

# Projections

SPRING/SUMMER 2015

Planetarium Newsletter



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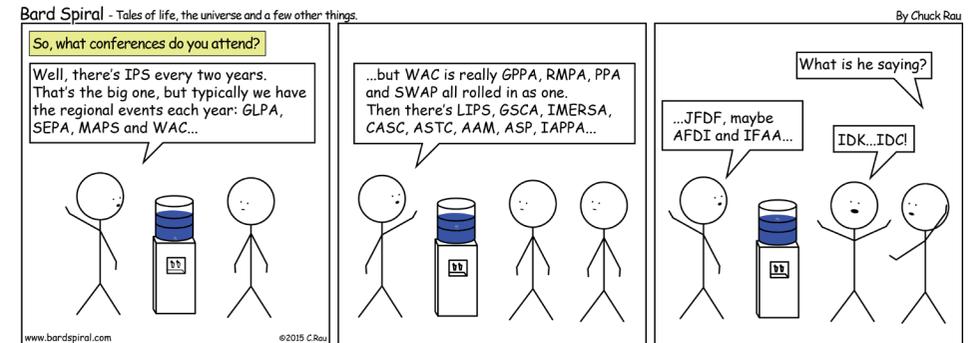


2015 has been a great year so far, and now over a year since I took the position of Planetarium Sales Director. I've been flooded with interest in ZEISS systems and have had some great conversations with people looking to build new planetariums. So much interest because these people are looking for the finest optical systems around, whether they are traditional star projection or the latest generation of VELVET projectors. The world over, ZEISS is known for quality and precision, and that's why we continue to promote and sell ZEISS equipment.

We have a tendency here in the US to go for the lowest bidder, assuming that all else is equal. When it comes to projection systems, this couldn't be further from the truth. I spoke with someone recently who had an observation that in this field, a planetarium director will often gravitate to the vendor of the equipment or night sky they grew up with. As someone on the outside, they were able to look more objectively at the situation and see that the ZEISS projection was far superior than other options, and I couldn't agree more. A technology can be prolific, but that doesn't mean that it is superior, just that more people bought it, whether through price or better marketing.

Speaking of price, I had someone tell me that they thought the VELVET costs a million dollars...each! While they may look like a million bucks, VELVET projectors cost a fraction of that. And even better news is that the exchange rate has dropped significantly over the past year, so if I've quoted you before, it's time to look at this again.

In this issue, we explore who your audience is and talk about your fans. I personally want all of you and your facilities to be successful, and hope that we can work together to make this happen.



## Upcoming Events

- June 23-27 - SEPA (Southeastern Planetarium Association)  
Tellus Science Museum, Cartersville, GA
- July 29-August 2 - WAC (Western Alliance Conference)  
The New Mexico Museum of Natural History & Science, Albuquerque, NM
- September 21-22 - Uniview Users Group  
California Academy of Sciences, San Francisco, CA
- September 23-25 - LIPS (Live, Interactive Planetarium Symposium)  
California Academy of Sciences, San Francisco, CA
- October 14-17 - GLPA (Great Lakes Planetarium Association)  
Chaffee Planetarium - Grand Rapids Public Museum, Grand Rapids, MI
- October 17-20 - ASTC (Association of Science-Technology Centers)  
Montreal Science Center, Montreal, Quebec, CA



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Exclusive Partner

### ATTENTION:

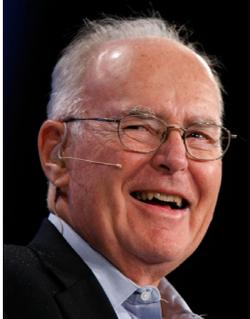
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# Troubleshooting and Moore

By Brian Wirthlin

This year marks the 50th anniversary of Moore's Law. In 1975 Gordon Moore observed that the number of transistors on dense integrated circuits doubled approximately every two years. It's a big deal. Two to the 25 power equals 33,554,432. So Moore's



Gordon Moore

Law is a big deal. I'm not sure anyone has ever been celebrated for the observation that if the reliability of those circuits hadn't gone up at an even greater rate it wouldn't matter how densely you could stuff transistors onto the silicon. The early discrete electronic computers had a mean time between failures of about 15 minutes. Troubleshooting was important way back when.

Way back when - planetariums had technicians - even engineers. You see, there were all these projectors, dimmers, recorders, amplifiers, microphones, lights, electro-mechanical this & that, and other mysterious things that had a tendency to break. Actually, planetariums still have these things and computers galore, but the technicians are mostly long gone. Things just don't break all that often anymore, and when they break it's usually not fatal. Today's equipment grows older and rarely fails outright. It usually fails intermittently. Intermittent problems are hard to troubleshoot. Let's say one of your video projectors stops working in the middle of a show. Is it the bulb, the ballast, the light engine, the video cable, the video adapter, the CPU, the disk drive, the network interface, the network cables, the switch, or something I haven't mentioned yet? Where do you start?

Everybody's talking about STEM today. Suddenly Science, Technology, Engineering, and Math are important. Actually, they were always important, but they've also always been hard. You can't dumb down Science, Technology, Engineering, or Math and still accomplish much of anything. Oh don't get me wrong, you can still play with Arduinos, 3d printers, video projectors, even laser

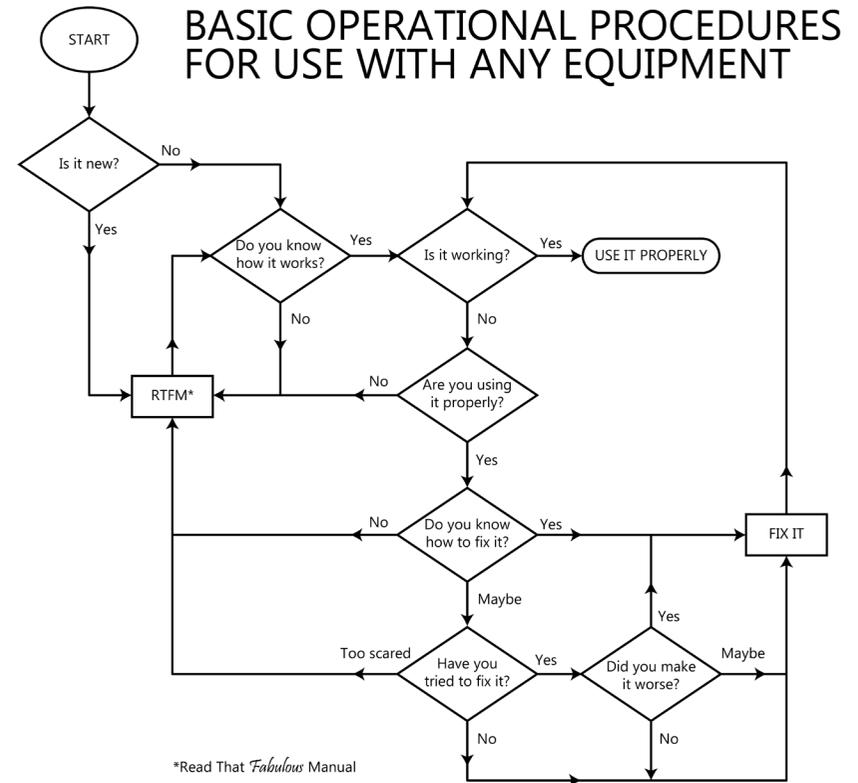
projectors without much understanding, but eventually something's going to break and troubleshooting becomes the next step. You want to know how to become a power user? Break something and then fix it. Build something complex and debug it. Learn how to program. Setup a network. Stop treating everything as a black box. Don't ever give up. Saying, "I can't" is both a self fulfilling prophecy, and a self defeating one.

It sounds daunting, doesn't it? Luckily you don't get measured by your first attempt. There isn't a test where you score 63 out of 100. It's a pass/fail test, and it's easy to grade. As long as you haven't given up - you pass.

Whether the problem is with the kitchen faucet, air conditioning, a printer, or a full dome system, troubleshooting is a process not a simple checklist. Here are a few tips from Chuck for troubleshooting that you may find helpful:

1. Take ownership of the problem – This isn't about blame, this is about owning the idea that you are the most qualified person to fix the situation then and there. There's nothing wrong with phoning a friend or calling in some professional help. If you don't have someone else on staff that knows the system better, it's all on you to make it work.
2. Recreate the problem – This can be difficult if it is intermittent, but often there can be a set of circumstances, whether environmental, user triggered, or situational that lead to a repeatable failure.
3. Identify the contributing factors – If you can determine the process from the above step, you can more easily identify the contributing factors.
4. Start with the obvious things first – Is it plugged in? The reason that most IT help desk people will suggest that you cycle power on a computer, is that quite often it really does help. Computers are complex devices, rebooting the computer clears memory, ends open processes and starts from a more fresh state. It may be frustrating to hear someone suggest it, but they aren't suggesting it because they want to make your life miserable.

5. Eliminate some variables – Troubleshooting is easier with fewer variables. By changing one thing at a time, you can eliminate things that have no bearing on the situation. If you suspect it could be one of two cables, replace them one at a time to see which one solves the issue. Alternately, you could try to diagnose both cables simultaneously if you can do so intelligently. Swap them to other separate places and see if the problem moves. Don't put both suspect cables in the same situation elsewhere, as that doesn't tell you which one is the problem.
6. Track what you have done – If you do something that makes the situation worse, you can retrace your steps and put things back where they were. Always try to return it to the previous state if you have made the situation worse, but note what you did as it may help to provide a clue as to the real problem or identify others you didn't know about.
7. Don't give up! – Trying something that doesn't fix it just helps to eliminate another variable. You are one step closer. Try something else.
8. Don't just rip into things with reckless abandon, there is usually some logic to how things work. If the problem is that there isn't any air conditioning in the room and it is too hot, your first step should not be to pull out all the duct work.
9. Seek professional help – If you have given it your best, or the situation is just outside of your knowledge base, it may be time to call in a professional. Pay attention to what they do. This may help you in the future if the situation arises. There are some jobs that are a bit too big to handle on your own and that is ok.
10. Follow the instructions – Whether they are written in a manual or given by a technician, there may be specific steps to take for a given situation. Follow any instructions to the letter, and don't deviate from them. If a technician tells you to move one cable from A to B, B to C and C to A, do exactly that.



## Myth: The General Audience

By Chuck Rau

Who is the general audience? First, let's get one thing clear, there is no such thing as a general audience, or at least I've never met them. Your audience is probably made up of a wide range of people: teachers, students, parents, retirees, a family with visitors from out of town, doctors, writers, bank tellers, space enthusiasts, chemists, lawyers, retail clerks, managers, scouts, butchers, bakers, candlestick makers, someone who hasn't been there for a while, the old guy that comes in once a month with his grandson, people who happened to have some free time, someone who bought a name for an impossible-to-find star for their spouse, someone else who stumbled into the line waiting for the next IMAX show, someone who heard Mars will be bigger than the moon next month...and so on.

Your audience is from a wide range of backgrounds, income levels

and interests, but they somehow managed to find you and were willing to watch your show at least once. You can't treat them all the same and you certainly can't assume they all want to see the same show content. If you could, your seats would be filled and the shows would rarely change. There are a few exceptions out there, such as facilities in very large population centers. Whether the facility is large or small, I wonder how many people return. Perhaps you recall that I like to consider the desire to return and even better, an actual return visit, as a measure of success of the previous visit.

Let's think in terms of fans, like those of sports teams or musicians. Fans come in many forms, from many walks of life. Museums, science centers and planetariums can also have fans. So can specific topics of interest. The fans have some expectations that need to be met to satisfy their interests. These needs will vary based on what these interests are, as well as the differences in age, upbringing and other cultural considerations. The interest may be passing, or it could be quite serious. It is important to remember that just because they walk through the door doesn't make them a fan of you, your facility or what you have to offer them just yet.

So often I hear about places that are afraid to change what they are doing because they don't want to lose their audience. "By golly, we show the stars and that's it, nothing more, nothing less...these people want to see the night sky!" As a concept and physical space, the planetarium as we know it has been around for nearly 100 years. There certainly is a perception by many people of what a planetarium is or does. Your guests probably base this on what they have seen and experienced in the past, even if it wasn't at your facility. Good or bad, these past experiences affect their expectations of what a trip to the planetarium is like. The same style of marketing materials, show content or presentation technique that brings in the retirees who want to see the night sky each month is not necessarily what would bring in the family of four or the school groups. By offering a range of presentations and promoting them in ways that cater to those "fans" will gain you access to a greater and more diverse market segment, helping to ultimately improve attendance.

Also, if the show never changes, then the audience has little reason to come back soon. You may have heard things like, "We've been there, it was the same show as when I was a kid... they pointed out the Big Dipper and Orion." If that's the only type of show that is offered, you aren't likely to get someone like that back again soon. Most of us have talked to someone who said, "I was there XX years ago." And they hadn't been compelled to visit more frequently. Planetariums are a bit unique in that there is a perception that nothing changes. This is probably based on the perception that the night sky is still relatively the same, as well as whatever impression your show offerings, advertisements or other marketing efforts have been promoting. If you simply advertise that you are there, you perpetuate the myth that it is the same visit, even if the actual technology in the room and show offerings have changed.

The situation is vastly different than that of a movie theater. While you can judge a movie theater on similar criteria as a planetarium (comfort, quality of projection, sound or price), the content of the movie that you saw last month or 30 years ago isn't what will determine if you go back to the theater to see the latest blockbuster next week. If you didn't like the Twilight movies, your opinion of that saga isn't likely to affect your opinion of Avatar or the next Star Wars release. Each of these films will have their own fans and some may overlap, but these are unrelated productions made available in many theaters and people understand this. In a planetarium, the opinions of a customer can often be based on an experience at another planetarium. While many produced shows are available, planetariums still carry a more direct connection of the total experience of content and venue associated together. This is likely due to the fewer number of planetariums compared to theaters and a long history of only showing the night sky and related content.

### **WHO IS YOUR AUDIENCE?**

If you or someone in your organization has ever used the phrase "That's not what our audience wants," I would ask you this: Are you running at capacity? More specifically, are your seats filled for every show and there is no more time in the 24 hours of each day for another show? If you are running a truly packed schedule where

everyone loves the shows, they come back and you are open 24 hours a day, congratulations, you win...add another dome, increase the ticket prices and enjoy the rewards.

A bit extreme? Sure, and this probably doesn't describe your situation. More likely, your attendance is down, hours of operation have been cut along with your budget and staff. If this is the case, it is high time to do something different. Any arguments of continuing as-is because "This is what our guests want to see!" has no weight or merit. It is time to spread out and attract a larger audience, perhaps even by attracting different audiences. Offering a variety of content across multiple topics will grant you access to a wider pool of potential visitors, but you still need to find them, advertise to them and get them into your dome.

With so many unique planetariums, each having their own challenges, it is difficult to describe how to do this in general terms, until you look at your fan base.

Fans of the night sky will come to see a star show, fans of explosions would be attracted by a different kind of show, as would fans of aliens, dinosaurs and rollercoasters. For many decades, the shows available to planetariums had been far more limited in content and style than what is currently available. Certainly there have been enhancements made over the years, adding slides, some video, laser graphics and other lighting effects. Now many of these are being replaced digitally with fulldome video projection systems and many of those are now updating their systems again, hopefully by adding beautiful VELVET projectors to the crisp stars of a ZEISS opto-mechanical star projector. #ShamelessPlug

Opening up the schedule and offering more variety doesn't mean you will lose your existing audience, it simply gains you access to additional audiences. You may need to be more clear about what you are offering, so your visitors don't assume that the classic live star talk will now include explosions and a flight across the surface of Mars...unless it does, which could be awesome, but more likely not. Don't try to put everything possible into one show in order to satisfy everyone, it simply won't work. You are far better

off having something that fits the interests of most people, then the next set and the one after that. What that something is will depend greatly upon who you are attracting and encouraging to participate in your group dome experience.

Let's say you have a planetarium in a science center that also has a large format film theater and both standard and travelling exhibits. The films have a separate ticket, the travelling exhibits have an extra ticket, but the regular exhibits and planetarium are part of the general admission. The films and travelling exhibits are likely contracted as requiring title-specific advertising and people will come to see them because they know something has changed and recognize a title involving the coolest, most adventurous names: dinosaurs, monsters, mummies, Grand Canyon, etc.

Your planetarium probably doesn't get any such exposure. You don't get the big billboard representation, television spot or other advertisement opportunities. I've noticed that most planetariums get a bit of a rush when there is something big to advertise like a renovation. Sometimes there is some great free press, but the success of that influx is rarely followed up by additional marketing and advertising efforts to keep the momentum. What little advertising you do (if any) probably goes unnoticed, typically because it is simply advertising that you still exist.

So who is your audience? In this example, your fans – the fans of planetariums – with a chance of getting fans of the museum, and possibly fans of dinosaurs, if you happen to have a show tied into the exhibit that actually brought them in in the first place.

If your marketing department is running the show, they are telling you what you can do in your planetarium. Which shows to run, when you can be open and who your audience is. In my opinion, this is the worst option. I've never felt that a planetarium should be under the control of marketing. When attendance is low and there is no advertising or ineffective attempts at advertising, the people that should be held to task on fixing this rarely are. They tried this, they tried that, but nothing "just worked," so they stopped doing anything at all. Worse – they probably point at the planetarium as the problem,

missing the fact that they have made it as difficult as possible to be successful. Now all you can get is a small percentage of people that happen to enter the facility and notice that there is something else to do, and a few people that might be regulars.

Rather than being able to fix the problem, you may be stuck in a blame loop where shoulders are shrugged and fingers are pointed, rather than someone taking ownership of the problem and facing it head on. Before I let you get off that easy by blaming the marketing department, you should know that I've heard plenty of planetarians and administrators make comments that contradict with a willingness to really push for a successful operation. Some organizations exhibit quite a bit of entropy, and change is rarely pushed for. Certainly this can be true for planetariums in academic institutions as well as other organizations. Sometimes people are afraid to suggest bold changes, or simply got tired of being told "no."

Try being bold, see what happens. Reach out to other audiences, try being open at other hours, embrace social media and other methods of putting yourself on the minds of potential customers. Rejecting the possibility of failure may sound like an easy thing to say, and sure it takes some work, but when some administrations are actually nice enough to wait for you to retire before closing the doors, that's hardly an impressive legacy to leave behind.

### **ALTERNATIVE PROGRAMMING**

Laser shows have certainly been used for decades to attract audiences. No one will deny that these attendees have at times been a bit different than the daytime crowd. A heavy metal laser show may not be what you would run for a donor event or Saturday matinee, and this is completely ok. In the most simplistic way, acknowledging that the expectations and needs are different for each definable range of audience is the key to both identifying and solving an attendance problem. Find the people that are fans of something that will bring them in the door, and serve their needs.

I heard about a facility that made a mistake in their advertising for a U2 laser show. As I recall, they were swamped by people that

thought U2 would actually be performing at the dome. It must be exciting to get that much attention, but crushing at the same time, because you certainly don't want to disappoint them either. Beyond a need to be truthful in the advertising, one needs to also be clear with the message. A mistake like this will upset some people, but it also shows that advertising works and there are people out there that could be your audience if you have the right thing to offer them.

To be clear, I'm not saying hire Bono to run the ticket counter. Instead, think of things in terms of fan conversion. With a music based entertainment show, you are attracting fans of a band. The band has a following and the hope is that you will get them to come to your show, become fans of that type of show or of your facility and come back for more. Conversion of these fans is important for long-term success. The closer your connection to them is, the easier it is to attract them back to your facility again and again for other shows. If you are serving the needs of one group with one show and other groups with other different shows, filling the seats and increasing your schedule is going to be far easier than trying to do it with one limited group.

There are many possibilities that you may not have considered: birthday parties, scout events, adult events, host a gaming tournament or science fiction convention, evening parties, bring in a guest lecturer or astronaut, start a robotics club, have a game night, art under the stars, coloring contests, kids clubs, start a cosmic explorer program or make that occasional classic night sky tour even more of a special occasion with a little wine and cheese. If you want more attendance, you have to look outside the dome to find these people, then deliver a fantastic experience for them when they get there so they want to come back.

I realize that much of this is brought down to the most basic and simplistic concepts. This article isn't a manual for running a successful planetarium, because such a manual doesn't exist. You may be the one in the hot seat trying to make it all work or an administrator struggling with numbers. Either way, I would encourage you to take a strong look at who you may be missing that could be "your audience." I love a great night sky, and the newer

digital technology lets you present countless topics in ways we could once only dream. If you could attract more/other/new visitors by adjusting your technologies, show offerings, schedule and advertising...why wouldn't you? Not only do I wish you the best of luck, I'm here to help.

## Step 1 - What will success look like?

By Brian Wirthlin

I did a short presentation at the IMERSA Conference last year. Like most presentations at this sort of thing it didn't require a lot of research. It was about something I knew intimately. During one of the teleconferences leading up to the conference someone asked, "Is it really even possible for a planetarium show to be a financial success?" I said, "It's been done. Laserium sold 25 million tickets." Ken Scott of Digital Chaotics said, "Then the question is who will be the next Laserium?" I said, "No the question is what did Laserium do right and what did they do wrong? Answer that and you can be the next Laserium."

"Fail fast" has become a mantra in today's tech business community. But let's be honest, how many people really deal well with failure? How many even admit failure? Ivan Dryer failed fast with Laserium. He saw a demo at Caltech and thought - this would be great in a planetarium! So he partnered with Caltech physicist Dr. Elsa Garmire and did a demo for Griffith Observatory in 1970, and the Observatory folks said, "Don't call us..." Now that was failing fast.

If the Griffith folks had said yes - Laserium would have premiered years before Ivan had more than the glimmering of an idea about how to do a great show. Laserium would have been just another of those demonstrations that flashed and died. Instead Ivan spent 3 years producing a film called Laserium, thinking about business models, and learned the things he needed to know to do another demo in 1973 where the Griffith folks said, "Let's try it out on Monday nights as an experiment..." The experiment was a success, and ran for 29 years.

So what were the lessons? One thing they did right was doing the show at Griffith Observatory. Imagine you're back in 1973 and go to Griffith Observatory to see this weird new thing called Laserium. You get up the hill and the show is sold out. The evening's young and you decide to walk around the grounds, and you discover what everyone discovers - the view alone is worth the trip. So you come again and get there early to ensure getting tickets. You see the show and try to find the words to describe just how blown away you are, and come back again... On the business side - did I mention that Griffith Observatory seated 600 people back then?

The live performance aspect was a huge success. Some of us geeks desperately wanted to be a laserist. Having geeks actively trying to get hired by a technology company is always a good thing. The shows evolved and improved with each performance, and the geeks who couldn't make the cut as laserists could and did invent technology that improved the shows, and built more projectors so Laserium could expand into new markets.

Laserium took the lion's share of the gate, because it did its own advertising and marketing. In St. Louis in the 1970's a sell out for an evening star show was as rare as an eclipse. A typical Friday evening star show audience was around 20 people. Laserium sold out 15 shows a week for months when it opened in 1975. A sell out was 385 people and the ticket price was \$2 compared to 1.25 for the star show. The Planetarium made \$25 on a Friday night for that single star show, and netted \$808.50 for the three sell out Laserium shows. Laserium ran 5 nights a week and instead of one star show on Friday and Saturday nights there were 3 Laserium shows Wednesday through Sunday nights netting \$4,000 a week. With a \$10 ticket today, everything being equal, that would be \$20,000 a week.

BUT everything isn't equal today. Back in the 70's major planetariums had stunning optical mechanical projectors, great stars, dark skies and a fairly extensive staff that knew a thing or two about technical things. Today's planetariums rarely have great stars, dark skies or extensive technical staffs. Often today's planetariums are buried within a large museum which completely changes the economics

of evening shows. Today's shows are prerecorded and employ projectors designed to best reproduce random company logos at trade shows.

There were some who, way back when, didn't believe entertainment and inspiration belonged in a planetarium. I ran across a newspaper article from an early 1970's edition of the Toronto Daily Star where Curator Henry C. King was quoted saying, "We are not here to amuse or amaze, but to instruct." King came to the McLaughlin Planetarium from the London Planetarium, and perhaps we can find yet another lesson in this fact - both the London planetarium and the McLaughlin Planetarium have closed.

"My God, do you know what you're doing in there? You're teaching with this planetarium, instead of preaching. A planetarium is a synagogue, a church, a basilica. It's a place to celebrate the universe, and the incredible fact of our being alive in this world."  
- Ray Bradbury

## 70 Years of Excellence

*By Chuck Rau*

This year Seiler Instrument celebrates 70 years as an optical instrumentation company. As the sole distributor of ZEISS planetariums in the US and Canada, we are proud to work with ZEISS to provide the very best technologies to our planetarium customers. With nearly 170 years of precision optics expertise, ZEISS is known around the world with a reputation for the finest quality. That relationship is part of the DNA of Seiler Instrument, and is a powerful partnership in providing quality products.

Seiler Instrument and Manufacturing Company, Inc. is a privately held, multi-divisional company that has been family owned and operated since 1945. Headquartered in St. Louis County, Missouri, Seiler Instrument is a fourth generation, family-owned, American success story. The business was founded by Eric H. Seiler, an immigrant from Germany skilled as a machinist with a master's degree from the ZEISS School of Fine Optics in Jena.

### Fun Fact!

The survey equipment for the Gateway Arch were purchased from Seiler Instrument. These critical optical instruments were used for alignment during construction. Toward the end of construction the two legs were not matching up, with a gap for the final piece reduced by five inches. It was thought that the optical devices were misaligned, therefore causing a misalignment of the arch, but they were in fact very finely calibrated. The real issue turned out to be thermal expansion from the sun. Fire trucks were used to help cool the southern leg while the final piece was inserted in a massive event on October 28, 1965. So this Fall marks 50 years of the Gateway Arch and 70 years for Seiler Instrument.

Mr. Seiler designed and manufactured his own surveying instruments and distributed them through a national dealer network and hence the surveying and manufacturing divisions were created. The company has grown from one employee in a small office in St. Louis City to over 150 employees in more than six offices throughout the Midwest.

"We are so proud to have the distinction of serving our customers, and our country for 70 years," said Eric P. Seiler, Chairman, of Seiler Instrument. "This is a momentous occasion in the life of our company."

Eric P. (Rick) Seiler, Jr., President, stated, "The Seiler Instrument Team is proud to be celebrating 70 years with our customers and partners. Our continued commitment to superior services and support to our customers, partners and U.S. Government gives the Seiler Family and our employees a great source of pride and accomplishment. We thank everyone for our first 70 years and look forward to the future with the same commitment and dedication to excellence."

## What's New?

Here is a sample of new things you can see us showing off at conferences and demos this year. See something you like? Be sure to contact us for more details or a private demo at your own facility.

### VELVET

Since it was first demonstrated at IPS in Chicago in 2008, the VELVET projectors developed by ZEISS have gone through several revisions, increasing the number of lamps, brightness, color gamut and resolution. Still unmatched in native contrast at 2,500,000:1, the Gen 3 VELVET projector offers a brightness appropriate for planetarium use and operates without the need for physical masks.

### POWERDOME III

The latest iteration of the ZEISS powerdome software for production and playback of content now boasts a more modern look and feel to the interface, and offers several very interesting new features. With simulations of the night sky from an Earth-based perspective, powerdome offers the classic planetarium a great hybrid solution when coupled with a ZEISS star projector and VELVET digital projection. The systems work together with constellation overlays, object trails, meteor showers, comets and an atmospheric simulation with stunning cloud features.

### POWERDOME CONTROL

Working as a background interface to the entire ZEISS planetarium platform, powerdome control gives the user the ability to control the star projector and full-dome projection system from startup to shutdown and all the shows and live presentation in between, all from the comfort of a tablet or smartphone. All possible through the web-based interface, which will start the various other software applications and switch between them as needed. User-created control pages allow the customization of controls and content to fit the presentation style desired. Whether it is playback of shows or a live tour of the night sky, the user can arrange the controls

to provide a logical progression of presentation, or select control screens that handle one type of system, such as for accessing star projection control if you just wanted to advance an hour in daily motion.

### UNIVIEW 2.0

Continuing to expand the volumetric models and a rich library of assets, Uniview 2.0 also offers a web-based interface that is easily programmed by dragging items from the object tree into the interface. Users can easily set up their tour of the solar system and entire universe, then use their tablet or smartphone to take the audience on their tour of the cosmos. Remote sessions allowing multiple theaters to join for a live lecturer flown remotely are better than ever, and the list of user-generated models keeps getting bigger. Popular geospace data sets are now hosted from a dedicated server. The volumetric data for many nebulas provide a great view that allow you to see the shape of a nebula, not simply a picture. The new scenic flight mode takes you from one place to the next with a cinematic view that looks much more visually appealing than a simple look at and zoom. This new mode helps by automatically moving away from the planet or moon, keeping some constant motion without collision with or zooming through the planet's surface.

### NEW LED LIGHTING

ChromaCove announced a new class of LED lighting for planetariums. The ChromaCove Signature Series "Medium Power" fixtures are available in RGB or RGBW. These new LED fixtures boast the same great features in NanoCove, but with either twice the brightness or as a combination of colorful RGB and white diodes within the same fixture. We've been quoting these for a while now and ChromaCove has been installing them in domes of various sizes, even in a large 76 foot dome. These are a powerful and cost-effective solution for planetarium lighting.

Your audience  
will see the difference.



With crisp stars from a ZEISS projector and deep black as only VELVET can deliver, your audiences will be treated to the finest planetarium experience possible.

There's nothing wrong with showing what light pollution looks like...we just think it should be optional.



The sole distributor of ZEISS Planetariums  
in the United States and Canada

For a personal demonstration, contact:  
Chuck Rau, Planetarium Sales Director  
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Toll Free: 1-800-489-2282



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