currently sends out a monthly IPS Newsletter, and is a liaison between the IPS Committees. She reports to the IPS Officers.

The new governing structure of IPS will become effective on the advent of the 2020 Council meeting to be held in Edmonton, Canada on June 20-21, 2020.

Conferences:

IPS 2020

The Tellus World of Science in Edmonton, Canada will host the 25th IPS Conference, June 18 to June 25, 2020. Registration is already open. Additionally, a Fulldome Film Festival, a oneday IMERSA Summit, and a one-day LIPS workshop will be held on adjacent dates. For current conference details, sign up for the IPS 2020 e-newsletter at <IPS.twose.ca>

IPS 2022

Two sites submitted bids for the 2022 IPS conference; Houston, TX and Saint Petersburg, Russia. After much discussion and deliberation, Saint Petersburg, Russia was selected in a close race. Subsequent to the selection, concerns were raised about the safety of LGBT+ attendees.

IPS President, Mark SubbaRao continues to work with the Russian conference hosts to address the safety concerns of all conference attendees. Efforts to avoid a possible boycott are also being addressed.

Continued on page 8

BOOKENDS

Robin Byrne
Northeast State Community College
Blountville, TN

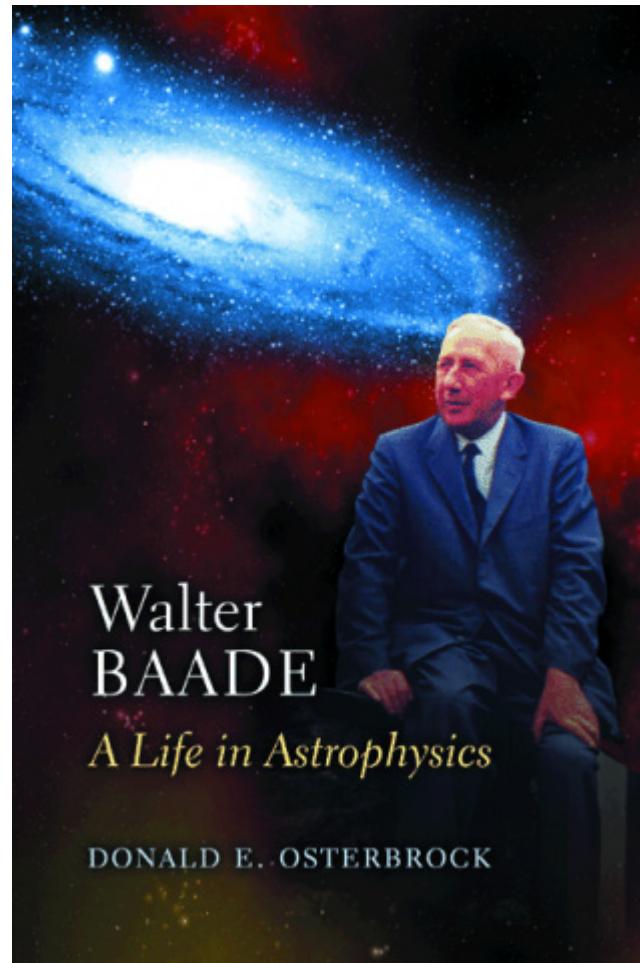
Book Review: Walter Baade *A Life in Astrophysics*
reviewed by Robin Byrne

Sometimes it pays off to have eclectic taste. At the last Southern Star Astronomy Conference, there were many door prizes, but the one that caught my fancy was a book titled *Walter Baade A Life in Astrophysics* by Donald Osterbrock. I excitedly put my name in. Turns out I was the only one who wanted it, so I was the de facto winner! And I truly was a winner to have the opportunity to read this book.

I've taught my Astronomy 2 students about Walter Baade for ages, but this book gave me a more complete picture of the man and his accomplishments. The story begins with his early life in Germany and college career. From the beginning he was interested in studying stars. This would be a theme throughout his career. Baade also developed his exceptional observational skills while in Germany.

It didn't take long for Baade to become known outside of his home country. Between his publications and a trip across the United States to visit various observatories, Baade made himself known to several influential astronomers. It was through these connections that he was offered the opportunity to work on the staff of Mount Wilson Observatory. At the same time, Baade was offered the position of director of an observatory in Germany. While the directorship was tempting, the lure of larger telescopes under much clearer skies was too much of a draw, so Baade moved to the U.S. with his wife. The timing turned out to be serendipitous. A few years later, Hitler and Naziism rose to power.

During World War II, because Baade was still a German citizen, he could not join his Mount Wilson colleagues to work on war-related projects. Instead, Baade had almost exclusive access to the Mount



Wilson telescopes. He made good use of that time, setting the groundwork for his most famous discovery. It was during this time that Baade began to notice different characteristics between stars in the halo of the Milky Way compared to those in the disk. This was the beginning of his classification system of halo stars as Population II and disk stars as Population I. It would take many more years, and collaboration with many other astronomers, before it became clear why they were different. Stars in the halo are first generation stars, made primarily of hydrogen and helium. Stars in the disk are later generation stars, enriched with heavier elements created by the previous generations of stars. This discovery influenced research not only into stellar evolution, but also into the formation and structure of galaxies. Most of Baade's career was spent refining his discoveries and studying other galaxies, such as Andromeda and the Magellanic Clouds,
continued on page 8

CHRONOS II has a new blue home

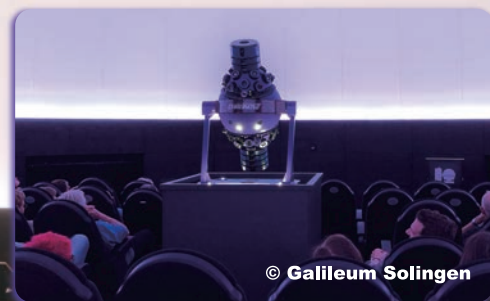
On July 5, 2019, the new Galileum Planetarium in Solingen Germany was officially opened with a series of enthusiastic community celebrations. The road to that opening began in 1921, when local high school science teacher Walter Horn formed the Astronomical Club of Solingen, which built a small observatory. 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 full-dome 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 signaling an exciting new future for the Galileum Solingen!



GOTO HYBRID PLANETARIUM
CHRONOS II

* Background Photos: Courtesy of Norman Schwarz, Galileum Solingen



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Future IPS conferences

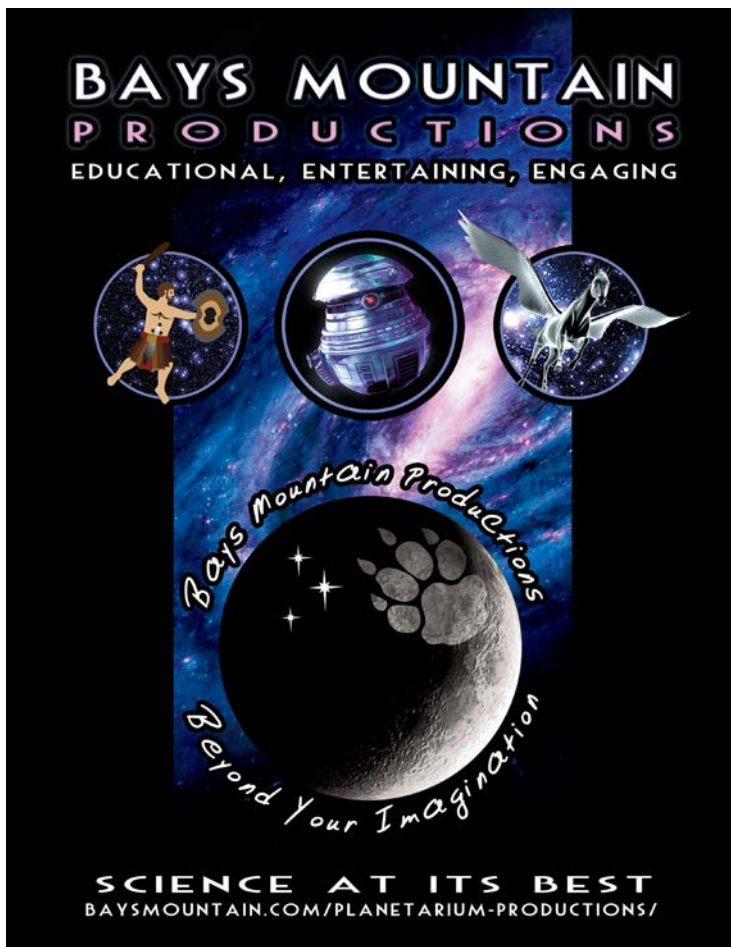
Invitations for the 2024 IPS conference must be received by the IPS President by July 1, 2020 or one calendar month prior to the next IPS Board meeting.

100th Anniversary of the planetarium

A year-long Centennial celebration of the world's first modern planetarium projector will take place in 2023. Bjorn Voss, director of the LWL-Planetarium in Munster, Germany, has gathered a committee of experts on the original Zeiss projector as well as others that followed.

I encourage you to visit the IPS Website for more information about IPS and its many initiatives; www.ips-planetarium.org.

You can obtain IPS membership forms from IPS Treasurer Ann Bragg at ann.bragg@marietta.edu, myself at johnhare@earthlink.net, or at the IPS Website, www.ips-planetarium.org



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to better understand the processes behind the stars' characteristics.

As we learn about Baade and his life, we also meet other astronomers who worked with Baade. Such names as Hubble, Zwicky, Sandage, and Bok all appear in Baade's life at different times. Included in that list is the book's author, who began working with Baade in the 1950's and was a close friend. I don't know if that friendship influenced how Baade was portrayed, but Baade definitely came off looking better than many of his colleagues. He was described as a great story-teller who inspired many young astronomers both during his presentations at conferences and through informal conversations. Because Baade's position was with the observatory, he didn't have a formal teaching position, but he did serve as a PhD advisor for two students during his time in Pasadena.

Osterbrock's writing style throughout the book was very readable and enjoyable. I will say that he seems to assume a certain level of knowledge of astronomy above the average lay-person. He definitely wrote for a target audience of people who know astronomy and who have heard of Baade. But even an introductory college course in astronomy should be enough to prepare a reader for Walter Baade A Life in Astrophysics. So don't be afraid, you'll enjoy it.



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Paul Campbell Fellowship Award Nomination Form

Nominees must have been a member of SEPA for at least ten years, and they must display qualities in each of five areas, as represented by the five-pointed star shaped award: integrity, friendship, service, knowledge, and vision. Please submit this form to any SEPA Council member.

Nominee's Name: _____

Qualifications: _____

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The Second Labor: The Lernean Hydra

by

Woodrow W. Grizzle III

δεύτερον δὲ ἄθλον ἐπέταξεν αὐτῷ τὴν Λερναίαν ὕδραν
κτεῖναι.

The second labor put upon him was to kill the Lernaean
Hydra.

[Pseudo]Apollodorus, Bibliotheca 2.5.2; trans. by Wood-
row W. Grizzle III

With the pelt of the Nemean Lion draped across his back, Herakles bade good-bye to Molochos, and departed Nemea in search of his second labor.

As one nears the eastern shores of the Peloponnese, coming down from the mountains south of Argolis, one eventually comes face to face with the breathtaking sprawl of the fields of Lerna. The fields of Lerna were infested with all sorts of dangers, and it is a region known for its many springs, all of which, until about the 19th century, drained into a large, deep lake. The water here is slightly caustic, cutting countless caverns and subterranean canals into the earth before springing forth to the surface and draining into Lake Lerna. The caves themselves are twisted labyrinths running deep into the earth—so deep, in fact, that the waters flowing through them have the river Styx as their source.

It is their association with eternity that gave Lake Lerna's waters the ability to heal many ills. That same association, however, made the lake very dark, deep, and cold. Though limpid near the shore, the waters quickly became deeper blue going farther from shore, darkening to near-black at the center of the lake.

As if the cold depth of the waters was not danger enough, Lake Lerna was home to a creature so fearsome that few dared to even speak its name: "Υδρα (Hydra)! For years, the Lernean Hydra terrorized the small hamlets around the lake. It's breath and blood were pure poison: even smelling the beast was deadly! The Hydra was a fearsome, multi-headed water serpent that could only be slain if a hero could manage to sever all of its heads. The problem was that, upon cutting off one head, two grew back!

Herakles was climbing down from the mountains, walking by the still waters of the spring of Amy-mone, when he heard it—the most ghastly cry that ever met his ears. He turned around, and, realizing the sound was coming from a cave at the headwaters of the spring, knocked a fire arrow and let it fly into the cave. Nothing. A second shot brought nothing, too. The third shot was the key; no sooner did the third fire arrow disappear into the darkness than the unearthly screams grew deafening, and the hideous Hydra slithered out of the cave like black-inked lightning!

Temporarily stunned by the beast's pungency, Herakles realized that he may be in trouble. "Cut off ALL the heads... use THIS—NOW!," a voice rang out. It was Athena! Herakles looked up, and saw a golden sword hovering over his head. He took it in hand, and with one swift stroke, removed two of the Hydra's heads.

Much to Herakles' dismay, TWO MORE heads grew back from the stump where each severed head had been! Instead of subtracting heads, he was actually adding heads by chopping them off! The hellish Hydra continued to lunge and spit as Herakles dodged its strikes; for though he could dodge the beast easily enough, he could not seem to make any headway toward killing it, and Herakles knew that his own strength would eventually tire from all that dodging.

In frustration, he sliced violently at the beast. A spray of the Hydra's acrid blood plumed outward and landed on Herakles' thigh. The burn was painful, but it gave the hero an idea. He decided to see if he could use the Hydra's own blood against it.

Just then, the beast lunged a head forward, striking at Herakles, who jumped back in the nick of time, parrying with a deft swing of the golden blade. In the blink of an eye, the offending head lay wriggling on the ground. Quickly, Herakles thrust his sword

down the neck where the head had been, coating the blade with the Hydra's caustic blood. Withdrawing the blade, Herakles smeared it over the stump. The flesh burned and sizzled. The acid cauterized the wound—no new head would ever grow there!

Herakles, delighted, went about dodging, slicing, thrusting, and smearing in this way until only one head remained. Just as his own strength was at its end, he swung the golden blade one final time—SWOK! The deathblow, and final head of the “immortal” Hydra lay wriggling and spitting at Herakles' feet.

The Hydra's final head refused to die along with the rest of its body. So, after a short rest, Herakles put the the last head in a sack and took it with him. On the old sacred road that leads out of Lerna toward Elaius, Herakles found a giant rock. Thinking that this rock would be an appropriate crypt for the Hydra's remains, he took the last head out of the sack, dipped the rest of his arrows in its poison blood, threw it onto the ground, and rolled the great rock onto it.

Herakles took a deep breath, sighed, and walked off into the sunset to find his next labor—unless, of course, it found him first...



GUSTAVE MOREAU, *Hercule et l'Hydre de Lerne* (Hercules and the Hydra of Lerna), 1876. Oil on canvas, 60 5/8" x 70 5/8". Art Institute of Chicago. Digital Image courtesy The Yorck Project: 10.000 Meisterwerke der Malerei, 2002.



EAGLE PAINTER, Herakles battling the Lernean Hydra, detail of black figure hydria from Caere produced by the Eagle Painter ca.525 B.C. Black figure terra cotta. J. Paul Getty Museum, Los Angeles. Digital image courtesy Xenophon via creative commons license, 2017.

News From the SEPA Region Fall 2019



East Kentucky Science Center and Varia Planetarium.
Prestonsburg, KY.

Steven LJ Russo, Director, reports: But of course, the big event was the 50th Anniversary of Apollo II. We celebrated “Moon Month’s” during July and August, showing the planetarium program, “CAPCOM GO! The Apollo Story”, by NSC creative, at our 2:00 show every day. It was accompanied by a short laser presentation about Apollo II, produced by Audio Visual Imagineering. The laser presentation was also shown before every laser show during July and August. In our Exhibit hall, we had the pictorial exhibit, “Many Inspired Steps”, produced by Tom Lesser and distributed by AVI. Also in our exhibit hall was a display case with Apollo II memorabilia, that was part of my personal collection for the past 50 years. Our Astronomy Summer Camp concentrated on the Moon Landings, with the campers building and



launching rockets at the Science center.

The highlight of Moon Months was Lunar rock and soil samples that we received from NASA from July 8th through July 22nd. They were brought back from the Moon by the Apollo 15, 16, and 17 missions. Over 500 people showed up from six different states to see the samples and have their picture taken with them.

As this is written, we are gearing up for all sorts of Halloween programs in October and our Science Fair in November.

Morehead State University. Morehead KY.

Alanna Cavins, Student reports: We now offer public shows every Saturday rather than just once a month. Our public shows are in addition to reservations by schools and community groups during the week. To raise awareness about changes to programming, and the hiring of a new Planetarium Director, Shanil Virani, we have put a greater emphasis on using our social media platforms to engage with our community.

Our Planetarium team is also committed to visiting local schools and museums to raise awareness about science, the importance of aerospace to Kentucky, and to highlight opportunities to pursue careers in science. Our Planetarium student operators are also doing hands on science outreach with after-school programs. To help with our extended outreach efforts, we are

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currently recruiting several candidates who are exceptional Morehead State University students spanning a wide variety of interests and talents from astrophysics to previous work at the Kentucky Challenger Center. Next month we plan on hosting a special event in the planetarium since Halloween falls on a Thursday. We will begin the night by doing a live showing of “Astronomical Origins of Halloween”, followed by telescope viewing with other family activities, and ending the night with our “Fright Light” laser show (featuring songs such as The Monster Mash and Thriller). We plan on hosting monthly public star parties in order to educate and inspire the local population on topics in astronomy special to our spot here in Kentucky.

What truly makes the Space Science Center unique within the state of Kentucky is not just our Star Theater but that we also design, build, and test CubeSats. Our current flagship project is our Lunar IceCube satellite which we are racing to complete. The satellite will fly as part of NASA’s Artemis-1 mission that is currently scheduled for launch in late 2020/early 2021. This is an uncrewed test flight of the Orion multi-purpose vehicle that will be launched on the first flight of the Space Launch System that will return Americans to the Moon in 2024. Our nano satellite mission will fly as part of that test flight. Lunar IceCube is a 6U CubeSat designed to prospect lunar for water in solid, liquid, and vapor forms and other lunar volatiles from a low-perigee, highly inclined lunar orbit. The latest paper highlighting the science we aim to perform with our satellite was published in the April 2019 edition of IEEE’s Aerospace and Electronic Systems Magazine. Our team of engineers and students are working hard to get the satellite finished that is being built right here in Kentucky!

Lastly, we debuted a new podcast that also airs on our local NPR affiliate. “Our Island Universe” is a weekly 3-minute segment looking at new discoveries in our understanding of what lies beyond the horizon and what it means to us here on earth. Parts science, history, physics and pop culture, it’s designed to inform, educate and entertain. Our Island Universe is a partnership between WMKY and Morehead State University’s Space Science Center. You can find episodes on SoundCloud and online at WMKY via: <https://www.wmky.org/programs/our-island-universe>

Remember to send me any info on new programs or any other special events, for publication in Southern Skies. srusso0002@kctcs.edu



Bays Mountain Planetarium, Kingsport, TN

by Adam Thanz

Astronomy & Space Sciences Program Coordinator
- Planetarium Director

Adam Thanz reports: Greetings Fellow Planetarians!

- Planetarium Shows -

Our main program is currently “The Transit of Mercury featuring ‘Solar Quest.’” “Solar Quest” is a short that comes from the Buhl Planetarium at Carnegie Science Center. “The Transit of Mercury” show is our own production with a live presentation style, created by our own Jason Dorfman. In addition to a live sky tour, we’ve also added an activity that engages the audience with a scale model of the Earth/Mercury/Sun system and the precision needed for a planetary transit. This should add to our audience’s understanding of some basic principles of our Solar System. This program will end with the actual Mercury transit on November 11. We’ll be providing a free viewing at our observatories from 10 a.m. - 1 p.m.

The next main program will start mid-November and it will be “Einstein’s Gravity Playlist.” It’s our first show that covers gravity and gravity waves. We’ve already had educators schedule visits with this show in mind!

Our alternate programs offered at 2 p.m. on weekend days is currently our live tour of the night sky called “Appalachian Skies - Fall.” That will run until the end of October. November sees a return of



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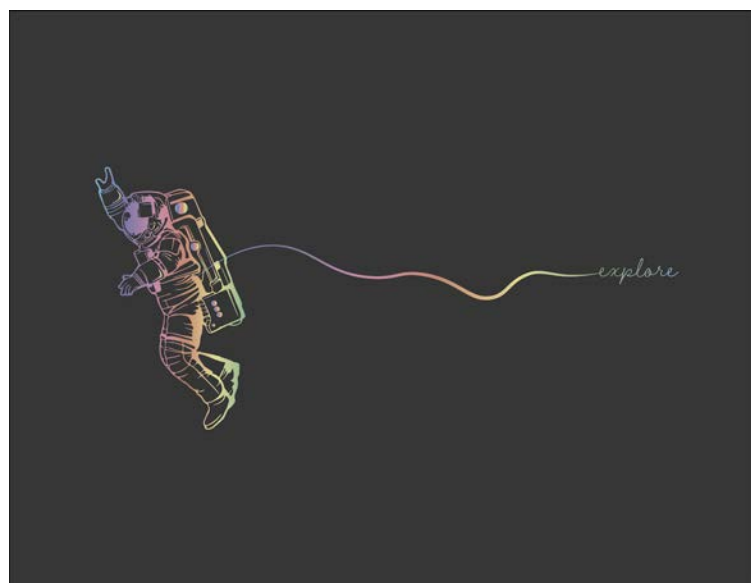
our in-house production of “Under the Milky Way.” It’s a really good show, also from Jason Dorfman, that looks at the structure of our galaxy, what can be found within it and also looks at the Chinese star lore (or should I say star love story?) about the Milky Way “river” separating two star-crossed lovers.

We are also providing our regular, October-November StarWatch observation program. It is free and held on Saturday nights at dusk. If poor weather, we meet in the planetarium. It’s lots of fun to work with the public in learning about the real night sky.

- StarFest 2019 -

Our annual StarFest event occurs on October 18-20, 2019 this year, at the height of fall colors! Registrations are coming in as I write this. I know we’ll have a great time as always. This year’s theme is “Exploring the Spectrum.” So, we will have four speakers that do astronomical research in different parts of the EM spectrum.

Here is the great artwork for this year’s StarFest t-shirt. The art is by Lindsey Conrad from our exhibits department.



SF19 - Final T-shirt Front Logo Exploring the Spectrum

The speakers are:

- Dr. Chuck Higgins MTSU “The Radio Universe”
- Dr. Erin Smith JWST Goddard Space Flight Center “The Infrared Universe...”
- Dr. Tyson Littenberg Marshall Space Flight Center “Tuning in to Einstein’s Universe” (Gravity Waves)

- Dr. Stephen P. Reynolds NCSU “Exploring the Spectrum of the Remnants of Stellar Explosions”

Registration with payment includes the four keynote speakers, five complete and hearty meals, a T-shirt with unique art, access to all the event’s activities, and much more! See the image of this year’s t-shirt art with this article.

- SEPA 2021 -

If you don’t yet know, Bays Mountain has been awarded the bid to host the 2021 planetarium conference! We are very proud to have this honor and responsibility. As such, I’ve been a busy beaver. I started planning for this event at the end of 2018. At this time, there has been a lot of planning and research into creating a great event with lots of educational opportunities, technology/vendor interaction, yummy food and of course, lots of fun. I have a number of fabulous surprises planned that will make the event THE conference to attend in 2021. Mark your calendars for June 22-26, 2021. A hint of things to come: A special educational opportunity will occur on the Monday, June 21.

As of about a week ago, I can now officially announce that the conference will be thrice as nice as both MAPS & WAC will be joining us. I really feel that, every once in a while, that each region gets a major boost of energy from interacting and learning from our fellow planetarians in other regions. The 2019 conference in Columbia easily demonstrated this. I think the best part of the event was the opportunity to meet and work with those from other regions. At this point, the event will be called: SEPA/MAPS/WAC 2021.



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4096 x 4096 Pixels
Domes up to 80 feet



Planetarium Lafayette Science Museum Lafayette, LA

Dave Hostetter reports: Like everyone else, we had our Apollo 11 celebration in July and our Apollo-Palooza was very successful. It helped make this a good year so far for the planetarium—it does not look as if we will match last year’s overall attendance (the highest annual planetarium attendance in our museum’s history), but we are running close to it.

This year is the Lafayette Science Museum’s 50th anniversary. The Museum has had several anniversary-related events throughout the year, with the official evening celebration in September (tomorrow night, in fact, as this is written!).

October will be Louisiana Archaeology Month with October 19 as International Archaeology Day, and one of the programs we will feature that month will be the Interact “Stonehenge” program based on the PASS Classic from Lawrence Hall of Science. We have done presentations about archaeoastronomy for the last several years during October.

Along with several other SEPA observatories, weather permitting, we are planning to livestream the transit of Mercury on the morning of November 11. We plan to have a page on our web site with links to all the SEPA (and MAPS) participating observatories and hope to have it on the SEPA web site also. Watch for more information as we get closer to November 11.

Irene W. Pennington Planetarium Louisiana Art & Science Museum Baton Rouge, LA

Jay Lamm reports: Over the summer, we celebrated the 50th anniversary of the Apollo 11 Moon landing with our special “One Giant Leap for Mankind” event. We debuted our newest large-format film, *Apollo 11: First Steps Edition*, and we also had a display on the Moon landing in our Science Station, authentic lunar samples and related hands-on activities in our Atrium, plus a visit from the Solar System Ambassador, Linda Gauthier.

The following week was our Shark Week event, filled with ocean-themed movies in our auditorium and special presentations in our planetarium such as *Kaluoka’hina*, *The Enchanted Reef*, and *Secret Ocean*.

On August 1st, as part of our Art After Hours evening program, we had a very special planetarium presentation featuring Connor Matherne. As part of our newest interactive OmniGlobe exhibit, *Astral Visions: Photographs by Connor Matherne*, we hosted a live talk and demonstration in the planetarium with Matherne and his photographs. Matherne talked about how he began as an astrophotographer, the equipment he used at his start and what he uses today, and how he captures his images. We were able to complement his presentation with full dome images of his deep-sky photos, videos and animations as examples of what he was talking about, and we even collaborated with him on new images that he wanted displayed on the dome. The event was wrapped up with a question-and-answer session both in the planetarium theater and at the OmniGlobe exhibition.

Soon after this event, we had our Woodstock 50th Anniversary in the planetarium, a night filled with visual music shows featuring the return of the very popular Pink Floyd *eXperience*. It was the first time we were able to pre-sell tickets online and over the phone and the first time we were able to have a bar during a special planetarium event. Each guest got a two-drink wristband for wine. Before and after these shows, they were able to go to

continued from page 18

our bar to enjoy what we had to offer and socialize on the catwalk overlooking the Mississippi River levee. The night started off with the premiere of America's Musical Journey, followed by Laser Beatles, and finally capped off with the Pink Floyd eXperience.

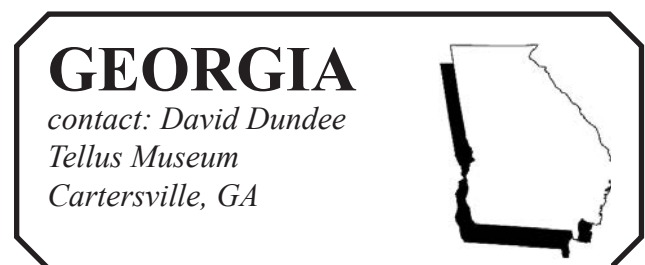
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There's still a lot to look forward to. October means that we will be having our annual "Halloween Day at the Museum" event. This special event has been growing since we started it four years ago. The interest on social media for this event has already far surpassed last year's interest, engaging over 6000 people on the Facebook event page. Guests will be able to make their own magical wands, monster bookmarks, straw-powered spaceships, and Howlers. Our guests can also enjoy a Butterbeer at our Leaky Cauldron bar while dining on some interesting Every Flavor Jelly Beans. They can take a selfie at our custom Platfrom 100 $\frac{3}{4}$ photo-op station while decked out in costume decorations we supply. We'll have special planetarium presentations of our very own in-house productions The Worlds Within Star Wars and the presenter-led Astronomical World of Harry Potter. At the end of the Potter-themed shows, guests will be able to win their very own O.W.L. certificate after engaging in an interactive planetarium quiz.

Also in October we will participate in International Observe the Moon Day with hands-on activities and lunar themed planetarium shows. The day will begin at 10 a.m. with a special educator-led Family Hour Stargazing around the "planetarium campfire." A special Moon landing display will be in our Science Station Gallery and Solar System Ambassador, Linda Gauthier, will once again be here to interact with our

visitors and provide the latest NASA information about going back to the moon.

Aside from that, we have an ever-revolving line-up of planetarium shows to choose from. Our current list of shows include *Apollo 11: First Steps Edition*, *Cosmic Colors: An Adventure Along the Spectrum*, *America's Musical Journey*, *Back to the Moon for Good*, *Dinosaurs: Giants of Patagonia*, *Dream Big: Engineering Our World*, *Flight of the Butterflies*, *Magic Tree House: Space Mission*, *National Parks Adventure*, and *Earth, Moon, & Sun*.

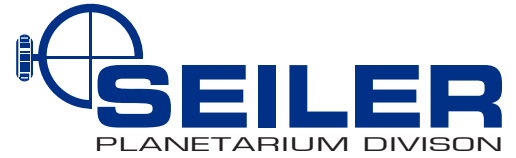


**Bentley Planetarium - Tellus Science Museum,
Cartersville**

David Dundee reports: We had a busy summer we ran "Birth of Planet Earth" & "Faster than Light" plus "Accidental Astronauts". We also ran three live sky tours daily. On July 20 we had a special 50th anniversary Moon landing day. We started with a rocket building workshop and launched 90 rockets. We had various family Moon activities including build your own lunar rover, lunar rover test track, Moon stories, and touch a Moon rock. In August we had our 11th annual "Night at the Museum" hosting characters from science and science fiction. Yours truly as Galileo was prowling the halls entertaining our 750 guests that night. Ms. McGonagall hosted guests in the planetarium that night. In September our school programs began and we opened in the planetarium; "We Are Stars", "Wildest Weather in the Solar System" and "One World One Sky" along with our daily two or three live shows. Tellus hosted our first Zombie prom, over 250 Zombies danced and visited the planetarium. (Do dead people count as planetarium attendance?)

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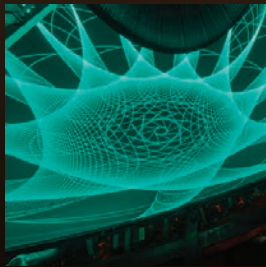
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Georgia Southern Planetarium, Statesboro, Ga.

Dillon Marcy reports: The Planetarium this time of year is in full gear and is almost booked solid for the rest of the year. We always have that two-week itch between the beginning of our semester and when the schools start to reserve days at the planetarium. It is the same routine every year, but we always worry when people will start sending us reservations. Luckily it went by quickly, and we have only a few days left in November left before we reach capacity and start sending people to reserve for the spring. We have lots planned so far this semester with our three public events this semester. We look forward to presenting in October Rock the Dome Classic for our students. In November we will be playing Cosmic Recipe and accompany it with a presentation by one our interns and his talk on what is happening inside a star of different masses. Finally, we will finish off in December with Let It Snow which already has a large following on Facebook for this yearly event.

It is hurricane season here in Southeast Georgia, and we were extremely lucky we did not have to deal with Hurricane Dorian. We were shut down for the week it passed, and we were spared any damage to our campus. We still have awhile left in the season, so fingers crossed we will not have any more hurricanes threaten us. Though as I write this we have hurricane 10 forming with its path looking to head straight for us.

Along with our public events this semester we once again have two interns working with us this semester. One intern as his project for the semester will be a presentation all about the interior in stars. More specifically he wants to delve into the different layers of fusion occurring and how different stars achieve this. To do this we figured we were going to need to make some images to show in stars, but instead of finding them online we've gone into creating them ourselves in Blender. We have been learning the ins and outs of blender since April and are confident in our ability to use it with the results. We will see how this turn out and if we are happy with it we will be sure to share what we've done.

This semester we are joined by a new intern who has exceeded our expectations with an avid interest in astronomy and rocketry. He is currently in the process of learning how to use Digistar and working on one of his required presentations by working on a vignette of gravity assists and what it takes to get a spacecraft to a different planet. We are sure there will be a lot more to report to everyone this winter when we are through with most of the semester. I imagine we will have some pictures to show at that time of our blender creations and presentations.

Fernbank Science Center, Atlanta, Ga.

April Whitt reports: Fernbank Science Center spent a busy summer juggling aviation camp, day camps in the planetarium, poor weather conditions that kept the observatory closed most of the summer, the Apollo 11 anniversary, and rearranging our public show schedule.

Saturday mornings at 11 AM has been, for decades, the "live star show." Patrons ask constantly, "When do you just show the constellations?" Tat "Sky Tonight" program was moved to the 3 PM slot on Saturdays over the summer, and attendance has increased. Apparently the general public expects a "movie" in a planetarium. We tried the new show slot for the people who gather throughout the day, and its popularity continues to rise.

The Ralph Buice Memorial Observatory received a thorough cleaning at the beginning of August. Clean mirror, clean shelves, cleaned floor (that part doesn't last long) courtesy of our observatory operators.

Dr. Scott Harris, staff planetary geologist, has become quite the SciDome wizard. He developed programming for the Apollo 11 anniversary celebration on Saturday, July 20.

All the programs were free of charge that day. We had NASA astronaut candidate and talented sculptor artist Ed Dwight as featured speaker. He told stories about his experience as the first African-

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American pilot to be selected for astronaut training.



Astronaut candidate Ed Dwight shared his stories of the Apollo program to an enthusiastic audience.



What would an Apollo celebration be like without Moon Pies? Summer Interns Eva Liu and Jessica Botts helped distribute

Award-winning artist and illustrator Thomas Gonzalez shared the process of preparing the book *Countdown: 2979 Days to the Moon*, that details the Apollo program from President Kennedy's speech on May 25, 1961 to the *Hornet's* retrieval of the capsule on July 24, 1969. He autographed copies of his books for the long line of enthusiastic visitors at his table.

The Starlab traveled to libraries and Vacation Bible School this summer, for constellation programs and talks about the history of the space program.

The fall semester school programming is nearly full, the public attendance continues to climb, and the governor's campaign promise of a teacher raise has almost occurred. Best wishes for a happy Solstice to all.

NORTH CAROLINA 
contact: Neil Pifer
Neil.Pifer@rss.k12.nc.us

CAPE report

Early in September, 2019, Ingram Planetarium hosted the Carolina Association of Planetarium Educators conference. Two associates at The Ocean Isle Museum Foundation, the parent organization of Ingram Planetarium, and first-time attendees of the conference wrote in to express their thoughts on the impact of CAPE and their experience while assisting in 2019 meeting. Keith Eades, The Education Outreach Coordinator, and dome presenter had this to say,

“The Carolina Area Planetarium Educators (C.A.P.E.) is a consortium of like-minded educators that promote quality programming and support to inspire creativity and innovation in planetariums and science centers with which they may be associated. The annual conference provides a venue for participants to share best practices, cutting edge technology, and rich content in a supportive environment. Educators are provided opportunities to dialogue about a variety of topics. The feedback from peers helps to refine innovative ideas, offer opportunities to practice/learn about how specific programs or topics may be connected to other facilities. The value-add to this event, and consortium, is connecting with like-minded, innovative practitioners for the improvement and growth for all involved.”



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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.

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Kimberly Belfer, the Education Coordinator for Ingram's sister facility The Museum of Coastal Carolina assisted in the second day's events held at the museum. She had this to say of her experience, *"As a non-planetarian, being able to interact with other educators on their level was a great experience. I was able to show planetarium educators some of the virtual reality exhibits that we utilize at the museum, as well as how we blend programs at both of our facilities. I feel having CAPE at the Museum of Coastal Carolina gave educators a deeper look at partnerships between different facilities and how programming can be shared and altered for a museum setting as well as a dome."*

Katherine Hunt, manager of the planetarium had this to add, *"Last year, in 2018 when CAPE was hosted at Horizons Unlimited, I was a fairly new manager and not terribly established in planetarium education either. I found such support, encouragement, and inspiration at CAPE. Mickey Jo Sorrell from Morehead lovingly speaks of the annual meeting as a family reunion of sorts, and that comradery is palpable. I just knew I had to host the family reunion too and give my own team a chance to meet the relatives! This year I was much steadier on my feet in my position and overjoyed to share my dome home with other educators in the Carolinas. I send my gratitude to all who joined the reunion this year and look forward to seeing everyone next year in Kinston/Greenville, NC!"*

If you are a planetarium educator in North or South Carolina, keep up with CAPE activities at <https://rpsec.usca.edu/planetarium/CAPE/>. We will also be seeking a 2021 and 2022 host at next year's meeting.

Margaret C. Woodson Planetarium Horizons Unlimited

Neil Pifer reports: Margaret C. Woodson Planetarium celebrates 50 years

In early September, 1969, a planetarium opened in Salisbury, NC and our small town have been captivating audiences ever since. To celebrate, we had star talks throughout the ages, hands-on activities in our exhibit hall, and a redone glow room! There are some final touches that need to be finished with the glow room, so that is my article for Winter 2019.

We had 235 people that enjoyed star talks, a commemo-

orative laser and full dome clips, thanks to Jack Dunn and even cake and ice cream! This celebration also has added a few groups for star talks in the future, so this has a magnifying effect. Attached is a picture with our volunteers and paid staff who worked the event.



Western North Carolina News for Southern Skies (Autumn 2019)

Asheville Museum of Science (AMOS) in Asheville continues to offer three "Star Stories" shows in its Star Dome every Sunday afternoon. On September 26, AMOS will celebrate its annual "Under the Stars" fundraiser. As befits a "Beer City" museum, the event will take place at Highland Brewing Company. This year, weather permitting, participants will have a chance to be "under projected stars" in the Museum's portable planetarium as well as "under the real stars" with telescopes outside the brewpub providing views of Jupiter and Saturn.

Pisgah Astronomical Research Institute (PARI) completed in August a full summer of residential

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camps including Camp Above and Beyond, Astro Explorer Camp, and research opportunities for selected Duke University TIP students. On September 20, weather permitting, PARI telescopes will provide breathtaking views of the night sky for a Recovering from Religion retreat on Memory Mountain near Wolf Laurel. Resumption of public programming at PARI is pending.

“Because of the generosity of Glenn and Carol Arthur, as well as other community members and foundations, construction will begin in September for the Glenn and Carol Arthur Planetarium at the Earth to Sky Park! The 64 seat Planetarium will provide an immersive astronomy experience for students and the public in the heart of the...Park. Viewers will enjoy traditional planetarium shows, laser light shows, STEM based programming, as well as unique imaging of the night sky as seen through the Sam Scope, located at the Bare Dark Sky Observatory. An open floor plan is included in the design, which will allow for many dinners under the stars and could also serve as a wedding venue. Construction is scheduled to be completed in Spring 2020.” (from a Mayland Community College Foundation Newsletter)



Planetarium

Lafayette Science Museum

Lafayette, LA

Dave Hostetter reports: Like everyone else, we had our Apollo 11 celebration in July and our Apollo-Palooza was very successful. It helped make this a good year so far for the planetarium—it does not look as if we will match last year’s overall attendance (the highest annual planetarium attendance in our museum’s history), but we are running close to it.

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Irene W. Pennington Planetarium

Louisiana Art & Science Museum

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continued from page 26

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As autumn approached, LASM was gearing up for our annual Gala event, "CHROMA: Color Your Senses." The whole theme this year was vibrant color. The Museum is currently host to a variety of artists dealing in mediums such as sculpture, multimedia installations, paintings, and threadwork. Of course, here at the Louisiana Art & Science Museum we strive to offer an interpretive and all-encompassing experience, so we have woven in the theme of color into our new autumn Sky Tonight presentation. Guests will learn about how the colors of the stars and planets can tell crucial information about those very objects.

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bar while dining on some interesting Every Flavor Jelly Beans. They can take a selfie at our custom Plat-from 100 ¾ photo-op station while decked out in costume decorations we supply. We'll have special planetarium presentations of our very own in-house productions The Worlds Within Star Wars and the presenter-led Astronomical World of Harry Potter. At the end of the Potter-themed shows, guests will be able to win their very own O.W.L. certificate after engaging in an interactive planetarium quiz.

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ALABAMA
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University of North Alabama Planetarium
 University of North Alabama, Florence, Alabama

Mel Blake reports: The summer was busy for us. We celebrated the anniversary of the Apollo 11 landing with a series of activities. We had a interactive display where kids could make craters using a rock and flour. This made a mess! We also had handouts about the new Artemis program to return to the Moon, coloring sheets and puzzles from NASA. We also had a Moon globe and some lunar meteorites on display from my personal collection. These were popular and I had to guard them closely! In the dome we showed "Field Trip to the Moon" and "Accidental Astronauts" and kids made balloon-powered rocket cars. Of course the required Moon Pies were given away.



Tied in with this somewhat, we took possession of a Rasdow Optical telescope. These were used by NASA to monitor the Sun for bursts during the Apollo missions to ensure astronaut safety. A local couple purchased the telescope on surplus and donated it to us. It took six of us to get the telescope onto the truck, and a forklift to move it into our storage area. The hope is to resite it and get it uploading images to the web. Another project!

We also took part in the preparations for the BEST robotics competition, and started working with Dr. of NASA. Several years ago he obtained two telescopes, mounts and imagers for a project, which was canceled. He is looking to put together a group to set up a remote observatory for research and outreach. We are happy to be asked to be part of it and get access to such good equipment.

Combined with the usual school visits and weekly public nights, we had a successful summer.





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