or at the most two dimmer levers were all that were necessary per channel.

Although originated for television, the same idea was immediately incorporated in Strand's theatre controls; the first being the Palace Theatre London (1956). Of course for theatre the group memories were not linked so directly to the switching of lights. It could be said that in television the main action needed was to switch groups of lights on or off and only occasionally would dimmers be moved once they had been set at rehearsal: whereas in theatre, all work concerned dimmer movement in groups and switching was an occasional affair. The result was the system CD console and a large number of these were made in their theatre and television versions and the need for sides. Discussion was from knowledge. The BBC men knew what lighting had done and could do and we on our side were by that time no longer strangers in an alien field.

Although the console is large in terms of what we would expect today, all controls were within reach of the operator at his seat and the intimate relationship of the lighting man to the picture monitors is well conveyed in the photograph (Fig. 5) – he is in effect painting with light. The electronics in the camera chain were set and locked. It was "Hands-off" for the engineers.

Riverside marks the coming of age for the television lighting designer and a comparable status for the lighting designer in our theatres was as yet still distant. Later we made a special dimmer lever for the system C. This action and the rest were by electro-mechanical relays. To imitate the holding quality or inertia of a mechanical dimmer the new dimmers could be "parked" automatically on a live busbar thereby freeing that particular master for other use. This explains why there are so few master fader controls in the photograph (Fig. 6). Only four were needed, one for each of the two presets and one for each of the associated 'parks'.

Although several large installations were supplied and worked well, C/AE was really a botch. The real requirement by then was full dimmer memory. Two things had to be reconciled – what you wanted to do and what you thought it reasonable to ask your engineers to do in the time. Theoretically almost anything seemed possible, so big a jump did the

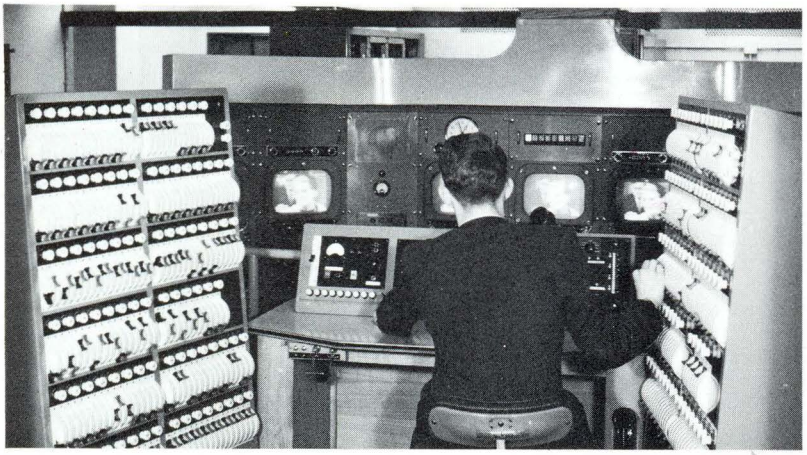

Fig. 5. Riverside – painting with light.

Fig. 6. Parking lights.

control panels made large by masses of multi-preset levers was avoided.

The channel selector in system CD was an organ stopkey unit which was moved on and off for group action by a pair of electro-magnets within it. The system was very convenient to make. Special drawing was minimal. The John Compton Organ Company did the consoles complete with their memory action (invented in 1929!) and Strand made the servo-dimmer bank with all other relay action – both low and high voltage – mounted on it. The two were joined by a special cable preformed on jigs.

Some studios used something rather more tailor-made to suit its location and in particular the BBC had a special more expensive variant known as system C. This was also to turn up at ATV Boreham Wood. I was always on the lookout for the opportunity to use the Compton luminous stop-level in place of the stopkey. The relay work was more complicated but it was better for panel mounting, completely silent in action and its internal light could be used to convey more than one message when used in conjunction with mode pushes – especially if the latter were foot-operated. The result can be seen in the photograph of the early installation in Riverside 1 studio. Each channel had two preset levers as a pair side by side under the luminous selector push. There were 166 dimmers and twenty group memories and much else. This control, although it was the first real one the BBC had, incorporated an immense amount of careful thought on both unit with a scale that rocked slightly to operate a micro-switch and which could be lit internally in red or white, was to become a familiar feature of many of our more de-luxe systems. But it is System CD which really symbolises that decade. It was what the well-dressed theatre was wearing and in television, except for a small one in Aston, Birmingham to prove the rule, we had done all studios in Britain one way or another.

I met one of 'my' Strand CDs in bits on the pavement outside Wyndhams on Wednesday July 12th last. It was on its way to the scrap heap to join many of its theatrical colleagues and I think all the television ones. It wasn't worn out – it was out of date. It had no *dimmer* memory. Replacement had come to television a few years earlier and already some are being replaced again in their turn.

And so it was that when I gave my second paper to the I.E.E. in 1966* the Strand control empire founded ten years earlier was crumbling around my ears and indeed I had to assist in the demolition with my own tongue. Electro-mechanical systems were out and all-electric thyristor dimmers were in and on this foundation a whole electronic edifice had to arise. The first thing was to try to create a thyristor replacement for the familiar CD and the result was System C/AE. In 1964 a giant installation of this type took over from the 1934 veteran in the Royal Opera House. Instant memory group new electronic technology promise; but in practice there was little evidence within the Strand Electric that our engineers were able to fulfill the simplest request so that it functioned in a reliable manner. Components became afflicted with a contagious disease known as "drift" and so in consequence did delivery dates!

Meanwhile there was no lack of ergonomic brainwaves. While helping to work an early rehearsal of the *Ring* at the Royal Opera House on the brand new C/AE, I found myself thinking that when this kind of thing did have dimmer memory we wouldn't need all these, or any, dimmer levers. If the machine was going to remember dimmer level why should the operator need to know exactly what that level was. The result was the rocker tablet. Touch the top to raise, the bottom to dim and the middle to find out, if you really must, the present level on a master dial. Having got thus far, the simplest job to give our engineers seemed to be "In with one memory and out with the other". Just two masters, in effect "Preset" and "Stage". It was intended to demonstrate this (System WHZ) at the time of the second IEE paper but we never made that date and eventually all the demonstration model ever did was to totter through a few uncertain moves on half a dozen or so of its dimmers. Nevertheless on this slender evidence of our skills in the arcane mysteries of solid state electronics we obtained the order for large WHZ systems for the Ottawa Arts Centre Opera House and Theatre respectively. There was nothing for

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