account of the necessity to reduce staff had to concentrate on films only. A good example of this type of show was Robert Nesbitt's *Gangway* which opened at the Palladium in December 1941 and starred Bebe Daniels, Ben Lyon, Tommy Trinder, and Webster Booth, the two Caroilis and Edmundo Ros on stage with Debroy Somers' Band down in the pit. More significant for the future was my original Light Console up in the Grand Circle – at the right hand end. Not only were we in for the first time but we were out front!

The situation in the 1960s was quite different. There was no lethargy of tradition at all to overcome. Ideas abounded and in

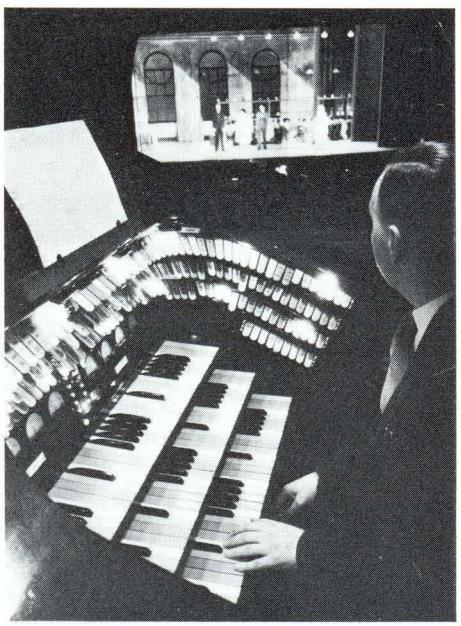

Fig. 3. 216 dimmers at the London Coliseum in 1952.

television, particularly in the BBC, users (or at any rate planners) had very strong ideas of what they wanted developed. The climate all around was of advanced lighting control. The difficulties did not spring from user conventionality but from the sudden acceleration in the pace of the technological development to serve the new requirements.

It was in a sense much easier to think creatively in ergonomic terms in 1956 than ten years later in 1966 when so much more was technically possible. Indeed everything seemed possible but nothing was tried and tested. When in December 1958 I gave my first paper to the Institution of Electrical Engineers* I headed a small team who knew exactly what we could or could not expect to do both economically and ergonomically with the technology then available. All of us were completely at home in it. After the unhappy skirmishes with thyratron valves at the beginning of the decade Strand had decided to drop electronics for the time being and concentrate on getting the most out of our existing electro-mechanically operated dimmers. Pushing this undoubted bondage to the very limit, creativity flourished. What was in the dimmer room may have been enormous and archaic but at the control end what we gave television led the world in compactness and in the facilities it provided the operator. Because the dimmers were mechanical they did not have to be energised to hold their station. This was very important but there was nothing complicated or special about this – inertia was of their nature – but it meant that the operator had only to think of or take action in respect of a dimmer when he needed to *change* the level of light and not all the blessed time he wanted to *use* it.

January 1955 is the key date for television lighting in Britain for it is when the ITV companies began to place orders for their special controls. New studios for the alternative programme had either to be built or converted from old film studios in a rush. Suddenly in the mid-fifties there was money about for equipment. Although all the main American studios had been equipped some years earlier the BBC in contrast had been functioning since 1946 on a shoestring in respect of lighting. All Lime Grove had for this purpose was based on standard film studio practice and as far as the subject of this article "Control" is concerned this meant there was none.

However Lime Grove did mean that the BBC could take less hasty decisions on equipment; and planning began for the two Riverside studios as pilots for the new Television Centre. As far as the actual manufacture of lighting controls was concerned the ITV companies – Associated Rediffusion in particular – came first.

The arrival of Strand Electric on this scene was not the result of a Board decision – indeed no director or direction was involved at all! "B" Bear, then assistant to Jack Madre in the Hire department, decided it would be a good idea to "get into television" and in his inimitable way set out to find and make contacts. As each meeting was set up we went along as a pair and much to our surprise not only were welcomed but were treated as a pair of pundits in a subject we knew nothing whatever about – television lighting control. I think it is fair to claim that but for "B" and I the control systems would certainly have been based on American practice and might even, in some cases have been imported from the States.

Large patch panels and a couple of dozen large wattage dimmers operated from multi-preset desks by electricians could have become the rule. Indeed our first three studios (Wembley 1, 2 and 4 for Associated Rediffusion) with purpose built controls (System B) were pretty close copies of Kliegl practice in New York. Close except in two important respects – our dimmers were operated by electro-mechanical servo and each of the three desks had a set of 12 instantly-adjustable group-memory buttons (Fig. 2). It is impossible to exaggerate the importance of these *twelve* push buttons.

It was these that captured the television engineers hearts. Never mind the lighting effects, here was the means of reducing the size of mains cables. Cameras needed a lot of light then but production was a matter of looking in turn at a number of small sets around the studio or at part of a large set. Therefore only what was in picture, on air or in preview, need be lit. A touch of a button could bring the required circuits into play and dowse the rest – which circuits these were to be could be instantly set at rehearsal. Our first visit to the States in Spring 1955 showed "B" and I that what we were making for Wembley was wrong. What television over there had been doing was to follow their regular theatre practice of too *many* circuits chasing too *few* dimmers. The handling of large numbers of dimmers from a compact desk presented no difficulty to us since we had two Light Console installations of 216 channels in Drury Lane (1950) and the London Coliseum (1952) and a 152-channel servo-system in the New (now Albery) Theatre London (1954). What had to be done was to combine the instant playability of the one with the precision dimmer setting of the other. Not much persuasion was needed to get studio layouts with more dimmers and less patching. Much depended on the rigging system adopted but the history

Fig. 4. Lit-Move at the Palace Theatre in 1956.

of this is a subject in itself. In one method studios were built without any patch panels at all; there were large numbers of socket outlets all over the grid each under control as a separate channel back at the control console. As in our theatres the stuff was plugged up appropriately as it was rigged and focussed.

Another likeness to theatre work in those years was the fact that television shows went out live. Every night was a first night and studio time for rehearsal was desperately short. This made it both sensible and possible – quite apart from the artistic mertis – for the lighting designer to work his own control. This meant that there was no equivalent to the resident 'electrician' at home on the board as in a theatre. The lighting man and his assistant were visitors for the day in a kind of hotel room in the production suite.

What made Strand's television control panels so compact (by the standards of those days!) arose from the early provision of load shedding by instant group memories. If large areas of the studio were not alight then there was obviously no need for the dimmers to move at that time either. The action supply to the coil of the contactor switch and to the servo could be combined so to speak. We called this "LitMove" and it meant that one

*Electrical control of stage and television lighting. Proceedings IEE 1958, **105A** page 128 et seq.