

Strand's Grand Symphony in Light

ONCE again August is with us, and, like a salmon whose spawning time has come, your Editor feels the strong pull of Scotland. Unlike the salmon, his purpose in this migration is not to spawn, but to subject himself to the most culturally stimulating event in the British Isles.

It became obvious that pleasure could be combined with duties, although, as you will see, these duties themselves were highly interesting and thus pleasurable.

Leaving Edinburgh on a magical day with the odd cumulus high in a blue sky, the gleaming bonnet of the Editorial barouche soon reflected the arches of the Forth Road Bridge — Yes, I know I always fulminate against modern roads, but the ferry no longer plys! To the right we see the superb 1886 venetian red rail bridge. Ten minutes later comes the fork marked "Kirkcaldy".

I first visited Kirkcaldy, located on the southern margin of the Kingdom of Fife, many years ago when the whole town existed under a faint smell of the linoleum which was its main industry.

Linoleum may, for all I know, still be produced, but electronics and engineering are nowadays the main activities.

Our own factory is involved in both these pursuits, but on this visit I was interested in the engineering aspect, specifically the building of the new range of lanterns.

The first thing to be said about the manner of making is that it is now totally different from that used for the T-Spot series and the old 700 and 800 series ranges. These were all basically steel pressings, which were welded or rivetted together and then assembled on a production line.

About a month ago, the heavy gang descended on the works and completely re-organised the whole production area. The old production lines were ripped up, the sub-assembly areas re-located, and even a whole new gas heating system installed. A new tool room was built and a great deal of new production equipment brought in.

The single greatest change in the factory is actually in the method of working. Each lantern in the new range is built by an individual. They no longer go from hand to hand — one man — or woman — is responsible for each lantern built. We believe it is most significant that the work force all find this new method a great improvement. They each now have an individual responsibility for the customer's satisfaction in the lantern which they have made for him. And we believe that people who feel both responsible and happy in the work method will build even better products.

We don't, of course, make every

single part of every unit. Cable, screws, castings and lenses, for example, are all bought out and the stories behind some of these vital parts were also investigated in my journey.

Stacks of the parts and components about to become Harmonys or Preludes are close by the lantern assembly points. On the day of my visit four girls and two men were completing a lantern every five or six minutes. I suppose a complete, inspected and packed Prelude was therefore going into the warehouse about every ninety seconds.

All the aluminium extrusions which form the sides, the die castings which form the ends and the expanded metal heat sinks are painted — actually powder coated — before assembly.

The very first assembly job on a profile spot is the fitting together of the shutter unit. Now this is a very special part of any Strand lantern. Let's think about what the shutters have to do. First, they must be easy to move — not just when the lantern is on a bench at a nice convenient height, but when the lighting electrician doing the adjusting is on top of a pair of steps, and the lantern is hung four feet higher still — and is probably hot. Even a Strand lantern must give off a certain warmth.

Second, when the shutters are set in their correct position they must not move. The lantern may hang for weeks on end and it may be used in most of the lighting cues, so it could well be heated through a hundred degrees and cooled again a dozen times in every performance — and still those shutters must not move. But if the position of the scenery is to be changed for any reason, or an actor feels happier further down stage, or even in a taller hat then suddenly one of the lighting men must be able to make slight shutter adjustments easily and quickly.

These totally contradictory requirements are met by us by the use of shutter blades made of a spring steel which has a very slight inherent curvature, so that there is always pressure between the blade and its housing, but never too much pressure. This brings another point to consider. If the blades are to be made of a spring steel, and we believe they must, then the punches and dies which stamp them out have to be of super hardness and accuracy. We can appreciate why some people don't use this type of shutter material — it is so much simpler and cheaper not to bother too much about the material and "after all, they will last for a year or two, and a lot of people buy on price anyway". Oh yes, this is the siren song that must be ignored. Many Strand lanterns have lasted for thirty years, and fifty is not unknown. Often it is only into their second or third decade that their quality

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THE EDITOR DISCOVERS HOW S



The molten glass goes into a mould.



Polishing the die castings — the mystery of the plastic cones is solved!

is really appreciated.

But back to our main story — all the assembly benches have special plastic jigs to hold the parts so that not only is it easy to fit lanterns together, but holes for screws are precisely in the right spots, so that a compressed air screwdriver can be used to put machine screws straight into the already threaded sockets. Because the torque is pre-set on the driver, it will always be exactly at the specified tightness. And no time at all is needed to "make things fit". As both die castings and extrusions are inert, there is none of the pushing and pulling usually needed to get a group of pressings to fit together. I remember once visiting a mass production car factory and watching a team of strong arm body shop men making doors and boot lids 'fit' with the aid of rubber sleeved crow bars!

The use of castings and extrusions, incidentally, is one of the ways by which we have made sure that as lanterns heat and cool in use there will be no 'pings' or 'pongs' from the lantern bodies.

I thought I had caught out the factory at one point, when I saw what looked like a countersink bit* was being used on one drilled and threaded hole. "Difficult fit?" I enquired. A rather pitying reply indicated that paint has to be removed to secure a good earth bond!

I quickly moved on, gathering a few remaining shreds of dignity, to look at the powder coating plant. This was actually put in a year or so ago but very much with a view to the job of coating Harmonys, Preludes and Minims.

This painting system does depend on a moving conveyor. The parts to be coated are hung on hooks, up to six at a time, depending on size. And they are