

Philip Rose marks the launch of the new Leko with a retrospective of...

# THE LEKOLITE - 60 YEARS ON



The Strand Century 1kW Axial Lekolite® Spotlight.

**G**o into any theatre in the world and ask for a Leko. You may not get it in the outer reaches of Mongolia but they will know what you want.

In its nearly sixty year life the LEKO has become the definitive beam shaping spot, still in as much demand as ever.

It was back in 1933 that Joseph Levy and Edward F. Kook, founders of Century Lighting, filed a patent for a new ellipsoidal spotlight, each giving half their name - LE and KO to their joint brainchild. At last a development which could utilise the known efficiency of the ellipsoidal reflector together with beam shaping and hard or soft focus lenses.

Towards the end of the twenties the use of directional lighting became increasingly popular mostly based on the use of plano-convex lensed spots. However, the demand for better, brighter and more versatile spotlights increased as every new show opened.

Earlier in the decade Frank Benford, a lamp physicist with GE published a number of studies on sources, reflectors and lens design. These encouraged Century and Kliegl who were deeply involved in theatre lighting development. At last, in just about the two years 1932-34, GE produced a tubular Bi-post projector lamp with a

concentrated filament near the end of the envelope. From the Aluminum Company of America came a patented aluminum finish (ALZAC) with reflectance of better than 80% and from others, metals capable of surviving the high temperature at the gate focus.

The first lamp to appear was rated at 120V 1500W designed to locate the filament at the reflector focus whilst keeping the base outside the reflector. A pre-focus 500W version soon appeared.



Strand Century 1kW Axial Lekolite® Spotlights 4 1/2" to 10".

Needless to say the appearance of the LEKO was not uncontroversial, the argument soon developing as to 'who was first' with an ellipsoidal spot. The British took the holy view that in any case, it all started with the Stelmar reflector system made by Strand Electric in the twenties. However, this is not the time or the place to get side tracked into this debate.

Century's LEKO and Kliegl's Ellipsoidal were first listed in their respective 1934 catalogues.

However, as with most new product, the spots were well in use before the publicity had caught up.

What was happening at the British end is another story but it was nearly another 30 years before a suitable base up 240V projector lamp appeared. The physics of Tungsten and other constraints make it more difficult to produce such a lamp for 240V.

The Lekolite range steadily expanded as the wattages of available lamps broadened, however the 500W (which eventually became the 500/750W) became the most popular highest unit volume spot ever made.

The arrival of a practical Tungsten Halogen lamp in the early sixties brought all round improvement in efficiency to theatre and studio lighting particularly in respect to maintained lumens throughout life. Soon after this a new 500/750W LEKO appeared. This brilliantly designed and engineered pressure die cast aluminum unit, prompted by Strand's successful Pattern 23, was developed at Century's Los Angeles plant by a team led by Louis Erhardt. It set new standards in spotlight mechanics rarely equalled since.

With all the concerns over brightness and optical efficiency it is easy to overlook considerations of size, mechanical strength, heat control and ease of use. Stages and Studios are not the easiest places in which to work and are not particularly friendly to equipment of any sort. For an electrician to rig, set, colour and focus a light when hanging by the finger nails from a pipe calls for a sound understanding of the working environment on the part of the spot designer and maker. There can be no doubt that throughout its long and successful life the LEKO has more than passed this test. ❁

*Philip Rose, a Director of the old Strand Electric, moved westward in 1959 to develop Strand's North American activities. After the Rank acquisition of Strand and then Century, he was appointed President of Strand Century and moved to L.A. He returned to the U.K. as International Marketing Director in 1974. He is now retired and living in Hampshire.*

**T**he most recent version of LEKO dates back to 1979 when it was upgraded to 1000 Watt by fitting a 1kW FEL lamp axially in a redesigned elliptical reflector. This 'easy to use and adjust' version has been in production since that time. The 1000W LEKO became the subject of review as it was time to consider replacing tooling that was reaching the end of its working life.

The decision of whether to re-make the tools, or commission a new design concept was reached quickly: there was to be a new LEKO, code-named LEKO 3.

The starting point was a natural one for the designers - the theatre itself - and all available comments, compliments and criticisms were collated, checked and fed into the design specification.

For performance and quality, the LEKO was considered the best in its class, especially at 1000W. But the cost of production had become too high. The previous design simply had too many parts which not only increased material cost, but was too labor intensive in assembly. So came the question, how do we improve on an already established success? Well, there were a few features such as a rock-solid lock off, easier lamp exchange, simpler focusing, removable iris that were identified and agreed as important goals in the design brief. In the bottom of the filing cabinet lay the hardest requests of all. They were called the "WIBNIs" - "wouldn't it be nice if..." "... there were over-range shutters," or "you can change the lamp without re-focusing".

During the next twelve months the new LEKO was born. The optics remain true to the original design concept - there's no need to change what had taken a lifetime to perfect. Die-cast parts and plastics were integrated in the design to reduce the component list. Back in Kirkcaldy, Scotland, the mechanical team developed ideas that were so novel that patents were immediately filed. Each answered a 'WIBNI'.

The first concerned the focusing system ❶. The lamp socket assembly was developed to slide in a cylindrical housing in the rear of the lamphouse. A knob at the side positions the lamp in the reflector to adjust from peak to cosine distribution. If the lamp has to be replaced, the lamp socket assembly can be removed by a bayonet action against retaining springs leaving the adjustment actuator locked in the pre-set position. Refitting the lamp