

'The lighting is the most modern in the world. It is the only instance of its kind in England. Last year there were only two in Europe – one in Vienna and one in Danzig.' – JOHN CHRISTIE, *Monthly Musical Record*, November 1933.

A Boast Renewed

By his foresight in 1933, John Christie ensured that Glyndebourne had the finest available lighting control equipment throughout its first twenty years. This was confirmed when the 1955 restoration of the Vienna Staatsoper included a Bordoni Transformer system which, in its essentials, was an enlarged version of that pioneered by John Christie in 1933 and which later became standard throughout the operatic world.

In the late nineteen fifties, however, electronics and servo-mechanics began to revolutionise lighting control and for the first time it became possible to envisage a control designed in terms of the artistically desirable rather than the technically possible. This coincided with a widening of the Glyndebourne repertoire and an increasing range of production styles. The need for a larger and more flexible installation became apparent and in 1961 the decision to install a completely new system was taken with the full support of Mr. Christie.

The planning and installation of the new equipment has taken nearly three years. It began with a month's tour of opera houses: not only to the obvious centres such as Vienna, Salzburg, Berlin, Hamburg, Stuttgart and Frankfurt but also to a number of the smaller but superbly equipped theatres including those at Mannheim, Münster, Gelsenkirchen, Nürnberg, Brussels and Liège. With the aid of the magic passwords 'Glyndebourne', 'Ebert', and 'Rennert', it was possible not only to examine the equipment thoroughly by day but frequently to spend the evening in the control rooms watching it function under performance conditions.

But the overall impression was disturbing: certainly the engineering was everywhere superb, but in its application there seemed to be a failure to take advantage of the freedom made possible by modern science. In place of the expected re-thinking of control requirements, there seemed to be only miniaturisation of the old ideas and a proliferation of knobs which did things that *could* be done rather than things which *ought* to be done.

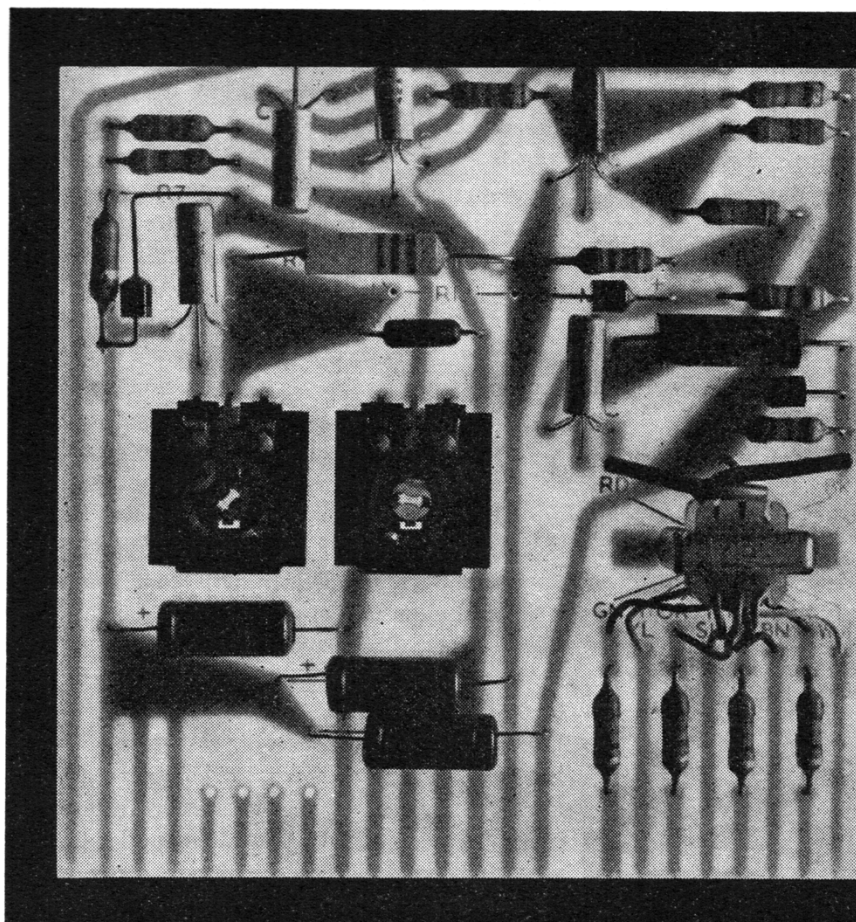
It became obvious that we should have to establish the exact requirements of lighting control at Glyndebourne and have a system specially built to make these artistic requirements technically possible.

Having read the literature of all six European Manufacturers, we examined the products of five and had discussions with four. The decision to place the order in London was not taken for patriotic reasons alone:

in lighting as in everything else Glyndebourne shops internationally. It was only in London, however, that we found the ideal dimmer available as a production model (elsewhere it was still under laboratory development) coupled with a willingness to build control desks to our specific requirements.

For a number of years the 'Silicon Controlled Rectifier' has been on the horizon as an ideal dimmer: known as the 'SCR', it is a member of the family of devices called semi-conductors (no connection with the junior members of the music staff) which includes the well-known Transistors, leaders of our present electronic revolution. For future historians, the key adjective for the 1960s may well be 'Transistorised': the SCR system is transistorised lighting control.

The practical form of the SCR system was first perfected in Europe by Strand Electric Ltd. in 1961 and



Transistorisation: A section (approximately actual size) of a printed circuit transistor amplifier of which there are some 300 in the new installation.

they have installed it in television studios in London, Cologne, Amsterdam and Paris. This will be the first SCR system in a European Theatre: within a few years it is almost certain that all new major installations will be based on SCRs. The Royal Opera House, Covent Garden is now to instal a similar system next season.

The SCR is an all-electric dimmer with no moving parts: it therefore does not require a mechanical link with the control panel as did the older dimmers such as the Bordoni Transformer. Control is effected by minute currents at low voltage with the result that it is possible to devise a compact circuit network of practically limitless complexity to provide any kind of desired control.

Ideally, the Lighting Director, who works with the Producer and Scene Designer to translate their ideas into terms of practical stage light, should himself operate the control. This has hitherto been impossible because the control operations have been too complex to allow the Lighting Director to operate yet remain fully absorbed in the performance.

On a modern control desk, however, the lighting states are all programmed in advance and the actual change consists only of moving single levers while watching the effect on the stage and adjusting the rate of progress accordingly.

Nevertheless it is still standard practice for the Lighting Director to plot his lighting at rehearsal by giving instructions through a microphone and supervising it at performances in the same way. Although this is inevitable in the commercial theatre where the lighting man leaves after the opening night, it seems wrong for a theatre like Glyndebourne where the same opera is never performed on two consecutive nights. The entire system has therefore been laid out to permit personal operation by the Lighting Director on a scale not hitherto attempted in a major theatre.

The performance desk is an extension of the Producer's desk in the control box at the rear of the balcony. This desk contains the master levers by which the stage lighting may be faded to states programmed on 480 miniature levers which allow four complete states of brightness to be programmed for the 120 individually controlled stage lighting points. There are also 120 switches to group any combinations which may be required to move at differing speeds.

All these master and preset levers and switches, amounting to almost 650 items, can be operated comfortably from a chair with a clear view of the stage. To ensure that this would be possible a wooden mock-up was constructed during the design stage, with specimen levers fitted at the critical positions.

Despite the large number of levers involved, the desk is very simple to operate and this simplicity makes

for an operational flexibility which is absent in many of the more complex controls.

This desk gives the Lighting Director complete control of the performance lighting: he can discuss problems with the Producer as they arise, make any necessary adjustments, and talk by radio to the eight electricians positioning and colouring the spotlights on the stage and on the catwalks over the stage and auditorium.

Before an opera reaches performance, however, something like thirty hours will have been spent on lighting and dress rehearsals. The Producer, of course, conducts these rehearsals from the stalls and the lighting man must therefore also work from the stalls. The principal innovation of the new installation is that a portable desk can be set up in the stalls to allow the lighting to be controlled from that point.

A master panel provides an alternative set of master levers identical to those in the control box: these allow a person in the stalls to fade the lighting to any state which has been programmed on the presetting wing in the control box. A special 120-lever panel allows any circuit to be adjusted independently of its setting in the control box: this facility is used to establish the lighting state at the initial lighting rehearsals and to make experimental adjustments during dress rehearsals.

Everyone has their own particular way of classifying singers. Lighting people divide them into those who can find their light and those who cannot: if all were as 'light sensitive' as Madame Denise Duval, for example, there would be no problem. To use follow-spots with their distracting movements and beams that flatten rather than sculpt is an admission of defeat: the possibility of making instant adjustments is therefore of paramount importance both at rehearsal and performance.

John Christie frequently voiced his disappointment in the lack of interest shown by other theatres in his technical equipment: he would have been pleasantly surprised by the close liaison with Covent Garden during the planning stages of the new lighting for both theatres. On the other hand, he might not have been surprised by the doubt (even perhaps just a trace of derision) with which some of the more advanced features have been met in certain other quarters. . . .

The new installation is all very splendid in theory, but apart from increased rehearsal efficiency, will we achieve better lighting? Good technical equipment will never automatically ensure good art: it will not improve a bad idea, but it will never stand in the way of a good one. Stage lighting is developing into one of the more successful marriages between science and art. If this new bit of machinery can use logic to assist rather than squash imagination, it will serve John Christie's Glyndebourne purpose.

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