AUTOMATED LIGHTING - THE SEQUEL

Part 2 - Universal Controllers

Richard Knight and Tony Gottelier follow up their moving lights survey (L+SI November 1993) with the definitive analysis of moving light control desks suitable for use in live performance.

Our original idea was to review automated lighting as it stood at the year end 1993. It seemed about time a snapshot was taken! It also appeared intelligent to split such a review into two articles, one charting the instruments available, as already published in last November's L+SI, and the other being a comprehensive review of moving light consoles. This, second edition of the moving light saga, has now been split into three: universal boards, dedicated desks and what have become known between us as 'nearly' moving light consoles.

We are very conscious of the difficulty of keeping this information as current as possible, and we are utterly reliant on the manufacturers concerned to initiate such information. Had such a review been undertaken six years ago it would have been extremely short and simple.

Authors Tony Gottelier (left) and Richard Knight (second right) discuss automated lighting at the recent launch of the Status Cue desk and Cyberlight luminaire at Lightfactor.

This is certainly no longer the case and in only a few years has turned into a truly daunting task. It has become apparent, with over 20 automated consoles now in existence, that the task of reviewing them is greater than two people can successfully handle on their own (and is also bigger than one article). It would be unhelpful to review a console without being very familiar with it and this has led us to invite actual users, who are familiar with a particular console, to contribute to this review. Whilst this approach was forced upon us by the scale of the work we had taken on, it has also produced a welcome and refreshing range of voices and variety of views. With a few notable exceptions the automated lighting industry usually functions in isolated compartments with little communication between participants. In fact, this is clear from some of the comments made by users who are obviously quite unaware that what they consider to be 'unique' features of a board are actually present on other desks. Generally, most people favour the desk which they know well and are familiar with, for obvious reasons - the learning curve involved in starting afresh is too much to contemplate, as we were to discover ourselves very quickly.

Automated lighting control is a relatively new discipline which no manufacturer of lighting instruments and consoles can, any longer, afford to ignore. It is where the bright software writers within the industry are working. The ideal is to create a console that allows the attributes of the moving lights to be used to their full potential. It must be possible to programme quickly and conveniently - if a 'look' takes too long to create, then it may never be made. Additionally, a great deal of moving light programming is done just to see what might work on stage, and it is accepted that a large part of this effort will be thrown away or, more usefully, adapted. This comes about, partly due to the difficulty in communicating lighting 'looks' from one person to another, and partly to do with a natural desire to experiment with new ideas. So a 'look' must be quick to make, and fast to edit or adapt.

Manufacturers of dedicated moving light systems are able to manufacture from scratch a desk that will have the primary purpose of serving their own system, connection with other systems being of secondary importance. They obviously know what the parameters of their heads are, and what they may be in the future. They are also making systems that are fully self-contained and therefore the expenses involved in the creation of a console may be less of a consideration; the system and the acquisition cost being judged as a whole. In general, they are in hire rather than sales, making it easier to convey that their consoles are work-in-progress to the extent that they are subject to software updates. Dedicated boards which will be covered include: Altstar, Artisan and Mini (Vari-Lite), Intellabeam, Icon, Martin 3032, Pan Command, Starlite and Syncrolite. (The new High End Systems' Status Cue which, initially at least, would fit into this category, subsequently making the crossover to 'universal', isn't covered in this practical review since it hasn't yet made its debut in production form.)

Manufacturers of 'universal' automated lighting consoles have to create something that will run a wide variety of lighting fixtures of differing attributes and remain open enough to accommodate lights that have yet to be invented. The accepted protocol for controlling these moving lights has, for better or worse, become DMX512 ("life is what happens to you while you are making other plans"). While the debate rages about whether DMX is adequate, and even whether we can allow it to be improved or replaced on the grounds of greater resolution (there will always be a difference in approach from those using steppers as opposed to those with servos, and output tracking, as opposed to vector to vector) it is the only viable common protocol we have at present. Since it is possible to adapt it to 16 bits, why not get on with it? In fact, we found many universal console manufacturers backing this view.

The history of these 'universal' consoles is even shorter than the dedicated ones, and they have to somehow get a real return on investment in a less well defined marketplace. Here, there is a wide range of approaches, including adaptations or upgrades of existing consoles, as well as original desks, with correspondingly new and unusual ways of looking at the issues.

The major questions include treatment of Last Takes Precedence (LTP) and good old fashioned Highest Takes Precedence (HTP). Playback and LTP activation is an issue on any automated console and is part of the wonderful world of moving lights. Traditionally (if there is such a thing yet in automated lighting control) playback has tended to be vertical, rather than horizontal, in order to deal properly with the issue of when to trigger LTP. In other words, on a button advance rather than next fader.

A number of consoles now allow a much wider range of playbacks, in part because of conventional lighting tradition. It is left up to the programmer to deal with the matters of LTP that this raises. Timing is a vast area, with some consoles making major breakthroughs. Timing is at least four times as important in automated lighting, as it is in conventional lighting and this has yet to be reflected in most consoles.

Many moving light manufacturers initially took the short-sighted view that sophisticated control was not their problem. They had their own methods of running their units, but these often fell a long way short of professional show standard. It is only since the advent of sophisticated control systems, and the acceptance of DMX, that the wider use of moving lights has taken off, particularly involving moving mirror units. Consequently, this has had a knock-on effect on the adoption of suitable consoles. All of this has resulted in much better communication, together with the sharing and exchanging of protocols between lights and console manufacturers, allowing boards based on DMX512 to access some of the attributes hidden in the instruments themselves. There are now intelligent units, such as Vari*Lites, where the brain is, appropriately, in the head; dumb units, which is most of the rest, and an increasing number of semi-intelligent (dim witted) units. The same applies in reverse to the control desks, and it is a moot point which has the brightest future.

Even manufacturers of complete systems are now allowing their lights to be addressed by consoles other than their own, including Telescan and Vari*Lite's VL5s. The idea of interface protocols and 'bodge' boxes has thus come into play along with the arrival of multi-purpose protocol convertors. This seems to be the start of closing the circle, in that the two separate lines of 'dedicated' versus 'universal' are no longer mutually exclusive. It is quite staggering to think how many lines of code have now been written in order to make moving lights move. Lines of code cost much money to write, and a great deal of that work has been duplicated over and over by different manufacturers out of the pressure of the two 'Ps' - pride and sheer paranoia. The notion that "if it's not invented here, we are not going to use it" seems to be fading at last which can only be a good thing.

Boards which fit into the 'nearly' or hybrid category are those which are generically standard lighting desks - such as the Jands Event and Event Plus which we found in extensive use for smaller shows - which have also had special software written for them to make them usable with driven lights too. Some of the others in this category are Strand Galaxy, Celco Aviator and Arri Imagine.

How the future of automated lighting pans out, is anybody's guess and any prognosis would be tilting at windmills. This review, and those that follow, are no more than a punctuation point in an on-going process.

FLYING PIG - WHOLEHOG

RICHARD KNIGHT

As Richard Knight is one of the authors of this piece, modesty prevents including his credits, though they are well known. He owns-up to being a complete convert to the Wholehog since first seeing it at PLASA '92. Since then he has programmed three shows on it, all with Stan Snape, using five Hogs altogether. Previously, he was exclusively a Vari*Lite specialist.

The Wholehog first appeared in public at PLASA '92, causing quite a stir and receiving a well deserved 'Best Product' award. That three dedicated individuals, not much money and a big idea, can achieve this is tremendous, and should bury the notion that all achievements in automated lighting require huge R&D departments and massive amounts of money.

The timing was exactly right as it created the possibility, for the first time for many, of using big DMX-based multi-purpose rigs including large numbers of moving lights. Because of the approach of the Wholehog, these rigs can contain a variety of different types of fixtures, driven as well as generic and any other DMX controlled device, all off the one console if so desired. If this is not desirable, because of fear of system failure, or antipathy towards 'virtual' control, you can always use two! So the Hog opened up the big opportunities which had previously been overlooked in mixing automated lighting of different types.

Previously, each manufacturer seemed to shun the idea of integration. Since the Wholehog's appearance, the pace of open-system development of both consoles and moving lights has been raised to an unprecedented level. Most automated lighting consoles have a detectable line of development from a particular discipline such as theatre or Rock and Roll (or indeed a previous automated console) and that lineage continues through to the moving light desk. The Wholehog appears to be an intuitive response to the issues raised in automated lighting, and does not seem to owe any single preceding lighting console any great debt; instead it takes an eclectic approach. And why not? The excellent thing about this console is that its flexibility leaves the programmer free to use the facilities in a way that suits the show and their own style. In practice, this will be based on their own history and previous experience. The Hog should, as a consequence, appeal to a wide variety of people with differing backgrounds in lighting.

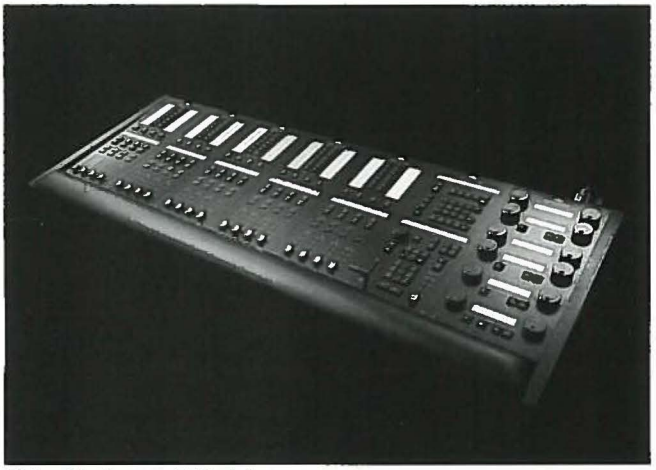
The desk is in two parts, a lighting board and a computer, which is (and is referred to as) the brain. The splitting of it into two sections allows one to approach most programming tasks from the board portion, whilst allocating those best handled by a computer to be so manipulated. The board portion consists of six functional areas: faders, playback manipulation, scene masters, menus or palettes, the programmer and the parameter wheels. The numbers associated with this console are enormous to the point of not needing to know. 6,000 DMX channels available for instruments, coming out on up to 12 data links. There are 77 pages of playbacks, with 20 faders per page and these faders have select buttons to activate LTP and advance and reverse buttons, plus 28 separate scene masters. 65,000 so-called, 'scenes' can be placed into a stack on a single fader. Most satisfactory!

The board has two modes, programming and playback, though fader-playback is available in both. Programming mode accesses the palettes, focus presets and groups; there are more than enough of these and they come in banks of seven which is a slightly eccentric number, maybe it's six and a spare? Playback mode accesses the scene masters, which can be activated independently of the fader playbacks and may be all 'information' or 'information only'. They can, therefore, be used as playback palettes and be flashed, added or swapped over a look being played back on another fader, or an adjacent scenemaster. Playback also provides global (non-active master) stacks and scenes. If the global is adjusted any direct copy of it will be updated. If the copy has previously been adjusted (or disconnected) then it remains unaffected by changes in the global. This is the principle of focus presets, hugely expanded.

"Since the Wholehog's appearance the pace of open-system development of both consoles and moving lights has been raised to an unprecedented level."

In my opinion, one of the great features of the Wholehog is that it is possible to label absolutely everything. A palette can be called 'yellow' and this will give yellow on an Intellabeam, a Goldenscan and a VL5, if that is what you want. Steps in stacks can be labelled, as can chases and scene masters. This makes it easy to find what you want quickly and is a refreshing change from dealing with numbers.

The programming section is used to assemble looks, and subsequently to edit them, and takes priority over any playbacks which are running unless 'blind' is used. It is very quick to make a look on this console by grabbing the component parts required to make either an 'information only' look, or a full parameter one. Assign, Append, Insert, Merge, Delete relate to where programmer information is going to be placed and Build, Edit and Clear relate to the contents of the programmer. These are powerful buttons!



Flying Pig Systems' Wholehog.

Because it is so quick to make 'looks' on this desk it's also quick to make a mistake! The ease with which it is possible to copy work, both single scenes and entire stacks or chases, means that it is sensible to do so with experiments tried out on copies. If they don't work out, then delete them, or try something else. Looks can be shuffled, merged, split, inserted, edited, deleted, etc. The flexibility that the ease of manipulating looks provides, is one of the major achievements of the desk.

The brain, as well as being the information store, is also where number crunching is carried out - very sensible, as that is what computers are good at! The instrument schedule, fixture library and patching are dealt with here, as are information displays, all on a big-sized screen. New fixtures are constantly being added to the library by those magnanimous men at Flying Pig Systems.

However, the treatment of time is presently surprisingly unsophisticated, given the major advances the Hog makes in most other areas. There is simply an up-time for a memory, a delay option, and a down-time. Thus, if you want a light to fade up in three seconds, while moving in 10 seconds, you will need to apply some deep thought as to how this might be achieved. The recent software release, which I have not been able to test out, with powerful new macro facilities, may just have resolved this issue. Otherwise, I am hopeful for version 2.0, as the company is well aware of the timing issues. The only other substantial hole I can find in this console is that, if one advances one step too far on a stack, reversing happens as a snap, whatever times are programmed in. There is a way out of this: by using the manual playback and sampling the step you want to manually go back to. Setting this up takes much longer than pressing reverse and I imagine it would produce unfortunate consequences with the LTP.

An excellent use of the number crunching ability of computers is Stack Synth. This is a way of creating loops very quickly by supplying basic information to the stack synth so it then creates all the missing information itself. There are a number of 'canned' effects available: circles, sine waves, etc. plus 'stagger to' and 'stagger from' which can be effective, or you can create your own effects. The stack synth will not wholly substitute for own-designed sequences, whatever they may be. It does not have that human touch and should be accepted for what it is - a quick and very effective effects generator which can save a great deal of time and can produce shapes one wouldn't normally attempt, due to time constraints or the limitations of the human brain.

The desk now offers MIDI for playback purposes. This facility is new and comes with the latest software version 1.10, which points up the advantage of the new generation of 'soft' desks; they can expand and develop for the cost to the user of a new software upgrade. MIDI can be either done by the Wholehog's own timecode list, or you can use adjuncts such as Richard Bleasdale's SAM Mac. package. There is also the new arrival of a 'general purpose protocol converter' which may have profound implications for the future, as it appears to allow for the addressing of certain non-DMX units by the Wholehog - these include High End's Emulator, the Intellabeam and Cyberlight (on their own 12-bit protocol), Strand's PALS and the Martin Pro 1220. (The latter, incidentally, is shortly to be available in self-sensing Martin/DMX format, which means that it will also deliver tracking of the board's output, or vector-to-vector).

The people at FPS have a very friendly and open policy and welcome feedback. They also have an excellent attitude to back-up and an ongoing commitment to advancing the Hog's abilities. Whatever the future holds, I anticipate the Wholehog continuing to be 'out there'.

The board is distributed in Europe and the Far East by AC Lighting, and in the States via FPS's own office in California.

COMPULITE - ANIMATOR

MERVYN BARBOUR

Mervyn Barbour is a lighting director working for BBC TV in Northern Ireland where there is also a regular interchange of equipment and people with RTE in the South. He used Vari*Lites for several years before coming up with the proposition of converting his annual hire budget into the purchase of 30 Intellabeams. Here is his reasoning behind his selection of the Animator-48 as his preferred choice of control board.

The Intellabeam console was plainly not intended for 'live' operation, as it had really been designed for pre-programming operations, which would then be played back without a great deal of flexibility being afforded as to how one would change the parameters during this on-line operation. (Note: High End Systems are in the process of completing their Status Cue board which will address these issues and others - Eds).

Another facility which I considered to be vital was 'blind programming', a feature which is standard on a conventional lighting desk, but was lacking on half the moving light desks I looked at. One could wonder what use this facility could be, considering the need to see where the output of a head falls before you can focus it, but in practice after the initial plotting of the X and Y co-ordinates for the various scenes in the programmes, the rest of the parameters can be recorded 'blind' if desired; or more likely in TV, when you are actually rehearsing one cue, you're recording the parameters of another, i.e. time is of the essence.

The facility to have a desk which could address various types of intelligent lighting fixtures as well as a limited number of conventional dimmers was extremely valuable, as it didn't tie you to one manufacturer's products for a long time. It meant that in three years time I could upgrade to a different product line if by then a better unit was available, and still have familiarity with the control system driving the new heads. Furthermore, a desk that can address a mix of intelligent heads at the same time, i.e. Golden Scans for the long throws where luminous power is the necessity, and Intellabeams where size, weight or performance is a priority, has to be a really useful feature in the long term.

A desk which can talk to the heads in their own protocol is generally an advantage, as with Intellabeams the positional resolution is higher than standard DMX 512 and thus a slow pan from left to right of the mirrors will be less stepped in appearance. Also the little extras, like being able to reset each head individually, or turn them off from the desk, is a very useful feature. I have to say that this quality alone was one of the main reasons in my choice of desk, for in my TV studio I was able to split the I-beam protocol and feed it radially down a microphone tie-line to each lighting barrel on which I had a head, thus negating the need for a loop of data cable strung like a washing line between all the fixtures.

My attitude to a desk is: why push two buttons when you can push one? That way, hopefully, I've more time to devote to the creative bit, namely the effect that the heads are generating rather than worrying how to go about achieving it.

The provision of a programmable library of colours, gobos and positional information all accessed by one button-press is extremely useful, for I stick the colour or the gobo shape on top of the relevant key and this means the minimum of thought process required to carry out the required action, hence maximum speed in plotting cues.

In television, I cannot overstate the value of inhibitive submasters, for if a light shines directly down the camera lens a flare will result (very difficult to avoid when using hand-held cameras with wide angled lenses) causing lift on the picture output. This can be equally spread across the three colours, which is more easily corrected by crushing the picture, or on a single colour, which cannot be corrected, and hence the final image will suddenly acquire a colour cast on it, probably destroying the lighting effect you were trying to create.

The Animator from Compulite.

The answer, of course, is to ride down the level of the light that is causing the flare, which many operators do (even Vari*Lite ones) by pulling down the grand master. However, this means all the luminaires will be reduced in level, thereby flattening the overall visual effect. Indeed, the racks operator driving the camera's iris may open up to correct for the reduction in light level, thereby cancelling the original corrective action. This is where the inhibitive subs come in, for you can easily programme them during camera rehearsal, to address only the lights causing your flare and ride them up and down, leaving the main body of the rig alone.

"The facility to have a desk which could address various types of intelligent lighting fixtures as well as a limited number of conventional dimmers was extremely valuable."

Moving lights are still mainly used for special effects i.e. on pop bands for beam work, or as gobo washes to set a particular mood, so the number of playback faders is crucial to the efficient operation of the system and also whether they are of a 'pile on' or 'multi-tasking' nature. It has been my experience that you may require at least five or six groups of memories playing back at the same time, all addressing different parts of the rig, with different crossfade times etc. This can easily be achieved on the Animator, as there are six chase playbacks as well as another two conventional A/B and C/D faders, which makes a total of eight, all feeding the output in parallel. I don't think you will ever need more than that for the average musical item. There are also eight submasters, which could be used to store 'static' in-and-out cues. Quite a comprehensive array of features.

The provision of a second plotting trackerball is a nice feature to have, as you can use it to address the positional information of the fixtures while they are being driven from a 'live' chase playback, and hence modify their focal positions at will, thus giving you the maximum amount of flexibility on the fly!

Because of my geographical position there was no way I was going to purchase one desk only: although up until now it has never failed. An hour to wait in television terms to turn round a replacement desk is too long, never mind the minimum four to eight hours it would take to get to Belfast. So the opportunity to purchase a cheaper, smaller, Animator Compact as back-up was just the ticket, for it has all the major features of its big brother and can be used, if you wish, to drive the system for plotting the cues as well as, what I mainly use it for, playback. I find that ergonomically the main desk is best plotting the cues during rehearsal on the floor of the studio, where I can keep it permanently rigged, and the Compact is best suited rigged in the lighting control room playing back during transmission or recording the cues I have recorded on the main desk. That way I have the best of both worlds.

The topographical display, and the ability of the system to patch the fixtures in any orientation so that the heads will all track forward, or left and right, with the same movement of the trackerball, makes positional plotting a fast and efficient procedure.

Finally, the extra provision of a continual update in software versions, as new features get added and others fixed, without the need for any hardware modifications, or for an engineer to come and do it for you, is very desirable and cost effective.

The following is a footnote provided by Andy Dobbs at BBC Television Centre:

Specifically on the Animator 24, though all the boards in the range are similar in basic operation, it is a manageable size, needing one 14" monitor to provide feedback to the operator.

It is a 'Gentleman's console' - it will not let you embarrass yourself. If for any reason you adjust the focus of a lamp in mid show, forget it and then hit clear - the lamp won't jump back to its filled position, it will gently drift back, at the user-selectable rate.

The board will feel familiar to anyone who has operated a memory board, however, digging deeper will reveal many features: 'part cues' enable different parameters to change at different rates; hit 'go' and gobos can change immediately while beam movements can be slow. (The use of part, or more accurately multi-part cues, creates sophisticated timing possibilities, which proves it can be done on 'universal' consoles - Eds). Libraries of colour information can be used within memories, enabling lighting directors' preferred colours to be recalled quickly .

Editing cues whilst in mid-flight is easy. If there are multiple memories spread around the board, and all the presets are loaded ready for a monster cue sequence, adjusting a parameter on one lamp and pressing 'store' will only update memories where that lamp is involved at that place in the sequence.

'Snapshots' of the board layout may be taken, and have text assigned to them, making resetting complicated sequences a snap (sorry)!

The Animator is ideal for serious TV usage,

since when the board is well away from the studio floor in a control room, the feedback to the operator is excellent - not only of the state of all the lamps, but progression of crossfades, chase speeds, and which part of the board has control over which lamp. A useful option, especially when moving mirrors are involved, is to set up the trackerball so that the beam of light always moves in the same trajectory for a given trackerball direction, regardless of the orientation of the lamp. It's not the best board to busk on. However, with the addition of a 'macro wing' this problem can be overcome. Setting-up initially can be a little time consuming, but then being a console with a lot of personalising, there's a fair bit to do.

Authors' observations:

'Moving lights computer' it says on the front of the Animator-48 manual, which is to the point. Compulite's automated lighting consoles are in a style recognisable to theatre and TV studio lighting people and their appeal will probably be primarily in those areas. They are very much monitor and keyboard-based and what you see on the screen is lots of numbers.

The range of Compulite consoles was developed in Israel and is sold in the UK by a company of the same name, which is part of the Lighting Technology Group. Their technology is behind the control front-end for the **Telescan** system, which shows an excellent pedigree. In addition, Animator is the preferred desk for **Fly's** Fos products and other moving-head manufacturers also recommend it. They are primarily moving light consoles which can also deal with conventional lighting and assorted other DMX driven bits and bobs as well as certain dedicated protocols, such as the I-beam's own. There is also an output called S Mix, which accesses other manufacturer's protocols.

The Animator 48, not surprisingly, handles 48 moving lights of up to 12 DMX channels with an additional 240 DMX channels available for conventionals, scrollers etc. There is also the smaller Animator 24 and Compact, which is a reduced facility version of the 24, its primary purpose being to act as a back-up to the grown up versions. This concern over back-up is both unusual and welcome. The Animator 72 has now metamorphosed into the Animator 96. In addition, there is soon to be an Animator 'wing', the idea being that it can be added to an Ovation or Applause (conventional Compulite consoles) to add moving light facilities. This may well help cash starved rep theatres to ease their way into the world of automated lighting. It has to happen sooner or later!

This range of automated lighting consoles is the largest on offer from any manufacturer within the genre and along with a variety of additional devices such as Macro keyboards, Submaster wings, Remote controls etc it adds up to a commendable effort to suit the needs of a wide variety of potential users.

AVOLITES - DIAMOND II

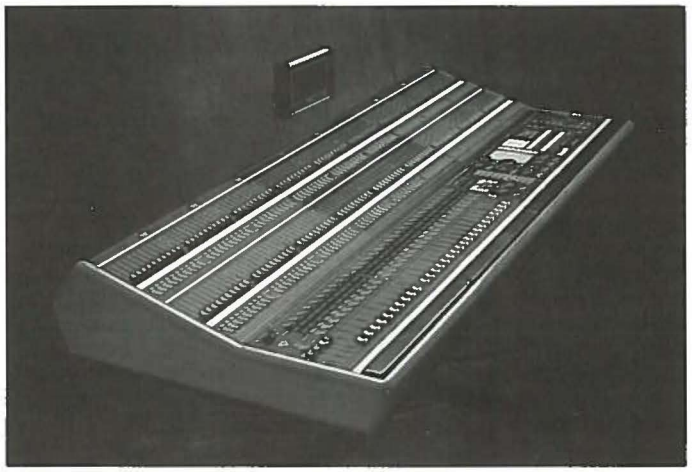
CARL BURNETT

Lighting designer Carl Burnett took time out from his busy schedule prior to setting off on the current Wonder Stuff world tour starting in Seattle to give us his impressions of the Avolites Diamond II. His list of credits over the previous nine years includes The Red Skins, Sofia George, Annabel Lamb, Freddie McGregor, Fuzzbox, James Last and The Darling Buds. In 1993 he designed and looked after the rigs for Glastonbury Festival, Phoenix Festival, Reading Festival and Womad in Bath.

The lovely thing about Avolites' new Diamond II is that it is so familiar. It feels comfortable standing in front of the board, as on the surface it just appears to be a normal Avolites desk, with the quality looks and feel that I have come to expect; also the Diamond II has all the usual Avo bits and bobs, Penny and Giles faders, add and swap buttons on all 180 faders, etc.

When it comes to operating the board with generic lights, the II programmes and behaves in much the same way as the original Diamond, except with the addition of a memory button. As with the Sapphire, this button must be pressed before a grab button can accept a memory, in order to avoid the chance of making an embarrassing mistake while programming. This feature does seem a little cumbersome at first but I soon became accustomed to it.

When you come to programming moving lights and colour changers the Diamond II comes into its own. The desk is completely software driven, so any button can do any function enabling me to customise the board to suit the way I operate. Nevertheless, as with most of the new generation boards, it is preferable to have a day in the warehouse setting it up, laying out colours, preset focuses etc, to make the job of programming at the gig itself much easier.



Avolites' Diamond II.

When in programme mode, all the swap buttons can be used to store colours. These are to be found on a colour-table wheel, and by the miracle of microprocessors, they can be called by name. So if ColorFaders or VL5s are to be used on the rig, you can spin the wheel until the colour required appears on the screen (say, LEE 139), and grab this into the swap button of your choice. Then, when programming your light or colour-changer, you can send the fixture to Lee 139 by grabbing it straight from the swap button. Using this method it is possible to set up the palette needed for the show before leaving the warehouse.

The preset focus for the moving lights works in the same way, so by doing a little pre-show or pre-tour work, all of the colours and preset focus positions can be recalled by simply reaching over to the button that holds that colour/focus and grab it to the luminaire.

One nice feature on the Diamond II is the graphic screen, at which it is possible to programme moving lights in seconds to do circles, ballyhoo, mexican wave and similar such tricky moves which are normally a struggle to achieve. A circle, for instance, needs only two points, the centre and the circumference, and that's it! Programmed!

The board automatically sets up a chase to execute the command, which brings me quite nicely to another great feature, the 'chase unfold': when you need to modify a chase, or view the memories used in a chase, you can simply grab it and press the unfold button. The LEDs above the submasters go blank and show all steps on the chase across the sub master page. It is now a simple matter to grab the step or steps to be edited.

"When you come to programming moving lights and colour changers the Diamond II comes into its own. The desk is completely software driven, enabling me to customise the board to suit the way I operate."

I also find the 'home' feature particularly useful. This button sends all moving fixtures to their starting position, so that you avoid the stop point on the pan and tilt when programming.

I was a fan of the Diamond and anticipate becoming as great a fan of the Diamond II.

Authors' observations:

Avolites have a long track record of making touring boards, starting in 1978. Their consoles, while varying in size, channels and facilities, have all been in a consistent style. This style defined what a rock and roll 'live' console should look and behave like. Big and beefy, lots of faders and very beautifully finished, complete with wood on the sides! Given that they do this furniture extremely well there is no purpose in Avolites changing it for a new generation of boards. So they haven't. The Sapphire and Diamond II look exactly as you would expect them to. They should make smooth the transition from generic lighting with some scrollers to primarily generic lighting with scrollers and some moving lights. (Especially for those LDs who operate their own shows 'R&R' style and who have a tradition of using 'live' style generic consoles).

Given the advent of DMXable Vari*Lite VL5s, and the wide range of moving mirror units available, there is clearly room for desks that deal with moving lights competently without losing their original appeal. A number of people will use these consoles to introduce themselves to moving lights for the first time because the desks will seem very familiar. This does leave the manufacturers of this type of console with the interesting task of not only training people to programme and operate their desks, but also introducing them to the concepts of automated lighting for the first time.

The Diamond II is Avolites' top-of-the-range desk and, as one would expect, adds to the previous facilities on version one. This is a big desk! A Cruiserweight. There are 180 preset faders and 30 playbacks with 100 pages. Add/Swap buttons for all 180 faders mean a moving light can be channelled anywhere. It comes with a minimum of 1,024 DMX channels and can be upgraded to 6,000, which come out on eight lines. This is more than enough! Again it should be borne in mind that this is a generic console that has been upgraded to deal with moving lights. Where it will score

WHEN YOU NEED TOTAL CONTROL...

Control & Dimmers

Anytronics
Celco
Light Processor
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Mode Electronics
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is with mixed rigs. Its principles are the same as the Sapphire with lots of additional features. It has eight wheels, two are always pan and tilt and the other six are assignable to moving light functions. There are two wheels for chase rates. Groups are available which, given the physical size of the desk, is just as well and the number of focus presets goes up to 180. The use of a screen is optional on this desk, though we would regard it as essential.

So, Diamond II is designed to control many instrument types at the same time and, from an operator's point of view, it is often convenient to keep different luminaires on different faders - especially in a Rock and Roll show. Both the Diamond II and the Sapphire offer a 'banking system'. The Diamond II banks the preset faders and the eight wheels giving up to 108 channels per device! Bearing in mind that we now have instruments with 22 control parameters, who knows what is coming in the future.

There are 180 Hot Keys which may contain 'groups' (acting as 'selects' for groups of moving lights or dimmers) or preset focuses, in which can be included every attribute of the instrument. Once programmed, hot keys give instant access to any feature of the light. The 'animate' function creates sequences of up to 40 steps, instantly for circles, kicks etc. The personality file contains tables of colours or gobos, complete with names of up to 16 characters. Avolites can supply personality disks for different moving lights.

The Rolacue Sapphire is a continuation of the series, with added facilities for moving lights. It has 120 HTP and 392 LTP channels, which together define the maximum system size of 512 DMX outputs. If this restriction prevents you using as many moving lights as you would like then you are using the wrong board! The maximum number of Lo Res Intellabeams possible is 60, which would actually be too many to deal with easily on this console. The sort of set-up it would handle well might be 16 Intellabeams, 24 VL5s, 40 Rainbows and 60 channels of conventional lighting.

SEEFACTOR - LIGHT CO-ORDINATOR

TOM LESH

Since 1987 when he became a freelance LD, having previously worked in numerous touring capacities for Entec, Tom has been working with Chameleon, Tasco, SeeFactor, Neg Earth and Supermick as LD on many tours. These include Siouxsie and the Banshees, Thrashing Doves, Ellis Beggs and Howard, Night of the Guitars, Europe PIL, EMF, Ian McCulloch, The Waterboys, The Creatures, The Godfathers, Alison Moyet, Lollapolooza, Living Colour, Paul Weller and Meatloaf. He's also worked on video promos and television shows as LD/technician.

Having used a fair selection of dedicated and not so dedicated controllers to run different types of moving lights and colour-changers, getting to grips with yet another console tends to be viewed with a healthy amount of cynicism.

Mastering the Light Co-ordinator, however, was a refreshing departure from spending days locked in rehearsals with a console, manual in hand, and FRUSTRATION! tattooed across your forehead. As is the nature of touring I was given half a day to learn the desk and to programme a show for that night. Given that we were half-way through a tour at the time it was not the most envied of jobs but the desk proved to be a simple, hands-on one. It's very much a Rock and Roll console with faders, flash buttons and an idiot-proof programming sequence that produces results very quickly. It will control most types of moving lights and will also run strobes and smoke machines, which gives you a lot of flexibility if you like to control it all yourself.

"Co-ordinator is very much a Rock and Roll console with faders, flash buttons and idiot-proof programming that produces results very quickly."

The controls are laid out clearly, as are the procedures to control the various fixtures. There is a large Preset Focus menu to build your looks and cues from and, as all the control panels are modular, you can change the desk layout around to suit your own requirements. It is, overall, a very competent desk to work with and, given a bit of thought, can produce some great results. Its simplicity gives you more time and scope to play around and create, rather than having to worry about how many steps, or how long it will take to programme and save, as with some other consoles.

Co-ordinator's only real drawback is the colour scheme (very bright purple trimmings) and the fact that, as yet, no-one has seen fit to install a Cappuccino maker. The way lighting technology is going, soon there will be very little else that can be added to make life easier!

Authors' observations:

This is another one from the R&R and touring stable, this time from the US leg of the tour. Now, in its third generation, and available from Neg Earth Lights in Europe, the Co-ordinator doesn't think in channels or numbers, but only in luminaires - so many moving lights, so many colour scrollers, so many generics and so on - in fact you are not even aware how many channels you are dealing with. In this way each instrument, or group of functions, may be addressed as an entity with a recognisable designation automatically displayed.

Programming is via keypad or digital encoder, with pan and tilt focus adjustment from tracker ball. Intelligent patching, DMX addressing, and focus facilities all make for easier programming and editing. Playbacks are available as Goes, Chases or through 20 overlapping faders which provide direct access to 'stacks' of cues. These submasters operate on the principle of highest takes precedence for dimming or shutter functions, while all other attributes are LTP. The output board offers DMX as well as Color Mag, Showchanger protocols and MSC. The colour monitor is optional.

Light Co-ordinator from Seefactor.

CELCO- NAVIGATOR

IAN HALEY

Ian Haley, who is perhaps best known for his lighting design work with Simply Red, has also used Navigator with Beverley Craven, 10CC, Carter USM, Incognito, at the Reading WOMAD and at Fairport Convention's Cropredy Festival.

The Navigator has many useful functions which help to speed up both initial programming and day-to-day focus updating while on tour. These features, combined with its small size and low cost, make it well worth considering for use with up to 16 fixtures such as Golden Scans, Intellabeams etc, as a desk for colour-changers or indeed almost anything DMX.

Firstly, the desk deals with fixtures rather than channels, which enables common parameters like iris or colour to be ganged together or copied between lights. The Preset Focus is very easy to implement, a must for touring or situations with very little programming time such as festivals or one-offs. The 60 sequences can be repeatedly called up from any of the 240 cues, although a maximum of 16 steps per chase is sometimes a little restrictive.

The recent launch of Celco's 'personality' cards has enhanced the desk further, allowing it to instantly learn the features of a given light, (names appear for colour, gobo etc instead of DMX levels). Additional programming features give 650 'programmable groups' to activate commonly used combinations of channels, for example 'back truss lamps pan and tilt' and 'autofade masking' for snap changes of colour or gobo when crossfading positions.

Initially the desk looks quite unconventional, (I'm sure most people reading this will have seen one by now) but it doesn't take long to find your way around the basics, with the more complex and powerful features learnt as and when necessary.

"The Navigator's preset focus is very easy to implement, a must for touring or situations with very little programming time."

Playback during showtime is very simple, some designers having it as a second desk for that 'Rick Wakeman' look, but still being able to concentrate on the main desk for their Par cans. A complete show can be reloaded from the memory card in under six seconds, handy for large cue-hungry shows or those fortunately rare occasions when, and this can happen with any computer board, the desk decides to hang up. Personally, over the past two years, I have found the board very reliable, even when hooked up to some of the most doubtful of power supplies.

Finally, but quite important, is the life saving service at Celco, where you can talk to them directly about any problems you're having with the desk, either technically or with programming, and they're always prepared to listen and help.

Authors' observations:

Navigator is the sleek, black surf board-style control surface, set aside by its large number of digital encoders, which has been appearing at the trade Shows since the summer of '91 - which makes it a pioneer in the genre of open-system moving light control.

Its Celco pedigree has assured Navigator, and

the sibling Pathfinder, a ready acceptance amongst the many fans of the company's highly successful conventional desks such as the Gold, Major, Plus or Series 2. The Navigator offers 96 channels of control, or up to 16 standard individually driven heads, which can be softpatched to up 512 DMX outputs which can be a mixture of dimmers, scrollers and movers.

Though this might be considered, a little limiting these days, the reality is, certainly in the touring arena, that Navigator would be used as a stand-alone system alongside the main desk and for most people such a board is an add-on anyway. The level of control provided is considerable, with personality cards to configure the board for the instruments in use, each channel assignable to HTP or LTP, 480 multi-part cues, 120 sequences and 36 preset focuses which can be globally edited to take account, for example, of a change in trim height.

A Stack facility enables the programmer to build eight lists of memories complete with timed crossfades and sequences. MSC is included, as well as external control from another lighting board and slaving to further Navigators or Pathfinders.

Pathfinder is a similar 60 channel board.

Celco Navigator.

AXON - SHOWCAD

CARL DODDS

Carl Dodds and partner John Lindsell are best known for their monster lightshows at entertainment industry events, most recently on behalf of Coemar. The pair have also carried out considerable moving light programming for Scandinavian Television. Trained in lighting design at the Rose Bruford College, Carl spent several years at the Leeds Playhouse Theatre, the Birmingham Rep and as guest lecturer at Birmingham University Drama department before going freelance with Lindsell.

ShowCAD is our first choice of controller for all types of production mainly because of its amazing versatility and speed of use. As well as using it on light shows that have been commissioned for trade shows, we've also put it to work for industrial theatre and live TV broadcasts. A key advantage of ShowCAD is the fact that it uses industry standard hardware, i.e. a PC, so that the majority of the programming is carried out off-site on a laptop. The result of this is that valuable on-site time is minimised and not wasted putting in the basics - all your time can be spent being creative.

The easy-to-use intuitive point-and-click interface of ShowCAD is another key time saver when programming, aided by the vast amount of information you can label all your work with. There is no more trying to remember what 'B/LR_M_F' is as you can put 'back light right - magenta fill'.

Templates are a very new facility and it all too easy with a dynamically evolving system like ShowCAD to take for granted some of the older superlative features such as the built in ramps which, not only give you a massive variety of fade profiles to choose from, but also enable you to do instant circles, ellipses and figures of eight with moving lights - all with variable or dynamic sizing.

"It is with intelligent lighting that ShowCAD really shines - the 'personality' templates are like having a dedicated controller for every type of unit built into the machine.

However, it is with intelligent lighting that ShowCAD really shines - the 'personality' templates are like having a dedicated controller for every type of unit built into the machine.

Another advantage of ShowCAD which works really well, and a feature we really like, is that it affords the operator a great deal of versatility in choosing which control surface is needed for each type of production situation.

Axon ShowCAD.

We also like being able to control other boards from one machine, or to accept cues from another external board, without the hassle of calling cues to other operators. On the other hand the superb built-in SMPTE facilities means we can set up 'canned' shows and leave them to run reliably hands-free for months on end if needed.

Authors' observations:

There has long been a split between those who are happy to operate lighting computers and those who prefer lighting to be controlled from boards. In truth the computer is probably better, and certainly faster, when it comes to programming, but has obvious drawbacks in a live performance situation. However, the ShowCAD people have addressed that issue by providing the ability to call cues either from a DMX desk, or a MIDI keyboard.

In fact, this system makes a very effective point for those in the computer camp. It proceeds towards its goal without the need to use a 'hard front-end' at all, except for the essential tracker ball. Rather, it utilises 'scene patches' to create soft boards, on the computer screen. It could be called 'the half Hog' without the control surface, for there is more than a passing reference between the two.

Of course, it will handle generics as well as moving lights, and it offers its own version of the aforementioned Stack Synth, for accessible elliptical tracking. Followspot simulation from tracker ball is an attractive feature, especially as a programming aid. 'Personality' screens, called templates, for several driven lights are provided, or you can make your own. These are a great time saver.

It is very comprehensive in its scope. 1024 DMX-512 outputs come as standard, with 8192 scene capacity and 9,999 steps per scene allowable. These scenes are saved on scene lists of which there are 8192, and as you can see these scenes are more comprehensive than the simple memories often described as scenes by others. This is a lot of capacity!

The real point about this control system is that it is low cost and capable. Some operators might have reservations about going into a big busk 'live' scenario with it, but with its programming power and given the time to programme, it can certainly be used to busk in a club or rave environment.

As an attachment or a back-up to your favourite console, it does have some very interesting possibilities in expanding the performance of conventional desks. If one elected to use a dedicated system such as Vari*Lites for a show, but wished to add some DMX fixtures to the rig, this would certainly be an option worth considering. They could talk through MIDI, for ShowCAD both accepts and outputs the protocol, and generates its own SMPTE, which means that it could also work well for a theme park/dark ride situation.

It has a software package and slot-in hardware card for an IBM type PC running under MS-DOS. Most schools have such computers and if you are the science teacher, about to gang up with the drama teacher about getting a new lighting desk, then this could well be the disk and card to hit the Head with! The range from school drama all the way to Disney-type applications is wide indeed. This system will add a lot of power for your pound.

ShowCAD is distributed by Cerebrum Lighting.

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PULSAR - MASTERPIECE

ANDY DOBBS

Lighting operator Andy Dobbs is most likely to be seen through the showers of Golden Scan beams which are much in evidence on Top of the Pops and which are rented from Richard Martin Lighting. At present, Andy uses one or more Masterpieces or a Compulite Animator to control the moving light part of his show having started with a small rig of Clay Paky Golden Scan 1s and a BBC Micro which turned into an OSKA as the rigs grew. The largest rig to date, run from no less than three Masterpieces, was the Christmas 1993 Top of the Pops which involved a combination of 34 Clay Paky Scans.

The Pulsar Masterpiece 108 is only 19" wide. It doesn't have polished wooden end-cheeks or the ubiquitous comfy 'lean on pad' along its front and you don't need to structurally reinforce its resting place, as it's easy to place on your lap.

It is not a dedicated moving light controller, and as a result of this, the operator needs to know exactly in what order (in the DMX stream) the lamps' parameters appear, as all operations are carried out via a row of 18 faders which are paged six times to give the maximum 108 channels. This can make access to a particular lamp function slow for an inexperienced operator.

"The Masterpiece is small, affordable, flexible, playable and with some experience, very powerful and extremely fast."

The grand master acts on all 108 channels, so when the board is cleared down, every lamp parameter returns to zero, which looks messy, and if you've any graunchy irises in the rig, it's embarrassingly noisy. At this point the auto fade time between states has just been implemented. It's not yet ideal for automated luminaires, as the 'in' and 'out' times have to be perfectly matched to prevent 'jitter' on any parameter which has the same value in both states. Manual dipless crossfades are promised very soon.

On the positive side, the board is (for the experienced operator) averagely fast to build up static looks, and extremely fast to turn those same static focuses into a complete lightshow. This is partially due to 'pile adding', where if a parameter is 'on' in three places on the board at say, 10, 20, and 30 per cent, the output will be 60 per cent.

Up to 54 chases can run independently, all with their own timebases. Pointless? Far from it. For instance, if random splitting, wafting beams are needed then the Masterpiece can help. Split up your 18 lamps into three groups of six, and have one focus chase for each group of six lamps, each with its own timebase. Select a colour chase (which may be manually stepped) and two fast shutter chases. There are now six chases running, and the whole set-up can be recorded as one 'environment' which can be recalled later by a single key.

Once the programmer has done his stuff, the sensitive bits of the board can be locked out, leaving just three pages of 18 effects to be 'played'. Great busking potential, and at no point does the end user need to know about what has gone on before him. Environments are easily MIDIable, may be faded between, or may be set up to run as a 'real-time' chase.

To sum up, it's not an easy board for the inexperienced to programme. Smooth manual crossfades aren't easy, and editing a state when you're just about to hit Go is not easy especially if you can't see the lamp in question. However, it is small, affordable, flexible, playable and with some experience, very powerful and extremely fast.

It's also the only board which comes with useful instructions on what to do when you spill your drink into it!

Authors' observations:

Masterpiece is essentially a programmable touch panel, but an immensely powerful one. It just stops short at the crossover point of a brown-box product and a fully fledged desk, so it's unlikely to have a major impact on the touring scene. Nevertheless, it has proved useful in repeat show situations such as 'Experiences' and was used successfully by David Hersey for the 'live' AV show in the British Pavilion at Expo'92 in Seville, for this purpose. Of course, its prime function is for discotheque use.

Its main limitations are that it has only 108 channels (it wasn't so long ago that this was a lot) and when dealing with 'intelligent' lighting, a lack of memory. Due to the way Masterpiece's memory is allocated to various programming levels it is limited to 216 'scenes' (static snapshots of all channel levels), and you can easily find yourself trying to exceed this limit with the large amount of positional data that moving light programming demands. This is partly assuaged by the Memory Card facility which allows you to re-install previously recorded programming in a matter of seconds. You can also hook several panels together to increase the channel capacity ad infinitum should this be considered viable.

Added to Andy Dobbs' points that the programmer has to be aware of which channel represents what on a fixture, Masterpiece uses manual faders with only the percentage level indicated, so it is essential to have a clear view of the fascia at least, while programming (always desirable whichever desk you're using!).

There is no doubt that Masterpiece can be used to create excellent moving light shows: Pulsar & Clay Paky's trade show spectaculars and Andy's own work on Top of the Pops prove that. However, it certainly requires a programmer who knows the unit very well to achieve the maximum results and if the programmer is not the operator as well, Andy's advice to lock-off the majority of the board is certainly appropriate.

Pulsar Masterpiece.

MA LIGHTING - SCANCOMMANDER

DAVE BYARS

For the last four years Dave has been the lighting designer for Blur and is now creating designs for popular new band Elastica. Both these groups give Dave full creative and artistic licence to create a 'total environment'. Other credits include Pop will Eat Itself, Voice of the Beehive and Balaam and the Angel to name a few.

The Scancommander is very user friendly, easy and quick to learn. It's especially easy to pass your knowledge of the desk to another person, and yet the desk has a great capacity for 'advanced' programming so you can enhance your show as you go.

"The Scancommander is very user-friendly, easy and quick to learn and has a great capacity for 'advanced' programming."

Unusual features include the ability to 'followspot' instruments with a tracker-ball, and to track driven-yoke and moving mirror lights both together. It will control up to 16 units of any instrument controlled by DMX 512, no matter how many channels they need, and has up to 96 'extra' DMX channels for allocation to colour changers, generics etc. It has about 140 instrument personalities incorporated into the desk already.

Once the stage corners have been defined for any of those instruments you can forget about its location and concentrate solely on the beam position on the stage. Within the stage area, the pan control is true stage-left and right for all beams, and tilt is up-stage to down-stage. This allows true followspotting by different lights mounted at any angle and is also very useful for a very fast set-up even for untrained operators. To followspot a person walking across a stage using two I-beams and six VL5s with such ease is very impressive.

Authors' observations:

The Scancommander is a compact moving light desk produced under the banner of German board manufacturer MA Lighting and aimed at small to medium tours. On first sight it is reminiscent in appearance to the Masterpiece, but's that as far as it goes; faders and flash buttons replace the touch-keys. It is normally supplied with wooden side cheeks and

arm-rest, revealing its pedigree.

The number of personalities installed is a slightly irrelevant statistic, as many of them are instruments which are unlikely to be seen on the road, let alone in a theatre, almost anything that moves from DMX having been included.

Nevertheless, it shows a serious dedication on behalf of the manufacturers to make life as easy as possible for the operator, and it is the principle of this feature that really matters. By this process you select an instrument by name and the attributes are automatically assigned to the appropriate channels. You recall also by parameters, such as palette, gobo, tracking description.

However, you can always achieve direct access to individual presets when necessary. Simple, isn't it?

Elliptical tracking is provided and the controller provides some intuitive help in terms of knowing where a head is in the performance area in relation to other movers, enabling interpretive adjustments. Variable fade times are available. Should you need to edit a single function, each step can be accessed either for individual or global edit, or even while a sequence is running, you can take manual control of an individual head. MIDI, SMPTE, memory card storage and remote console control are other features.

While the tracker-ball is optional, our advice is - don't leave home without one. Scancommander is distributed in the UK by M&M Camelont Ltd.

MA ScanCommander.

Tony Gottelier and Richard Knight are working on a comprehensive book on the whole subject of Automated Luminaires which is to be published by Focal Press.

During the next weeks and months they will be gathering together the mass of material necessary for the successful completion of such a venture. It will be a Herculean task, and they are seeking help from all interested parties in the industry.

Any manufacturer or individual who has something to contribute on the subject whether, technological, historical or even purely anecdotal - for example, regarding a landmark show involving the early use of moving lights - are invited to contact Tony Gottelier at the address, telephone or fax number below:

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AUTOMATED LIGHTING

This is the second part of a major L+SI survey into automated lighting and control systems.

A comprehensive review of automated luminaires appeared in the November 1993 issue of L+SI.

The follow-up, offering a major appraisal of automated luminaire control systems, has been divided into three main areas and appears across three issues of the magazine.

Following the publication of all these sections a definitive copy of the combined surveys will be available to readers only on written request from the offices of Lighting+Sound International.

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