# Lighting up the West End
## Mary Poppins lands on stage

# David Cunningham:
## Source of Inspiration

> "To live a creative life we must lose our fear of being wrong."
>
> Joseph Chilton Pearce

Words and pictures by Sarah Rushton-Read

Many of you may never have heard of David Cunningham. You would therefore be surprised at what a huge influence he has been on the development of today's professional lighting industry. Those that do know him will be aware that there is no-one in this industry that is cocooned in quite so much myth and mystery: the man is an enigma, and his reputation is more than a little colourful - but all in good time.

Cunningham straddles the void between technical invention and art: he turns up at trade shows in crazy outfits and tends to be accompanied by an entourage of outrageously dressed girls - but who can blame him? After all, his brilliant inventions are responsible for the wealth of many of the better known manufacturers in the entertainment lighting industry today.

In appearance he is like Nosferatu, with perhaps some of the mannerisms of John Malkovich. At our first meeting, I knew very little about him except that he had been instrumental in the development of the ETC Source Four profile and that he had a reputation for being a little on the avant-garde side.

Later, I interviewed Cunningham in the restaurant of a Las Vegas hotel and then at his house in LA, which apart from its themed design is adorned with famous paintings by artists such as Edward

Munch, Leonardo Da Vinci, Gustav Klimt and many more. Paintings such as the Mona Lisa are replicated on the walls of his themed rooms with Cunningham's face painted in the place of the original. Could things get more surreal? Well, yes actually . . .

For the past eight years, Cunningham has been 'retired' from the industry and has spent his time creating a performance art venue that doubles as his home in the West Hollywood Hills, Los Angeles. Numerous artists have transformed his previously conservative bungalow into a decadent bolthole for the more eccentric performance and fine artists of LA. There, he and his friends have enjoyed the most outrageously choreographed 'events', in which they dress up in magnificent costumes and perform for one another several nights a week! Almost all of these gatherings have been carefully documented photographically.

Cunningham could be described equally as an outrageous exhibitionist and a shy and reserved man. There is no doubting his creativity, intellect and perceptive nature: he seems to understand the industry and its people very well indeed and expresses himself equally comfortably as a scientist and an artist. So how did he get to this point of decadent party animal, and where does his involvement in the world of lighting and electronics stem from?

# David Cunningham: Source of Inspiration

He says: "I started at the University of California around 1967 - a very high-end science school in one of the most conservative military towns in the world, San Diego. At the time, German-born US political philosopher Herbert Marcuse, whose combination of Marxism and Freudian psychology was popular for a time among student radicals, taught at the college; the Vietnam war was going on; civil rights and women's movements were prevalent. The philosophy department of UCSD happened to have many of the leaders of the left wing with Marcuse at the forefront. There was therefore a lot of tension within the community."

Cunningham, who had begun studying physics, found all this fascinating: he decided he no longer wanted to deal with all the science stuff and moved over to the philosophy and chemistry department. He continued: "I started a theatre on the campus doing street theatre and later we actually built an indoor theatre - we took over a building on the campus of around 5,000sq.ft and I hustled people for money to furnish it." Suddenly there was this radical theatre department on campus with no official ties: the college then put the 19-year-old Cunningham on the faculty and he was teaching in his theatre before he had even graduated.

He described the theatre company's thinking: "There was all the Jung and Artuad and what was going on in the world running through the shows, combined with all those questions you ask society and yourself as you grow up. We would have a discussion and that would develop into the performance. Part of what the company was trying to achieve was visual - we wanted to create effects that were not possible to do manually with the lighting equipment that was available. So we built our own lighting equipment and hooked it up to computers."

"People were taking drugs to come and see our performances - it was an acid show! There was a lot of colour changing, very much what you would see today at the Blue Man Group or Cirque. It was a rudimentary automated lighting control system with audio feedback and some control over the mixing. I had envisioned that the whole thing would be integrated, but obviously in those days it would have taken a fair few computers to pull it off!" This was around 1969, and he had the cream of American physics students creating visual and sound effects with computers: as far as he is aware, this was the first computer lighting system ever created.

Suddenly, the 60s were over and the seventies had arrived. The college had started to fund his theatre without him even asking for money, but Cunningham walked out of the theatre and started something new. His motivation to leave? It had become an institution. "That really was the time to go!" he laughs.

He explains: "There absolutely has to be a point to what I create, not to use it simply because it's there. For example, one person can sit in the middle of a stage with a candle in his hand and that is an incredibly powerful image, all the moving lights in the world would find it impossible to recreate that. Lighting has to go to the emotion of what it is enhancing."



Despite having a madly technophile side, Cunningham never touches computers. He writes everything long-hand and he hasn't watched television since 1969. He believes that everything he does in life - work or play - must be to create beauty at some level. He explained: "This is a good place for technology to come from, a need to create and emphasize what we are trying to say."

With the 60s over, he went to work with George Van Buren at his company Van Buren Industries. Here he built a small console that never really went very far. Van Buren, says Cunningham, was a fine man: he tended to take on one-off special projects, but often underbid to get them. Sometimes they would get way too complicated and whilst he always delivered he was invariably in financial trouble. As Cunningham chuckled: "This is where

I learnt how not to run a business! Also I had agreed to work for George for royalties on everything I designed and whilst I got nothing there as he never made much money, it served me well in many of my future dealings! George therefore taught me a very valuable lesson!"

Eventually Van Buren signed an exclusive deal with Strand and they then put him out of business. Cunningham dropped out and went traveling then lived the Bohemian life in Berkeley for a period. Later, a former colleague introduced him to Wally Russell who turned out to be a huge influence. He told me: "Wally was a true trailblazer - he influenced several generations of industry professionals. He saved Strand in the USA, was instrumental in the development of Vari*Lite and Theatre Projects, advising them on their business approach behind the scenes. Everyone knows who Richard Pilbrow of Theatre Projects is, but they probably didn't know Wally helped in many of the strategic decisions that were made on start-up of the company. He also influenced many of the Varilite fixtures.

Cunningham says of Russell: "He was a businessman, but his skill was that he got people working together for a common cause; this made them more productive. He gave people the space they needed to be creative and he didn't obey the rules."

Cunningham relates how Strand in the UK brought Wally Russell down from Canada. Russell, he says, immediately realized that Strand USA was going to go out of business unless it developed its own products: he was a theatre person and he understood the market. Against the directive from the UK to just sell UK products, Russell brought Cunningham into Strand to work on a secret project: he was given five months to fulfil his brief and created the Multi-Q lighting system, which went onto the touring shows of A Chorus Line. The show won numerous awards and the console took off instantly. Cunningham says: "Everyone on Broadway wanted it, then everyone in the country, followed by absolutely everyone else in the industry. Within six months we had sold 50. Broadway went from road-boards to memory systems almost overnight, just because Wally had not done what he was told! This was also when Chuck Levy got involved, he knew all the Broadway LDs and had loads of contacts."

Cunningham's next project was to design a dimming system that allowed every light to have its own dimmer. They needed to be able to manufacture more economically - he hated patch panels. The CD80 was born and by all accounts is still around today. After that came the Micro-Q and then the Light Palette. He told me: "I learned so much from Wally, he let me do what I needed to do in my own time and then at the end of the day he, I and Chuck would brainstorm theatre lighting - the

# David Cunningham: Source of Inspiration

philosophy of what we were trying to do. It wasn't so much a technical thing, more 'here is the kind of light we want to create' then we'd look at the technical side of it. When I first started at Strand I had two or three staff in my department: when I left there were around 20." Quite an achievement for a company that was going bust six years prior. "The great thing about what we did at Strand was that by the time people were responding to the first product the next one was coming out, keeping the momentum up."

Cunningham then created the Light Palette which featured the 'move cue' - a positively brilliant concept, which set a precedent for how US LDs worked from then on. The 'move fade' comes from the old road-board way of working where the electrician would be told to move to a particular level on the handle by the LD, using the old auto fader resistance dimmers. Many of its competitors, such as the Kliegl, worked on the preset philosophy where everything is reset each time - you went from one preset to another setting up a new state on the non-live preset. The electricians loved the Palette: it was simpler because it was about where the lighting was going, not where it had been. The Light Palette was similar to this, but luckily did not rely on how many fingers or toes the operator had or how agile he was!

"We wanted to talk the LD's language. We went into theatres and listened to how they spoke and we then developed the command line syntax that way. The LD would say 'go to Q5' and then you would just write in the command line or punch in 'go to Q5'! This eventually allowed LDs to work directly with the programming electrician and dispense with the assistant."

Cunningham believes still that no one has quite got the moving light control interface

right yet. "It still has further to go in relating to what you see the fixture actually do. At least with the static lights the slider handle feels like it has a relationship with the intensity of the light, that is what moving lights need - that same relationship. Once you have to translate your creative vision into a bunch of numbers for the interface you become an extension of the machine and it destroys all creative energy. You can't paint with light anymore."

Strand eventually sacked Wally Russell in 1982, even though he had been instrumental in taking the company from $1million in turnover to over $25million, because he still did things he was told not to! Cunningham had designed at least a dozen consoles by the time he left the company two years later. In those two years, says Cunningham, Strand became a very corporate business, and the people brought in did not have the same passion for the theatre. However, he did learn a lot about how business worked in that period.
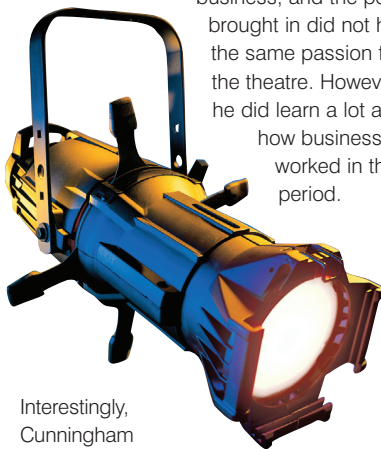


Interestingly, Cunningham carried the royalty arrangement he had developed with Van Buren to Strand, and while he was on the staff for eight years, then on the board and eventually vice-president of R&D, he only drew a small salary.

On leaving, he offered Colortran his R&D skills and started a company called Entertec, to which a number of people from Strand eventually migrated. Cunningham continues: "I ended up with around 12 staff. During this period I designed a whole series of products including high density dimmers which were very successful. The ENR was a plastic dimmer and had a few problems, but nevertheless it was pretty intimidating to the industry because it was low-cost and high volume orientated. We then did a series of consoles - essentially microprocessor versions of the Light Palette. These were even more economical and we created a whole series of boards."

Because Entertec was a separate R&D company it had a licensing arrangement with Colortran. Cunningham would develop the product and then license it to companies to manufacture. From 1984 onwards, Entertec and the development of its products was entirely independent.

Cunningham funded the projects up-front. He explained: I would usually fund them 50/50 with the manufacturer. Colortran was short of development money, so they were happy to have a fiancial partner. Strand was a $1million company when I first started there and by the end of the run Strand was doing $25million in sales. I then turned it around and took Colortran up to the top and Strand went to second place."

Cunningham's final switch was in 1989 when he decided that he no longer wanted to develop a product with any specific company in mind. Over the next two years, with no partners and spending $2million of his own money, he developed the Source Four series. He told me: "I didn't really have anybody in mind for ownership of the product: I considered Colortran because they were still a big player, but ETC was kind of up and coming and I hit it off with Fred Foster straight away. When he saw the product he said 'I want it' so he got it!"

ETC 'got' the Source Four about half the way through its development cycle and came in as a joint partner. They were short on cash and so also liked the idea of a joint arrangement. Entertec took it to the end of its development and turned it over on a licensing arrangement - setting ETC on a lucrative new road. Cunningham then designed the Sensor dimmer, which set them on another new road: before Cunningham, the company had been solely a lighting console manufacturer, and had just purchased LMI. ETC today does around $120million in sales, some two-thirds of which is from products primarily developed and designed by Cunningham and his team: you can see now why he is probably one of the wealthiest individuals in our industry today.

What made him decide to design a luminaire after so many consoles and dimmers? "I just wanted to do something other than consoles. It seemed like nobody had done anything with ellipsoidals for about 30 years; all the other products were just repackaging of what had come before. They changed the box but they didn't change the output. The lenses, the reflector and everything had stayed the same, and the Altman 360Q - which inhabited most venues around the world until the S4 came along - even though it was crude, had the best performance and was the cheapest. It was probably 90% of the market in the US."

Cunningham wanted to redesign from the lamp out: to make it more efficient, he needed to take the heat out of the beam, build in the rotating capability, and get more light out of half the power and wattage. The result was a 575W lamp which gave 30% more light than the standard 1kW lamp. Cunningham actually designed the 575W

# David Cunningham: Source of Inspiration

lamp itself: this is taking detail to new extremes for me!

He started to look at the optical interaction of the filaments with the reflector and realized the light was just not going where he wanted it to go: the standard lamp at the time sprayed light everywhere, he recalls. However, as he explains: "If you arrange the elements of the lamp in a certain order symmetrically around the axis of the lamp, it directs the light into the reflector more efficiently, and so the lamp was a key part to making that fixture work. Plus it was a denser source, which made the collection more efficient."

Cunningham now needed a lamp manufacturer: "I went to GE to discuss it - they wanted to price the lamp very high: that was a no-go. Then Ray Fleming at Sylvania thought it interesting and told me 'We'll make you a special batch of lamps'. This was done on no contract, no joint development, but I had patents submitted on the designs. Once they got it together and the fixture started to take off, sales went crazy - in fact it's the highest-selling speciality lamp in the industry, just because there are so many Source Fours out there! They are now selling almost a million lamps a year."

Following Osram, Ushio came in, followed by GE and now Philips. Until that point, the lighting industry had always built its fixtures around existing lamps. It was Cunningham's genius to look at something that had been a standard for so long and then tip it on its head. ETC could not make Source Fours fast enough and it took a few years more before it even had the time to expand the range. The Sensor Dimmer has been equally as successful - and is equally technically innovative.

So why, when things were going so well, did he simply stop working? "It was a lot of things," he explains: "I had done the theatre and around 30 development projects and my retirement was to prove to myself that people are not all about what they produce but what they do and where they have come from, what they feel and what they think. Recently I have found a new project that's worth doing but I'm not stopping the partying, just moderating it!"

Cunningham's house became a theatre: people are selected to come in - in a way they are cast. The parties resemble huge improvisations that have no beginning or end. Everyone dresses in costumes; they are all performers of some sort. People move from themed room to themed room, each with its own vibe, from the dungeon in the basement to the Art Deco living room, and from the cinema-screening boudoir with



*Photo courtesy of Glenn Campbell of Los Angeles, California.*



its detachable dancing pole to the Renaissance drawing room! It's a kids' party for adults: instead of making imaginary places under sheets, you just walk down a corridor and you are in a fresh environment.

"I entertain the interesting weirdos of LA," he says. He has a full photographic library of all of his parties: no written word - it has to be all visual. He also holds quieter movie nights where everyone dresses up in the style of the film.

Cunningham has a book of his favourite photographs from his performance parties, all embellished with appropriate quotes that he personally identifies with. The one that jumped out at me after the relatively short time I spent with him was a quote from Zadok Rabinowitz: 'A man's dreams are an index to his greatness'. In Cunningham's case, the achievements of his waking life alone serve as a pretty convincing index.

Today, Cunningham is about to come out of retirement for what he says is "one final project". Having done up two houses and partied six nights a week for about seven years, he says he's all partied out and looking for a challenge. He has started working again, and his dungeon is about to be converted back into a laboratory. During my visit there were little pieces of evidence of potential projects secreted around the dungeon. I, of course, am sworn to secrecy and that's the way it's going to stay!

*For more detailed information on the science of David Cunningham's projects, see Robert Bell's book, Let There Be Light - available from our Technical Books Service at: www.lsionline.co.uk/books*