

cerned with the degree of ease with which it can be incorporated as an equal partner with the operator into what I call 'Feedback Loops'. The function of these is to establish an unbroken circuit between the eye, the brain, the aesthetic response, the motor response, the hands, the fader, the lantern, the lit object and thence back to the eye, with auxiliary inputs from the ears (see fig. 1). As these are self correcting analogue/linear processes which take place not only on pairs of masters and cross-faders, but also on each and every channel, and on groups of channels as required, and bearing in mind that like every servo process it takes place largely a few microseconds in the past (think about it) and as once the need for correction is seen it has already happened, there is no time for the half second or so it takes to access channels or groups if they are not instantly to hand. On a fully manual board of medium sophistication, their contribution to these feedback loops are of course inherent; faders never need accessing or matching. Keypads, on the other hand are essentially nonlinear objects: they need staccato hand movements to operate and lead to staccato thoughts which are incompatible with the evolutionary flux of a fade.

However, the advantages of dimmer level memory by far outweigh these problems, and are not to be given up lightly: indeed it is only the existence of this that has made us able, even to consider taking the state of the operators' art one stage further. There are virtually no systems currently available that have all the facilities for good operator interface built-in; but a good operator is a good operator even if he has only a row of dimmerswitches to work with. In fact, he has probably rigged himself up with an arrangement of meccanno and string to act as group and submasters by now.

The trouble with all non-manual boards is that they force the operator into a rigidly channelled methodology of operating. The precise behaviour of a lantern or group of lanterns must be predicted during plotting or discovered the hard way during rehearsal before it can be allocated to a particular submaster or allotted a fade profile on those systems where that facility is available. On other systems anything other than a simple split fade requires the cue to be dissected into two or more separate memories, depending on how many playbacks you have available. If you wish to make up a lead group, a main group and have some lanterns lagging behind the rest, some up, some down, then you also need to use the digital wheel, or equivalent. Cumbersome. And the drill is so inflexible that two dangers are immediately apparent: the first is that you cannot instantly adjust for alterations, emergencies or mere whims: the second is that it is a bit too much like hard work for a conventional-type operator to consider doing it in the first place, and it *does* tax the brain so on the three hundred and forty-third performance.

So what is the ideal? Well (temporarily discounting such beyond-our-art schemes as direct connections into the human brain, or attaching sensors to various parts of our bodies to control our lighting rigs merely by

waving the appropriate parts of our anatomy at the stage) memories, of course, *plus* one full set of channel levers that *never need matching*, *plus* a system whereby clues are worked fully manually until the fade is perfect and all parties are satisfied with what is happening on the stage, and then the machine memorises the actual dynamic of each channel and can reproduce the fade exactly as the operator last worked it, *plus* the ability for the operator to override each channel and submaster merely by reaching for it, *plus* the ability to override the overall playback dynamic merely by reaching for the master, *plus* the ability to re-record a new dynamic without erasing the old, *plus* automods, etc., *plus* a full pin patch with level pins for that inevitable moment of failure and to allow easy access to the control lines for the connection of chasers, flashing keys, etc., *plus* V.D.U., somewhere to put your ashtray, beer, etc.

Here, then, we may be groping toward a possibility of a control that is all things to all men. It can be worked by a beginner or an accomplished expert, an artist or a cretin, and can handle any situation, including those unpredictable Sunday concerts, colour music or the non-arrival of the board operator. It is capable (but God forbid that it should ever be so!) of being worked by a simple push from the prompt corner and still be capable of looking good under emergency conditions, or worked by the designer from the stalls until the fade was perfect, and could then be reproduced by any member of the LX team secure in the knowledge that it at least stood a fighting chance of looking the same night after night. It would, more importantly, be capable of performing that elusive phrasing and harmonising, would have, in fact, 'playability'. There is even the possibility of there emerging a new breed of artist-operators whose sole function is to record his personal touch onto the board at the beginning of the run and to touch it up from time to time. Perhaps we may even be seeing a new production credit in our programmes 'Lighting Control dynamics by Walter Plinge'. In many ways, though, I hope not. The best person to work the board on the first night should really work it for the rest of the run. Hopefully, he just wouldn't be able to keep his hands off all those overrides, and in his hands, the performance would evolve as all good performances must.

I believe that it is of great importance that he who is to work the control should focus the lanterns, or be present on stage during the focussing session, preferably after some discussion with the designer. Only this way will he have enough knowledge of the tools at his disposal. It will also enable him to offer constructive suggestions to the lighting designer at the plotting session, something rarely resented unless the suggester patently does not know what he is talking about. Of equal importance is his presence at rehearsal, perhaps even more often than the designer (often busy on other shows) as this can be a very useful extra channel of information between him and the company. For a musical, the head limesman may also

benefit from a visit to the final runthrough. Incidentally, I happen to believe that a long spell as a lime operator is the very best training that a board operator can get. Nothing else can give such sense of the dynamic and kinetic possibilities of the use of light.

I should like here to enter a plea to reappraise the hierarchy and role of the electrical department of any medium-to-large theatre, to accommodate the new grade and job description of *Technical Operator*. This would cover board operators, sound operators, head limesman, power flying system operators, audio-visual system operators and so on, and allow them to be freed of the otherwise unconnected duties relating to heating and ventilation, power installation, plumbing, changing the bulbs in the ladies loo, etc., and allow them to spend their forty-odd hours more productively, working shows, maintaining the rig properly, doing turnarounds, and generally learning their trade at courses covering optics, fibre optics, lasers, electronic first aid repairs, use of microphones, spectrum analysers, graphic equalisers and all the tools of the future, for it is from this grade that the sound and lighting designers and all the innovators will spring. It will also enable theatre managements to hire properly qualified persons capable of taking responsibility for the electrical installation, health and safety, etc., without regard for the fact that they may not know one end of a colour frame from the other. Perhaps never again will a House Manager poke his head into the control room just as finger muscles are being tensed for a cue to demand replacement bulbs for the foyer, or as in one theatre where I was (dear God!) a fresh supply of toilet paper.

One of the nicest sights to see in the professional theatre is the sight of a real pro technician working the board. You really can tell the difference in the house. He obviously enjoys his work. He is always ready to react to anything new, even notices new lines, gags, etc., and who has a keen eye for potential dangers, trucks about to run into obstructions, important props missing, obstructions to the Iron, or an emergency in the auditorium, and informs the prompt corner in time to avert disaster. I cannot help contrasting this to the sight I had recently of a West End board operator with his feet up on the MMS reading a book pressing a GO button on sequence, complete with all the electronic goodies designed to deny the operator even the simple pleasures of needing to look out of the window to notice the fact that he was on the wrong cue. When informed of this state of affairs he was seen to 'wallop' the right cue in and then expect to enlist my support in the fiction that the '@*&*@ board had gone wrong again' for the purposes of the show report. He is still working there. A pity.

DORIAN KELLY is a Lighting and Sound Designer, and freelance production Electrician/technical operator.