

Southeastern Planetarium Association Presents

# ***Southern • Skies***

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December 2023

Volume 43, Number 4

[sepadomes.org](http://sepadomes.org)



A dark, starry night sky with a large, bare tree in the lower-left corner. The tree's branches are intricate and light-colored, contrasting with the dark background. The sky is filled with numerous small, bright stars, some of which are slightly blurred, suggesting a long exposure. The overall mood is serene and quiet.

***Inside Front Cover***



# Southern • Skies

December 2023 Volume 43, Number 4

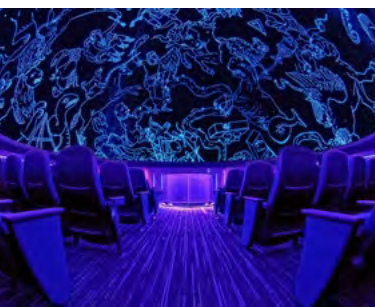
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# Editor's Letter

by Woodrow W. Grizzle III



**A**s another year draws to a close, I find myself reflecting on this and the many other years now past. There is much for which to be thankful in this wonderful field into which we have poured so very much of ourselves. As ever, the fruits of your labor decorate the pages of this journal as they do your communities. We are each of us a cosmos within a cosmos—a universe in itself—and we bedeck the halls of life, not with baubles, but with purpose as we, through sacrifice and aspiration, serve a world in dire need of light, hope, and love.

In this issue, you will read about many reasons to be thankful. Among them are two planetarium centennial recollections. **Phil Groce** writes about connecting astronomy to the human experience, while **Gary Lazich** recalls a life worth living in planetaria.

We have a couple of excellent essays this issue. **Ariel Galan** returns with a personal story about the recent eclipse. **Heather Preston** writes about her experience creating special sensory shows and SRT captions with a limited budget.

I sat down for a conversation with **Adam Thanz** about last summer's Stars for All U.S. Planetarium Conference. Included are some excellent photos from the conference. Also special to this issue also is a large version of the Stars for All group photo. You can find it on pages 58-59. I did it as a two-page spread that is best viewed as a two-up on a widescreen monitor. You can pinch and zoom on a phone just fine, too. Seeing so many familiar, smiling faces in that photo warmed my heart. I could never articulate in words what each of you and this organization mean to me, but I feel it when I look at that photo, and I think you will, too.

Regular features return this time, too. **Robin Byrne** brings us another great book review. This time, it involves cosmonauts. **Jon Bell** brings us another fun number in Space Songs. You'll have an earworm after, but I reckon it's worth it.

**The news section continues to look great.** Thanks to everyone for sending their news this time. I want to see news from every SEPA facility soon. I know we can make that happen.

Next issue I would really like to see **more submissions to celebrate the planetarium centennial.** These could be special retrospective essays looking back at what the field has meant to you and your communities over the years. Historical photos and recordings are most welcome.

Above all, I wish the best for you and yours during this joyous holiday season. May the light of Christmas, Chanukah, Kwanzaa, or your holiday of choice bring you renewed faith, hope, and love as we enter a new year with new opportunities to lead by example.

Now and always your obedient servant,

A handwritten signature in blue ink that reads "Woodrow". The signature is written in a cursive, flowing style with a long horizontal line extending to the right.





*Czahor Solar System Trail at Tellus Science Museum  
Cartersville, Georgia*



# President's Message

by Jason Dorfman  
*Bays Mountain Park & Planetarium*

As we approach year's end, I find myself looking forward to the new year. Though the last two months seemed to go by quickly, I've always enjoyed this time of year. Not just because I enjoy the cooler weather and usually take a couple of weeks vacation at the end of the year, but because with a lighter school and public program schedule, January provides me the opportunity to catch up on my extensive to-do lists.

At Bays Mountain Park & Planetarium, we are currently hosting a visiting planetarian, Paul Curnow, from the Adelaide Planetarium in South Australia. Paul is here as part of the IPS's Week in the U.S. program. He arrived earlier than expected and will ultimately be with us for two weeks. So far, he has been giving short star talks at the end of our school and public programs, but he will give more in-depth presentations in the coming week. Paul has an incredible wealth of knowledge about how the indigenous people of Australia view the sky, and it has been wonderful to see his presentation and hear his stories of the southern sky.

For me, it has also been a refreshing reminder that there are many different ways of looking at the night sky. I tend to get locked into talking about things in the sky in a certain way because it helps me be more relaxed and confident in my presentations, but that can also lead to thinking that I've figured out the best way to talk about a topic. However, hearing the presentations of other planetarians jolts me out of that rut and often enlightens me to a new way of

saying something or even looking at the sky. That is one of the key reasons why I value being a member of SEPA and attending conferences—for the continued learning that it provides.

It's difficult to know what the coming year will bring for each of us. There is another total solar eclipse in the U.S on April 8. Details of the upcoming conference this June in Memphis, Tennessee are coming together. **Be sure to check out the conference announcement on page 51.** Also, another important thing to keep in mind is that 2024 is a SEPA election year. The nominations committee, chaired by Kat Hunt—our President-Elect—will be looking for candidates willing to serve on council. I hope that several of you will consider putting your name in as a candidate.



In my past role as President-Elect and chair of the nominations committee, I spoke a bit about the value of getting involved with the inner workings of our organization. Whether that be by being on a committee, volunteering to

help with our annual conference, or serving on the executive council; your involvement is what makes and keeps our organization strong. If you've thought about being more involved, but were unsure of how to do that or what it entails, you can reach out to anyone on council to learn more.

I wish you all a wonderful holiday season and a very Happy New Year!

# Backstage Eclipse

by Ariel Galan.  
Hallstrom Planetarium  
Fort Pierce, Florida



**B**reathtaking. When I donned my solar glasses and looked up at the sun on October 14th, like many others that same day, the only word that could describe it was breathtaking. In my case, it was sort of like seeing a celebrity in person for the first time—something I had long since admired but never had the fortune of encountering myself until now.

In a feat of perfect timing, I happened to be involved in a play at the same time as the eclipse. However, I was determined to make sure that everyone would get a chance to witness this amazing celestial event. With the help of Jennifer Chavarria Sanchez, Hallstrom Astronomical Society VP, we put together a safe solar viewing station in the backstage of the theater. Now, I'm used to being a bit of nerd about these things, so I didn't expect everyone to share my exact excitement and was prepared for more than a few disinterested responses.

You can imagine my surprise when, indeed, every single person from our cast and crew proved me wrong and excitedly crowded around the table, their faces alight, asking when the eclipse was happening and hoping they'd get a chance to see it. I realized that this was something that everyone can get excited for, and the primary reason most of them hadn't seen an eclipse yet was simply due to lack of education or means within their schedules: not a lack of interest. I spent the next few hours with the biggest smile on my face as I ushered a couple of people out at a time and guided them through their very first view of the eclipse—something I had just experienced myself only a few minutes prior. As the time went by, more and more people were wearing eccentric wigs, mic packs, and period costumes, but the one thing that didn't change was their reaction upon donning their glasses for the first time. That jaw-dropping, breathtaking, wow.

I couldn't help but wonder what exactly it is about these celestial events that seems to captivate everyone equally? After the eclipse (and play) were over, I started a conversation with our astronomy club. I learned that from first time viewers like me, to regular long-time sky watchers, and parents sharing the tradition with their children, many people visited the Hallstrom Planetarium on Saturday and felt that same signature feeling as they watched the moon take a bite out of the sun. Jennifer Sanchez expressed "just the how many of the security that was present that day from the college. They were so into it, taking pictures... grouping around each other, it was just really nice to see. 'Cause we [at the planetarium] don't really talk to them [all that much] but they definitely also have that interest." She had noticed the same thing as I had: that the interest lies in everyone, regular planetarians or no, and that the only obstacle is finding the means to nurture it.

Fellow club member and author Jennifer Lantz chimed in with one of the most thought-provoking responses I've heard. "There's a primeval need to connect with the night," she declares. "The sky is a place for people to project their stories, and a way that people can feel like they have a sense of belonging with one another. Because everyone feels so isolated within themselves, but yet they're all connected by the mystery."

Our world is big, and the universe around it unfathomably bigger. Events like these bring us all together, united under one great cosmic umbrella, as we all gaze, for a moment, upon the same thing and feel the same sense of wonder for our beautiful place in the stars. —AG



# Connecting Astronomy to the Human Experience

by Philip Groce

President, Helping Planetariums Succeed



October 9th Keynote Address at the 2023 meeting of the Carolina Association of Planetarium Educators (CAPE)

October is my favorite month. So, when I was invited to speak at CAPE in the mountains of North Carolina in October I was ecstatic. As any southerner will tell you, we just suffer through the hot humid summers and live for that first touch of fall when the air is dryer and the nights are clearer and cooler. It also marks a return to darkness. From here on till spring, the nights are longer and the stars return to our everyday lives. This October also marks the 100<sup>th</sup> anniversary of the modern planetarium, making this a perfect opportunity to look back in time.



“The two most important days in your life are the day you are born and the day you find out why.”  
–Mark Twain

At 73, I realize that I have given most of my life to the stars. As a child, I would sleep under them with my dog Pete for company. I was blessed to have spent much of my childhood on a farm sequestered from city lights. I built my first telescope at the age of 12. When I was 16, I was both exhilarated, frightened, and permanently changed when I witnessed the fall of more than a thousand Leonid meteors in a single hour.

I put my sky knowledge to work by earning my way through college teaching astronomy labs in a small planetarium. I went on to be director of three different planetariums and later started a planetarium design consulting company. I am certain that every

planetarium has a similar origin story. This October marks my 55<sup>th</sup> year in the planetarium field. You would think that by now I would have gotten it right. Fortunately, every day I am humbled, and lucky enough to learn something new.



During my lifetime, much has changed about how we see the universe. The first color astrophotograph was taken in 1958, and the first high-resolution tri-color filter images were taken in the late 1970's. Before these events, astronomical images were black and white or the faint colorless images we

observed through telescopes. By the time I became a planetarium director, color astrophotos were dramatically transforming the public's view of the universe. Every new planetary probe led to even more exciting pictures of other worlds, culminating with the enhanced color of images by Hubble, Webb and other orbiting and earth-based observatories. These images have become the mainstay of planetarium presentations and public television documentaries.



“I've learned that people will forget what you said, people will forget what you did, but people will never forget how you made them feel.”  
–Maya Angelou

Yet, there is still something lacking, something lost when we entered this digital age. It is my experience that a person viewing a small and nearly featureless Saturn through an eyepiece of a telescope is far from being disappointed. Rather, the emotional impact of seeing this ringed world first-hand is often greater than viewing all of the beautiful Cassini spacecraft images combined. This eyepiece experience is

personal and creates a human connection to the planet. More importantly to planetariums, the value of the high-resolution spacecraft photos we show in our theaters is made greater by the individual's personal view through the telescope. Unfortunately for many, having this visceral, personal, and emotional connection to the universe is getting more and more difficult.

To make matters worse, pressures to meet classroom STEM/STEAM and NGSS standards have forced an unfortunate devaluation of the non-classroom experience. Planetariums have been forced to re-image themselves as classrooms instead of sky theaters or face the reality of not receiving students during school hours. To many school administrators, field trips to planetariums is time out of the classroom and visits to dark sky sites are simply out of the question. So, we are raising a generation forced to look down at their desks instead of up at the stars.



“The heavens are calling you, and wheel around you, displaying to you their eternal beauties, and still your eye is looking on the ground.”  
–Dante Alighieri

Sadly, this near-sighted approach to science education has failed. We have the test scores to prove it. It ignores the fact that most people's knowledge of science comes from the informal world of visiting museums, science centers, planetariums, zoos, botanical gardens, aquariums, state and national parks, and watching science content on television, at the movies, and on the internet.

This is one of the many reasons why places like Mayland College's Earth to Sky Park in North Carolina are all the more important. This is a place where students, families, casual sky observers, tourists, and active amateur astronomers can revel in the wonders of a dark sky. Earth to Sky Park is an amazing tribute to the vision and hard work of Mayland College's President, Dr. John Boyd and his staff. It demonstrates his belief that education is a life-long learning process and that providing an informal learning environment can greatly enrich a community and its understanding of the sciences. I am fortunate to be a small part of that vision.

I know that the questions I'm about to ask may seem too simple or obvious. But they do make a point. If we lived on a planet constantly shrouded in thick clouds and had no starry skies, and no one had ever seen a

star, would planetariums even exist? Without the real stars, would our planetarium skies have any meaning?



“If the stars should appear one night in a thousand years, how would men believe and adore; and preserve for many generations the remembrance of the city of God which had been shown! But every night come out these envoys of beauty, and light the universe with their admonishing smile.”  
–Ralph Waldo Emerson

Our planetarium starfields and our flights through the universe are nothing more than illusions and, in that sense, present false experiences. The fact that planetariums invoke the actual sky, or the actual solar system, or the actual universe, however, can make these simulated experiences both real and memorable. Museum educators call this reality transference process a “magical contagion” or “sympathetic magic”.

Artificial Intelligence (AI) has taken this reality transference process to a whole new level. We can now trick ourselves into giving human identity and values to creations made through the manipulation of electrons, independent of flesh and blood and human thought. AI forces us to question the very meaning of “reality”.

In South Korea there is a whole rising industry of Artificial Intelligent K-POP bands. The largest of these bands is called Eternity and has millions of online followers. Every one of the performers is an illusion created by AI. This band can sing, dance, and glibly answer questions from their fans. The only thing that they can't do is sign an autograph. They are called Eternity because these performers will never tire or grow old or die.

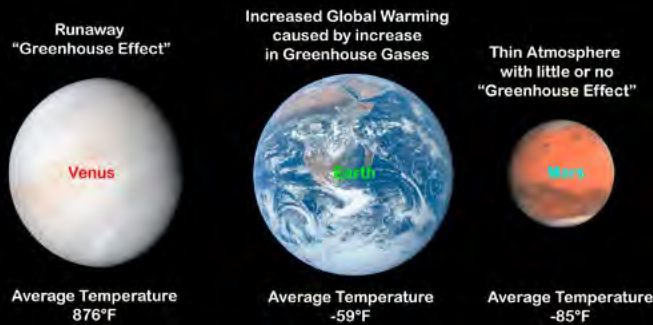


Image Credit: Pulse9



Could interactive AI planetarium presenters be far behind? It might be a natural progression to have virtual presenters guiding us through of our virtual universe.

In a world where nothing is “real” or “true” about a “reality” show, there is a mistrust of institutions that represent the sciences. We saw this mistrust on full display during the pandemic and it cost many tens of thousands of lives.



I believe that the reason children and adults still squeal in excitement when they first see a small primitive image of a ringed planet through a telescope is because they know that the image is true, unmanipulated, and real. It is my contention that adding live observing experiences to planetarium presentations, where possible, adds to this “sympathetic magic” and strengthens the value and authenticity of planetarium presentations. There is no doubt that planetariums need to do a better job of connecting their programs to actual observing experiences. As caretakers of the night sky, it is our duty to use our theaters as bully pulpits to rail against light pollution.

There are other ways to leverage human experiences to give greater value to our planetarium skies. Astronomy is not only one of the oldest of sciences, its study is a proven gateway to many other sciences as well. It can even address current events. For instance, climate change has been identified by most of the world as the number-one threat to humankind. There is not a cable or network news program that doesn't bring up this subject in some form daily.

The two best examples of this concept can be found in climate studies of Venus and Mars. By comparing these planetary climates to Earth, we can turn high-profile human interests into a better understanding of planetary science and help make a complex problem easier to understand. In a world seeking

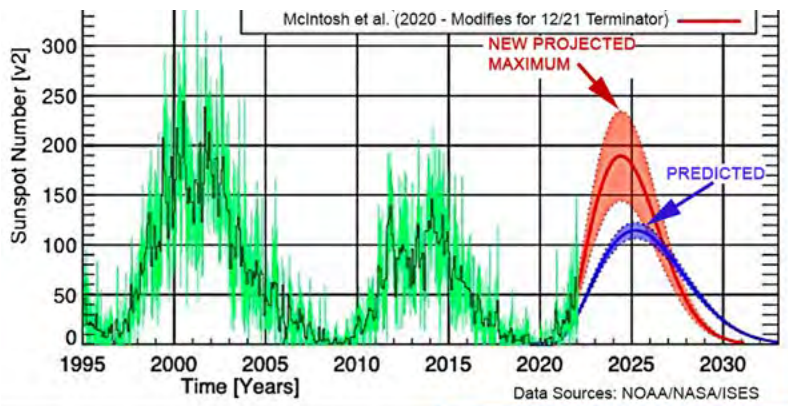
simple answers to complex problems, we can also add nuance to the public's understanding of this subject.

Upcoming solar eclipses are great opportunities to teach about the Sun and its role in past climate changes. We know that the Sun is a variable star whose solar energy output has not been constant throughout Earth's history, and we also know that greenhouse gases amplify the warming effects of our star. We need to do a better job of explaining why global warming is real. We need to explain that predictions and modeling of Earth's climate is not simple, and that there are many factors influencing the rate of change in Earth's average temperature—including changes in Earth's inclination, its orbit, and the energy output of the Sun.

Of these many factors, the only one that humans can control is the human-caused emission of greenhouse gases. So, as Earth's caretakers, that is where we must put our efforts. Factors, completely out of human control can accelerate or decelerate global warming.

For instance, after nearly 400 years of daily observation from Earth and from space, we know precious little about the Sun and its energy output. We can't even predict the solar cycle with any great accuracy. Recent observations have shown that the Sun is well on its way to an early peak in sunspots, a full year ahead of schedule, and will post the strongest solar cycle in 20 years, contrary to all previous solar forecasts. These data mean that the solar corona and chromosphere should put on quite a show for the April 8<sup>th</sup> total eclipse, thereupon showing the atmosphere of the Sun at near solar maximum.





Naked-eye sunspot group

October 23, 2014  
partial solar eclipse  
just after sunspot maximum



“It’s a rare person who wants to hear what he doesn’t want to hear.”  
–Dick Cavett

I am now going to tell you the secret to making a successful planetarium. Every planetarium is different and has a different audience and market size, so some generic advice I give may not apply to your institution. That is why the secret to planetarium success is not found in a generic answer. It is found in asking the right question of the right audience. Planetariums often do audience surveys asking them to guide them on what programs they would like to see. I’m going to save you the trouble. **People want an entertaining and knowledgeable guide to the night sky.** Audience surveys show that they like the “gee-whiz” that full-dome movies present, but they also long for more human and personal star-talks and guided tours through the universe.

The people we should be surveying are those who are staying away from the planetarium, people who even hate planetariums. When you do that, you will discover a few keys to making your planetarium more successful. As a planetarium designer, it is this potential audience I design for and one for which planetariums should change. I found the truthful answers eye-opening and, in some cases, hard on my ego. Answers like these.

1. Planetariums are dark and dingy with uncomfortable seats and narrow spacing making them hard to get out of.
2. I don’t know what I am getting into when I enter a planetarium. Once in, I feel trapped.
3. The rows are long and I can’t leave without disturbing others. In some cases, people leaving stops the show for everyone, and if I leave, I can’t return.
4. Unlike a commercial cinema, I have no idea what the show is about. There is little or no content advertising, no trailers on TV or the internet, and I have no idea of how long the show runs.
5. What is the advantage of seeing the planetarium show over seeing a higher quality show on the same topic on PBS for free?
6. Commercial movies have ratings. If rated R, I don’t have to worry about crying babies or small children.
7. The shows are too complicated or too long to hold the attention of my young children.
8. I went to a laser show and thought I was going to learn about the stars. I was very disappointed.
9. I went to a star show hoping to see lasers and hear great music, instead I saw a boring show about the planets. I was very disappointed.



10. I find the images dim and washed out, I have seen sharper, brighter, and more interesting portrayals of space in the movies and on television.

Knowing that negative experiences travel faster and reach farther than positive ones, I have attempted to address them in my theater designs and in planetarium programming. You see answers to some of these issues in the design of the Glenn and Carol Arthur Planetarium at the Earth to Sky Park. It is not a dark and dingy planetarium, it is full of directed light that does not shine onto or interfere with dome screen images. The seating is comfortable and spacious and the rows are short and easy to get in and out of without seriously disturbing other members of the audience. It does not depend on cove lights alone to light the theater. When you go to Memphis to attend the SEPA conference this summer, you will see another theater that is bright, comfortable and easy to move about in.

Many of the other issues can be addressed in a positive way by simply working hard to set proper

expectations. All advertisements should give the reader a sense of the content, its age appropriateness, and its length. This is particularly true with information from the front door, to the ticket counter, to the waiting area outside the planetarium entrance. Planetarium success is like all business success—set your customers' expectations correctly, deliver on them, and you will succeed.

It is critical to get the right audience to the right show. That may require enormous effort to communicate what is available for preschoolers and mothers with strollers, college students and young adults, family audiences, and seniors. No one show, two shows, or three shows will meet everyone's expectations. This effort takes time, sometimes years, and investment by everyone from the show presenter to the ticket seller, to the board of directors or school board to the surrounding community. When the expectations are set correctly you will have many more lovers of planetariums than disappointed detractors.

*[continued next page]*



*Sharpe Planetarium, Memphis, Tennessee*



It is difficult to find an immediate answer to the criticism of fulldome image quality. COSM and RSA/Konica Minolta have developed LED dome technologies to create brighter, more cinema-quality dome images. But these solutions are still in their infancy and their costs are still far beyond the resources of most planetariums. The answer is not greater brightness alone. Increases in native contrast combined with darker domes and brighter projectors is still the most cost-effective answer for most planetariums looking to upgrade the quality of their visual experience.

To be clear, any planetarium that bases its sole worth on the quality of its continuous fulldome imagery is always at risk to disappoint. **The ability to connect on a personal level and tell a good story will go farther than any improvement in display technology.**

The most successful planetariums have recognized that they are, above all else, theaters that celebrate the wonders of the night sky. It is this shared group experience that gives added value to planetariums.

It has been said that a theater is a place where people go to sit in the dark, to watch other people perform in the light, all to learn what it is to be human, while a planetarium is a theater where the actors are the Sun, Moon, planets, stars, galaxies, and the people who study them. Our collective play is The Universe Tonight.

So, ladies and gentlemen, take a well-deserved bow. I am honored to be counted one of you, and I am most hopeful about our future, knowing that we have many new bright young astronomy educators to take up the cause. Planetarium people are cut from

a different cloth, woven from the same fabric once worn by soothsayers and astrologers. Like science itself, they have evolved from mystics and are tasked today—not to predict anyone’s future—but to be knowledgeable guides to the universe. They practice their craft in the dark and can be found guiding starwalks to anyone who will listen. They are truly autumn people, happiest when pointing out October stars.

I am certain that when Ray Bradbury wrote the preface to his *October Country*, he wasn’t thinking about planetariums. Yet, somehow his prose describes many of us perfectly.

### ***The October Country~***

That country where it is always turning late in the year. That country where the hills are fog and the rivers are mist; where noons go quickly, dusks and twilights linger, and midnights stay. That country composed in the main of cellars, sub-cellars, coal-bins, closets, attics, and pantries faced away from the sun. That country whose people are autumn people, thinking only autumn thoughts. Whose people passing at night on the empty walks sound like rain.

Thank you for reading.

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Arthur Planetarium, Mayland Community College Earth to Sky Park



# We Are Storytellers, Curators, and Innovators

Cosm fosters the art of fulldome filmmaking  
and the immersive creator ecosystem.

See what we've been up to.



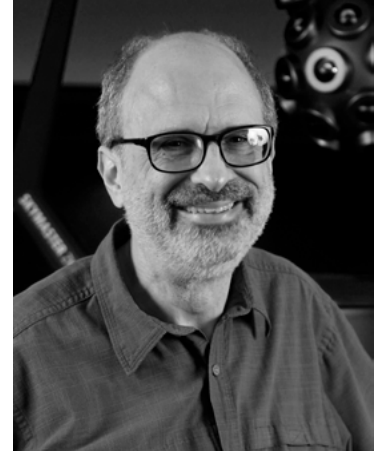
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# ***Beyond the Springline ~ A Conversation with Adam Thanz***

*About: Stars for All 2023 Conference*

*Interviewer: Woodrow W. Grizzle III*



*This conversation represents the start of what I hope will become an ongoing series of conversations with planetarians about their work and how it creates meaning in the human experience. The inaugural interview is with Adam Thanz, Planetarium Director at Bays Mountain Park & Planetarium in Kingsport, Tennessee, longtime SEPA member, and host of the recent Stars for All U.S. Planetarium Conference. Adam and I spoke about the conference in early November 2023.*

**WG: Tell me about Stars for All. How did conference go, generally? What kind of feedback have you received?**

AT: The conference went really well. It covered the important points that I wanted to be addressed. It was more than just arranging meeting rooms and meals. That's the base level of any conference. Past that you ask, What is the goal? What do you want people to experience?

That was our focus: on what we wanted people to experience, to learn, and what we wanted them to take home in terms of being able to apply it work, but also to their personal selves. Essentially, what value do they get out of it?

**WG: Let's talk about how you did that. What was the thought process.**

AT: This was going to be the first conference people were going to have post-pandemic. We would be finally getting back together to meet new people from other regions, or even see old friends from a long time ago, and also provide an educational opportunity to learn and develop new skills in new and exciting ways.

With this opportunity, we wanted to change the conference mantra that we've seen so often. Most other conferences were all about attending talks—often random talks—usually without a real theme. There may be a theme, but the conference activities

often do not fit the theme, or they wander from it to varying degrees.

With that in mind, we also wanted to restructure and address parts of planning that sometimes don't go well with other conferences. Things like free time: basic stuff... how long does it take to go from A to B, and if you start a conversation with somebody, that there will be some time for that, and they don't feel like they have to run from A to B.

Also, it was important to us to try and get everyone outside. One of our conference goals was to celebrate the region and a big part of that is the natural beauty of it. So we had a lot of things that were outside. Notably, that's one of the things that a lot of people said they enjoyed most about the conference. We got a lot of feedback on that.

**WG: That's great, and the photos look like folks are having fun. Let's talk more about the theme. Tell me more about "Stars for All" as a theme.**

AT: The theme of Stars for All and the slogan of "It takes a universe" was to highlight all of the different types of people that are involved in the planetarium community, but it also had another factor to that... it's also about all the kinds of people who are out there. We wanted to address those needs as well and be sure that everybody felt welcome. To try to put a highlight on what may not normally be focused upon.

All of our vendor levels, for example, were not named astronomical names, but after women who had major accomplishments. But the focus was not simply, "Look at all these women," but "look at all these different kinds of people who contributed to our society and our understanding in meaningful ways." The artist, the writer, the astronomer, the educator: all were different kinds of professions and each made different kinds of contributions to our world.

In everything, we wanted to “go to 11.” We wanted to have people be able to do things, and not just sit and listen, but to do. Every one of the field trips, and as many workshops as possible, all had that concept in mind. Our keynote speakers, neither were astronomers, but made interesting contributions.

### ***Off-Site Gala~***

At the off-site gala, I was really glad to be able to have an off-site gala. I used IPS’ gala structure as a model in terms of it being a special kind of separate event. So, we went to the oldest town in Tennessee, Jonesborough, to hear a professional storyteller to expose folks to professional storytelling techniques, which is an important part of our profession. Most folks seemed to enjoy it, and the questions after the storytelling were all quite good in asking about the technique and experience of storytelling.

I was proud that we were able to do the gala off-site: providing the transportation, the best caterer in the tri-cities, and the professional storyteller. It turned out to be a great evening, and I’ve heard from many people that they enjoyed the storyteller immensely. It was great.

### ***A National Gathering~***

Importantly, this conference was not just a SEPA conference, or a conference of any one regional, it was a U.S. conference. We made great strides toward making that as streamlined and unified as possible. One of the benefits of this was that each region worked to develop the conference, and each region then shared in the profits of the conference.

### **WG: What was the most enjoyable part of planning and organizing the conference?**

AT: The part I enjoyed the most was being able to craft an event that was special and that was unique. Yes, there was a U.S. conference before this, the Pleiades conference, and that was a really good conference. We’ve also had many other regional conferences. Most of them blend together because a lot of them were similar, but a few stand out because they did something different.

Looking at the t-shirt as an example, we said, “The t-shirt is an iconic part of conference; how can we make this even better?” We decided to make more than one piece of custom art and give folks a choice. We also set up a kind of gift shop where people could purchase more of these kinds of items for folks at home or whomever—and that money then went

right back into the conference to benefit the regionals rather than the park.

Having these things, trying to do the special stuff and also to have a really strong theme, sticking to the theme and having speakers who are part of that theme—it creates a unifying structure.

Another thing (even though it was a lot of work) I was really happy about was the field trips. The variety was good, anything from wheelchair accessible outings to strenuous, lengthy hikes. One group got to walk along a creek on their hike, and they took the opportunity to get into the creek. That was exactly the thing I was hoping folks would experience at this conference. It was like a mini-adventure that they will remember forever.

### ***Inclusivity~***

Providing more inclusivity was important to me, also. An example of that was the buttons. All the buttons had custom art, some with pronouns, that could easily be read at a distance. We also had astronomy themed buttons. Anyone could pick the button they wanted, even if that was no button. It wasn’t pushing anything, but offered the opportunity.

There were other things like that... things I learned from other conferences, like the mother’s room for mothers to take care of their children that was appreciated and used.

### ***Hospitality Suite~***

Hospitality suites were successful, too according to reports. There was three main people and some other people joined them, and they said, “We’ll take care of it.” They really did a great job. Also, the vendors that did the beverages did a great job, too. It was so nice being able to have them do that. They had karaoke, lights, a great audio system, it was great. We were at a great spot in the hotel, too—far away from other guests and in an enormous space. It was nice seeing people taking advantage of all that space.

### **WG: There are no doubt many folks reading this who have never hosted conference before, but who might be really interested in doing so. With that in mind, what is the most important thing to get right when you are planning a conference?**

AT: There are a couple things, but they’re all related. I will preface this by saying that I’m very anal about organization. I’m not at the point of Dolores



Umbridge in Harry Potter, but I am an organization-focused person. Having strong organizational skills and ability to plan ahead is very important.

Also, it is of the highest importance to consider everything, not from your own point of view, or even one person's point of view, you need to think about 100-150 people in terms of time, traffic flow, time to go to the bathroom, down time for the brain to refresh and reset. These are all essential. Think of events where you've been to where there's a dinner with a single buffet line. Or others where you've had to literally run from one point to another to keep from missing something you really want to see or hear. Really, those are among the most important things.

Also, keep presentations to no more than 90 minutes. After that amount of time, you start losing information. People leave or tune out. Then you actually do a disservice to the presenters, vendors, whatever the situation is. Everybody loses.

Try to really think about what you really want from this conference? You want more than just meeting space, and there's talks, and that's it. You really need to ask yourself what kind of experience do you want people to have.

The planning, getting the schedules so that's it not crazy... you really must be detail oriented to

acknowledge and understand what and how things sometimes occur. Also, always be willing to ask for help. No one person can do a conference. People are always happy to help. I can't imagine a time and place where people would say no if you ask them to help.

### ***Teamwork makes the dream work~***

None of it can be done without a team you can count on. Jason [Dorfman] was indispensable. The vendor hall, especially, was his doing. It was the best vendor hall I've ever seen. Everybody was actually happy—every vendor. He just took care of it and it was fabulous. There were lots of tables and chairs, and there were also plenty of drinks all the time, so people were always comfortable.

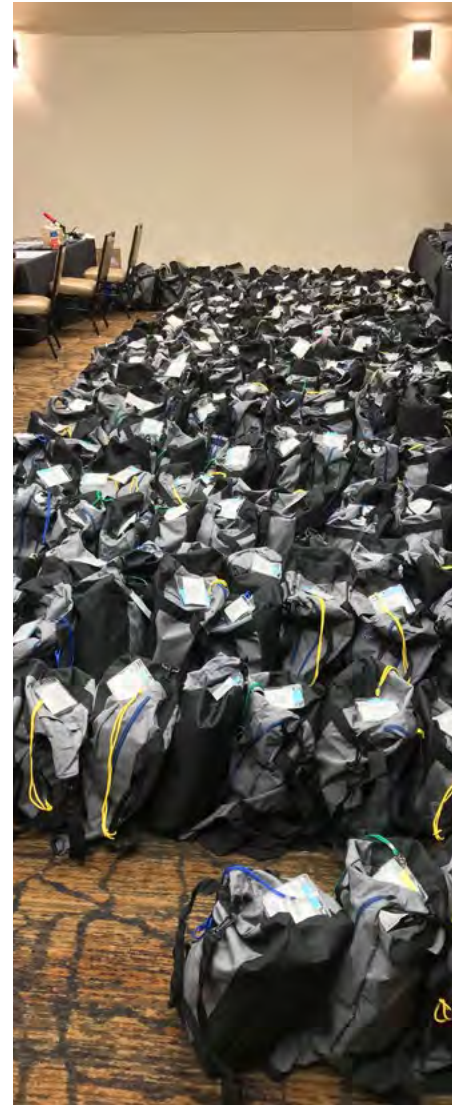
Our planetarium interns, two of which had only been working with us for two weeks when they were thrown into the conference. They worked their butts off, but they were great.

Having a core group of people you can rely on—to trust—is incredibly important.

There were others from the other regions that did important things, too, like streaming and recording. It really does take a universe, and this conference was just about the best example of that I've ever seen. If you have the right people in place, great things really can happen.







**Captions by Adam Thanz  
[Clock-wise from top left]**

- 1. Enjoying the opening remarks. [Photo by Anna Green]
- 2. We took over MeadowView. [Green]
- 3. Over 300 attended the conference. It took weeks to pre-assemble the delegate bags. [Robin Byrne]
- 4. The IPS Council had their annual Council meeting here prior to the conference. [Adam Thanz]
- 5. A hands-on make-'N-take workshop learning about 3D printing. [Green]
- [previous]** 6. The group photo shows a motley crew. [Kat Hunt]





**[Above, then clock-wise]**

7. This is why I do my job. This is also my favorite photo of the entire conference. [Green]

8. Planetarium staff in the Park truck taking the trash out to the dumpster. [Mackenzie Henley]

9. Twelve unique excursion field trips were planned with school bus transportation. This happy group is going to the Gray Fossil Site. [Oana Jones]

10. This field trip was the most advanced physically. They did a quick-paced, multi-mile, off-trail hike up a steep mountainside along a creek to a waterfall in Rocky Fork State Park. They are wet, dirty and having a great time! I love this photo. [Martin Weiss]





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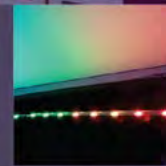
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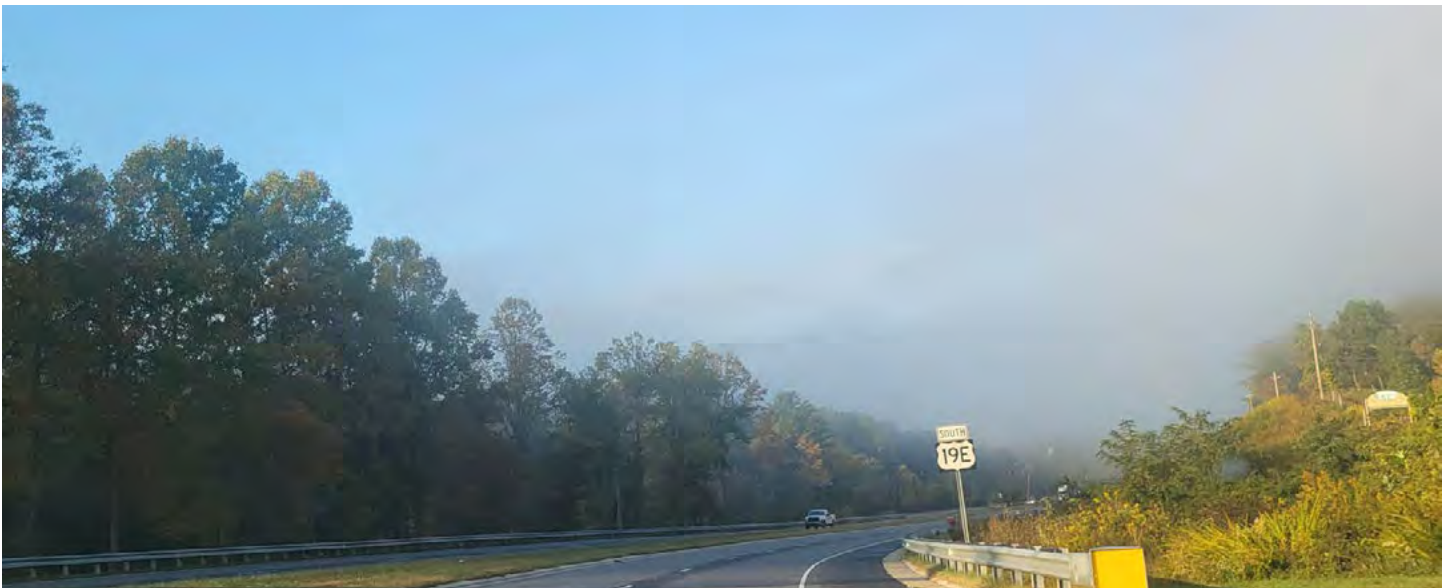
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# ***Carolina Association of Planetarium Educators Conference***

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*Mayland Community College  
Photos by Jack Dunn*





# ***Growing Up with Planetariums in the Age of the Centennial***

*by Gary Lazich  
GeoDome Portal  
Asheville Museum of Science*



## **100 A Planetarium Centennial Recollection**

**A**s we celebrate the centennial of the "Miracle of Jena"—the Zeiss Model 1 Planetarium Projector—I hope we also remember and celebrate the planetarians without whom our projectors and domes would remain cold and lifeless. Operated by a skilled planetarian, our theaters can illustrate the stories of our cosmos and our place within it.

Nearly 30 years ago, at the 1994 IPS Conference in Cocoa Beach, Florida, I presented a paper entitled *Growing Up with Planetariums*. The paper traced my own career as a planetarian, described the obstacles planetarians have overcome, and identified the pitfalls and prospects planetarians face. In a figurative sense, this paper served as my valentine to the profession I had come to love.

I've reproduced here a section of that paper along with notes that take the place of the visuals. If you'd like to read the full paper, visit the [IPS Proceedings Archive for 1994 Cocoa Beach](#).

Regardless of the technology employed, planetariums exert an almost magical power to elicit childlike wonder in their visitors. Why?

One answer may involve the way we have grown up with our planetariums. We have each had to overcome false starts, dead-ends, and retreats, as well as our share of obstacles. I know I have.

Inadequate funding or housing often leads us to seek other places to ply our trade, sometimes prematurely. Improper construction at some facilities has led to deterioration, eventual closure, and layoffs. [Cernan

Earth & Space Center, 1982] Other facilities suffer from persistent building leaks, the need to remove asbestos, or the lack of suitable workspace.

Excessive expectations can prove even more disruptive. Some facilities are supposed to pay for themselves using hours of unpaid overtime despite minimal staff, abrupt transfers of administration, and periods without funding. Administrators want results, not excuses; audiences want production values typical of a *Star Trek* film; we ourselves often try to develop too many programs on limited resources. Disappointment can sometimes lead to drastic consequences. [Paulucci Space Theater, 1985]

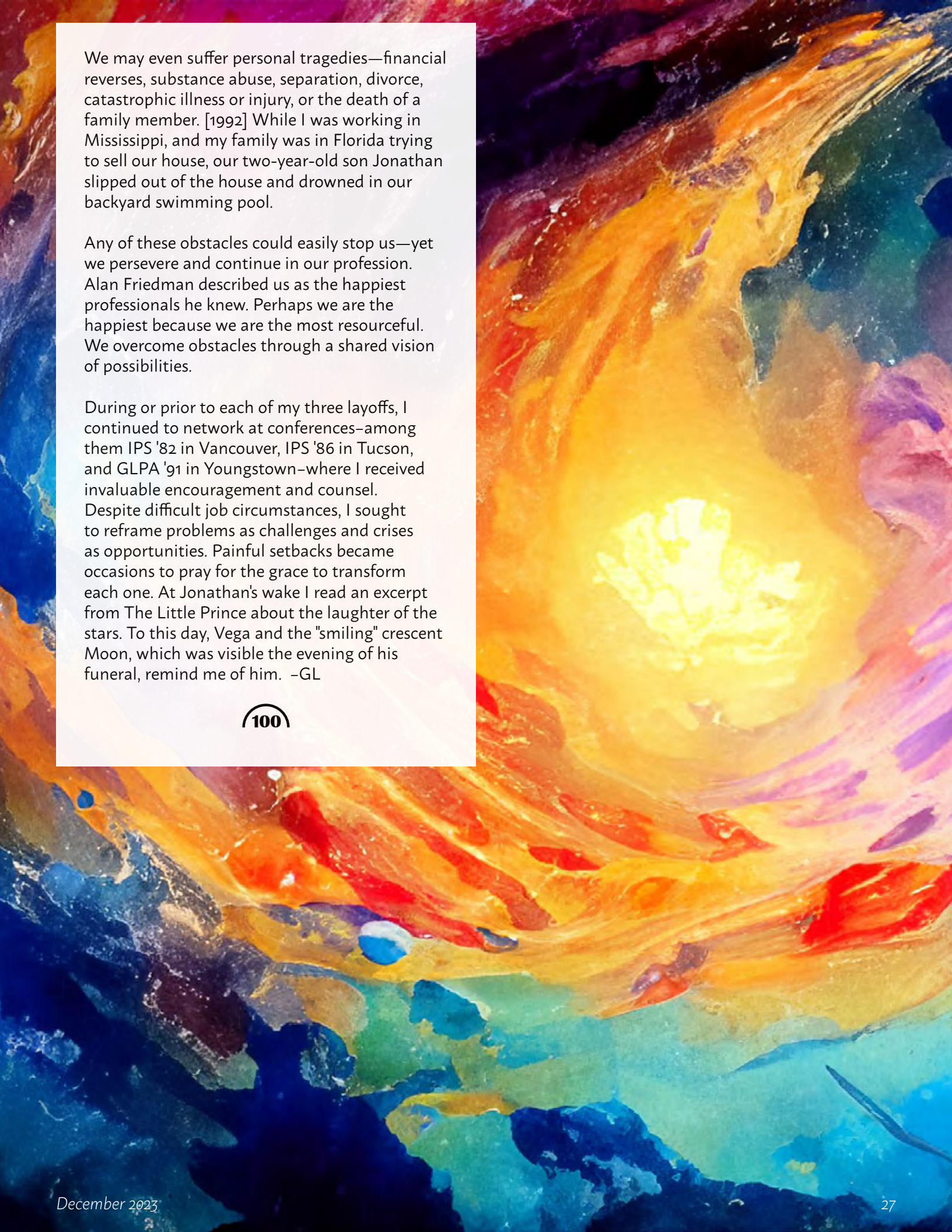
Professional disrespect sometimes hinders our effort—problems with receipt of mail, appropriation of admissions income, patronization of funding requests, staff infighting, and denial of promised teaching assignments. [Stanback Planetarium, 1987]

Some of us endure years of work without salary increases, conference attendance, participation in decisions affecting our work, and resolution of job concerns.

Occasionally we experience personality conflicts with our supervisors that may make evaluation problematic. Especially when our supervisors work in other disciplines—museum management or academic administration—we may encounter differences in temperament, pacing, style, philosophy, and even ethics. [Buehler Planetarium, 1991]

*[continued next page]*





We may even suffer personal tragedies—financial reverses, substance abuse, separation, divorce, catastrophic illness or injury, or the death of a family member. [1992] While I was working in Mississippi, and my family was in Florida trying to sell our house, our two-year-old son Jonathan slipped out of the house and drowned in our backyard swimming pool.

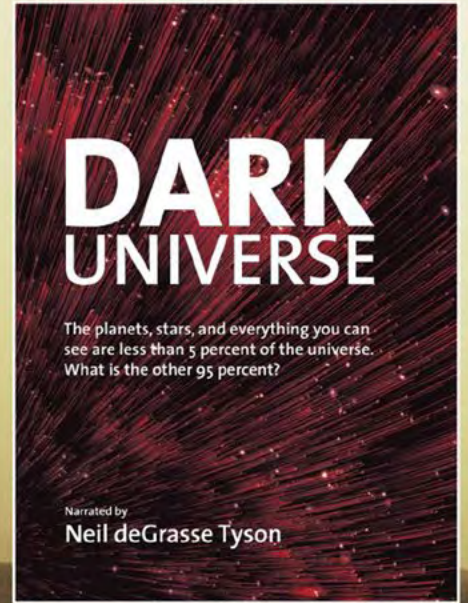
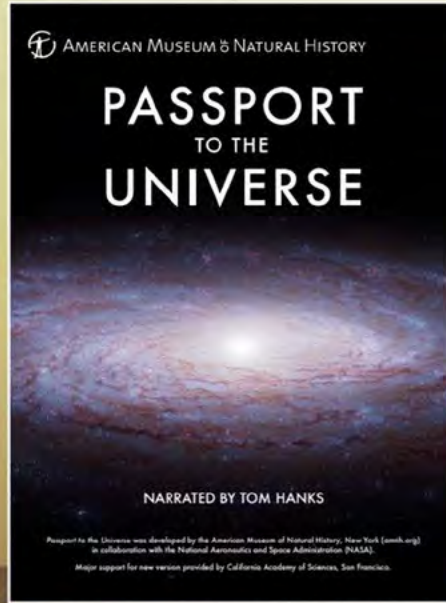
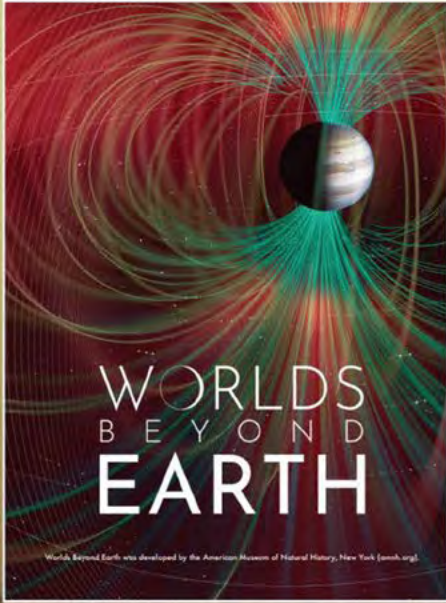
Any of these obstacles could easily stop us—yet we persevere and continue in our profession. Alan Friedman described us as the happiest professionals he knew. Perhaps we are the happiest because we are the most resourceful. We overcome obstacles through a shared vision of possibilities.

During or prior to each of my three layoffs, I continued to network at conferences—among them IPS '82 in Vancouver, IPS '86 in Tucson, and GLPA '91 in Youngstown—where I received invaluable encouragement and counsel. Despite difficult job circumstances, I sought to reframe problems as challenges and crises as opportunities. Painful setbacks became occasions to pray for the grace to transform each one. At Jonathan's wake I read an excerpt from *The Little Prince* about the laughter of the stars. To this day, Vega and the "smiling" crescent Moon, which was visible the evening of his funeral, remind me of him. —GL





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# BOOKENDS

with *Robin Byrne*

## *Beyond* by Stephen Walker



In my never-ending quest to read every book about the early space program era, I recently enjoyed *Beyond: The Astonishing Story of the First Human to Leave Our Planet and Journey into Space* by Stephen Walker. Wordy title? Yes. Worth reading the book? Also, yes.

Unlike some authors I've read recently, Stephen Walker has a degree in the History of Science, and you can tell he understands what he's writing about. Also unlike some other authors I've read recently, Walker writes clearly and at a level allowing the reader to read **and** understand.

While the focus of the book is Yuri Gagarin, we are given his story in a much bigger context than usual. We begin with some of the test flights, both Soviet and American, that occurred between the first few Sputniks and Gagarin's flight. There were several dog flights that I had never heard about, and many more problems with the Vostok spacecraft that are not usually mentioned. We also meet several people involved with the Soviet space program, from engineers to those who handled the dogs, as well as the medical staff. Walker interviewed many of the individuals involved to get their firsthand story, and that greatly enhances the narrative.

We also see what's happening simultaneously in America, with Kennedy just recently elected president and more focused on Cuba and Castro than on NASA and astronauts. We also learn about some of the

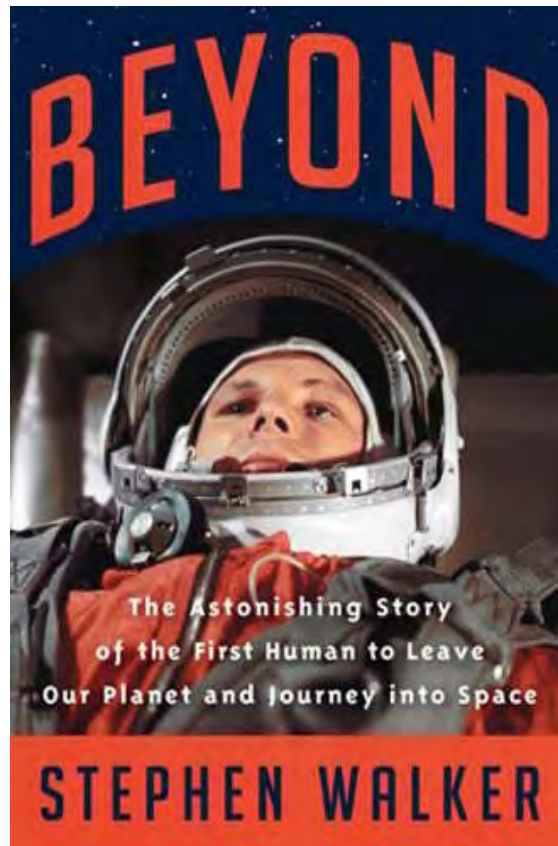
politics behind America's slow progress, with excessive caution being recommended, ultimately leading to a long enough delay in Alan Shepard's flight that he would not be the first man in space.

Meanwhile, on the Soviet side, if anything, we see a total lack of caution. While the spacecraft repeatedly had serious issues that could have resulted in the

death of the cosmonaut, Khrushchev and Korolev set a definite time frame for their first manned flight—no matter what. Having the advantage of secrecy surrounding every flight, if something did go wrong, they would simply not make that information public. NASA, meanwhile, was very aware that if Shepard's flight had a problem, it would be broadcast live on television for all to see, effectively killing the U.S. space program.

We also explore the parallels and differences between the American and Soviet men chosen to go into space, how they were treated, and how they were trained. America's Mercury 7 astronauts were experienced test pilots, treated like celebrities, showered with luxuries, while undergoing

extremely rigorous training to make sure they knew every detail of their spacecraft and were prepared for every possible problem. In contrast, the original group of cosmonauts were much younger and less experienced pilots. Their identities were kept a secret: even their wives were not supposed to know their training's true purpose. How they were trained was dramatically different, too. Cosmonauts





were not expected to fly their spacecraft, but just to be passengers of the totally automated system—no different from the dogs that flew into space. With that in mind, their training was almost exclusively focused on being physically fit, with minimal information about the spacecraft: what few instruments were even available for the cosmonaut to use. Even the training for what to do in case of a system failure was literally done last minute. The day before Gagarin's flight, he and his two backups got one hour of training on the procedure.

Once launch day arrives in the book, we follow not only Gagarin throughout the day, but also various members of his family (who knew nothing about what was going to happen) and the people on the ground who were involved in the flight. This section of the book went into more details about his flight than I had seen before, making for interesting reading. Once Gagarin lands, we see, thanks to more interviews by the author, the reactions of the people who were near where his spacecraft landed and the field where he parachuted down separately. We also experience the rapid shift in Gagarin's status. At first, he is this unknown, strangely-dressed person trudging through a field, asking for a horse and cart to take him to the nearest telephone to notify the authorities of his location. In a matter of a few hours, he finds himself surrounded by adoring crowds, as the news of his success and identity became public.

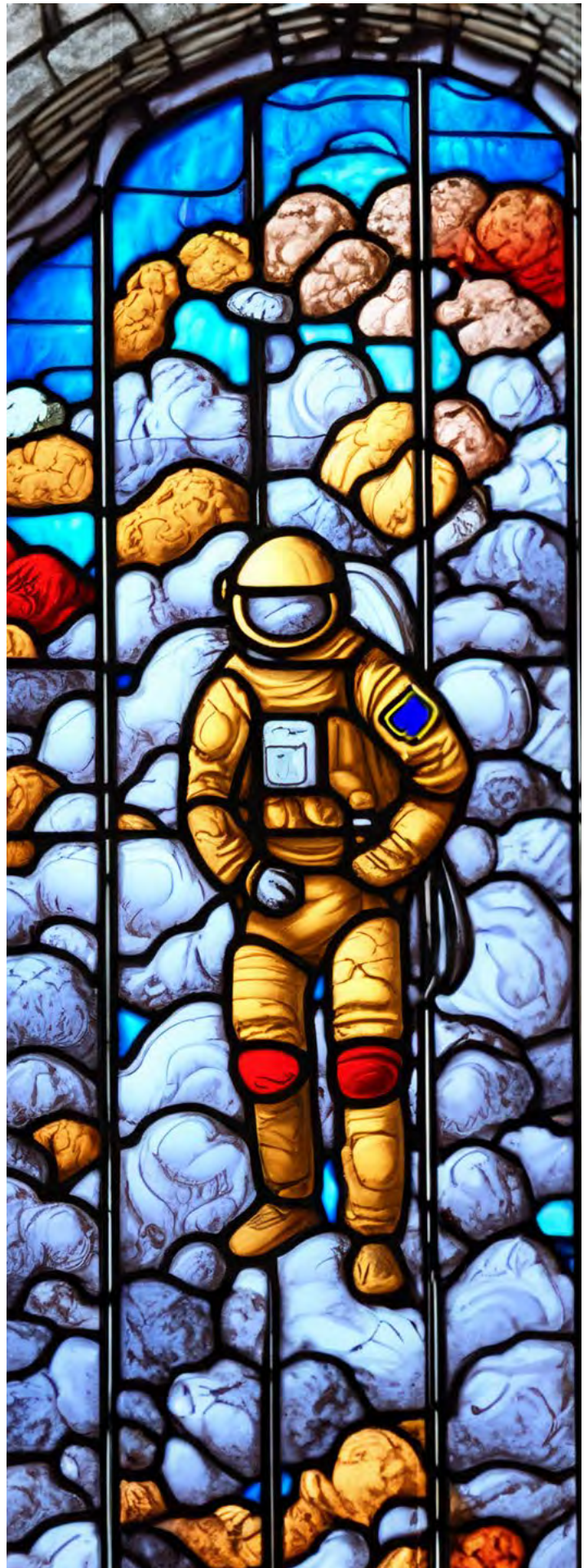
Then the American reaction is explored, especially that of President Kennedy. Between being beaten again by the Soviets, plus the Bay of Pigs fiasco, Kennedy was desperate for something positive and a way to get ahead of the Soviets. It was at this point that he became a supporter of the plan to send a man to the Moon.

The book closes with brief summaries of the lives of the key players in the story over the years after Gagarin's flight. Sadly, many of them ended too soon.

If you enjoy reading about the exploits of the people involved in the early stages of sending men into space, then you will want to read *Beyond: The Astonishing Story of the First Human to Leave Our Planet and Journey into Space* by Stephen Walker. You won't regret it. –RB

#### REFERENCE:

*Beyond: The Astonishing Story of the First Human to Leave Our Planet and Journey into Space* by Stephen Walker; HarperCollins Publishers, 2021





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# More Writer's Tips for Southern Skies

by Woodrow W. Grizzle III

**H**ere is the perennial checklist to help ensure your writing is best formatted for Southern Skies. Since it's probably been a while since any of us have had a writing course, I think you will find this list handy. These 16 items are some of the more common snafus, some are repeats from last issue. Thanks so much for your effort in making Southern Skies the pre-eminent planetarium journal.

- 1. Do not double space after sentences.** This was necessary on a typewriter, but computerized word processors since the early 1980s have automatically adjusted spacing following a period to make sentence transition clear. Double spaces cause formatting problems for me and are incredibly time-intensive to remove.
- 2. Please do not use third person when speaking about yourself,** particularly in the News section. Southern Skies is a primary source, so you should always refer to yourself in the first person.
- 3. The words "internet" and "web" should no longer be capitalized.**
- 4. Almost always use words to denote numbers less than 10.** Exceptions include dates, addresses, and any number that is part of a proper noun, such as Apollo 8.
- 5. Almost never use the word "very".**
- 6. Avoid bangs (exclamation points)** unless they follow an actual, usually one-word, exclamation, such as "Wow!" The other exception is if the bang is part of a proper noun, such as a show title.
- 7. Avoid passive voice in most cases.**
- 8. Learn the difference between a hyphen, an en dash, and an em dash and use them.** There should be no space between any kind of dash and the words that precede or proceed it. Here's how to use dashes, generally. An en dash is shorter and used like parentheses inside a sentence for an aside. It also is used to denote a range of values, e.g. 1941–1945. (Note this is not a hyphen.) Em dash is used in similar fashion to a colon—but it gives a different stylistic effect. For more details, just ask.
- 9. These common abbreviations should be written as a.m.; p.m.; B.C.; and A.D.**
- 10. Avoid using Common Era and its associated abbreviations, B.C.E. and C.E. when using the Gregorian Calendar.** To do so is to use one thing while calling it something else, which is dishonest.
- 11. Stops (periods) should only be placed inside end quotation marks in actual quotations.**
- 12. The word "sun" should be capitalized when referring to the star proper.** When referring to the daytime light in the sky, never capitalize, unless it is somehow at the beginning of a sentence.
- 13. The word "earth" should be capitalized when referring to the planet.** When referring to the ground, soil, or if preceded by the article "the", never capitalize, unless it starts a sentence.
- 14. The word "universe" should never be capitalized,** unless it is the first word of a sentence or if it is part of a proper noun, such as a show title.
- 15. The names of seasons should never be capitalized,** unless the word starts a sentence or is part of a proper noun.
- 16. Days of the week and holidays should always be capitalized.**
- 17. Please do not use italics.** When I use them in the final design, it is almost always to create visual interest or separation. In AP style, which is most appropriate for this publication, many things that would otherwise be italicized are either left alone or are placed in quotation marks. Generally, only capitalization is needed. For instance, the name of this journal should appear simply as Southern Skies. It is obvious from context that it is a title, and either italics or quotation marks would just be clutter. There is some gray area here.
- 18. If you have a question, just ask me. I'm always happy to help.**



# 100 YEARS



With great pleasure and respect, GOTO, Inc. would like to honor the celebration of the 100<sup>th</sup> anniversary of the first optical star projector and the creation of the public planetarium.

The innovation that began with the invention of the Zeiss Planetarium in Jena 100 years ago has transformed into a culture of education that transcends borders and continues to evolve to this day. Even though planetariums use different brands of equipment, we believe that the excitement and satisfaction that visitors receive from the wonderful experience they gain inside the dome is a universal value.

GOTO, Inc., along with the entire worldwide planetarium community, takes great pride and joy in fulfilling our role in providing this value, and looks forward to continuing this mission with creative innovations for the future of the planetarium.



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# ***Sensory Sundays & SRT Captioning: Improving Accessibility & Inclusiveness on a Budget***

*by Heather Preston  
Calusa Nature Center & Planetarium  
Fort Myers, Florida*



*This essay is based on my talk and video from Stars For All 2023 U.S. Planetarium Conference Visit [Calusa Nature Center & Planetarium on the Web](#).*

Like most planetaria, we have both an educational mission and an extremely limited budget. At Calusa Nature Center and Planetarium in Fort Myers, Florida, we have a great many underserved students who visit us in field trips, as well as many students who are on the spectrum or have sensory issues. We also have veterans who have sensory issues. Fortunately, we also have some great helpful contacts within the community who keep us informed about educational needs via social media. One such group is a set of parents of autism spectrum disorder (ASD) children and other sensory-sensitive children and adults. They wanted to be able to attend planetarium shows that were more sensory-friendly, especially as an alternative to the local municipal Fourth of July fireworks, which can cause sensory overload for people on the spectrum and who suffer with post-traumatic stress disorder (PTSD).

Kaitlin Danks, my then-Director of Operations, and Connie Martin, then-Chair of our Board of Trustees, approached me asking whether I could make or license some kind of sensory-safe fireworks show. I went looking and found a couple of planetaria that were offering something of the sort, but when I called one of them, the director explained that these were Youtube flatscreen videos with the soundtrack removed, slowed down and projected on the dome with some patriotic music playing on a CD. He did not own the videos or the music, so it was very much a “live VJ performance” deal. I decided I could do better than that by not including other people’s fireworks, but actually creating something from scratch. I wanted to make a fulldome show that could be used whether I was present or not, and to which we actually would hold rights. So sensory-sensitive fireworks show creation became my first experience

with what was to become a monthly program called Sensory Sunday.

## **Making an In-house Sensory Show~**

I used an old program that still ran in compatibility mode on my Windows machine. It’s a slow-bloom touchscreen fireworks app from 2011 called [Touch Fireworks](#). You can control the tempo of the fireworks and the location, by touching the screen at different places in time with the music you have chosen, but not the color or eventual size of the bloom. To synchronize this, of course, one must have the music in place.

To keep everything entirely original, I created some patriotic music using Band Camp, another (inexpensive, but not free) piece of software that I already had because music is a hobby of mine. Fortunately, there is a great deal of traditional patriotic music that was never, or is no longer, in copyright, so that was not too difficult. Sometimes using the fingerpicking guitar Band Camp option, and sometimes the piano, once I had 25 minutes’ worth of “calming but pretty” patriotic music, I played it into headphones and started a screen-recording on my laptop as I learned how to coordinate the explosions with the tempo of the music.

There’s a built-in delay in Touch Fireworks’ slow bloom, and I quickly found that one must work to get the feel for it! Eventually, once I figured it out—and could anticipate the crescendos in the music—I could get some pretty good synchronization going, which was nice. My screen resolution is better than our projector’s 2400-pixel native resolution, so that was not going to degrade the end product. It was a little like driving a log truck with your fingers, though, because of that built-in delay, between touching the screen and the actual bloom of firework effects. I also stayed low on the screen with my blooms so that they would avoid edges and generally fit onto half of a



fulldome display—more about that later.

Using [VSDC](#), which is a free video editor for Windows, I created a 2400 x 2400 pixel black-background project at 30 frames per second (to match my laptop's screen recording framerate), with an audio sample rate of 48k Hz to match the audio file I had made. The video had to be cropped, as it was going onto a dome, so the artificial “buildings on the horizon” motif at the bottom of the video had to be removed (VSDC doesn't have the warping capability of Adobe After Effects, which we can't afford). I then mirrored the video vertically so that it would fill the circle and provide blooms in the whole sky without cutting off at the seam between the image its inverted companion. Finally, I attached the stereo WAV file of music and made sure the synchronization was reasonably good.

This show made a lot of people smile. We had one couple exclaim that their son had never sat through 20+ minutes of anything before, but he stayed for the whole fireworks show. That was the start of the program. It was so successfully that now, every first Sunday of the month at 10:30 a.m., we show a fulldome show with no explosions or booms, with the sound turned down low and even sometimes with the red LED cove lights up a bit, the door open, but the light lock curtains closed to keep out lobby light. That keeps guests from having to wear headphones that will dull the noise and allowing the lights to be up keeps them from feeling anxious. There is a “chill room” with sensory toys that we collect and clean after each event. This room is lit with color-changing LEDs, and we let the kids choose what color they want. There's also seating and a fan in there for a little white noise generation. We haven't needed it often, but the kids and parents seem to appreciate that it's available. Currently, I'm working on another sensory-safe video for this winter.

### **SRT Captioning Using AI~**

The second part of my Stars For All talk concerned an accessibility project that we've needed for quite some time to bring us into ADA compliance. While it's acceptable to have an assistive listening system (ALS), we have only a limited number of headsets, and those only work for people who are not completely deaf. We really need subtitles on all of our shows. Quite a few of the free shows that have come out in the past ten years did not come with subtitles. I've made a few SRT files by hand, but it's slow going. I was looking for an alternative to trying to use Google speech-to-text and put in the timestamps myself, which is

easy enough, but it's time consuming going back over and again to the video to be sure all of the timings are right. It was not an efficient use of my available working hours.

Fortunately, there is now a fast, inexpensive and extremely accurate online SRT captioning system available. Using it, we are slowly getting SRT files for all of our scheduled shows—a few more each month. The astonishingly accurate system in question is an AI-based solution called Sonix.ai. For \$10 an audio hour, they will create SRT files, transcripts, or whatever is needed, based on an audio file the user uploads. That comes out to anywhere from \$3 to \$5 per show, given that most shows are between 20 and 30 minutes.

One pro tip I've found to save some money is to cut the end-credits when uploading the show soundtrack, as the system charges by the length of the audio file, not the length of the narrated portion that it translates. **Never cut the intro, though, or your SRT file timings will be terrible.**

I have a link available for 100 free minutes from the company, that I will send to any planetarian who emails me asking for the 100-minute link at [Heather@CalusaNature.org](mailto:Heather@CalusaNature.org). **I hope you will use it if you decide to sign up for this service, because not only will it give you 100 free minutes, it will also give you 100 free minutes, which would be terrific if even one person did it.** We have no budget for this kind of thing, so I'm allowed to create SRT files for only a few shows each month. If any planetarian wants to use the fireworks show (or the December show when it's done), just get in touch with me. Many thanks. -HP





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# News from SEPA States

## Alabama

### **Von Braun Astronomical Society** **by Mitzi Adams**

HUNTSVILLE—The all-volunteer, non-profit Von Braun Astronomical Society and Planetarium has been busy this year. Our club now includes over 200 members with over 1,000 people on our monthly newsletter mailing list. Student director Greyden Kutner (our board always includes one young person as a tribute to the fact that our club was started at the instigation of a 16 year-old asking Dr. Von Braun for a place to learn about space), has been busy creating outreach videos for us, which you may view on [YouTube](#) and our [Facebook page](#).

In addition to hosting weekly Saturday night planetarium programs on a variety of topics, we secured a local grant to improve and upgrade our grounds and to add radio astronomy and two all-sky cams to our offerings. A team of volunteers has continued to upgrade and improve our 21-inch telescope, and most recently added an electrical station to our viewing field. On September 23, we held our annual Astronomy Day, during which we welcomed over 500 guests to our grounds and shared views of the Sun through solar telescopes, along with other demonstrations including NASA/MSFC's Ham radio club and Dr. Dennis Gallagher with his vacuum chamber that allows him to highlight the importance of space suits for astronauts, how there is gravity in space, and to show the fate of marshmallows that return from unprotected ventures into the vacuum of space (they puff up in vacuum and having lost all the air in them, they shrivel in atmosphere).

Astronomy Day partners were HAL5, AIAA, NASA, the Marshall Amateur Radio Club, the U.S. Space and Rocket Center, the Huntsville Gem and Mineral Club, SteamFEST & NSC Huntsville. All set up tables to share fun activities and information with children of all ages. The keynote speaker for the evening's presentation was Dr. Genevieve Vigil of NASA's Marshall Space Flight Center, who spoke about her solar research using sounding rockets.

### **INTUITIVE Planetarium** **U.S. Space & Rocket Center** **by Sophia Villamor**

HUNTSVILLE—The INTUITIVE® Planetarium team is proud to announce that fiscal year 2023 is our best yet. Our fiscal year runs from October through September, and during that time we presented around 1,500 live shows and interacted with about 140,000 people through our daily operations, Space Camp, Pop-Up Telescopes, and other events in which we were involved. It was a busy year, but no rest for the planetarians yet.

One of our latest ventures is acquiring a portable planetarium, lovingly called "The Inflatable" or "The Beast", depending on who you ask. This pop-up planetarium is up and running and we are taking to the roads, bringing the planetarium experience beyond the walls of the Rocket Center.

Not only are we striving to make our content accessible to those unable to make it to the Rocket Center, but we are also trying to make our shows more accessible to everyone who steps through our doors. Once a year, the Rocket Center welcomes Space Camp for Interested Visually Impaired Students or SCIVIS. During this camp week, we present Sounds of Space (yes, we realize there isn't sound in space, but humanity doesn't exactly let physical limitations hold us back). This show focuses on audio recorded by various missions like the Perseverance Rover and sonifications of data like that of deep space objects observed by Chandra and Hubble. This was our second year presenting Sounds of Space during SCIVIS and it was a real delight and inspiration interacting with the kids.

Asteroid Autumn struck at the Rocket Center as well. We had the pleasure of collaborating with NASA's Marshall Space Flight Center Planetary Missions Program Office to produce a Psyche show for our Cocktails & Cosmos series. Perhaps most exciting was our partnership with Cosm in collaboration again with the NASA MSFC Planetary Missions Program Office in To Bennu and Back: OSIRIS-REx Asteroid Sample Return. In a global dome-cast, we recapped the mission and hyped up the historic sample return



to 26 different planetariums across six countries. David Weigel, Brittany Kundert, and Erika Silva traveled to Salt Lake City to put together the show, presenting it with Mission Manager Solveig Irvine and featuring prominent members of the OSIRIS-REx team. In case you missed it, check out the recorded stream here on [YouTube](#). You can also download the assets from the Digistar cloud. Be sure to look out for more domecasts coming from our team soon. From all of us at the INTUITIVE® Planetarium, wishing you clear skies and full domes.

## Georgia

### **Georgia Southern University Planetarium** *by Dillon Marcy*

STATESBORO—Things here at Georgia Southern University are as hectic as always. We are currently preparing applications for an updated planetarium system. Our Digistar 5 is at the end of its life, so we are pulling out all the stops to secure funding for an upgrade to Digistar 7. Our new dean has taken a great interest in the planetarium, and he wants to make sure we get the upgrade to expand what we can offer to the public. We are still in the process of building our observatory. Unfortunately, classes have gotten in our way, and we have run into a few design problems which have stopped us working. We are optimistic though and we hope to overcome these issues.

This year we had our Bulloch County Eaglet Program. All students from first to fifth grade got to visit various venues on Georgia Southern University's campus. We were assigned second grade and had a field day talking about the Moon. We had around 800 students from our county visit us, and we made sure they knew the phases, spots on the Moon, and had a better idea of what the Artemis program seeks to accomplish. Our county and local Kiwanis Club has funded the Eaglet program for the past five years. We'll be seeing the new batch of second graders next spring, and we can hardly wait. I will be sure to let you know more of our activities next issue, including our observatory, as its finally beginning to take shape.

## Florida

### **Bryan-Gooding Planetarium Museum of Science & History** *by Brett Jacobs*

JACKSONVILLE—The Bryan-Gooding planetarium has had a busy few months. Our Silver Science Series (a monthly event targeted for 50+ and retirement communities) is gaining popularity with near sellouts and some groups even rescheduling visits into next summer. We ran a special back-to-school laser show we called Comfortably Floyd. It was the entire The Wall album played to a sold out theater. We are planning a Christmas special laser show called Mistletoe and Metallica. We normally run laser shows everyday Saturday and Sunday evening and a family friendly laser show at noon most days. On the October eclipse day, we had a chess tournament all day in the museum and a giant 20-story building across the street which blocked any views. Upcoming events include MOSH's Native American Arts Festival—a two-day immersive experience of indigenous art, music, and dance. With World Champion Native American Dancer Larry Yazzie, who performed last year to a sold out crowd in the planetarium.

Our parent facility (MOSH) is currently interviewing for a new CEO with the final choice being announced in February. Along with that will be news on our new museum construction, which will include a planetarium.

### **Hallstrom Planetarium Indian River State College** *by Jon Bell*

FORT PIERCE—In the early 1990's Indian River State College obtained funding from the State of Florida to build a new science center and planetarium, and since 1993, the Hallstrom Planetarium has been open to both public and school groups. I also teach astronomy to college students and have provided them with hands-on training in planetarium operation.

Our regular public programs\* have always had a price of admission: from \$3 to \$5, and now \$7 a ticket. But the school field trips have always been free until now.



This year for the first time, we are charging a small amount – just \$100 a program for any school group. It's not much; when I left the Virginia Living Museum in 1993, a survey program in the planetarium was \$300. Of course, with that expense, school groups could also tour the museum and the nature trails. At Hallstrom Planetarium, my museum exhibits consist of just two display cabinets in the lobby on either side of the planetarium entrance. So not as much to do at the college, unless the teachers want the students to have a guided tour the campus, which is still free.

Besides the need to increase the revenue stream for the college because of the current state of the economy, we had another reason for establishing a fee. In the first couple of years of operation, we'd had several teachers and school administrators make reservations for a program, only to be a no-show at the appointed time. After all, there was no cost for the field trip, so there were apparently no consequences for blowing off the reservation. If a product doesn't cost anything, so the reasoning goes, it is not of much value. I was able to contact those schools and their administrators and convince them that not showing up for a reserved program would put that school's future field trip reservations in jeopardy, and everyone seemed to understand that, and the problem went away.

This unfortunate problem came back last year. Several groups stood us up, and we didn't have much success in making this point clear to them this time around. This kind of practice isn't fair either, because it prevents other groups from reserving those spots, and there are only so many to go around. So now, when a school makes a reservation, we require them to send us a check for \$100, and that fee is non-refundable. They can arrange for another time at no additional cost, but when we get the money, we keep it.

Last year, we had nearly a hundred groups make reservations. As of October 2023, we've booked about 50 classes, and I am expecting we'll be able to nearly match last year's number by the time the fiscal period is over, so the new fee doesn't seem to be scaring anyone away.

Hallstrom Planetarium has 74 fixed seats, so when a group books, they get the theater all to themselves for that hour—we don't sandwich them in with another school—and this means we don't have to struggle to provide a lesson for two or more groups who may be coming in at different learning or maturity levels. We

have many good quality programs that tie in with K-12 curricula, and the teachers can choose what topic to explore. Of course, we always provide a star I.D. for each show, whether it's live or recorded.

In public programming this year, Hallstrom Planetarium will offer a variety of STEAM (Science, Technology, Engineering, Arts and Math) talks or science lectures, plus shows like FullDome FX's Stars to Starfish, Star of Wonder, then in January 2024, we'll showcase an original program I'm producing called South for the Winter, (southern hemisphere constellations: hoorah!) and finally Clark Planetarium's Black Holes in April, May and June. There are also the two solar eclipses at which we have provided, or will provide, safe filtered telescopic views to the community, greatly assisted by our local astronomy club, the Treasure Coast Astronomical Society. The October 14, 2023 solar eclipse was at a maximum of about 65% here in Florida, and we had a little over 400 folks attend.

And just one more thing: We will be host a meeting of the Florida Planetarium Association (FlorPlan) on Friday, December 15, from 10 a.m. to 5 p.m. Please contact me at [jbelle@irsc.edu](mailto:jbelle@irsc.edu) if you're interested in attending and enjoying the amenities of Florida's Treasure Coast.

\* We don't charge admission for the STEAM lectures or open houses or sky events like eclipses.





# Kentucky

**Varia Planetarium  
East Kentucky Science Center  
by Steven L.J. Russo**

PRESTONBURG— Here in Prestonsburg, we had the solar eclipse on the Saturday of our Jenny Wiley Festival, which has been running for 43 years. I played up the eclipse as being the first time in history that a solar eclipse happened during the festival, and it wouldn't happen again for another 215 years. I purchased 500 pairs of eclipse glasses to give out to the public, and was going to set up my Astroscan to project the image on a large screen, but on the day of the eclipse, the sky was about 80% cloud cover, so we officially canceled the public observing. That said, I was able to get a shot or two with my camera during maximum eclipse, which for me was only around 42%.



*Photo by SLJ Russo.*

As a personal side note, I would like to welcome Jason Statham from Ash Enterprises and his family to the state of Kentucky. Jason Moved out of Florida back in September and now lives two hours from me in the city of Versailles. Let the fun begin!

**Star Theater  
Morehead State University  
by Pamela Clark**

MOREHEAD—We had some special events this fall. When this journal is published, we will have had solarscope and eclipse glasses viewing of the partial eclipse on Saturday, October 14. October 21, International Observe the Moon Night celebration 4:30 to 7:30 p.m. included three back to back shows, a live presentation of the night sky, solarscope and telescope viewing, hands on STEM activities including a SLIME lab (galactic slime!), hands-on activities at our astronomy club and rocket club tables, live lunar theme music by a local band, and pizza. We are once again planning for our Valentines under the Stars romantic couples' evening in 2024. We will also have an event for the almost full solar eclipse on April 8, 2024, which will include solarscope and eclipse glasses viewing, a planetarium feature and videos on eclipses, and live music from a tube euphonium. We will of course continue our usual schedule of public shows on the second and fourth Saturdays every month, and some extra shows for Christmas (including Santa crossing the Christmas sky). And we have had a busy schedule with our requested shows for campus and school groups especially this fall.

We have also upgraded our educational outreach by including related core curriculum objectives and suggested hands on activities for each planetarium feature to be used before and after the show.

We are training quite a few new crew members, with the hope of expanding our public show offerings to every Saturday next year.

# Louisiana

**University of Louisiana-Lafayette  
Science Museum Planetarium  
by Dave Hostetter**

LAFAYETTE—With the October 14 eclipse, this fall was busy at the University of Louisiana-Lafayette Science Museum Planetarium, as it was for most of you! We adapted a live eclipse program from 2017 for the 2023 annular eclipse. With no full-time planetarium staff, most of the effort went into

*[continued page 44]*



# Planetariums and the Semiquincentennial

Dave Hostetter, Retired Curator of the Planetarium  
Lafayette Science Museum, Lafayette, LA

## Local Celebrations

Examples of topics:  
Local amateur astronomy groups  
Star parties  
History of YOUR planetarium  
Local space flight connections  
Local professional observatories

## What's a Semiquincentennial?

A Semiquincentennial is the 250<sup>th</sup> anniversary of something. The year 2026 will be the Semiquincentennial, the 250<sup>th</sup> birthday, of the United States. Celebrations of the Semiquincentennial may be similar to those of the US Bicentennial in 1976. Given the influence of the United States in astronomy, space explorations, and related sciences, the Semiquincentennial seems like a good opportunity for planetarium programming, with many possible topics!

## US Planetariums & Observatories

Examples of topics:  
Major Earth-based optical observatories  
NRAO  
Hubble Space Telescope  
Webb Space Telescope  
Adler Planetarium  
Hayden Planetarium  
Armand Spitz  
small, medium, and large planetariums

## US Amateur Astronomy

Examples of topics:  
Stellaphane  
State & Regional star parties  
Local amateurs  
Private Observatories  
The Astronomical League  
Citizen Science  
Robotic observatories in education

## Astronomy in US History

Examples of topics:  
Meteor shower the night before the British surrender at Yorktown  
Total lunar eclipse the night between the battles of Lookout Mountain & Missionary Ridge  
Former President John Quincy Adams at the dedication of Cincinnati Observatory

## Indigenous Astronomy

"Can Indigenous peoples' past and present connection to Places and environments inform our understanding of historical developments and contemporary challenges?"  
*Making History at 250 (AASLH)*

Examples of Topics:  
Archaeoastronomy  
Ethnic astronomy  
Cultural astronomy

## US Astronomers & Space Scientists

Examples of topics:  
Edwin Hubble  
Henrietta Leavitt  
Robert Goddard  
Sally ride  
Jill Tarter  
Vera Rubin  
Marie Mitchell  
Clyde Tombaugh  
Harlow Shapley  
Many, many others

## Revolutionary Astronomy & Space Flight

"Beyond the Revolution itself, what were other revolutionary moments in the history of our country, our states, and our communities?" *Making History at 250 (AASLH)*

Examples of topics:  
Robert Goddard and the liquid-fuel rocket  
Apollo moon landings  
Hubble's Law  
Benjamin Banneker's astronomical almanacs  
Discovery of Pluto  
Harvard Computers

## Other Resources

US Semiquincentennial Commission  
[www.america250.org](http://www.america250.org)  
American Association of State & Local History  
<https://www.aaslh.org/>  
Institute of Museum & Library Services  
<https://www.imls.gov/>  
State Semiquincentennial Commissions  
State and Local Historical Societies

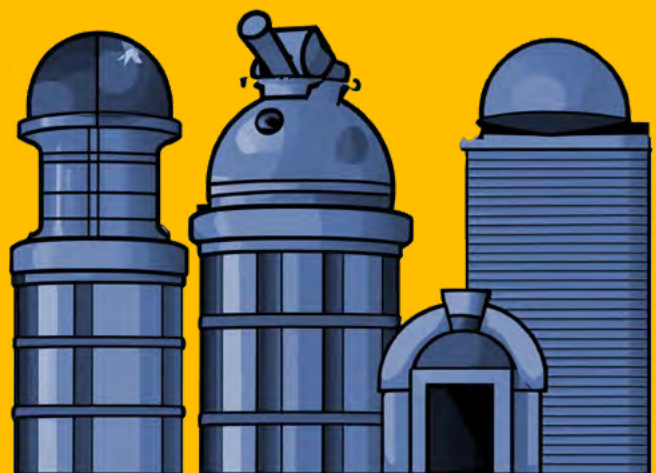
Dave Hostetter's poster from Stars for All Conference, Summer 2023.

## SEPA Observatory Group

Shortly before the pandemic, SEPA experimented with a special group for members with observatories associated with their facilities. The group met for an hour or so during the SEPA conference to discuss common problems and possible projects.

Now that conferences are back, it's time to start again. Mel Blake and I would like to reorganize the observatory group, possibly meeting at the conference, possibly by Zoom or Facebook, or by other means. Are there common problems we can address? Could we do simultaneous public outreach? What about joint or individual research projects? As robotic telescopes become more common, would it be possible to have some designated telescopes around SEPA-land that members might use for their own programs?

If you operate an observatory—or are building one—and would like to participate in the observatory group, please send your name, phone number, and e-mail to Dave Hostetter at [dehostetter@cox.net](mailto:dehostetter@cox.net).



training the part-time and student employees on the basics of how eclipses happen, how to present the eclipse program (some of them had virtually no public speaking experience, and none knew how to present programs with images and effects), how telescopes work, how to set those up, and how to do eclipse viewing safely. The employees did a great job learning all that and being ready for the event.

The weather on eclipse day was perfect, and over 300 people went to the Museum for viewing with solar telescopes and thumbtack-hole viewers, with the Museum giving out free eclipse glasses. Another 2000+ viewed the partial eclipse livestreamed from the Museum's rooftop observatory, the first public use of that in the three years since the mayor closed the facility (and thanks go to former technician Paul McCasland for making that livestream happen).

Meanwhile, I was about 25 miles away in New Iberia, Louisiana, with a couple of my telescopes in a small park fortuitously located between two festivals only a short distance apart. I and another former Museum employee showed the eclipse to about 600 people, and the Iberia Parish Library was also there, handing out 400 eclipse glasses in about an hour and a half. It was a good day all around for area eclipse watchers.

Attention now turns to adapting the eclipse planetarium program yet again for the upcoming April eclipse, but training should be easier now that the part-timers have experience.

***Dayna & Ronald L. Sawyer***  
***Space Dome Planetarium***  
***by Greg Andrews***

SHREVEPORT—Dayna & Ronald L. Sawyer Space Dome Planetarium at Sci-Port Discovery Center has a new portable planetarium system that has become a fun and exciting addition to their Outreach programs. They will be adding a customized dome cover created by Mr. Tom Casey of Home Run Pictures. The cover should be delivered in August.

We are also upgrading Sciport's Averett Observatory. The Observatory houses a 12" Meade LX-200 telescope that is used to observe sunspots, and is equipped with a solar filter on the main aperture with a QHY5L-II camera in the eyepiece chamber. Originally, the output video signal from the camera was sent to a monitor set up in a public exhibit area, but upgraded technology now sends a duplicated signal to the

Sci-Port YouTube channel. It appears on the channel as a Live video. In essence, this set up provides an easily accessible opportunity for visitors to check out sunspots in real time after they leave the Center.

## ***North Carolina***

***Margaret C. Woodson Planetarium***  
***Horizons Unlimited***  
***by Neil Pifer***

SALISBURY—This has been a spooktacular season at the planetarium. With the excitement of a partial solar and lunar eclipse, our audiences are returning in big numbers to our science center. Over 250 people came to experience a family friendly laser show and short star talk, followed by science all over the building.

As we look to the holidays, I am excited that we are getting back to full capacity with our outreach, our planetarium shows and our field trips.

Keep looking up everyone!

***GeoDome Portal***  
***Asheville Museum of Science***  
***by Gary Lazich***

ASHEVILLE—On Sunday, October 29, Asheville Museum of Science found its STEM Lab "possessed" by Haunted Skies, a special Halloween edition of its monthly Star Stories feature. Created in 1987 by "Star Guy" Gary Lazich for the Stanback Museum and Planetarium in Orangeburg, South Carolina, the program depicts weird astronomical phenomena like nebulae and black holes in terms of classic Hollywood movie monsters. Animated Halloween props in the lab helped to set the mood.

***Robeson Planetarium & Science Center***  
***Public Schools of Robeson County***  
***by Ken Brandt***

LUMBERTON—Rebuild Progress(?) We are slated for occupancy of the new planetarium mid-year, 2025, if all goes well—or so they keep telling me. We are sending bids out to planetarium vendors soon. I



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Here is an image of the lot we're building on, in the initial stages of being leveled.

### Eclipse event Debrief~

Over 160 people attended our partial eclipse event although the weather was uncooperative, with clouds and sprinkles throughout the early afternoon. We still showed HMNS' Totality in the dome, and had six other activities that could be done without the Sun. For the April eclipse, I plan on being in the shadow west of San Antonio. I'm trying to work out the technical details of a livestream from there, to beam into my district's science classrooms on that Monday. I've developed an eclipse safety Canvas course that our science teachers can take to earn Continuing Education Units, useful for recertification. I also wrote Nine blog posts for the NC Science Trail Network, and plan on another series of blog posts ahead of April 8th.



Attendees queuing up outside the planetarium for the eclipse day planetarium program Totality.

We have been running school group programs, and I'm noticing a real difference in the amount of interaction in my dome based on one factor: whether or not students wrote out questions I can answer during the program ahead of time. Teachers who have done this with their students are more engaged participants in the orderly progression of the program. Mostly, though, I've noticed more students asking questions if I've broken the ice by reading a few of their pre-written questions. I've also noticed that their subsequent questions dovetail nicely with what's already been asked by another student. Time to get into some data mining!

Stay dry and well provisioned.

## South Carolina

### **BlueCross BlueShield of South Carolina Planetarium, South Carolina State Museum** by Liz Klimek

COLUMBIA—Let me start with good news. At the beginning of October, our education team welcomed two fantastic part-time planetarium educators. They have hit the ground running, learning how to present playback and live shows and getting cross-trained on how to conduct solar viewing in the observatory. They came on board just in time to help me navigate a very daunting-looking month as October was jam-packed with school group programs, the debut of a new live show, and professional development. In fact, it was such a busy time that I had to streamline their training drastically in order for one of them to be able to do a live school group show after only a few days on the job. A big shoutout goes to Brodie for setting a new record as the person to be the fastest to solo in our dome, after having worked for just 29.5 hours. He also learned how to do one of our brand new live shows after just six days on the job.

Speaking of which, the new show I mentioned is called The Sky Above and is an South Carolina standards-based version of our public Live Sky Tour program that I produced. The 30-minute live show is basically equivalent to the program that our education team gives in the portable planetarium when on outreach—just done in the permanent dome with Digistar. It covers concepts like how things move in the sky, the difference between stars and planets, and why stars have different colors. We also squeeze in a little bit about moon phases and do a quick tour



of the planets. While this content overlaps with what is in some of the pre-recorded shows that we have licensed, having a live program enables us to be more interactive by asking kids to make predictions and shout out answers.

The Carolina Association of Planetarium Educators (CAPE) meeting was also in early October. While the skies were beautifully dark above Earth to Sky Park's Bare Dark Sky Observatory and Arthur Planetarium, the inside of the facility was indeed filled with bright colleagues sharing their "Siriusly" bright ideas: just as advertised. Many thanks to Blair and Amanda, who were wonderful hosts and put together an amazing meeting. I was sad to have missed the only clear night at the observatory, which was the night before the meeting started. If you have not yet been to Earth to Sky Park, you must visit and see Blair and her crew in action.

October was also the last month for us to feature laser shows for a little while. We have been running our Halloween-themed laser show throughout the month and had our final Friday Night Laser Lights event of the year during the week before Halloween when we ran "Laser Stranger Things" and "Laser Dark Side of the Moon."

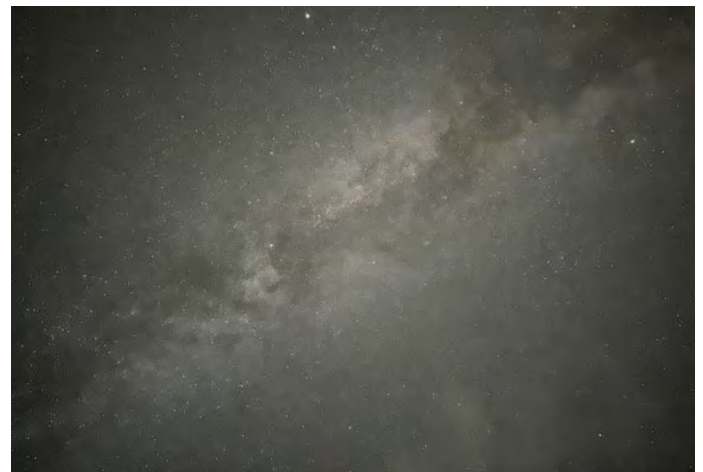
The South Carolina State Museum celebrated its 35<sup>th</sup> anniversary on November 4<sup>th</sup> with an eventful day that included extra public planetarium shows. Before the main festivities, there was a special morning membership event that included a members-only live tour of the solar system in the planetarium. In mid-November we will start running a show about the aurora called *Áróra* as we slide into the winter holidays. I'm very excited about this because I think footage of the northern lights will look amazing on the dome with our relatively new laser-direct video projectors.

***DuPont Planetarium  
Ruth Patrick Science Education Center  
University of South Carolina, Aiken  
by Gary J. Senn***

AIKEN—The DuPont Planetarium at the Ruth Patrick Science Education Center (RPSEC) on the campus of the University of South Carolina Aiken (USCA) has enjoyed a return to fall programming for school groups. Many of the districts in our area have moved to an extended school year calendar that has two weeks off in the fall, two weeks off for Christmas, and

two weeks off in the spring. The result is a shorter summer and an earlier return to school in the fall. That change enabled us to begin a little earlier this year. Area school districts have taken different weeks off in the fall and the spring, so we are able to have students in the planetarium throughout the break periods. The end result is that we are expecting slightly higher numbers in our planetarium this year.

A personal highlight was attending the annual Carolina Association of Planetarium Educators (CAPE) conference at Mayland Community College's Earth to Sky Park in Burnsville, North Carolina. The International Dark-Sky Association (IDA) designated the Mayland Earth to Sky Park and Observatory as the first IDA-certified Star Park in the southeastern United States. On the evening before the conference, the Bare Dark Sky Observatory was open for CAPErs to enjoy.



*The Milky Way from Weaverville*

It was an amazing night with wonderful views of the brightest apparition of the Milky Way I have seen in years. I enjoyed taking pictures of the sky with my iPhone. Most of the conference was held in the Glenn and Carol Arthur Planetarium boasting its Digistar system. The team at the planetarium did a fabulous job hosting the conference. We are looking forward to **CAPE 2024, which will be held at the Lincoln Science Center and Planetarium in Spartanburg, South Carolina.**

We hosted a partial solar eclipse viewing on October 14 with over 175 people attending. We had TVs tuned to NASA TV in order to treat visitors to the live annularity as it occurred in the western part of the U.S.A. It was mostly cloudy until about the last



45 minutes of the eclipse. There were a few holes in the clouds that enabled some brief views of the eclipse through a number of viewing options that we had available. The options included direct viewing through two telescopes with solar filters, and a Coronado solar telescope. There was indirect viewing on a computer screen that displayed live views from a telescope using a digital camera. Another telescope used a camera that sent a live view to an LCD projector to project on a screen. We had mirrors covered with card-stock paper that had a small hole in the center that people could use to reflect an image of the eclipsed Sun onto a large viewing screen. We had a sun funnel that projected an image of the Sun on a membrane stretched over the end of the funnel. Finally, we drilled small holes into aluminum flashing and used that to show many small eclipse shapes on a white board much like the infamous eclipse colander effect. We spelled out USC AIKEN and DUPONT PLANETARIUM. The inspiration of this was from Phil Groce, who gave away two boards with holes that spelled out SOLAR ECLIPSE as door prizes at CAPE.



On October 21, we held our annual International Observe the Moon Night event, with just under 100 people attending. The Astronomy Club of Augusta joined us for the evening and had telescopes available on the lawn in front of the building. We also had the Bechtel Telescope in the Ruth Patrick Science Education Center Observatory available for viewing. It was a great evening for observing.

For our Saturday evening public shows in September, we showed: To the Moon and Beyond, a local production; Seven Wonders from Evans and Sutherland; and Magic Tree House: Space Mission by UNC Morehead Planetarium and Science Center. In October we showed: In My Backyard, Defying Gravity by Daniel M. Soref Planetarium, and Two Small Pieces of Glass by Fulldome Database and ESO. In November we showed: Grossology and You by UNC Morehead Planetarium and Science Center, Cosmic Colors by Daniel M. Soref Planetarium in cooperation with the Great Lakes Planetarium Association, and Pink Floyd: Dark Side of the Moon.





We are looking forward to our busy holiday season when we will be showing *Mystery of the Christmas Star* from Evans and Sutherland.

***Settlemyre Planetarium  
Museum of York County  
by Carole Holmberg***

ROCK HILL—The Settlemyre Planetarium had a busy summer. The Museum's Storyland exhibit proved popular. The planetarium showed *Big Bird's Adventure: One World, One Sky* five times each week, and *Max Goes to the Moon* six times weekly. We had a jam-packed October planned as well, with partial solar eclipse viewing, a *Psyche Launch Watch Party*, an *International Observe the Moon Night* pop-up, and our annual *National Chemistry Week Celebration*. Unfortunately, the solar eclipse was obscured by clouds from beginning to end and the *Psyche* launch was delayed so many times that only staff showed up to watch the launch live on NASA-TV—an event complete with bingo cards and prizes.

***Hooper Planetarium  
Roper Mountain Science Center  
by Maggie Connelly***

GREENVILLE—Roper Mountain Science Center is in full swing with field trips this fall. The planetarium has program offerings for students in 1<sup>st</sup>, 2<sup>nd</sup>, and 5<sup>th</sup> through 8<sup>th</sup> grades, and we are seeing groups every day of the week. Most of the programs are the same as last year, but I revamped the 8<sup>th</sup> grade lesson and, in addition to a live talk about the Moon, eclipses, solar system, and our galaxy, I am showing the *STARS* movie as our feature film. We've gotten some great feedback from teachers, which is nice because it is sometimes difficult to find a good show for middle school students.

We've also been continuing our public Friday Starry Night events, which include a planetarium show and a visit to the observatory. Attendance has been a little low, but it always is in the fall when school starts back and there's Friday night football games. Beginning in September, we added one 9 p.m. laser show per month (with the exceptions of October and December, which have holiday-appropriate shows). We ran Taylor Swift again in September to a sell-out crowd. November features *Seattle Sound* for the first time. I'm interested to see what sort of attendance we will have for that type of show since it is out of our normal wheelhouse.

I attended the annual CAPE conference in October at the Mayland Earth to Sky Park. Wow! Blair and Amanda were excellent hosts, and I appreciate all the work they dedicated toward making the conference a success. I'm looking forward to trying out some of the ideas I have based on others' presentations, and it is always great to reconnect with the group. I'm already looking forward to next year's conference.

***Planetarium  
Spartanburg County Public Libraries  
by Andy Flynt***

SPARTANBURG—I attended Digistar Institute in Philadelphia in August and the CAPE Conference in Burnsville, North Carolina on October 9 and 10, and I received a lot of good ideas for programming for Spartanburg County Public Libraries' (SCPL) new planetarium. The library will be incorporating planetarium-like programs into its regular program schedule by hosting several showings of the feature *TOTALITY!* in September and October and hosting basic astronomy programs with NASA Solar System Ambassador David Leaphart through late summer and early fall.

SCPL purchased the Digistar 7 system from Spitz in September. Building plans are progressing nicely and the library hopes to break ground on the building by Christmas. We are still on schedule to open the planetarium by the first quarter of 2025.



***Bays Mountain Park & Planetarium  
City of Kingsport  
by Adam Thanz***

KINGSPORT—Greetings Fellow Planetarians!

***In the Planetarium Theater ~***

The planetarium staff is starting to get back to normal. After five years of planning, we finally were able to host the U.S. Planetarium Conference called *Stars for All 2023*. We had over 300 people attend from all over the U.S. and the world! Just prior to the event—on the weekend before—we hosted the IPS Council Meeting. All week long, we had lots of learning, meeting with each other, and having fun. It took over two months after the conference to finalize

all expenses. There is still a little bit left and then that will be complete.

We are happy to host a Planetarian in the U.S. through the IPS program to promote international partnerships. This project from IPS was first introduced about five years ago, though COVID interfered. Robin and I put in our names to be on the host list back then and now 2023 is the first year it was utilized. We are hosting Paul Curnow. He is an Astronomy Lecturer from the Adelaide Planetarium at the University of South Australia. He is an expert in Aboriginal Sky Culture and will be presenting this at our theater. As of this writing (October 2023), he arrived in the States a week ago and presented at Griffith Observatory. He is just about to present at Lowell Observatory and then proceed across our wide country to arrive here in East Tennessee to be one of our keynote speakers at our annual StarFest event. He'll be a part of the live components of some of our public and school programming sharing his knowledge of the sky down under.



*Bays Mountain will host Paul Curnow as part of the IPS Planetarian in the U.S. program*

We are currently running Unveiling the Invisible Universe in our theater as the main feature. It shows at 4 p.m. Tuesday-Friday and at noon and 4 p.m. on weekends.

Our alternate show happens at 2 p.m. on the

weekends. It is Appalachian Skies, our live tour of the night sky. Having it fully modular has really helped make the program even better than it otherwise would have been. It allows each of us in the theater to provide a unique show and keeps it fresh since we're not stuck to a strict script. (Say that five times fast!)

### **Observatory ~ StarWatch**

We'll be starting this up with the public this fall. They are our night viewings on the Saturday nights of October and November, starting at dusk at the observatories, and are free of charge. If the weather is poor, we'll do an alternate live program in the planetarium theater. But, it's different than our regular Appalachian Skies program in that it's a hybrid dedicated to hands-on learning with star charts. We have permission to use the charts from [www.skymaps.com](http://www.skymaps.com). For this special, alternate program, we start with the lights up, hand out charts to each family, and then explain how to read the chart. Then we bring the stars up and ask them to use their cell phones to shine on the chart and find specific, easy-to-see constellations in the planetarium sky. We then go into a little further detail for our guests using the charts so they can increase their sky map reading skills.

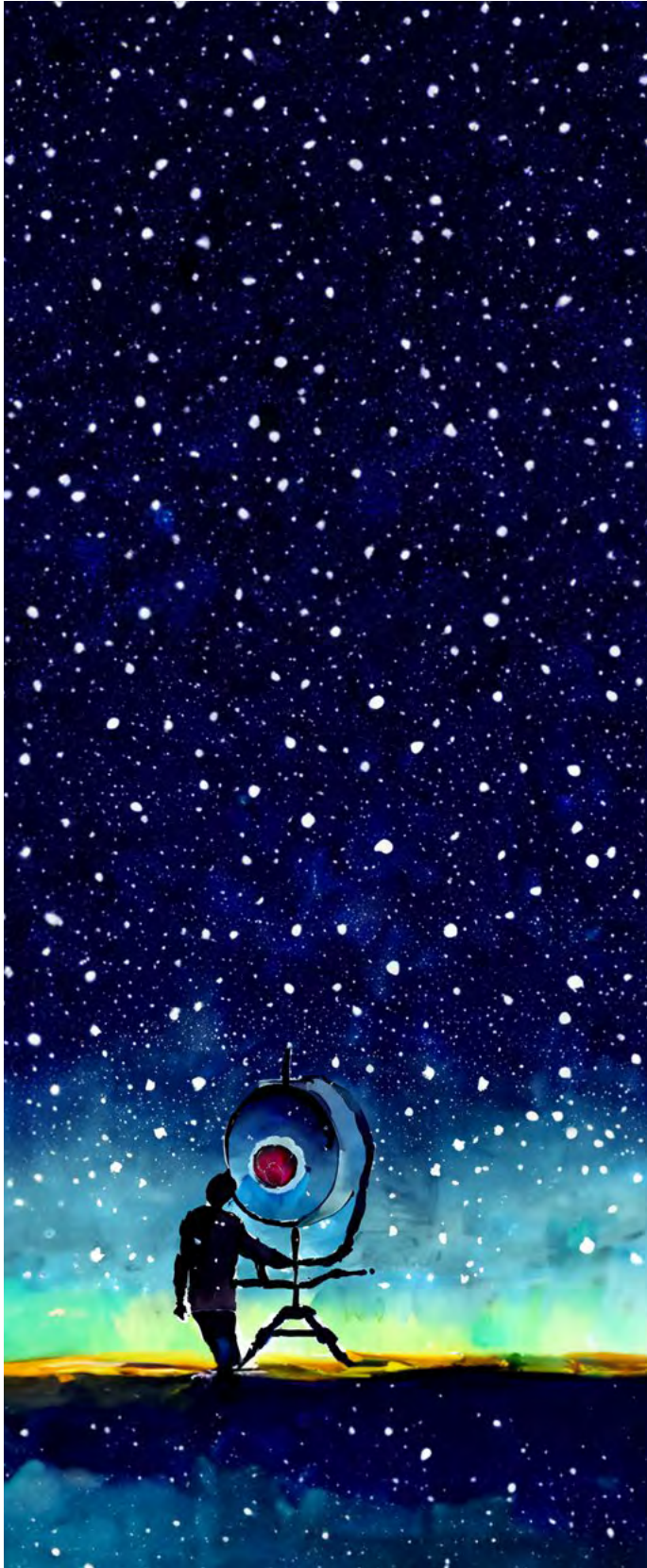
### **Nature Center & Park ~**

Why am I bringing this up? There's been a whirlwind of activity and plans to update our park. If you were at the Stars for All 2023 Conference, you would have seen the initial stages of getting ready for renovation in our main Nature Center building. Demolition started about a month ago. It looks strange to see the main lobby and gift shop area gutted. It was really needed and it will be great to have a fresh look. The entrance to the theater will also be redone. Instead of an entrance made of a nondescript, singular brown door that no one seemed to notice, we'll have a more grand entrance that should be more obvious. The design for this and the main lobby and gift shop was from our exhibits department, specifically Cassy Rose. This phase of the master plan for the Nature Center should be done in February to March. Immediately following will be the next phase to complete the ramp and lower level of our building.

The old amphitheater and extremely old bear exhibit is currently being razed. Over the past 50 years, that bear exhibit became a space for raccoons and then a fox. A new fox exhibit is almost complete and is now much nicer and larger. A new amphitheater space will take its place in the grounds behind the Nature Center towards the reservoir. The grounds



in front and in back will be fully redone to be more open and provide ADA accessibility. Other buildings will address accessibility also, albeit in separate projects. All the other animal habitats will also be addressed. The Park has the worthy goal to earn AZA accreditation. I agree with this new directive.



## ***SEPA 2024 Conference - SAVE THE DATE!***

***June 11-15, 2024 in Memphis, Tennessee***

The AutoZone Dome at the Sharpe Planetarium, Museum of Science and History in Memphis, Tennessee is pleased to announce it will be hosting the 2024 conference of the Southeastern Planetarium Association (SEPA). The dates are June 11-15, 2024.

Being held during the centennial year of the planetarium, this conference will be looking back to celebrate the past, while keeping an eye toward the future. So, naturally the theme is Back to the Future. "Great Scott!" More information will be available on the conference website as the weeks go by. It shouldn't be difficult for nearly any topic to fit this theme. So, start planning your presentations and any workshops now.

The conference hotel is The Holiday Inn. University of Memphis. Make your reservations now at the conference rate of \$120 per night by clicking [this link](#).

Feel free to contact me with questions and suggestions.

Your Conference Host,

Dave Maness,  
Planetarium Supervisor  
901-636-2383

## ~ IN MEMORIAM ~

**Dale W. Smith**, 75, of Bowling Green, Ohio, passed away early on Sunday, September 10, 2023, as a result of complications of a stroke suffered in June. He was born May 9, 1948, and grew up in the small village of Ames, New York, son of George W. and Florence (Wessels) Smith, who predeceased him. He graduated from Canajoharie High School in 1966 as valedictorian of his class and was inducted into the school's Alumni Hall of Fame in 2018. He graduated from Colgate University in 1970 and earned his Ph.D. in astronomy in 1978 at the University of Washington, Seattle, with a dissertation on dust in the atmosphere of the planet Jupiter.



After serving brief terms on the faculties of Bellevue Community College, Western Washington University, and Colgate University, he came to Bowling Green State University in 1983, where he was serving as Professor of Physics and Astronomy and Planetarium Director through the time of his death. At the Planetarium, he delivered educational multimedia programs to the general public and to area school groups, and created many of these programs himself. He oversaw an extensive renovation of the Planetarium in 2013 and 2014 with the installation of a state-of-the-art full-dome video system. In 2016 he was named Professor of Service Excellence at BGSU.

He was active in professional planetarium societies and served as President of both the Great Lakes Planetarium Association (1990-1994) and the International Planetarium Society (1999-2000). In these organizations, he served as editor of annual conference proceedings and editor of a worldwide directory of planetariums, among other roles. He was given the highest award of each society: GLPA's Galileo Award and IPS's Service Award.

Dale enjoyed traveling and visited more than 60 countries and all US states, Canadian provinces, and states of Australia. In 2000-2001 he set foot on all seven continents in the span of one year. On his travels he took more than 200,000 photos, including both slides and digital images. Besides photography, his hobbies included collecting books and international and old US currency.

He was active in the First Presbyterian Church of Bowling Green, where he ran the sanctuary sound system for over thirty years and also served as church photographer.

At his request, there will be no services or public viewing. His ashes will be placed in the Ames, NY cemetery next to his parents. He is survived by numerous cousins and by many friends around the world.

Photo by Bill Buckingham



## ~ *IN MEMORIAM* ~

**Francis (Frank) Ernst Palma**, EdD, 91, passed away peacefully at his home on Wednesday, November 29, 2023.

Frank was born at the family home in Greenfield, Wisconsin on August 23, 1932, the first of seven children, to Francis Florian and Bernadette Louise Palma.

Frank taught high school physics, math, and physical science in Missouri. He received his master's degree in physics from Illinois Institute of Technology. He then taught physics at St. Mary's University in San Antonio, TX. Frank received a National Science Foundation fellowship to attend Rensselaer Polytechnic Institute, Troy, NY for a 12-week physics and chemistry seminar where he met the lovely young Carol Turnitz. After the seminar ended, they began writing many letters and calling long distance since Carol lived in Pensacola.

After long distance bills started rivaling the mortgage payment, Frank followed Carol, the love of his life, to Pensacola, FL, where he began teaching at Pensacola Junior College in 1970 until his retirement in 1998. Frank was the planetarium curator and taught astronomy and physics at PJC (now Pensacola State College.) He received his doctorate from Auburn University. He also co-authored three physics textbooks.

Frank, ever the avid teacher and physics enthusiast, was a frequent guest speaker at some local middle schools as his moniker, Dr. Wow, an educational spoof of one of his heroes, Albert Einstein. Frank used his artistic abilities and enjoyed designing sets and props for plays produced by St. Mary's Productions.

Frank is preceded in death by his parents, Frank F. Palma (d. 1991) and Bernie L. (Hirsch) Palma (d. 1987), as well as his brother-in-law John Brandt.

Frank is survived by his wife of nearly 53 years, Ann Carol Palma; his children, Kathy Parker (Kevin) of Pensacola, FL and Charles Palma (Manet) of Aurora, CO; four granddaughters, Nicole Parker, Rachel Parker, Penny Palma, and Posey Palma; siblings, Sr. Mary Jo Palma, Betty Brandt, Gerry Palma, Margie Seitz (Robert), Sr. Bernie Palma, and Mary Juco (Phil); and many nieces, nephews, cousins and treasured friends.

Trahan Family Funeral Home is assisting with arrangements.

Funeral Mass will be held 11:00 am Friday, December 15, 2023, at Cathedral of the Sacred Heart, with Fr. Nicholas Schumm celebrant. A reception will immediately follow in the Ave Maria parish hall. Anyone planning to attend the reception after mass, please RSVP to [office@shc.pt.org](mailto:office@shc.pt.org) by Wednesday, December 13, 2023 8 p.m.

In lieu of flowers, memorial contributions in Frank's name may be made to Catholic Charities of NW FL or Pensacola State College.

Originally published in Pensacola News Journal on December 7, 2023.





# SPACE SONGS

## with Jon Underwood Bell

*The heavenly bodies are nothing but a continuous song for several voices (perceived by the intellect, not by the ear); a music which... sets landmarks in the immeasurable flow of time.*

*-Johannes Kepler*



In the Fall 2023 issue of *Southern Skies*, I wrote about making up new lyrics for the popular song, *Fly Me to the Moon*, to allow it to serve as a vehicle for teaching about astronomy while at the same time entertaining the listener. The first two lines from the song, written by American composer and musician Bart Howard in 1954, are the beginning to a great inspirational salute to space exploration. And then of course, it all goes sideways when it starts talking about holding hands and kissing and all that other mushy-lovey stuff.

When you're writing a space song, it's often best to turn away from the more recent material that's already out there, and instead find an old tune—as a rule, one that's in the public domain—and then go ahead and give it completely new lyrics. Ideally, the tune should be catchy and memorable, so that your audience or your students can retain it, like some mad alien earworm that won't stop playing in their heads. GWAH! Here is just such a tune—[Lilli Burlero](#).

Lilli Burlero, also spelled “Lillibulero”, “Lilliburlero”, or “Lillibullero” is not a particularly familiar song, although I have heard it played at a wedding reception; and I also have a recording of the Baltimore Consort's rendition of it that has bawdy lyrics: [My Thing is My Own](#)—what fun!

Lilli Burlero has been featured in motion pictures as well, like the 1975 movie [Barry Lyndon](#), and the magnificent 1965 film, [The Flight of the Phoenix](#).

The song, said to have been written by Henry Purcell in the 17<sup>th</sup> century, (although it appears to be based on an anonymous tune written much earlier), served as a military march for English armies; but there is also another set of derogatory lyrics that were sung by the Brits when they were messing around with the Irish during their fight for independence. It's from here that the song title comes, the taunting refrain—

*Lero, lero, lilli burlero,  
Lilli burlero, bullen a la  
Lero lero, lero lero,  
Lilli burlero, bullen a la.*

If you're looking to have the notes written down so you can play or sing it, visit [The Session](#).

Meanwhile, here is my attempt at re-purposing the song. I'd just attended the wedding reception I'd mentioned earlier, and the tune was still in my head. It was late at night, and I was driving with my family to see some relatives in Virginia. Everyone else was asleep, and for some reason I started thinking about a few of the old Hayden Planetarium shows that were presented back in the 1970's. I was also thinking about how to help my students learn the names and discoveries of various astronomers going back to Stonehenge. (Yes, all of these things were running around in my head at the same time. It's both a blessing and a curse.) One of the great old shows, I think Dr. Ken Franklin or Dr. Fred Hess wrote it, (and I hope that there are at least a few people who are reading this article who can probably correct me if I got this wrong,) was *Universe Calling*. It talked about stars, constellations, classic astronomy and recent discoveries in outer space.

Then instantly everything came together all at once, and I had the new song lyrics fully formed in my head. But as I said, I was driving and everyone else was asleep. I was afraid I was going to forget the words, so I started feeling around in the dark for a pencil and paper to jot things down before that happened. Of course, my wife woke up and demanded to know if I was crazy. So I said, “Oh, you're awake, good, could you write this down for me if I tell you the words?” Her response was, “No. It's 3 a.m. Just. Drive. The. Car.” She then went back to sleep.



Anyhow, by the end of the trip I had the new lyrics.  
The refrain or chorus was the first thing I thought up:

*So look to the stars, tell me what do you see?  
The heavens unfolding, a great mystery!  
The Universe calling, 'cross infinity,  
Per ardua ad astra, they beckon to me.*

“By Hardship to the Stars,” pretty much says it all about our efforts to understand the cosmos. The verses followed in quick order, and, unlike the original song, I came up with more than just a handful of verses—plus I’ve written quite a few more over the subsequent years, which means that I can’t sing **all** of them in one sitting, because who has that kind of time to listen to them? Instead, when I’m presenting to my class, I choose the ones that best apply—

ditties about Greek philosophers for the early days of science, a set of Renaissance and classical lyrics, 20<sup>th</sup> century... whatever person or discovery is needed to help the students remember and understand the significance of our work in astronomy.

I have so far, one and only one, video on YouTube, and it so happens to be Universe Calling! If I can ever get some more free time (or another really long road trip), I hope to expand on this. Meanwhile, you can watch it [here](#).

And here are all the verses I’ve written so far. The chords I’ve noted work for me, feel free to transpose.  
-JUB

### ***UNIVERSE CALLING!*** ***(Per Ardua Ad Astra: A History Lesson)***

by Jon U. Bell, March 30, 2002, with additions through 2023

Sung to the tune: Lilli Burlero, attributed to Henry Purcell

**Preamble:**

G	C	D	
The stars in the sky that we see every night,			
G	C	D	G
Their beauty inspires us – a heavenly sight!			
G	C	D	
They shine down upon us from light-years away			
G	C	D	G
And someday we hope to be going their way!			

**Chorus:**

G	C	G	
So look to the stars, tell me what do you see?			
G	Em	D	
The heavens unfolding, a great mystery;			
C	G	C	G
The Universe calling, ‘cross in-fin-i-tee,			
C	D	G	
Per ardua ad astra, they beckon to me!			

### ***Thematic Verses:***

**Ancient Skywatchers:** Stonehenge was built on the plains of Sals’bree,  
A calendar temple, three thousand B.C.  
Sunrise o’er heelstone, the solstice in June,  
Eclipse of the sun and eclipse of the moon!

**Ancient American:** Shoshone, Crow, Cheyenne and others as well  
Built Medicine Wheels that directions could tell  
The rising of stars and the sun and the moon -  
They follow the path of the rocks that were strewn!

**Egypt:** A pyramid built by the Pharaoh Khufu  
Was aimed at Orion and old Thuban too,  
The sun-boat of Ra as it went on its way  
Gave o'er to Nut's star-form at end of day.

**Greek 1:** Aristotle knew our planet was round  
He saw its curved shadow on moon – how profound!  
Eratosthenes knew just how big our earth was  
Aristarchus sent earth round the sun, just because!

**Greek 2:** Pythagoras said, “listen – the tune of the spheres!”  
Plato told Ari, “save that which appears;”  
Hipparchus made charts and gave star magnitudes,  
Ptolemy's book met some dark interludes.

**Middle Ages:** In Baghdad the Caliph he gathered the best,  
There learn-eds deciphered the great Almagest!  
And abbots and monks in their monast-er-ees  
Wrote down and recorded the ancient world's deeds!

**Renaissance:** In Poland a cleric was having some fun,  
Copernicus said Earth did go 'round the Sun!  
And on Hveen a man built a great observat'ray  
He measured the stars did the Dane Tycho Brahe!

**Kepler:** Kepler he had him a thought most profound,  
The orbits of planets are not all that round;  
“Velocity varies with distance,” sayeth he,  
P squared equals A cubed, elliptically!”

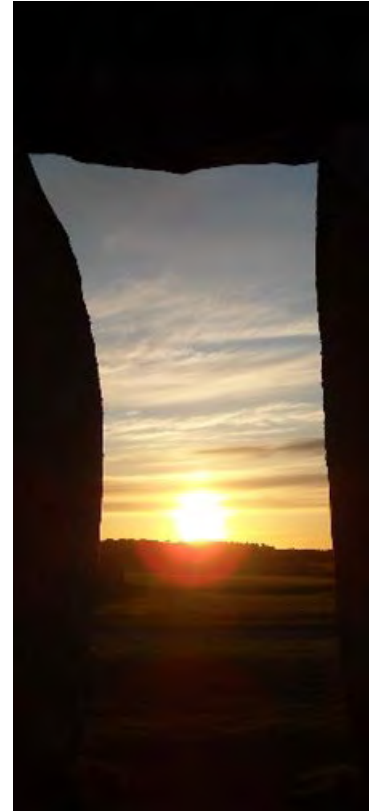
**Galileo:** A telescope built in the year sixteen-nine  
Gave Galileo a view simply divine!  
The moons of great Jove were laid out on display,  
The phases of Venus, the moon rough and gray!

**Newton:** In Cambridge an apple did fall from a tree,  
Sir Isaac then noted the force gravity;  
“The moon's like an apple,” the great Newton said,  
“It falls 'round the Earth, just not on my head!”

**Herschel:** In Bath William built him a good telescope,  
Discovered a world and it gave him great hope;  
Herschel did count all the stars he could see  
And found out the shape of our great Galaxy!

**Cannon:** Annie Jump Cannon quite often did see  
Dark spectral lines at Harvard Observa-tree;  
She catalogued them hot to cool by degree,  
O B A F G K M, won't you kiss me!

**Einstein:** Einstein the genius addressed gravity,  
“You're not what you seem, just what can you be?  
“Everything's relative, space-time is curved,  
“To travel the speed of light seems quite absurd!”





**Old Limerick:** There once was a brilliant young lady named Bright,  
Her speed was much greater than that of light.  
She set out one day on her usual flight,  
And thus she returned on the previous night!

**1920:** “Our sun’s halfway out in the great Milky Way,  
“Eight K P C,” Shapley told Curtis one day;  
Curtis retorted, “Those spirals you see,  
“They’re galaxies and not nearby nebulae!”

**Leavitt:** Leavitt has cepheids in mind as she thinks,  
“They brighten and dim as they swell up and shrink;  
The brighter they are then the slower they tick,  
I’ve found thus a much larger measuring stick!”

**Hubble:** To measure the distance to M-31,  
A cepheid was needed, a dim dying sun;  
Ed said to Milton, “Let’s see what you’ve got,”  
And Humason gave Hubble a variable dot!

**Big Bang:** “The cosmos expandeth,” sayeth Father LeMaitre,  
And Hubble concurred but Hoyle countered, “What rot!”  
Then red shifts were found that provided the proof,  
The galaxies fly, Einstein said, “I did goof!”

**Chandra:** Chandrasekhar did establish his goals  
For white dwarfs and neutron stars and for black holes:  
“One point four, two point four, mass of the sun,  
Determines the fate in the end of each one!”

**Cosmic BR:** Penzias and Wilson worked hard at Bell lab  
To lose telephone noise they thought they’d take a stab,  
Dickey was looking, but they got there first  
And found the great voice of the whole Universe!

**Bell Pulsar:** Jocelyn Bell worked with radio ‘scopes  
She studied the squiggles of stars with high hopes  
A regular pulse, could it be L.G.M?  
No, just the quick beat of a neutron star gem!

**Superclusters:** Huchra and Geller, their students as well,  
Discovered the places where galaxies dwell;  
Great walls and voids John and Margaret did chart,  
A stick-man revealed by their red-shifted art!

**Peculiars:** “Quasars are distant and brilliant,” said Schmidt,  
Hawking said, “Black holes radiation emit,”  
Galaxies crash and collide as they go  
It’s amazing how much we now know we don’t know!

Note: On the last chorus, substitute, “Per aspera per ardua,” (By hope to the stars), for “Per ardua ad astra (By hardship to the stars)

Photos: Stonehenge at sunset, May 21, 2009 Jon Bell; Arecibo, Puerto Rico radio telescope, March 2013 Jon Bell



# Stars for US Planetarium Bays Mountain Planeta





# AII 2023

m Conference  
arium - Kingsport, TN





# ***My Legacy***

*by Woodrow W. Grizzle III*

Stars shining in a purple sky—  
I wonder what they've seen.

How many others wondered—as I—  
who now are only “used to bes”?

The universe, it's often said,  
is vast beyond compare.

So what I say and do, I think  
should more oft' be thunk with care.

Photo: “Without” by Woodrow W. Grizzle III  
Southern Skies





SOUTHEASTERN

PLANETARIUM

ASSOCIATION