Ian McLennan: The Immersive Planetarium

Ian McLennan is a pioneer in the development of planetariums, museums, science centers, and other high-content public attractions. Based in Vancouver, Canada, he has shepherded attractions from the days before Imax to international fairs to today's immersive projects. He's also music lover and a lover of his daily walks during which he captures special moments in his photographs. I met him through Dan Neafus at Imersa in Denver, when he was being honored for his life's work in the field of planetariums, science domes & immersive environments.

> **"I realized that we were going to be able to take audiences and immerse them in the universe, take them on a journey and surround them with the mystery and the beauty of the universe."**

Ian: I'm doing well. I've got a little bit of a cold. I've brought that back from Arizona, but I'm coping alright.

Charlie: I'm glad to hear that. Well, it's been a long time since we've chatted.

Ian: So… you wanted to talk a little bit about the journey [laughter] that I've been on.

Charlie: That would be wonderful because I've been an admirer of your journey and I thought that you've been a visionary out of deep personal interests that things have happened to in your life that set your direction.

Ian: Yeah, well the feeling is mutual and I think we should be exploring each other's background a little bit more. Well, we can start a little bit with what I'm doing now. Because that's germane, I think to the general topic. The main project that I'm working on is the Lowell Observatory in Flagstaff, Arizona.

And that started about three years ago when they were fishing around and looking, they thought that they should build a planetarium to complement the visitor experience at the observatory. And of course, I'm well-known as a planetarium consultant, and so they got in touch with me and I put a small team together to look at what their needs were.

We wound up doing a master plan for their visitor experience. Now, if you back up a little bit, back up 125 years, the original donor of the Lowell Observatory was Percival Lowell. I don't know if you know anything about his story. He was a businessman, very successful businessman in Massachusetts, and he was fascinated by the prospect of life on Mars and when Mars was having a close opposition to the earth in 1896, he wanted to build a big observatory to observe Mars. And he wanted to build the largest telescope in the world. And, he was fascinated in particular by the canal, the so-called canals on Mars. And he thought that they were made by intelligent beings.

So he set up this gigantic telescope in Flagstaff, Arizona. And there's a whole story behind that. But be that as it may, when he built this gigantic telescope, but when he bequeathed it for future generations, when he was near his end, he dictated that the observatory forever would do leading edge, astronomical research and public education in astronomy.

And every director since then has respected that duality of purpose, the two pillars. So it is one of the leading astronomical observatories. It's where Pluto was discovered. It's where evidence of the expanding universe was first detected. It's the place where most of the famous astronomers in the 1930s, forties, fifties, and sixties worked.

But over time, as lights have encroached and as the space telescopes and the big telescopes in Hawaii and others replaced these medium size telescopes, the research functions have been compromised. And so they're interested in upping their game in terms of public education. And that's happening now at Palomar Observatory in Mount Wilson, at Lake Observatory, at Yerkes Observatory.

All of these major observatories and I was just in Japan. There were the key observatories trying to do the same thing in England. The Royal Observatory at Greenwich and in Edinburgh, they're all in the same predicament. They all want to up their game in public education. So I've been in quite intimately involved in developing a strategy for that.

And then it started with this Lowell Observatory. We came up with the notion that they didn't need a planetarium. But if they had an immersive theater that had a series of wide screens and then an overhead circular screen that we built planetarium capability into all of that, then that would give us the benefit of panoramic views, which would dovetail nicely with the Arizona skyline and Arizona cultural history and everything else. And then you don't have the large overhead screen, which you could use for sky effects and so forth. So you have the benefits of a planetarium without being locked into a planetarium format. So that's taken us in some new directions, as you can imagine, and many people now are looking at Lowell Observatory and saying, "Hey, that's an interesting model."

Ian: And so, that's creating all kinds of interest among all of these other research observatories, mainly in the United States, but elsewhere as well.

Charlie: That's a fascinating story. Thank you for sharing all of that. It seems like it's potentially a sea change for planetariums of the future.

Ian: Yes, I think it is. And particularly observatories that have had an important role to play in the past in terms of research. And they're looking for new life and a new purpose. But I think what we've done is come up with a formula that works because they can still do some research programs and research related to education for the next, you know, stem group of people coming along.

But the emphasis is a little bit more on the public education rather than the pure astronomical research. And that leaves the big telescopes on Canary Islands and then Chile and on Hawaii. And then the space telescopes, of course, which are the four main areas where research is still going on and then big astronomy –that's covered very adequately. And then these other older places can be repurposed into educational facilities. And then you've got the twin aspects of the human history, the story of the development of astronomy, and in some cases, the architecture of these wonderful old places as well, and landscaping and many other aspects that really make them quite wonderful places to visit.

So that opens up some interesting possibilities for the educational side.

Charlie: Oh, thank you. I Imagine that they have a kind of ongoing sense of being a place to go in order to visit the world beyond. And the immersive aspect of these new installations, I think must be a little different. How do you craft that?

Ian: Well, I was thinking about that in relation to your second question and it took me all the way back to Edmonton where I started my career and my original career was in the broadcasting business. I was in radio and television, and I was a television producer, mainly on the news end of things.

But at the same time, I remember always being frustrated that we were working with a very limited box in terms of the image. And I don't think I thought it through at the time. In fact, I know I didn't think it through at the time, but I was always frustrated about the fact that

everything we produced, you had to see through this rectangular, small window and with bad color. And in the early days it wasn't even color.

And then I was part of a group that promoted the idea of building a planetarium in Edmonton to commemorate the Queen's visit in 1960. And I had never been in a planetarium [laughter]. But I liked the idea of one. I had a vague notion of what they would be like and so forth.

A few of the older members of the Astronomical Society had been in places like the Adler Planetarium or the Hayden in New York. So they knew a little bit more about what to expect. But I, I was in the news business. I was in the television and radio business, and I had a little bit of a bullhorn, a platform to help promote the idea of this building, this planetarium, to commemorate the Queen's visit.

And that turned out to be the successful project. There were many projects that were considered to commemorate her visit. But the planetarium was built and a couple of weeks before the opening of the planetarium, I was at a reception and the Mayor of Edmonton was at the reception and he came up to me and he said, "We decided you should be the planetarium director."

I was flummoxed because it, you know, it just hadn't occurred to me at all. I was doing this on a strictly volunteer basis. I was president of the Astronomical Society, but just as an amateur astronomer. But there I was. They gave me the proverbial offer I couldn't refuse. And, and so there I was a couple of weeks before the opening of this thing, and it did turn out to be a bigger deal because we thought we were just gonna be able to operate this thing on a volunteer basis and weekends and so forth.

But the public interest was so high and there was the business of scheduling and promotion and selling tickets and hiring people. They just figured we've got to gear up and, and hire somebody to run this thing. And so I hired a show team to put the first show together. And I can remember, this goes back to your question about the immersiveness. I can remember sitting under the dome and that by this time the, the planetarium had been built. We made all kinds of mistakes because we didn't know what we were doing, but we at least built this fine little plantarium. I remember sitting under that great big dome and it is a small dome by comparison to a lot of planetariums. But again, I was comparing it to the box of the TV set that I had been producing for up to that point, and I thought to myself, "Wow, I get to produce stuff for this great big dome." That was the first time that I realized that we were going to be able to take audiences and immerse them in the universe, take them on a journey and surround them with the mystery and the beauty of the universe.

And maybe a month or so after the opening and the dust had settled, I ran into the Mayor at another reception. It was a small city at that time. It's a big city now. And. I said, "You know, I've never been in a real planetarium, don't know how they do it in New York or Chicago or any of these places." And he said, "Oh, you better go and find out how it's done."

And so I went to New York and I went to Chicago and a couple of other places, and I found that they were just doing lectures in the dark. We were doing real shows, real immersive shows in Edmonton. And largely because none of us knew what we didn't know. We invented this thing from scratch, and I was completely frustrated.

I phoned back to Edmundton, said I haven't learned anything here. And I wound up going to a couple of conferences and I made some noise and I got some notoriety. And then eventually the people in Rochester, New York, who got a windfall; the museum got a big donation to build a plantarium. And this was five years after we had opened the Queen Elizabeth Planetarium in Edmonton.

They came out in the Kodak Learjet to see what I was doing in Edmonton because it got a fair bit of attention at the time. And they hired me on the spot to build the Strasenburgh

Planetarium from the ground up in Rochester, New York. And that's when we had, by that time, I'd learned a lot and developed a lot of the ideas about immersive and we had an opportunity with a lot of money, more money than I had ever dreamed I would be able to spend in Edmonton, because the board, you know, Kodak was in Rochester and Bausch and Lomb and Xerox and, all those big companies were there. So, the planetarium was well supported and anything we wanted to do, they let us do.

And we built a planetarium that became the gold standard for a couple of generations. But that was where we took the immersiveness just to the next generation all together. Because we developed all-sky projection systems. We developed the concept of an atmospherium as well as a planetarium where we could show the daytime sky, which is half the sky after all, and is sometimes just as interesting as the night sky.

We immersed the dome in cultural references of whether it had to do with native astronomy or


Playlist immerse! Podcast 15 Ian McLellan

Pioneer in the development of planetariums, museums, science centers, & various immersive projects.

Interview by Charlie Morrow
Incidental sound samples used & mangled

Space Loop • Tissu
Thinking In, Thinking Out • Stephen Vitiello
09 Bones • Marc Sloan
Space Hymn • Lothar & the Hand People
Space 1.8 • Nala Sinephro
Pathway to the Stars • Folkways *Sounds of the Satellites*
In The Next Room • Black Sifichi
Wave Music VII for 30 Harps • Charlie Morrow
Mental Radio • Stephen Vitiello
The Tower To Eternity • Brain Damage & Black Sifichi
2013 LSF Bad Orb • Mickey Remann & Jim Nollman
Stellar By Starlight • DF Tram
Ocarina • Charlie Morrow
The Tomorrow People • Raymond Scott

Mixed & collaged by bart plantenga, mastered by Sean McCann

ancient Greek or other astronomy or space images. And of course that was around the beginning of the space age as well. So the fortuitous timing was just absolutely amazing. So, all of that kind of formulated my experience base and informed how I approached all these, subsequent projects because, I could see that when you surround people with imagery and sound, rather than having them look at something through a window, which is fine if it's a story where that works, but if you're looking at something that adds to the experiential aspect of things, domes and other types of immersive projection, and now VR and other experiments like that are certainly the way to go. And I've been interested in experimenting with that ever since.

Charlie: Well, thank you for sharing that remarkable story. I was unaware of how you got bit. My father once said to me that he thought I had been vaccinated by a photograph needle.

Ian: [Laughter] Right. But photograph needle, that, that's a good one. Yeah.

Charlie: But, I love the story and I wondered if you could comment on how you understand Immersivity now that you've spent your life working on it. Is it one thing? Is it many things? What is your view?

Ian: Well, I think it's many things, and I think it's open ended in terms of the possibilities, mainly because if you look at what has happened, say with the Imersa movement where there

was a small group of people who weren't frustrated, but they weren't satisfied with the notion that these dome theaters should only be educational facilities.

They had a wider-angled view. So that opened up the possibilities for cultural expression or for artistic expression or for experiments with human interaction with the imagery and sound. And I think that just led us to a place where everything is just completely open-ended. I mean, I just don't see any limitation whatsoever to what the possibilities are.

And they can range from just at the one end of the spectrum, just giving people a good, positive experience all the way to profound insights based on actual knowledge transfer that can happen in a dome environment, especially when you combine the dome environment or immersiveness of other kinds with data visualization.

That has just opened up so many exciting areas, because if you stop to think of the fact that anything at all that we are working on as a species can be reduced to data and then data can be visualized. And so extrapolating that, just opens up limitless, just infinite possibilities. And I think, we're just at the cusp of exploring what those possibilities are.

When you think about going into the nano world or into the micro world, at one end of the spectrum or going out to the extremities of the known universe at the other end. And everything in between, including flooring, you know, traveling through our own DNA or traveling through the human body or traveling through the brain. And possibly I can even see a loop kind of situation where we could have a visualization of the activity in a human brain and have that being explored in real time on a dome or some other immersive environment. And that gives you kind of this closed loop. And, ultimately I suppose there will be a human computer interface thing, which is kind of scary in a way.

It opens up fascinating and amazing possibilities, but also with tremendous dangers as well.

Charlie: Well, thank you so much for sharing your story. I've been delighted to travel through your history and your present and your vision for the future. So, thank you so much for being part of this.

Ian: And, are you in a position to come to Imersa and IPS meeting in Edmonton?

Charlie: I am, I've been on the program committee. I'm going to do a special workshop because my feeling was that in order to develop immersive literacy, that we should include the docent staff. Because they spread out in the community. Here in Helsinki, the Heureka Science Museum has a huge staff that welcomes people and shows them experiments. And, I thought that science museum aspect of interface with the visitors is very inspiring. So, I'm looking through a way to grow that into the im mersive production education. Our sound system has been integrated with planetarium systems and hopefully E&S and I are doing the deal will be one of the options for planetarium sound.

Ian: Oh, great.

Charlie: Integrated systems and particularly for an LED screen. The fact that we're 360 sound makes a nice package.

Ian: Have you seen the dome screen yet?

Charlie: I haven't Have you?

Ian: No, no.

Charlie: it's only there's one in China. I mean, I've seen LED surfaces, so I know, I know what it does On a smaller scale, I've seen it.

Ian: Yeah.

Charlie: The big one must be amazing.

Ian: It'll be interesting to see if that works and if it holds up. It would be unforgiving if there was any problem with feeding images to any particular part of the dome. But it'll be interesting to see if they're able to pull that off for sure. Well, that's fascinating. Yeah. And I know Bill Chomik is working with E&S right now on the architecture of some new domes. So, I don't know whether you know him, don't you?

Charlie: No, I don't know him. Maybe I definitely should.

Ian: He's an architect based in Calgary, and he's done 23 planetariums, actually. He's *the* world expert as far as architect. Well, there are two architects who can call themselves real experts, and one is Tim Barry. And the other is Bill Chomik. Tim Barry's in Texas and Bill is in Calgary.

Charlie: Well, thank you for today.

Ian: Okay, Charlie. Good to talk with you and we'll keep in touch and, this is a good way of doing it.

Charlie: I think it's an excellent way we'll talk to again. Okay, Byebye.

Ian: Bye Charlie.