

BY BRYAN MATTHEWS

## 100 years of Strand Lighting

Over the century, Strand Lighting created numerous technological advancements for the lighting industry

OVER THE LAST CENTURY, the entertainment lighting industry has experienced a vast array of technology developments and advancements. While many companies create similar technologies that compete for market share, one company is notable for celebrating over 100 years of technological achievement. Established in 1914, Philips Strand Lighting was the pioneer in entertainment lighting, and over the course of time they've been an

undeniable leader in the creation of many technologies that have built the industry we know today. To help celebrate the "Strand Century" let's take a quick look back on a few of those technology advancements.

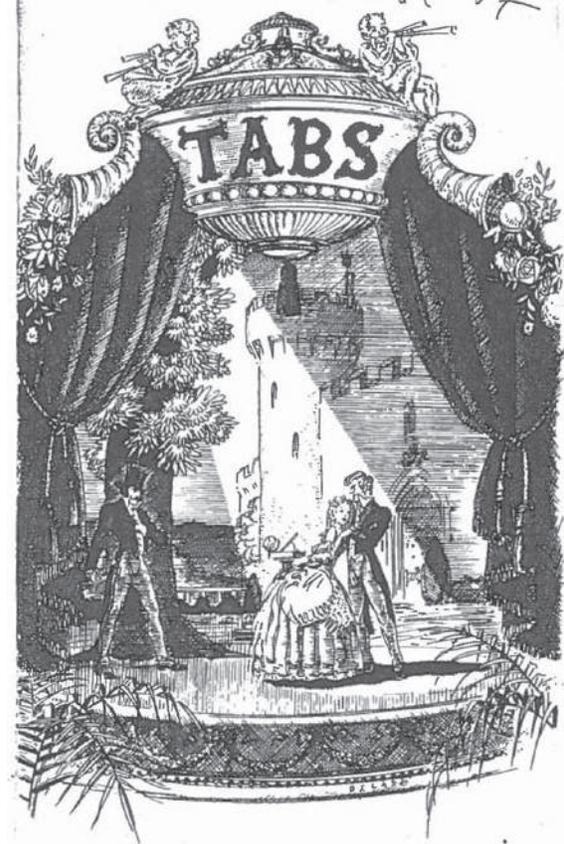
### Dead Front Control Board (1924)

In the early days of Strand Electric, Arthur Earnshaw and Philips Sheridan saw the need for lighting control in the theatrical world. So in 1924, Strand installed the first Dead Front Control Board in the Old Vic Theatre.

Previous lighting control consisted of simple on/off switches that often had electrically charged metal components exposed, leaving the operator susceptible to a jolt. The Dead Front Control Board was exactly as it sounds, a modern switchboard with no exposed metal parts carrying current to ensure the operators would not be shocked—a very necessary precaution in present-day installations.

To further the technology behind theatrical control, main black-outs could now be controlled by magnetic contactor switches that were placed under the stage and operated by small switches on the center panel on the board. This method ensured that a black-out was obtained without the noise of a heavy switch.

The Dead Front Control Board also was arranged for a four-color scheme with master color switches, and sub-switches that divided the master switches

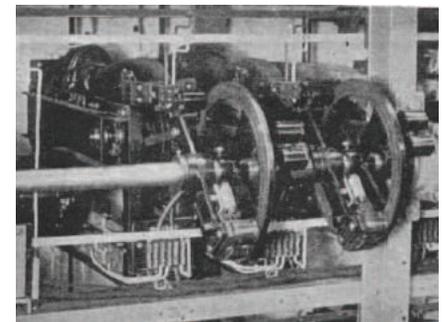


The original issue of *TABS* published by Strand Electric Company in 1937 "in the interests of amateur theatre."

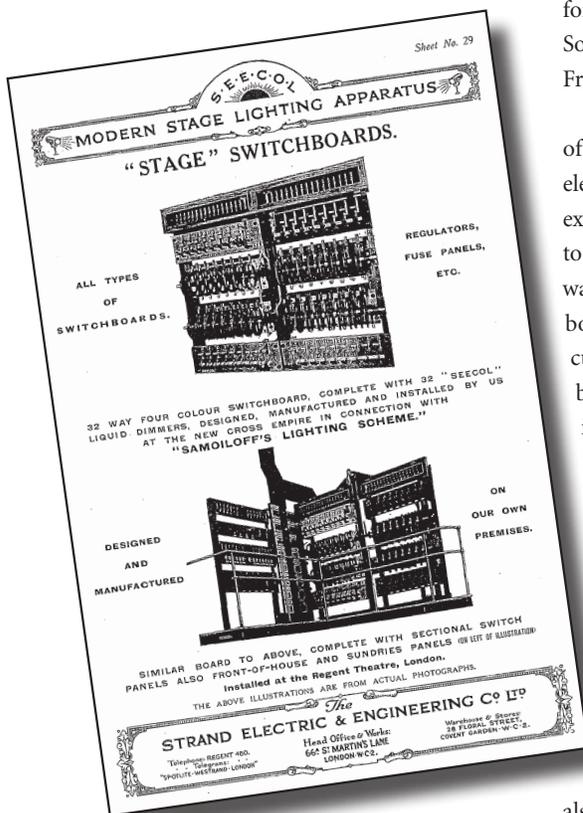
into two sections on each color. The stage dips were then controlled by a master switch on each color, and an individual switch controlled each stage socket.

Wheel regulators for operating the liquid dimmers also were included with the Dead Front Control Board. Arranged on four color shafts, each wheel could be individually operated or could be locked into position so that all the wheels on each color could be operated in unison.

Dead Front Control Boards were a very successful technology advancement and were subsequently installed at the Theatre Royal, Glasgow King's Theatre, Glasgow Mile End Pavilion, London Lyceum Theatre,



Magnetic clutches allowed multiple mechanical dimmers to move together under remote control.



Dead Front Switchboard from the Strand catalog, circa 1925.

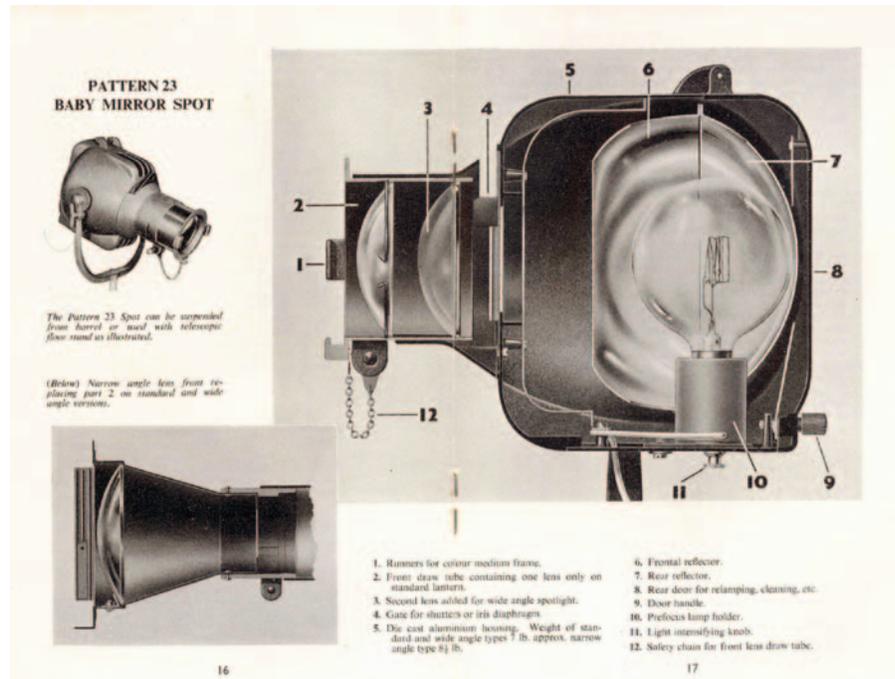
Edinburgh Alhambra Theatre, and Glasgow Birmingham Empire.

## The Pattern 23 (1953)

In 1953, Strand introduced the revolutionary Pattern 23 which was the first mass-produced theatre spotlight in the world, die-casting the fixtures in batches of 5,000. By using the die-cast mass production method, Strand was able to provide an exceptionally well-finished stage light at a low cost. Offering designers the ability to create multiple beam shaping effects, its success ran for 30 years.

With a cut-out mask in the gate runners, the 500 W Pattern 23 profile projected a clear cut and even beam. While four masks of different, but fixed apertures were provided, the Pattern 23 also had an adjustable straight-edge mask or an iris diaphragm as optional beam-shaping accessories. So that the front annular and rear ellipsoidal reflectors could maximize the efficiency of the light collected at the gate for additional beam shaping, different lens combinations were available as well with either a 17° or 30° beam angle. The Pattern 23 profile had a stated throw distance of 8 meters and was recommended by Strand to be used in “applications where precise control of beam shape and spread is required in display, exhibition, and feature lighting.”

Later enhancements to the Pattern 23 enabled the fixture to use either a 250 W or 500 W lamp. It was stated in the company sales literature that the 250 W lamp was brighter than a standard 500 W fixture, and that the 500 W lamp was comparable to 1,000 W stage spot. Other advancements of the product line included two reflectors that could work in conjunction with the lamp accurately held in a prefocus holder, to create a hard or soft focus using a 3.5" diameter lens. If you had an extra-long throw distance, the Pattern 23 was later available with a 6" diameter lens in a special funnel.



The spec sheet for the Pattern 23 from September 1953.



Strand Lighting's Pattern 23.



Light Palette lighting console

## Light Palette console (1978)

In 1978, Strand introduced the Light Palette lighting console, created ideally for theatre and television lighting, and offering designers new flexibility and creative freedom as never before with memory lighting control systems. With up to 256 channels, 512 dimmers, and the ability to memorize 200 cues, it was the console's ability to program and to execute six simultaneous, separately timed parts in each cue that gave the Light Palette its place on our list of notable accomplishments.

Light Palette truly opened up new possibilities for designers to control the lighting for a show. The parts of each cue could now include various fade rates, split fades, fast on/off actions, et cetera. For the first time in history, lighting operators could start a cue with a single button push and play back six separate actions. This innovation gave way to designers being able, not only to design scenes, but now also to design the transitions between the scenes with remarkably accurate repeatability. No matter how complicated or precise the fade rate, designers could now truly create every cue.

Keeping the designer in mind during the technical process of creating a show, Light Palette changed the face of lighting control in another way. By having cues written and recorded in the memory of the console, with the ability to display or modify them at any time, writing cue sheets now became an unnecessary task. Cue information stored in the Light Palette consisted of channel intensity, fade rate, plus delay and profile data to control the show transitions.

To handle repetitive groups of channels, the Light Palette allowed channels to be assigned to groups. An entire group could then be called up at 100%, or any other proportion of its relative intensities.

Lastly, the Light Palette memory control system realistically approached the concept of a dimmer per outlet. Not only could it control up to 512 dimmers, it also allowed users to patch dimmers to control channels electronically at the console.

## The CD80 dimmer modules (1986)

Ideal for noise sensitive installations, Strand introduced the quiet CD80 dimmer module in 1986, which offered filtering through high performance toroidal chokes in a cost

effective and heavy gauge aluminum chassis. This technology innovation soon became an industry standard in television and theatre applications worldwide.

To create the quiet dimming necessary in TV and theatre, each CD80 dimmer had an integral high-performance inductive toroidal filter. The chokes had a sizeable reduction in the third, fifth, seventh, and ninth harmonics eliminating the excessive fixture filament noise. Additionally, to prevent interaction with other dimmers, the choke limited the AC line conducted radio frequency interference.

The durability of the CD80 dimmer module was mainly attributed to its solid-state dimmer electronics. Each dimmer was further protected by a magnetic circuit breaker mounted on the faceplate of the dimmer. In overload conditions, the breaker would act as a disconnect before damage could be done to the dimmer. With the dimmer operating at a 2.4 kw maximum load, rise time was a nominal 840-microseconds at 90° conduction angle from 10% – 90% of the output wave form.



A single-channel CD80 Single portable dimmer.



CD80 dimmer with the rack door open.

## Premiere Network Manager (1992)

One of the award-winning technologies created by Strand was the Premiere Network Manager released in 1992. Designed ahead of its time for architectural energy-saving applications, this memory lighting control system used a local area network connection to link up to 64 custom-programmable control stations. Through a system that could be tailored to the client using a PC-based software package, the Premiere Network Manager had the capacity to control 128 channels of lighting and 512 dimmers with 128 different scenes per room.

Designed for convention centers, theme parks, hotels, and museums, the Premiere Network Manager enabled lighting technicians and building managers to be connected online through their personal computer. With the ability to control up to 15 Premiere systems in an application-based software package, real time lighting control of up to 480 rooms or areas was possible.

Once released, the accolades began to accumulate. The Premiere Network Manager won awards such as the Architects Journal Award for the "Most Innovative and Ambitious Use of a New Product" for its installation at the Gleneagles Hotel Conference Center, the European Lightshow "Product Excellence" Award sponsored by the Lighting Association in conjunction with the Lighting Industry Federation, and the Premiere installation at The World of Beatrix Potter Exhibition received the highest commendation in the "Leisure" category of the National Lighting Awards.



N E W S

### HEADING "DREAMWARD"

**I**t is difficult to imagine a more international tale than this. A Norwegian owned ship, based in Miami, fitted out by Strand in France with products from Strand's facilities in Scotland and the USA.

"Dreamward", and its identical sister ship "Windward", both Norwegian Cruise Lines, regularly cruise around the Caribbean from Fort Lauderdale, Miami, to St. Thomas and San Juan, Puerto Rico. On each trip, over twelve hundred passengers enjoy the astronomic and gastronomic delights of a modern cruise liner, including the regular shows performed in the 600-seat 'Stardust Lounge'.

For three nights a week the resident company provides compilation 'Broadway' shows on the stage of the 'Stardust Lounge'.

The crew performs its own revue each week, and the remaining evenings are taken up with guest acts.

Lighting all these shows – two performances a night – is a complete Strand Lighting installation. At the 'sharp end' a Lightpalette® 90 controls 144 EC90MD 16Amp dimmers. The supply on board is an unusual 220V Delta 60Hz, but this is easily catered for with a standard EC90 configuration.

The complete lighting package, including Cantata PC and Leko® spotlights, was supplied by Strand Lighting France as part of the total electrical package designed and installed by Michel Charles and his team of Paris and St. Nazaire-based HMS (Harbour Marine Systems).



*Above: The Norwegian Cruise Line ship 'Dreamward' whilst docked in San Juan Harbour*



*Below: Strand's Lightpalette® 90 installation in the 600 seat 'Stardust Lounge'*

---

### THE PLASA LIGHT & SOUND SHOW '93

*Special Offer For Lights! Readers*

**T**he PLASA Light & Sound Show will once again transform London's Earls Court 2 between 12th and 15th September.

Internationally recognised as one of the industry's top showcases for all that's new in leisure and entertainment technology you can expect to see major product launches as well as come into contact with the industry's top names.

Traditionally more than 50 per cent of exhibitors take advantage of PLASA as the international launch pad for new products. With over 150 exhibitors showing products and services from more than 300 companies the show comfortably draws in excess of 8,000 visitors. Everything you need to know about all the latest lighting products and issues from every sector of the industry will be there for the taking, under one roof, for four days.

Show sponsors, the Professional Lighting and Sound Association (PLASA) will once again be running its programme of highly regarded seminars at the event. The programme will address all the latest issues and trends and covers every sector of the industry from theatres to clubs and discotheques and live performing. The schedule will be announced in July.

For *Lights!* readers we are able to offer a special admittance package to PLASA. UK readers will get a 50 per cent discount by returning the insert card at the front of this issue while overseas visitors enjoy free entrance and membership of the show's exclusive Elect Club.

*For further information on visiting The PLASA Light & Sound Show contact:*

Vivienne Orchard,  
Philbeach Events Limited,  
PLASA Light & Sound Show,  
Earls Court Exhibition Centre, Warwick Road,  
London, SW5 9TA, UK.



EARLS COURT 2, LONDON  
12-15 SEPTEMBER 1993

---

**20,000 WATTS OF RAW POWER!**

**T**he largest Fresnel Strand has ever produced makes its appearance in the new UK catalogue.

Draco, named after the dragon constellation, packs a powerful 20kW of tungsten halogen source light for location film work. The lamp is currently available in 220/240V, and a special 'inrush current protection' dimmer unit is needed to prevent the filament from switching on too rapidly.





*Pictured above (L-R) are Simon Neale and John Haste of Electrical Contractors Electrolite, with Olivier award winner and renowned West End Lighting designer Mark Henderson receiving their award from Dr Mary Archer.*



*Also pictured below is Hilary Peet Manager of 'The World Of Beatrix Potter' - receiving her award at the presentation ceremony at London's world famous Savoy Hotel*



*World-famous cinematographer Vittorio Storaro joins Marketing Director David Brooks (left) and Enrico Colagui, Strand's newly appointed General Manager of Strand's Italian trading operation, on the stand at SIB MAGIS in Rimini. This exhibition saw the re-launch of Strand's company in Italy.*

*Picture by courtesy of Lighting and Sound International*

**Lights!** 5

*Lights!* magazine notes the award-winning Premier Network Manager won three top awards.

## 500 Series consoles (1995)

Introducing the world to the option to choose and upgrade your console software, including the basic operating software, through an integral floppy disk drive, Strand introduced the 500 series console in 1995. The Genius operating system allowed lighting programmers to update when they needed without having to buy any new hardware.

With all the application software supplied

standard, the maximum number of channels and attributes available depended on the hardware performance and was different for various 500 series consoles. To add SMPTE, MIDI, MIDI Show Control, DMX input, external submasters, serial, and other means of communication, the CommuniquéPro software was used; the Tracker software then supported advanced functions for automated lighting control.

Later advancements in the 500 series consoles included an electronic sub system enabling additional features that were not



Strand Lighting's 500 Series console

possible with slower processors. With the 500 series processors, the new electronics could provide built-in Ethernet ports, and support handheld remotes connected to any AUX port, four DMX512 ports, and a new SMPTE input port, which was accessible via the audio connector. Strand later developed the 510i Show Controller, one of the first rack-mounted lighting controllers designed primarily for themed environments and to operate as a backup to the main console.

### ShowNet (1997)

Continuing to push the boundaries of how dimming and technology could work together, in 1997 Strand released ShowNet, one of the first to use Ethernet Protocol to transport DMX512 data. This cost-effective network connectivity solution was an ideal dimming and control solution for

entertainment and architectural facilities of all sizes, and its viability soon spawned a host of competitors to the market and even created the need for new industry standards to be written. Using broadcast communications in which IP addresses are not used, the Strand engineers first found a way to make DMX512 over Ethernet possible. Today, there are a number of products on the market that send DMX512 data over an Ethernet network. Fourteen years later, the Strand Lighting ShowNet protocol is still being utilized in facilities worldwide.

### NEO (2014)

With the introduction of the NEO lighting control console in 2014, Strand Lighting marked a new chapter in its evolution of control. Encompassing the needs of both professionals and amateurs alike, NEO includes many timesaving features that allow the user to program faster and more accurately. Now, Icons and Shutter controls are represented graphically on the display, saving time and presenting meaningful data to the operator. Floating Windows allow the operator to configure their views their way, making it easier to find information. Effects are handled

with a "Time Line" feature that allows drag-and-drop controls to create perfectly timed sequences. With NEO, a "Mission Critical" grade SQL server ensures no data loss in critical moments. Boot time that is massively reduced using high-speed, solid-state disk drives. The NEO lighting control console is easily one of the most robust consoles available today.

Looking back over its 100 year history, the story told of Strand Lighting is filled with a "who's-who" among lighting industry pioneers. George Izenour, Leonard George Applebee, Frederick Bentham, Richard Pilbrow, and of course Wally Russell, to name a small few. However, as we take a deeper look over the course of its time, we see that it was Strand Lighting who also provided the lighting industry with numerous technological advancements, many of which are still used today, and maybe for another 100 years. ■



**Bryan Matthews** is the President of Park Bench Marketing located in Dallas, Texas. Serving clients across multiple industries, he has previously published articles for *Lighting&Sound America* as well as a number of additional lighting trade publications. For more information on Park Bench Marketing visit [www.parkbenchmarket.com](http://www.parkbenchmarket.com).

Article sources:  
Philips Strand Lighting  
TABS  
Lights!  
Stage Lighting by Harrold Ridge, A.R.S.M.,  
D.I.C., etc., Houghton Mifflin Company,  
Inc., Boston, The Riverside Press,  
Cambridge 1928  
United States Institute for Theatre  
Technology  
[www.strandarchive.co.uk](http://www.strandarchive.co.uk)



Strand Lighting's ShowNet network connectivity solution.