Planetarium Laser Light Shows

A Conversation With

Doug McCullough

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With Tim Bennett
Of ArgonTV
Planetarium Laser
Light Shows

The following is a transcript of an interview between Tim Bennett (ArgonTV) and Doug McCullough (Laser Show Design)
The real beauty of the laser animation can be seen in this incredible video:

Watch the video above to find out...

If you prefer to read, scroll down to get the (slightly edited) transcript of the video.

Tools Featured In This Video...

1 - ArgonTV: [here](#)
2 - Contact Doug McCullough: [https://www.lasershowdesign.com](https://www.lasershowdesign.com)
3 - Email Doug: doug (at) lasershowdesign.com

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Tim Bennett: Planetarium laser light Shows and planetarium laser projection equipment, have formed part of the history of laser.

I am very excited, because today, I am being joined by what I think is one of the pioneers in the whole of the laser industry.

There's a handful of people who I can say are pioneers in the industry and this gentleman is definitely one of those.

I'm very excited to be here today and if you're not excited... pretend to be excited...
I'm very excited to be here today with what I've heard is the Steven Spielberg of lasers...

I'm sure we will investigate that a little bit later but ladies and gentlemen please welcome to ArgonTV Mr. Doug McCullough

**Doug McCullough:** Hey Tim thanks!

**Tim Bennett:** Round of applause for Doug.

How are you?

**Doug McCullough:** I'm great thank you very much.

**Tim Bennett:** And thank you for joining me here at ArgonTV.

As I said I'm very excited to be talking to you, because I really feel that if it wasn't for people like yourselves, then I wouldn't be here in this industry.

Also the industry wouldn't be what it is, because you really are one of the pioneers of laser, in my opinion.

And I'm very grateful to all the things that you did in the beginning, but let's go back all the way to the beginning.

What was it that inspired you to get into lasers and how did you get into the industry and how did you get started?

**Doug McCullough:** This goes back into the 1960s okay.
So I was born in 1951 and when I was you know 10 to 14 years old, somehow I would end up being the person who was in charge of slide projectors and 16 millimeter movie projectors.

It was like here, "give it to Doug, he knows how to run this" and so I was not really a great technical person, I don't consider myself an engineer, but for some reason these things just came naturally to me.

So fast forward to 1967, the Summer of Love, okay, and I grew up right outside of Washington DC and we had a brand new venue, it was actually an old old movie theater that was going to be called the Psychedelic Power Light Company.

The local authorities they wouldn't give a permit for such a such a nickname, a drug, a druggie kind of name so it was just the Ambassador Theater.

They had hired all of these light show artists from San Francisco to come out there and set up of this psychedelic light show.
And so they had people like Jimi Hendrix perform there and you know other bands like that during the day and I came out to see this light show, during the Summer Of Love.

As soon as I walked in and I was just mesmerized by these huge huge projections and how they completely transformed the environment.

Having a little audio-visual background, I could look and say "oh those are slide projectors with the color wheel in front," "oh that's an overhead projector," "oh yeah and look at that they have liquids on an overhead projector and you know here's a strobe light."

So I just understood from a technical standpoint, how they had put this thing together.

And around that time I was interested in having a rock band, you know, me and my buddies, so I was playing bass, I liked jazz, jazz rock, but I wasn't a good musician.

I wasn't serious about it.

So for our high school homecoming dance, which was in the cafeteria, I got on this thing that was called a HOP Committee, in high school, so that I could influence who would be selected to be the band for this and get somebody that was good because usually they were cheesy.

So we got this really really good band, but we didn't have any money left.

So everybody said "what are we going to do for decorations" and I said "well if we can borrow overhead projectors and slide projectors and 60-millimeter from the science department, the chemistry class, I can put together a psychedelic light show."
Everybody says "What? You can?"

I said "yeah!"

So we did that.

It was an enormous success and immediately we got booked to do another show and then another show in another show and so this psychedelic light show was born.

It was called The Babylonian Pigpen Light Obbligato, and so we started doing these psychedelic light shows all over DC with all of the top bands and it was a huge huge success.

I realized that everything that I wanted to express creatively with music, I could do visually with music and I was talented at it.
I don't think I would have had a great career as a professional musician, but I really had a knack for creating visuals, of course, this was all live, with music and my interest just snowballed and it pretty soon it just became like an obsession with me.

That all the time I was thinking about creating light shows.

You know when I would go into a department store, I would go over and I would look at shower curtains and think about how this would be if it were a rear projection screen.

I would go in and I would look at chemicals and think of you know is this transparent and how this would work out with a liquid on the overhead and on and on and on and on.

So, I started to look at psychedelic light shows as an art form and studied it and I found out that it was something that had been going on for centuries.
You know, if people had been thinking about and looking for a way to visualize music going back to a Jesuit priest, who invented this thing called the "Colour Organ."

He was French, so it had a French name, which I can't quite remember, but it was Father Castel, and so he invented this thing with candles and filters, it was called the "Colour Organ."

Well, it was only moderately interesting, until the invention of the electric light bulb.

This idea of what they called back in those days "Colour Music" really started to blossom and there was a Russian composer named (Alexander) Scriabin, who composed a symphony, that was to have a light score with it, okay and then pretty soon, there were these artists that started to develop colour music.

The greatest of which was a guy named Thomas Wilfred who invented this thing "The Art of Light," which he called "Lumia," and so Thomas Wilfred back in the 1920s and 30s, was having these fantastic light shows with orchestras.
World War II comes along, the economy changes, nobody's interested in this art of light stuff.

So it was pretty dormant, kind of an underground scene, until the 1960's, when psychedelic light shows had this resurgence of interest.

Of course it was much much more frenetic and energetic and what was being done in Lumia, but that's what got me going with this with this idea of visualizing music.

So I looked at myself as an artist, okay, and I was doing something that was really a classical art form.

It was something more than just a fad, but to me it was visualizing music.

So I was very very serious about it, very intense.

I went to college for a year and they weren't teaching anything remotely like this and we would have some fairly well-known people that would come and I would get talked into doing something for an event.

I did something with a with avant-garde composer John Cage and John Cage was so interesting.

He met with me and he took a liking to me and said he just looked at me and shook his head and said "nobody here understands what you're about."

You need to get out of here as soon as possible" and much to my parent's dismay, I dropped out of college and set upon doing light shows.

So this is like in 1969-70, well as it turns out, that's when the whole psychedelic
era faded and hard metal, rock and roll started to come in with Led Zeppelin and other groups.

They weren't interested in liquids and you know, all this... all the peace and love vibes, that went along with light shows.

But I persisted, of course. I couldn't get a job anywhere.

So I was basically a starving hippie working on my light show contraptions and like I said, I wasn't really a technician, but what I would do is, I would think about what it was that I wanted to create and then I would learn whatever I needed to learn to do it.

You know, learn how to wire.

You know, learn about motors.

How to control the speed of motors, very precisely in reverse of directions, it was a big big deal, DC motors, oh my God...

What a revelation that was and at the same time lasers were just starting to be introduced in art.

So I went to the Smithsonian to see an exhibition that had some lasers and it might have been part of EAT which was "Experiments and Art and Technology."

It was kind of a highbrow art thing, you know, kind of world-renowned...

They would come in with some very famous artists and and do certain setups or World's Fair and big museums, but I wasn't really impressed with the laser end of it.
I thought you know, it was just kind of like a squiggle moving around on a wall and I thought, well gee I can do that a lot cheaper with an incandescent light, so why do I need to spend all this money for a laser.

But around about 1970, I was involved in a concert with electronic composer Morton Subotnick and Morton had a metro logic helium neon laser, must have been all of you know, it was no more than 25 milliwatts.

I'm sure that at the most.

I took that laser and I had two pieces of pebble Plexiglas and I put those on a horizontally rotating turntable.

I got that thing going slow and shot the red beam through it and had the plexiglass rotate around and we got this beautiful interference pattern.

So that was my first experience about 1970 using a laser in a show.

I was not that impressed, but I did it okay and Morton liked it.

So all during the 70s I kept working with with my light show approach, but I would do it with classical music and jazz, all kinds of things and we didn't have any lasers and my small group of friends and people that knew me were very very impressed, but I couldn't get any decent gigs anywhere.

I couldn't make a living at it.

You know, if I told somebody I was a light artist, they thought it was a bullshit artist... Like what's a light arts?

What do you hang decorations at Christmas?
I mean what's a light artist right?

So around about 1976 maybe 77, I became aware of this thing called Laserium, which had just recently arrived in New York City.

It started in Los Angeles and so they had it in New York City.

It was about a six hour drive for me, so I drove to New York City with my then girlfriend, who later became my wife and we came to New York City to the Hayden Planetarium.

I saw Laserium and I was just blown away, because here was a show that was selling out in the planetarium in New York City with people out the door and around the block.

They would come in and sit down and watch this non-verbal presentation of light and music and loved it.
I was like "wow this is it, this is like the Temple of light," this is, I felt like I had you know been propelled into the future.

And I was just so impressed with what they're doing.

I mean it made such a huge impression on me and so I contacted Laser Images, the company that did it, to see, you know, if they were hiring and everything, but they kind of just sort of Pooh poohed me and you know, put me off.

They were in California and you know, "if we're ever looking for somebody will... we have your name on record and we'll give you a call."

They never did of course.

But I was just so completely inspired by this and it really gave me hope.

So around the same time, I started to take a hard look at myself, from let's say a psychological standpoint, so that I wondered if I was so smart and I was so talented and everybody thought my light show stuff was so great, okay, why wasn't I successful?

So what I looked at was what was between me and being successful...was me!

I had to change the way that I operated, okay, and what I had to look at was my stance as an artist, okay.

So as an artist, I was to a large extent unconcerned with the audience reaction to what I created.

To me, art was controversial okay. Art was not pandering to their taste, to the audience taste.
It was to present something new, maybe something that was shocking okay.

I don't mean anything that was you know risqué or anything like that, but I mean like shocking to the senses, shocking you know, unexpected!

One thing that I did remember, was we had a show was called "Let There Be Light" and in the show I had a sequence of electronic music that had the colours change as we move through these different energy centers.

In Indian religion they are called chakras.

They're centers of light and as you move up the spectrum, you move up in terms of a greater consciousness.

So when we got up to the highest consciousness of Samadhi or enlightenment, the music stopped and we just went into pure light for a while and the audience just didn't know how to respond they thought, "Did the sound system break? What's going on here?"

It was so funny to me to see that the audience be crazy, because they didn’t know how to contextualize this, but to me it was art.

Well, what I started to realize was, if I wanted to have things work on a big level with all of this high technology and especially as we got into expensive lasers, I had to become a businessman.

I had to make things work as an entrepreneur.

I had to make things work for my audience.

So I understood the distinction between art and entertainment.
Entertainment and in my understanding, was basically in a sense, manipulating the audience, was catering to the audience preconceived notions.

So instead of playing John Coltrane, A Love Supreme, if I play Pink Floyd ah...

...people could accept it and get very very excited and buy a lot of tickets to come see the Pink Floyd show.

As opposed to nobody buying tickets to see the John Coltrane show.

Now it doesn't mean that there was any less artistry and I'll call that craftsmanship, that went into the design and presentation itself, but what I started to do, was change my focus to entertain people and so all of my shows, in all of my shows, the attempt, the objective was, to entertain and hold everyone's attention.

It was very very interesting as I made the transition from light shows that accompanied live musicians, to let's say a planetarium show, where everybody
came there and the star... the star of the show, were the visuals that you were doing.

You weren't accompanying, you were the lead and so the the onus, the demand to entertain and hold people's attention was much much greater.

If you think about a psychedelic light show and you've got Janis Joplin or Jimi Hendrix or somebody up there performing and the audience was going nuts and the liquids are going wild behind them, it's really cool...

However, if you take away Hendrix, you just play a recording and you look at the liquids... doesn't hold your attention in the same way.

So I really had to demand upon myself to be much much more innovative and clever in terms of the rate at which I changed visuals within a given presentation and it really was a fascinating learning experience.

There's so many things, with the development of a show like a 50-minute planetarium show, that when it's successfully put together, meeting these demands is very very interesting you know.

What do you do at the beginning of a show to grab the audience's attention and satisfy by them so that everybody knows "Hey I'm in the right stuff."

Then to move on from there and to go into different moods so that you don't just start a show and plateau with the energy level and it's boring fast.

What you do is you take people through a lot of different emotional moods.

As a matter of fact, when I'm doing a show, what I think of is, what do I want the audience to feel and experience at this point and then working backwards from that, then I designed the effects that are going to achieve that.
Some people would ask me about putting together a show, can I say well it's kind of like a Shakespearean play.

And they laugh at me and they think I'm full of it!

But the idea is that you need to introduce different elements in the show and take people through a lot of different moods.

I always like to surprise people and have them experience something that they didn't expect to experience on the show you know.

For one thing comedy okay, have something really really funny you know, that that you don't expect in the middle of a show.

I'll give you an example, way back in the day in the 1970s, one of our our great great points in the middle of a planetarium show, we could be doing a show with multiple groups, you know Alan Parsons, Pink Floyd and you know all different different bands that would have suitable music and then right in the middle of it, after a song, we would do Dueling Banjos okay.

You know Dueling Banjos? Do you know it?

Tim Bennett: I don't know!

Doug McCullough: Oh it's a banjo... it's a real Bluegrass Country piece that was popular with the movie Deliverance, way back in the early 70s and everybody would clap along with this thing and they would laugh.
You'd have a little abstract laser image and another one and they became, anthropomorphomic where they would start to interact with each other and chase each other around.

Then suddenly they're fighting and pounding the heck out of each other with the two instruments... Dueling Banjos... the dueling laser patterns.

So that was just an early primitive example where we would take something that you didn't expect and have the audience participate clapping and do something that was funny okay, and another thing that was very very... took me a while to learn, was how to end the show.

Seems simple, but it like took me a couple years to really really understand how it was that I would set up the end and then boom!

Delivered!

It was just like a knockout punch okay and you needed to do it three numbers
before, three songs before.

So we... interesting now just just making me think of of the importance of music you know.

Music was my original inspiration and I think that people, of course, understand you know, lasers and music they go together, but the importance of music, is just incredible.

For instance, the music is what creates the, what I would call the emotional context for everything that happens.

You have the music, that's moving you emotionally and then the lasers, the visuals deliver the punch.

Lasers have to deliver, but if the music's not right for your particular audience, it's not gonna work.

**Tim Bennett:** You actually made a comment that I was gonna talk about and I think this is an appropriate time to talk about this and I can't remember if I read it or if someone told me that you'd said this, but the comment is "are you seeing it or are you hearing it?"

**Doug McCullough:** Yes, well, that's the goal you see.

The goal is that everything is so well synchronized and expressed okay, that like, we say, you don't know what it is...

It's just... it's there and and if a show is well designed, a person doesn't have to have any background... artistic background or anything, they just they're just moved you know.
It's just like, Boom! Boom! Boom!

Boom!

The drums are happening, it builds you know, the colour modulation, the harmonics are there, you don't have to know anything about art, you just, it's beautiful!

It's like, look at an animated rainbow I mean wow right!

Just fantastic!

**Tim Bennett:** You know you're an interviewers dream, because I hardly need to say anything.

I can just let you talk for hours and I think we could probably, you know, do five or six hours of this, but **WOW** I mean some of the stuff you've been talking about so far, is literally mind blowing!

The people you've met in the beginning, how you got started, the people you met and the inquisitiveness of your mind of how you look at things and say how does this work?

How can I apply this?

What can I do with this?

And you said something earlier that I really resonated, was that when you saw the show, you just felt like **WOW** this is like something I've never seen before.
It was the same for me, when I first time I saw a laser I was 28, so totally different background to you, I was pretty much failed high school dropout, because I just didn't fit in.

My mind worked in a totally different way to everyone else and it's not that I wasn't smart.

I'm a very smart guy, I just didn't understand or see why I should do all these stupid exams when I could be doing things.

So I left school at 16 and I didn't know what I was gonna do.

I drifted through all different things, but I was entrepreneurial, you know, I hardly ever work for anyone else unless I absolutely had to and then one day I had the bright idea of buying my own nightclub.

I thought I'd be Don Tim and have all the trimmings that go with that and I did.

I bought this nightclub with a partner of mine.

I was 28.

I had no idea what I bought.

No idea what I was doing and then we took the place over and my DJ said to me "you know we have a laser here" and I said "what's a laser?"

He said "oh sit down and watch this it will blow your mind."

And it did.
He turned this 100 milliwatt argon laser on...

...and my whole life changed in an instant.

I just... my mouth fell open, my eyes popped out you know, the cartoon style... my heart like this (pumping) and I was like "WOW" and I didn't know anyone who had a laser, so I knew I had something really special and this was 1998 and I was kind of in the same position with you, when you first saw it was just breathtaking.

It made me want to do it.

I said "this is it!

This is my place!

I found my home in life."

Since then that's what I've done!

And it changed my life so... and it's the same.

You know I look at things and I go what if I put this in my show.

I remember doing... I had a 500 milli watt laser one time, we were doing a show for the Canadian Embassy in Manila and they wanted the Aurora Borealis effect...

...so I got a glass of water, I put some hair gel on the outside, we put it in front of the laser, we just turned it and we had this beautiful effect on the wall.
They were like "we like that" and you make so many comments...

I mean, **WOW** what an intro!

What a beginning to a discussion about lasers.

How fascinating it would have been... I mean I would have loved to be part of that, those early days.

How fascinating it would be to be involved.

All those people to meet, Hendrix and all those guys and be involved in the early early days and just your absolute persistence of not giving up.

Then the mind shift, that you went through, where you realized it's not about you.

It's about... I mean no one cares about "me" when they come to see a show.

It's all about "what's in it for me?"

Your mind shift of how you shifted from what you wanted, to what the audience wants.

I think is is really fascinating and I was actually talking to someone about a totally different subject.

About Facebook... why does no one respond to any of my facebook posts and they said, "because you make it all about you!"
And no one gives a crap!"

So I started shifting my whole facebook group and my profile now is all about lasers and other people and you and Bill Benner... and Tim Walsh, Roberta McHatten and all these other people.

All of a sudden my Facebook exploded and I'm posting interviews like this, which is not about me it's about you!

So you know, and the foreign audience who are interested in in your story.

What a fascinating story you've had.

It's really incredible to be, for me to be talking to you, because as I said earlier without you, there would be no me!

Tim Walsh made this comment as well, the other day.

I interviewed him he said in the early days, like the 70s and the 80s, when the latest started becoming popular, a laser was $75,000 you know $100,000, so a client could only afford one or maybe two lasers for a show.

We had to be very creative to make those two little beams look fantastic.

Now, they just stick a hundred lasers and it looks brilliant you know.

Doug McCullough: And the technical requirements with water and the power, you know, for that one laser, so extremely - huge laser.

Tim Bennett: Incredible! Incredible! Well I'm very happy...
Let's just take a quick break...

I'm really happy to be talking to you.

In a moment we're gonna get back and talk about the planetarium laser light show and I've got some questions I would like to ask you about that...

...but I'm so excited because right now, I'm talking to Doug McCullough, who's from Laser Show Design and we're talking about planetarium laser light shows...

...and we'll be back in just a minute!
Tim Bennett: Welcome back to ArgonTV.

I'm really excited and we've been having this enthralling discussion with Doug McCullough from Laser Show Design.

He's been talking about how he got started in lasers and planetarium laser light shows and all that the beginning the history of laser as I call it, so very excited!

So great to have you here Doug and I wanted to read from this because this is a quotation that I found about you it said "lasers are not just another gee-whiz special effect, but a powerful tool to communicate ideas."

I believe you said that yes?

And I find this really interesting that you can use these beams of light to tell stories and I just wanted to ask If you could share some thoughts about the whole storytelling aspect of the lasers and the planetariums and and how it how it all works.

Doug McCullough: Well, I was talking earlier about going to see a Laserium show and I was so inspired that it just, really made me want to get involved with lasers.

I have to tell you at first I was very resentful of lasers, because I felt like why do I need this expensive equipment?

I can do all these similar things with incandescent lights, abstract imagery multimedia we were doing, but I was persuaded by my then girlfriend who became my wife Joanne, that what we really needed to do to be successful, was incorporate lasers.
So we did it and what we did initially was very very primitive.

It was all abstract imagery, like Laserium... with some effects to create what they would they then called the Lumia.

So it was abstract amorphous effects and Cycloids basically, but we wanted to do more with the laser.

I started to see that the laser was kind of the the realization of the "Colour Organ" from hundreds of years before, that here was this one really unique light source that you could do so much with to visualize music.

Well there had been a show called "Love Light" back in Boston, before I was working with high-power lasers, it was around 1976-77 and what they had done at "Love Light," was they had used a graphic tablet to digitize vector images and have graphics projected in laser.

Something that Laserium could not do and that was really really fascinating to me, because I had always loved animated cartoons, you know back from the 1930s.

An early Porky Pig and Bugs Bunny and Daffy Duck, all this stuff, the early stuff I just thought was so outrageous and so funny and the animation was so wild, surreal.

So we found this defense department engineer, who was working with a computer at his home and he claimed that he could you know, create vector images with the laser.

So we started working with this guy on the side, we're talking about 1979, so this was very very... this was right in the beginning of laser graphics and there was actually a company that kind of was an outgrowth of Love light they were called Laser Displays in Boston.
They were doing it, but very not really animation, they would take a graphic and then they would put it into a rotator and kind of rotate it around and was a two-dimensional image.

That was pretty cool back then, if you could do more than one graphic and a laser show this was like WOW big time!

So anyway, so we started working on this and we developed laser animation where we could load in 24 images and we could do frames.

We could have a little character that could run and we could do a character that would stop running and then it would do a metamorphic transform to another image and then you know all kinds of little animation tricks that we could do.

So in 1980 we had our first laser show with graphics.

So going back to this idea of telling a story, things really really opened up and I had a had a creative orientation towards the shows, where even before we had the graphic capability, I would put together a show, that might tell a story.

For instance, our first planetarium show was called Laser Drive and what it was was a kind of trip through outer space.
We had a voice come on, there was a female voice that was supposed to be the on-board computer and so this voice would say, "we were preparing for a lift off" and you do the stick and so we go into liftoff and then we'd be out in space.

Then we have a song and then after that song, the computer voice would come back in and introduce what we were going to do next "oh we're approaching a black hole," we did Pink Floyd "One Of These Days" was our journey through the black hole.

But the point is, that we were able to... with the soundtrack, create a storyline as the context for the whole show and as we added in the graphics capability, now we were now, it just really really opened up so we were able to do some very very unusual and experimental things.

For example, there was a Japanese poem, I really really liked.

So I had I hired an actor and in Washington DC at the Arena Stage, Shakespearean, to do the voice-over for this translation of this Japanese poem about the flower petal.

It was a love story, like a myth and so he would do this thing and we would have the very simple laser graphics doing beautiful poetic artistic transformations and simple little things with this poem, that we did in the middle of a laser show and that was one of the shows that we would do for a matinee audience.

The late night, you know Zeppelin or Pink Floyd show, but the title of that show was "Visual Music," was a title for that show and nobody seemed to understand "Visual Music," so we changed it to "Laser Tunes."

It seemed to be more understandable to matinee audiences, but the idea was to use the lasers in such a way as to tell a story, which I still do today.

I'm still doing shows and and somebody described our show as a series of
stories, that every song is like its own little vignette, its own little story.

It may have animated characters in there.

Sometimes things can be rather obvious, if you have a funny little country and western song, you can have your hillbilly characters in there and they might be out fishing and do all kinds of antics and that's just part of the song.

It's all pretty much indicated by the lyrics.

**Tim Bennett:** I think this Is something that actually made groups like Pink Floyd and Genesis so interesting.

In the time that they were were big, because their songs were stories.

In fact, some of the their whole LP’S, as we used to call them in the old days, it wasn't like 10 separate stories, it was one continual story going all the way through, that you could get attached to.

**Doug McCullough:** Again going back to the whole planetarium idea, so we did our first planetarium show in Miami in 1979 and we just had great success.

Laserium was the big company, this was sort of like David and Goliath okay, they had 25 shows worldwide and they were in all the major markets and we just managed to get into Miami, because the Director somehow didn't like Laserium,

So he wanted to do something different, so he brought us in and we just had tremendous success and so then we went to all the smaller planetariums that weren't big enough for Laserium.

Then finally we got to the point where up in Canada and Calgary and Winnipeg,
the directors there said "yeah we have Laserium come in, in the summer, but we want to give you guys a shot."

So we came in and we had much greater success than Laserium.

Then from there we got into Boston, we had greater success than Laserium and we were building up, building up, building up and then finally in 1973, we knocked Laserium out of Hayden Planetarium in New York City.

Up until that time, all of our shows were, featured a variety of musical groups, it wasn't just one group, but when we went to New York I said "okay we're gonna do all Pink Floyd," so we did Laser Floyd, that was our show and it was a mix of all different Pink Floyd music.
It wasn't just one album, it was a mix laser Floyd, huge success, better than was Laserium, better than Laserium and so the the thing that we were able to do, really for the first time, was exploit the graphic elements and the abstracts simultaneously and where they would interact.

So for instance, Another Brick In The Wall... leading into it, there's the sound of the helicopter and the guys yelling, "Hey You!," and so, we would have this sound, we would have like a helicopter, we'd have the blades up above in the planetarium.

I'm going around with the lights and then we'd have this little character running, we called him "the guy in the leotard," but he was like, he looked like a character from the Blue Man Group.

This is way before the Blue Man Group, but we sort of develop this look for the Pink Floyd shows and so we had this guy running and he would reappear all during the show in different situations.

He'd come back in "Comfortably Numb," and he'd come back during "Brain Damage," he would show up from time to time, but he was this really, it was just like a Blue Man Group guy, very amorphous.

As a matter of fact, Pink Floyd would use a similar character in some of their music videos.

But we would have this helicopter thing and then the guy would be running and then we'd have an abstract, "Boom!," that would come out of the helicopter.

It would come down and come huge in the dome, like right down on you and then it would come down "Boom!" and it would knock the little animated guy down on his face and he'd jump back up and start running again.

So very simple, but what it was the interaction of the abstracts with the graphics.
and so this was something that we really really exploited in our planetarium shows.

And you know we went on from Pink Floyd, the big challenge was what are you going to do after Pink Floyd.

We would try a show that was a multi-group and it was only moderately successful, so we felt like well we've got to come back with a single group: Led Zeppelin.

So we did Laser Zeppelin and and that was almost equal to Pink Floyd, although I will say that the sound of the audience was louder than Pink Floyd.
The way that they thought the Zeppelin audiences, would scream and yell, it was unbelievable!

So we did we did a whole series of shows, that originated in the planetarium in New York City, the Hayden Planetarium and then other laser companies would see what we were doing and then you know you'd see Laserium copy us.

We were now basically creatively leading the way, so that we would do a Pink Floyd show, then they would follow with Pink Floyd show in L.A. (Los Angeles) Zeppelin: Zeppelin like that.

It was kind of funny, to see to see that reversal.

Tim Bennett: I think you're talking about some really interesting points and sometimes I get comments saying you know, we want to know the "how to's" more than the histories and the emotions behind it.

But I feel that as I have these discussions with people like yourself, the real secrets are in the conversation that we're having right now.

The passion, the feelings, the even the fact that you you looked somewhere else where I mean, your big competitor wasn't.

Yeah that was something I did, because I'm based in Manila now and that was of the one of the things that we did.

Like Manila has become this cut throat red ocean, where people, the companies are fighting for the shows.

So we went to the provinces...
Doug McCullough: Yeah.. a little bit about this.

I feel that laser shows are what I would call a referential art, meaning, or art form, meaning that very very little of it is original, that what it is is taking other imagery, other ideas, that are in the culture visually and then incorporating it into your presentation.

So for instance, I would always be looking for inspiration... movies... television commercials... television commercials fantastic, some stupid commercial on television for some, stupid little Christmas thing or a car dealership and I look at that and go "wow that one idea right there, the way that that thing came out 3 dimensionally that's a great idea.

I'm gonna use that," and so the thing is, that you need to be learning, you need to be visually open okay, and and there's not really a "how-to" you know, like a manual like do this, this, this, this... no!

It doesn't really exist, because you can study something, you can speak and learn about writing.

If you can express yourself writing and you're able to translate that visually okay, that's it, that's the leap.

You know whatever you are looking at... a lot of times we'll be working on a piece and we'll have like 80% of it done and then there's a section near and we just all might brainstorm about it.

If I'm working with an animator, we might just sit around for an hour and talk about cartoons and and tell some jokes and come up with some kind of idea about, what if we do this here, and we start to work on it.

If you have a really really good animation artist and I've been incredibly fortunate to work with many.
The key is to come up with a good drawing.

Going back again to laser shows, a lot of the laser shows have bad drawings.

They just look terrible.

With me, it's not a question of you've got to have a zillion frames of animation, just give me one really good view full frame that's evocative, one beautiful picture of a woman's face, doesn't have to be too detailed...

...as a matter of fact, the less detail that you have, the more that's left up to the imagination.

Going back again to what is it that I want somebody to feel... what do I want them to think during this piece and then design it from that backwards.

That's the way to go in my opinion, that's the way to succeed.

**Tim Bennett:** How interesting and you made a really good comment just now about watching the adverts as a source of inspiration or a source of information, because you know how much money they spend on getting these adverts and how much market research they do.

If you see, if you watch those and incorporate those... their techniques into what you're doing, you should have a really good project.

One of the things I've always been grateful for in this industry, I've done so many conferences, it's crazy and I sit at the back of the room listening to information that people pay for in the audience.

I get it all for free, (and I'm being paid).
I get it all for free and I'm working with some of these big big companies, the telecommunication companies, the big giants in food.

They're sharing all their strategic plans and all the ideas with the audience and I'm sat at the back of the room making all my notes and listening to them.

So there is there's this whole world of information that's right in front of us and if we look at it, we get some great answers.

I also think it's so interesting to hear your story of animation, because we live in a world now it's so digital and everything's just so easily readily available for us.

In those days, there was literally nothing... you had to create it and I think it's just what a fascinating time to be living in and to watch that the rollout.

Doug McCullough: What impresses me when I look at other people shows, is not necessarily like, how many lasers and how many scanners and how sophisticated it is, that's important, but that's not maybe what impresses me most, it's what somebody does with what they have.

They can have something very simple, but it's in the way that they use it.

I'll give you an example, recently there was somebody and I can't remember his full name, at it I believe his first name was Adam and he took a Microsoft logo design and rear projected it through a black scrim.

How simple, how simple and how effective it was.

I was absolutely blown away with what an incredible application that was of lasers.
Again going back to the idea of not just "Gee-Wiz" special effects, but a tool to communicate.

I'll give you another example, one time, I was working on a corporate presentation, where they wanted to put over the idea this was in the late 80s and they wanted to put over the idea that your telephone system wasn't just a telephone.

It could be internet and it could be used to for document creation and all these different things and so what they did was they created all these television monitors, with all of the different uses.

Then we had a laser that was positioned up high and with sound effects, the cheesy sound effects, we'd have a beam that would shoot over.

It would hit the monitor and the monitor would glow argon, the same colour, have a burst glow and that would resolve into what the device was that was being linked up, via this communication system.

It is a laser beam, but we're using it to show connectivity in 3-dimensional space and of course to introduce this new corporate idea it was a big big hit.

You know, once they did it once, it was like okay now they sent us on the road we had to do it everywhere, every time.

They were you know, doing a presentation they you know, we'd have to do the whole laser setup for it, kind of cool that was back in the late 80s.

**Tim Bennett:** Yeah the the power of the story is fascinating.

I'm gonna talk to the audience now, I bet you are absolutely enthralled at what you're hearing so far and you probably don't realize that we have been talking
for almost an hour and five minutes about this. (54 Minutes with editing)

I just looked at the clock and I go "OHHHH!"

You know this is how powerful a story can be is that I am literally...

I could talk to you for another three or four hours, which obviously we can't do, but I'm absolutely enthralled with this and I had no idea that we've been going for one hour - that's the power of the story and if you get it right your audience will be absolutely captivated too

I'm really grateful for you sharing these ideas.

We're gonna take another little break... I'm so excited.

I'm so enthralled and so impressed... I'm talking to Doug McCullough about not just planetarium laser light shows, but the whole history of laser and even the mind shift and the mindset of how to do lasers and how to tell stories and everything.

Fascinating... we'll be back in just a moment!

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Tim Bennett: So welcome back.

We have been having the most exciting conversation I've had recently about lasers, the history of lasers and planetarium light shows with Doug and it's absolutely enthralling.

I thought what we will do now Doug is maybe you know we've talked about the past and the history of laser for so long, let's come up to date a little bit and tell us about your company which is Laser Show Design and what you're doing now and how people can get in touch with you.

Doug McCullough: Okay, I am doing theme park shows now.

The planetarium laser show market unfortunately, sort of dried up, but fortunately I've been able to do nightly shows for Six Flags Theme Park, the one that I'm currently doing for them...

...well actually I shouldn't say currently, because due to the pandemic, all outdoor shows like that, in the US have been canceled okay.
So it's been canceled for this summer, but up until the middle of March, we were avidly in the middle of producing a show for Six Flags Darien Lake.

Those would be a 24 minute show approximately.

It incorporates full color lasers projected onto a huge 40 by 60 feet screen, then we have fireworks, we have three lasers set up, to do overhead midair beam effects.

We have 14 fog machines that we remotely control to shoot out the fog, depending on which way the wind is blowing.

We have some theatrical lighting that we use during the show, moving lights mostly as audience blinders or to illuminate the audience.

We have a pool in front, that has a water screen, so occasionally we do rear projection on the water screen.
We've got propane cannons.

I said fireworks really we have all kinds of layers of fireworks, from close up out in front of the screens right behind the screen, the screen by the way is a mesh, so that it actually kind of turns transparent at night and you can see the fireworks clearly right through the screen.

So we get this incredible 3d layering that goes on and so I do 24 minute shows and those happen every night after the rides closed.

The park audience usually about 80% of them, who's ever in the park, comes out to the side of the lake there and sits on the grass and watches the laser, fireworks show.

**Tim Bennett:** Beautiful!

You know, I absolutely love these kind of shows back in 1992, which was why I actually started in (professional) laser for this specific project.

I was actually taking about the Expo 92 in Sevilla, In Spain and we had six water screens in a 360-degree circle, we had a bunker in the middle and it was a huge event.

As you say, the park audience comes and watches the show and it's the final part of the day.

I absolutely love these shows, so if you ever need anyone to carry your coffee... just call me and get me a visa, to get into America and I'll be over there.

Yeah so I love these kind of big shows.
A fascinating and a beautiful, beautiful way to share your talent.

That's great and I think with what's happening in the world right now, we are in a crazy position, but the show must go on and in the not-too-distant future we will be doing shows again and I can't wait, because I think when we all get back to shows, it's going to be one hell of a party!

**Doug McCullough**: I agree.

Well that's what the park tells me, they say "we can't wait to get you back here it's going to be a big part of our reopening" and the whole communal experience that you have at that type of show is really fantastic.

I mean of course you get that sort of thing at a rave as well, you know, it's just so... well it's so communal so exciting!

**Tim Bennett**: Wow... is the word I use.

I love watching the audiences... you know after you do a show four or five times, you know where the audience reacts and when "Ohhh!"

And you can wait for it...

And as I say I totally get where you're coming from with this and I can't wait...

I'd love to see some of your shows, so look forward to bit all opening again.

Now Laser Show Design... how do people get in touch with you as a company... what's the best way?

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Doug McCullough: Well probably they could do an email or get in touch with me through the website, it's just lasershowdesign.com and doug(at)lasershowdesign.com

So they can get in touch with me that way.

I do occasional corporate shows and special projects and sometimes, I'm hired as a consultant for other people's show to do creative work.

So I actually have done a bit of that the past year.

Tim Bennett: Brilliant and you know I wanted to also talk about and we don't really have the time, because I think would be another three or four hours, but I wanted to talk about all the awards and the achievements that you had and you are multi-awarded, a multi-awarded talent in your life.

You created so much, like the 360 degree Omniscan, for the planetariums..., and there's so much history I think we're gonna have to come back and meet you again sometime and I hope you will come back to ArgonTV again in the future and you know share more of your stories.

I want to thank you so much for being part of ArgonTV, sharing your knowledge, sharing your stories and your insights and how you look at things.

It's been an absolute wild ride for me and I really appreciate you being here.

Doug McCullough: Well, thank you so much it's been a pleasure.

Tim Bennett: Thank you.

So I've been talking to the one and only, the very unique Doug McCullough from ArgonTV ©2020
Laser Show Design, we've been talking about the history of laser, planetarium laser light shows and mindset and everything else.

I look forward to seeing you all again, at a future episode at ArgonTV

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