Flying . . . Lighting . . . Sound . . . at the Barbican Theatre

ALAN RUSSELL

My first introduction to this new London home for the Royal Shakespeare Theatre was a picture of the model produced by Peter Hall and John Bury.

Two years later we were to be given a glimpse of the architectural model by Chamberlin Powell & Bon complete with a plan and section drawings of the building.

What hopes and ambitions were assembled in those constructions of balsa and cement. But what a pity that a whole decade had to pass before we could put all those ideas to the test.

Now, as we near completion (the RSC will start to work up the Theatre at the end of this year, leading to a full public opening in the Spring of 1982) we can look at some of the technical decisions which have been made and problems overcome.

From my first look at the 1968 drawings I could never work out how on earth there was *'a proscenium line with a straight fire curtain falling on its front edge'* as we were told.

Well, although a waiver had been obtained from the GLC in order to omit a safety curtain in the open stage on the South Bank, which was to be the Olivier Theatre, a safety curtain was considered to be an advantage for the Barbican if it could be provided without compromising the one-room relationship of the design, since its provision would avoid the extra costs and inconvenience of using the non-inflammable materials for scenery which the GLC would otherwise demand. This proved just possible for the Barbican, whereas it was not feasible for the Olivier with its much more pronounced thrust stage.

However, since the Barbican's stage floor was to be a moveable feast, the curtain had to fall to the auditorium floor level, forward of the front row's gangway, similar to the arrangement now used in the Lyttleton Theatre. So as well as the curtain being a complex shape in plan to suit the profile of the stage front, it is made in two parts, the lower section being lifted up from the auditorium floor like a rising barrier and meeting its partner descending from the fly tower above.

So successful is the focus of the auditorium and proximity of the entire house of 1150 to the stage, that the sudden appearance of this enormous room divider during the interval might have been claustrophobic. The architects have overcome this with a visual coup de theatre which I will leave you to experience for yourselves.

Another decision to be made concerned the system of flying to be adopted. Here was an open-space stage with a considerable degree of audience encompassment round the principal central acting area. Would many more three dimensional scenic pieces be required in this theatre? – the RSC were building very large and heavy pieces at that time. This would argue for the multiple point hoist suspension system being developed for the Olivier rather than the conventional arrangement of bars. Finally it was agreed that there would still be considerable emphasis on pieces which would be principally two-dimensional, although they might well be very thick and very heavy, and so a bar system was chosen.

Originally this was envisaged to be a conventional counterweight system, but power drives were not far from our thoughts since much development work was underway for the National Theatre at the time. We now had time to reflect upon decisions already taken for the National auditoria and to examine new ideas which had been mooted. Convinced that there was a substantial saving in cost and less inconvenience for a repertoire company by eliminating all handling of counterweights during fit-ups and changeovers, as well as savings for show work, we nevertheless sought as simple a system as possible, consistent with the facility to emulate the speed and subtleties possible with manual operation.

The system which was developed in conjunction with Hall Stage Equipment Ltd. and Evershed Power Optics Ltd. and which is now installed has engineering similarities to the successful point hoist system of the Olivier in that an electric hoist hauls the load directly without the assistance of counterwieghts. Here, however, we have long bars with up to six suspension wire ropes which are wound onto a large drum. This is driven by a standard squirrel cage AC motor powered from a variable frequency supply. Tests on the lines which have already been installed are demonstrating an excellent speed range and accurate dead settings.

The control desk is pretty straightforward. Hoists may be selected, given a dead to move to, and then sent on their way at a chosen speed. Individual bars or groups of bars will decelerate and come to rest to pre-set deads automatically. As an alternative a manual joystick may be used to control bars for rigging and setting or as a back up during shows or just from choice. The control desk is positioned on a gallery which is about thirty feet above the stage right side.

To assist the flyman there is closed circuit television provided which can give a full frontal picture from a fixed balcony front camera or other special shots, but the control desk can also be tracked along the gallery to obtain the best view of a particularly tricky movement.

The closed circuit television system is worth a mention as it is a twin ring system with removable links at each Sound Box position, so that either a camera or a monitor may be used on the rings from every box around the stage area.

We are particularly pleased with the way the arrangements at the grid have worked out. Although this space is now inevitably quite filled with ancillary equipment, the important principle which we wanted to achieve was the uniformity of bar spacings throughout the fly tower, in this case eight inches or two hundred millimetres, irrespective of the demands of the structural steelwork. This has in fact been done by careful consideration of the grid hanger details, but was not made easier by the main contractor's requirement to have the grid assembled in two pieces at stage level, then lifted up throughout the 120 feet of the fly tower and offered up to bolts previously fixed to roof trusses encased in reinforced concrete.

Some method had to be found to deal with the very long lengths of cable feeding luminaires suspended over the stage from the grid, since it would not be practical to handle the weight of cable involved in the usual theatre manner. We again used the six foot diameter winding drums or windlasses at grid level, since these avoid the additional suspended weight of the centre fed trays mounted on lighting bars, but here we added a refinement. With the windlass, the weight of cable has to be balanced by a counterweight, but as the cable is wound in, the counterweight should be made less and less heavy if the load is to remain in balance. This is done by using a loop of ship's anchor chain as the counterweight – for about twenty four hours we thought that this was a new idea, but of course it was not, and we were disappointed to learn that chains for high speed passenger lift counterweights were in regular use.

Cables from each windlass plug into socket outlets at grid level and feed socket boxes which are usually fitted to twelve foot long lighting pipes, which makes the system quite flexible.

Following our philosophy that patch