

MONDO

FOR THE LOVE OF LASERS

DOUG MCCULLOUGH, OWNER OF **LASER SHOW DESIGN** AND WINNER OF AN ILDA CAREER ACHIEVEMENT AWARD, WRITES ABOUT HIS PASSION FOR LASERS AND THE HISTORY OF VISUAL MUSIC...

My first involvement with lasers was back in the late 1960s when I performed psychedelic light shows with rock bands. At that time I was fascinated with all different types of light sources – which I used for the brightest possible projection of liquids, moiré patterns, hand-painted slides, 16mm films, and lumia-type reflectives. It might sound ironic, but frankly I wasn't very impressed with the early uses of lasers for display or artistic purposes. I felt I could achieve similar effects much more practically (and cheaply) with other incandescent light sources.

Although the novelty of psychedelia soon faded, my passion to create light shows not only continued but gained momentum. I started to see my pursuit of "visualizing music" and developing the medium of light as an art form within a larger historical context. Going back centuries, artists had dreamt of creating dynamic paintings and using light and colour to represent music. Composers such as Beethoven, Bach, and Wagner described their music in terms of colour. In 1720 a Jesuit Priest named Louis Bertrand Castel described an imaginary instrument which could produce light in the same way that a musical instrument produces sound. Castel called this instrument the "Clavessin Oculaire" (i.e. colour organ). It wasn't until the advent of a new technology – the electric light bulb – that a workable colour organ could actually be constructed. The results, however, were crude and not expressive in the subtle ways that music was.

Despite my excitement about this art form, in the early 1970s there was absolutely no economic demand for visual music. So basically I laboured in obscurity. I was the stereotypical starving artist pursuing some weird art form that no one understood or cared about. All of that changed when I saw my first 'Laserium' show in New York City's Hayden Planetarium. It was a revelation – a spiritual experience really. There were crowds of people avidly enjoying a fantastic sound and light show. It was like being in a futuristic 'temple of light', something that was only written about in science fiction novels. Although I had previously worked with lasers to create lumia effects, Ivan Dryer's approach really opened my mind to the artistic potential of lasers. Profoundly inspired by 'Laserium', I began to change myself from a 'misunderstood, starving artist' into an entrepreneur devoted to the creation of viable entertainment. It was quite a leap, both technically and financially, to make this transition from incandescent to coherent light, but the more I explored lasers, the more excited I

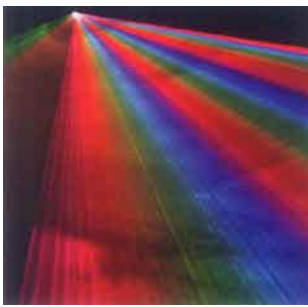


became at the possibilities. At first, I choreographed full-colour abstract laser imagery to compliment the array of incandescent lighting effects that I had developed. The result was a multimedia spectacular. In 1979 I fulfilled a lifelong ambition of performing light shows in a planetarium theatre with the opening of 'Laserdrive' at the Miami Space Transit Planetarium. The planetarium theatre turned out to be the perfect environment in which to explore the artistic potential of lasers. The company I founded, Audio Visual Imagineering, set upon a course of pushing the technology and developing a new style of laser choreography. While I spearheaded these developments in a hands on manner, I have been very fortunate to have worked closely with many talented and dedicated individuals. Just like making a movie, producing a laser show is truly a team effort.

Being a life-long fan of animated cartoons, I was naturally drawn to marry the graphic capabilities of computers with our laser projectors to create laser animation. It may seem elementary now, but in the 1980s it was pretty hot stuff.

Additionally, the more deeply I worked on developing the potential of laser projection, the more convinced I became that it was the realization of the long-held dream of a colour organ. It wasn't long before lasers became the focus of my work, and incandescent effects were relegated to a lesser priority.

If I can be permitted to preach for a few moments, when I look back over the 'golden age' of planetarium laser shows during the 1980s (especially those performed by my company, Laserium, and Laser Fantasy), I'm disappointed that these laser shows have never been acknowledged for their artistic merit and significant contribution to the field of visual music. Although there have been books written on the subject of visual music, and major museum/art gallery exhibitions, none even mention laser light shows or their role in popularizing visual music. Hopefully this omission in the minds of the 'art authorities' will be remedied someday. Maybe laser shows are just too transitory to be considered a fine art. After all, they can't be 'captured' and easily displayed in a museum/gallery type of exhibit. Due to the subtlety of human vision (and the unique attributes of coherent light), laser shows are a strictly experiential art form, you really have to see it live and in person.



The 1980s were a time of intense rivalry and growth among laser show companies in the US. Almost like race car teams we were looking for a competitive edge and highly protective of the trade secrets that we had each developed. However, the esoteric technology of laser shows was only known to a select few – with each of the major laser show companies maintaining their own secretive methods which obviously precluded having agreed upon standards. It was like the ‘dark ages’ where imagery produced by one company could not be played back upon another company’s projector. Hard to imagine, isn’t it?

Fortunately, a group of major laser show companies initiated a series of meetings for the purpose of forming a trade organization that could represent the laser show industry and distinguish the practices of member companies from those renegade laser shows which were giving the industry a negative public perception. My impression of these early meetings was that they were like the Wild West, where all the gunslingers had to leave their weapons at the door and engage in a dialogue with their competitors about what this organization would become. Thus, the International Laser Display Association (ILDA) was founded. With annual meetings and increased membership worldwide, ILDA has become the mechanism that has transformed the laser show industry from the ‘dark ages’ of the 80s to the point where we all benefit from defined technical standards (i.e. ILDA compatible), an awards competition that publicly acknowledges excellence – allowing us to view our competitor’s best work and be inspired to improve on our own, and a powerful voice (ILDA) to represent our industry in public discourse, such as the debate surrounding irrational fears about the safe use of lasers for entertainment and display.

By thematically mixing abstract and graphic laser imagery in planetarium laser shows (such as the legendary Laser Floyd, Laser Zeppelin, Laser Beatles, Laser Genesis, etc), I was able to help increase interest and attendance in major North American markets (New York, Toronto, Boston, St. Louis, Denver, Atlanta, Pittsburgh, Salt Lake City, Calgary, Edmonton, Winnipeg, etc). It was a natural progression to begin applying my artistic and technological approach to corporate meetings and special events – producing laser presentations for numerous high profile clients such as AT&T, General Electric, Cessna, Sears, Pepsi, General Foods, Xerox, Wyeth Laboratories, IBM, MCI, Panasonic, Nationwide Insurance, Lancome, the Kingdom of Saudi Arabia, the Public Relations Society of America, and others. To make lasers more relevant to the needs of corporate event planners,

I developed generic laser modules for meeting openings, closings, speaker introductions, coffee breaks, and product reveals. Additionally, I developed many novel laser display applications, which opened up new markets for everything from groundbreaking ceremonies, submarine christenings, and opening celebrations of museums, to aquariums, shopping malls, sporting arenas and skyscrapers. Most importantly, we were able to make laser light shows an extremely powerful medium, not just a ‘gee whiz’ special effect but a tool to communicate ideas. In the late 1990s I formed a new company, Laser Show Design, Inc., specializing in high-end presentations for theme parks, corporate meetings, and special events. With the advent of new tools like solid-state lasers, 3D modeling/animation software, digital recording, and high-speed scanning, I continue to explore new ways of creating laser and multi-media shows to elicit enthusiastic audience response.

Breakthroughs in solid-state lasers and microprocessor control will make lasers readily accessible to lighting designers for many new applications. We’ll see lasers being utilized in much the same way as intelligent lights. It is essential, however, that those who utilize these new laser devices become educated in the unique characteristics of laser light. The potential danger of laser beams to cause eye damage is very real, so a thorough understanding of safe operation is of the utmost importance. A practical understanding of how to integrate lasers into the overall design of a presentation is also critical to achieve the optimum effect.

While I’m very, very excited about these new technologies that are becoming available, it’s how we utilize these tools that will determine our long-term success. It’s my observation that the biggest problem that we face as an industry is, quite simply, the proliferation of poor quality laser shows. The effect of these poor quality shows is to literally destroy the market for laser displays in general. Each of us must hold ourselves to high standards of accountability in producing significant value for our clients. It’s not a question of getting by – just showing up with some lasers and shooting beams around. Ask yourself how you can best apply the unique capabilities of the laser medium to solve problems for your clients and exceed their expectations. If I look at visual music and light art over the broad historical sweep of the last few hundred years where many have struggled for acceptance, I have a profound appreciation of living at a time when both the technology and the marketplace allow me to pursue my passion.