

# LIGHTING+SOUND

*International*



MARTIN GUERRE AT THE PRINCE EDWARD

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**PLASA**

**AUGUST 1996**

# C'EST LA GUERRE

Schönberg and Boublil's latest creation, *Martin Guerre*, comes to life at the Prince Edward. Robert Halliday, a member of the technical team, charts its progress

It was probably inevitable: on the one hand composer Claude-Michel Schönberg and writer Alain Boublil, the team who had taken a classic French novel, *Les Misérables*, and converted it into one of the most successful stage musicals in history; on the other, another classic French story, that of *Martin Guerre*, a man who abandoned his bride but whose place was taken for by an imposter who carried the deception off for many years - until the real Martin returned. It is a story full of dramatic potential; so full, in fact, that it had already been plundered for two films - the *Return of Martin Guerre* with Gerard Depardieu, and *Sommersby*, with Jodie Foster and Richard Gere.

The greatest surprise probably isn't that Boublil and Schönberg would seek to bring the legend of *Martin Guerre* to the stage, but that it took so long. Perhaps they didn't want to be labelled as writers of French musicals, or adapters of other people's stories. Certainly their second show, *Miss Saigon* - a sweeping epic set against the backdrop of the Vietnam war - didn't fit into either of these categories. But as it followed the path blazed by *Les Misérables* around the world, it cemented their reputation, the only people able to match the commercial success of Andrew Lloyd Webber. The lasting appeal of their work was clearly shown last October, when the 10th Anniversary of *Les Mis* was celebrated with a spectacular concert at the Royal Albert Hall.

But even as the audience rose to its feet to acclaim that performance, Boublil and Schönberg's *Martin Guerre* was moving into its final phase. The process had been lengthy, from an initial idea while preparing the New York production of *Miss Saigon*, through a major change of approach at Cameron Mackintosh's request in 1993, to the appointment of a director and designer soon afterwards. Moving the show out into the real world had also been delayed by the log-jam of shows occupying London's musical-sized theatres.

## THE PRODUCTION

One of Mackintosh's great strengths lies in finding the right people for his shows, even if the choice at first seems unconventional. Trevor Nunn is now firmly established as one of the leading directors of musicals, though that wasn't the case when Mackintosh decided to let the very seriously-minded then-director of the RSC oversee *Cats*. The years since have seen Nick Hytner picked from the world of subsidised opera and drama for *Miss Saigon* and Sam Mendes given a budget far larger than those for his acclaimed Donmar Warehouse musicals to take a fresh look at *Oliver!* *Martin Guerre* was going to be in a different style from the authors' earlier shows and called for the story to be told by a strong ensemble company, carefully served by a precise - but minimal - quantity of scenery.

These considerations took him to director Declan Donnellan and partner, Nick Ormerod. Both gave up careers in law to form Cheek by Jowl, the innovative touring theatre company which, since 1981, has gained a formidable



*Martin Guerre* - a story full of dramatic potential, ideal for Boublil and Schönberg.



reputation worldwide. Their approach has been to give clean, clear readings to classic stories - occasionally with a novel twist - but with the productions always actor-led.

Away from Cheek by Jowl, the pair's reputation has been further enhanced by a series of acclaimed productions at the Royal National Theatre: *Peer Gynt*, *Funeteovejuna*, the British premiere of *Angels in America* and a revival of Sondheim's *Sweeney Todd*. It seems likely that it was the combination of these that influenced Mackintosh's decision.

Of course, creating a large-scale West End musical is not the same as creating a small-scale touring show. Audiences paying £30.00 or more for a seat expect to see where their money has gone - there has to be at least some scenery. And the schedule of a large scale musical demands that the scenery be designed long before the rehearsals start, so that it can be built and installed ready for the cast to move into it.

With director and designer new to this style of working, Mackintosh completed his creative team with trusted collaborators - choreographer Bob Avian, orchestrator Jonathan Tunick and, on the technical side, David Hersey as lighting designer and Andrew Bruce (the man with the greatest experience of Boublil and Schönberg shows) as sound designer.

Overseeing all of their work was production manager Nic Harris, a Mackintosh 'old-hand' who has been responsible for *Follies* and *Miss Saigon*, as well as knocking off a quick tenth anniversary *Les Mis* concert in the midst of planning the new show.

## DESIGN

Nick Ormerod's design for *Martin Guerre* went through several versions prior to the one that can now be seen on the stage of the Prince Edward Theatre. All represented the sixteenth century French village of Artigat, but in slightly different ways. The version most talked about by those who thrive on West End gossip was the one presented two years ago where, in the final scenes as the fighting between the protestants and catholics (a major theme in the show) intensifies, Artigat was actually seen burning on stage. After lengthy negotiations with Westminster Council, Nic Harris even had the concept approved - but that kind of spectacle did not fit with Donnellan and Ormerod's minimalist approach; the only remnant of that concept is a scarecrow which really does burn each evening, courtesy of Howard Eaton Lighting - or Sussex Scarecrows, as they have now been re-christened by props supervisor Yolanda Jeffrey.

The final design is deceptively simple: a 'box' of green side and back walls and green borders featuring a large revolve, close-on 10 metres in diameter, set into a gently textured brown floor. There are also tall, thin trees, five permanently on stage as part of the most basic setting, with a further seven that can be flown in, and four more that can track on and off-stage to form various sections of forest. All of these elements are automated to facilitate scene changes of the kind where the trees land exactly as the revolve stops moving. The trees were powered using Stage Technologies' Big Tow counterweight assist winches attached to the theatre's



The forest scene features a mixture of Pani projection, DHA gobos, and ETC Source 4s which combine to create the stunning dappled effect on the trees and forest floor. photo: Wyatt Enever

counterweight system for the flown trees, and Tow Track winches to move the tracking trees.

ST's Ted Moore also had to overcome the tracking trees' tendency to swing when knocked by passing actors, which he did by building linear actuator 'stamper' into the base of each; when in position, these drop down to lock the tree to the floor. The company's motors also power the revolve, using a new, as yet un-named, revolve drive consisting of one of their standard motors driving a toothed belt, which engages with another belt attached to the rim of the revolve. The *Martin Guerre* revolve uses two such drives, one slaved from the other; compared to traditional revolve drives they occupy a bare minimum of space and, because they shouldn't slip, the control system can keep track of the revolve's position.

This just leaves the little matter of five trucks that can be arranged in various positions to form different sections of village. The trucks are all two storey, open-frame structures designed to resemble the wooden-framed houses that Ormerod found on a visit to the real Artigat, and in the pictures of the sixteenth century artist Bruegel, whose work has provided much of the inspiration behind the show's look. The two smallest trucks run up and down either side of the stage on tracks and can rotate around their own centres to sit at any angle to the stage.

Relatively late in the design process, it was realised that these trucks would need to vanish at times; the solution devised by Nic Harris and Delstar, who were responsible for the engineering on the show, was to take the tracks upstage and then turn them 90 degrees, so the trucks actually run round a corner and off into the wings. The biggest truck also runs on a track: straight this time, but with the complication that the truck has to be able to run up and down the revolve, but also off the upstage edge of the revolve into a parking bay, where it could then be hidden by flying in a moving section of the upstage green wall.

This made it impossible to use any kind of chain or belt drive: instead the truck drives itself up and down-stage using motors powered from its own batteries. Control is sent from Stage Technologies' Acrobat! control desk by radio to an on-board computer, and here the advantage of the new revolve drive becomes clear, since

the computer should be able to guarantee that the track on the revolve is lined up with the upstage track before allowing the truck to move upstage. As a back-up, the traditional circle-front camera giving a full-stage view of the stage has been replaced with one that has remote control of position, zoom and focus, allowing the automation team to zoom in to any section of the stage to check positioning.

The two medium-sized trucks provided the biggest challenge: Mark Ager of Stage Technologies had to make two trucks that could move anywhere on stage, quickly, along a straight or curved route, under their own power, sometimes carrying members of the cast - and accurately go to the right place even when being spun around on the revolve. This is not a new challenge. The 1962 production of Lionel Bart's *Blitz!* had freely moving trucks attempting to solve the problem by putting a driver in each, UV marks for them to follow on the floor, and a 'spotter' in the grid with a radio in case it all went wrong. The New York version of *Chess* employed a similar scheme, but with LEDs drilled into the floor, which was not entirely successful by all accounts.

But it is a challenge that has now been met. *Martin Guerre*'s two roving trucks can be programmed to run to any point on the stage, to move along a straight line at any angle or a curve, or even to rotate about their own centres - and they do it, to an accuracy measured in millimetres.

The trucks have a rotating castor in each corner - they are, at heart, just giant shopping trolleys! Movement is generated by two Delstar friction drives, but these can be lifted and rotated to any angle independently of each other. When set to the same angle the truck will move in a straight line in any given direction, when set to different angles it will move in an arc. The motors are powered from a collection of car batteries built into the base, and control is sent from the Acrobat! desk via a radio link to an on-board computer. Safety comes from a built-in emergency-stop cord and also from a radio safety system; if the radio signal to the truck is cut off, it stops moving.

This system alone would work well in a perfect world; tell the truck how far to move, in which direction, and how quickly and watch it

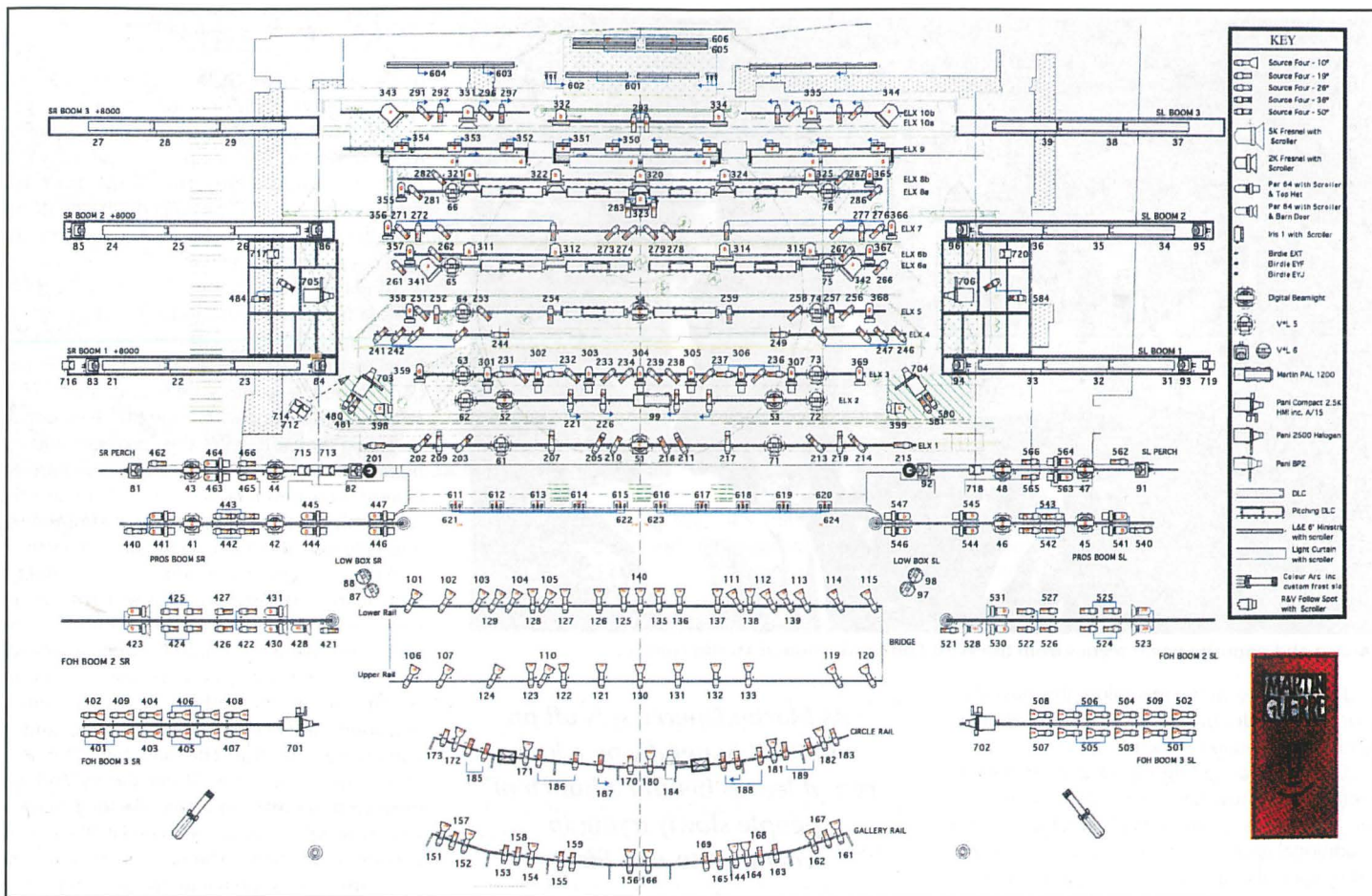
go there. The problem is that if, for any reason, the truck didn't run to the right place, every subsequent position would be slightly out, and by the end of the show could be a long way off. The production team strove to minimise the problems; extra metalwork had to be installed to support the revolve (since it weighs three tonnes and, in turn, would have to support trucks and actors), and Paul Craven of Delstar spent long hours with a laser leveller ensuring that the new floor was completely flat and level with the surface of the revolve. The usual gap between the revolve and its surroundings was also minimised - remarkably, it is consistently just a few millimetres all the way around.

But the chance of positioning errors remained quite high; if nothing else, a cast of almost 40 running around the stage and jumping on and off the trucks would probably knock them off their positions every now and again. Ager realised that he needed some way of establishing where the trucks actually were, rather than where the computer thought they ought to be. He looked at several ways of doing this, including talking to the people behind Global Positioning satellite systems, who told him that in a theatre buried in the middle of London, they couldn't give him the precision he needed. Eventually, his investigations led him to Autopilot, Wybron's automatic follow-spotting system. A prototype truck was made and tested at Delstar; this showed up some teething problems which were quickly overcome, but more importantly, and much to the relief of the creative team, proved that the concept could be made to work.

The final trucks, created by Victor Mara, with the scenic work carried out by Victor Mara, now each carry two Autopilot transmitters, one in each of two corners; this allows the system to accurately monitor the truck's precise angle as well as its position. The Autopilot receivers are distributed on overhead bars and at the top of the proscenium booms - a set-up which took some time to refine, because the desire to mask the lighting rig also made getting complete stage coverage with the receivers, while keeping them out of sight, quite difficult.

The Autopilot box was calibrated with the receiver's positions using a spare transmitter - and from then on has tracked the position of the trucks, passing the information to some custom software added to the Acrobat! desk. The whole system has subsequently been christened Explorer! This allows the desk to generate a real-time graphical display of the trucks' actual and target positions, giving automation operator James McKee a clearer display of what is going on than a screenful of numbers would. For plotting new positions, the trucks could just be pushed into place by the stage crew and the position recorded.

But if the technology is a triumph - and it is, then the real heroes of the operation are James McKee and stage manager Greg Shimmin, who had to take the rough set movements generated in the rehearsal room, which was equipped with a revolve and three small, manually operated 'baby' towers, and translate them into actual movements on stage. Their patience as two weeks of careful programming was thrown out of the window when the director, designer and producer arrived in the theatre, finally grasped the true potential of the set and started to play with it, was quite incredible. And the triumph of the show's scenery owes much to their work.



The intricate and elaborate lighting set-up designed by David Hersey.

And the real triumph, for once, isn't the technology being used for its own sake: it is that the audience are completely unaware of the way the technology is used; the set simply appears when it's needed and disappears when it isn't. But the final sequence of the show, as Artigat burns and the trucks go through a series of complicated twists and turns on a continuously rotating revolve, is incredible to watch. After *Oliver!*, then one of the largest systems Stage Technologies had worked on in terms of the number of automated items, Ager commented that he was still waiting for the show that pushed their control system to the limit - he thinks this show is it.

### LIGHTING

In many areas, *Martin Guerre* felt like the final proving ground of the expertise and technology built up over a decade of producing the British 'mega-musical' - the new technology used in automation, in particular, felt like it was the achievement that many earlier shows had been leading up to. David Hersey's lighting design had a similar feel - as if technology was finally matching years-old expectations, summed up when, plotting in the two Pani 2.5k HMI projectors FOH, David remarked: "I can't believe I'm turning projectors down!" In fact, much of the lighting technology used on *Martin Guerre*, although new, has roots that can be clearly traced through David's earlier shows.

His design makes extensive use of glass gobos, to project tonal forest images onto the set's green surround, for example. Glass gobos are notoriously fragile and in the past have required careful lantern selection and precise field alignment if they are to last for any length of time. A year ago, this problem was encountered on *Burning Blue* - and solved by switching to ETC's Source 4 profiles. Their

dichroic reflector means that the gobo stays cool. And their superb optics and custom bulb mean that the image is still very bright and, if required, razor sharp. Source 4s have become the standard Broadway lantern in the past few years; the availability of the 240V bulb now means that British users can enjoy their benefits. *Tommy* led the way, but *Martin Guerre* followed quickly behind - every profile spot in the rig is a Source 4, a mixture of 10, 19, 26, 36 and 50 degree units.

It's incredible to think that where *Crazy for You* had three ellipsoids ganged together on the Prince Edward's high FOH lighting bridge, and *Oliver!* had enormous Alto 2.5k profiles front of house, *Martin Guerre* uses Source 4s - and they are brighter! No, they don't have the versatility of a zoom-lens profile, but the lenses are easily interchangeable, if required.

The rest of the conventional rig is more traditional: Arri 2.5k Fresnels, picked for their compact dimensions, Par 64s, Iris-1 floods, and 5k Fresnels providing three-quarter backlights. With a simple, but versatile set, it would be left up to the lighting to provide much of the variation in appearance and, to this end, Hersey and assistant lighting designer Jenny Kagan felt that they needed as many colour options as possible. To achieve this, around 33 of the Par cans, all 13 2.5k Fresnels, all four 5k Fresnels and 10 Iris-1s were topped with Rainbow scrollers. The Iris-1s alone weren't felt to provide quite enough coverage to the bottom of the back wall, however, so six of M&M's nine-lamp light curtains with built-in scrollers were included to provide a strip of toplight to the centre of the wall, along the line where the light from the Irises started to drop off.

It was also felt that light from the bottom was needed to give a sense of depth to the horizon line; there was just room to squeeze L&E

M16-battens into a floor slot between the back wall and the metalwork required to support the trucks. The problem was, though, that the throw was so short that unless all of the lamps in the batten were on, gaps would be visible - so using three colours in the three circuits to allow colour mixing was impossible. The solution had to be a scroller - but no-one produced M16 batten scrollers.

Until Dave Isherwood and Bryan Raven of White Light, who supplied the whole rig, came up with an ingenious solution: the prototype light-curtain scrollers that were created for *Miss Saigon* and survived for six years before being replaced by Digital Light Curtains. By attaching short 'legs', the scrollers could be made to stand astride the battens. The four outer units had plenty of space; the two central ones required Isherwood to shorten the scrollers by a few centimetres, with the control electronics separated from the scroller itself. The result is that where the metalwork used to proudly proclaim 'Rainbow', it now says 'ainbow' - apart from that minor change, the scrollers function perfectly in their new location.

There was still, however, the problem of the gaps between the battens caused by the positioning of the up-and-down stage steel girders supporting the big truck. On a 'normal' show, the lighting designer might have lived with the gaps. Here they were filled by sitting three birdies underneath a Par scroller. With the battens and scrollers topped with macralon, the only remaining concern was whether the scrollers were getting overly-hot. Production electricians Gerry Amies and Greg Hamlyn tackled this by installing a comprehensive 'air conditioning' system, with fans blowing cold air through ducting that runs along the lengths of the troughs. By pointing two Smoke Factory Skywalkers into the intakes, and making some



Above and opposite page: scenes from the West End production of *Martin Guerre*.

judicious holes in the macralon, this now does convenient double-duty as a very effective smoke distribution system!

Designing a lighting rig for a show months before that show has even started rehearsing, is a process fraught with problems. The traditional approach of putting in some covers, then specials carefully selected for particular moments seen in the rehearsal room, just isn't possible. This show presented an even greater challenge than usual. Normally at least some elements of the set are fixed: a track will indicate the likely position of a truck, and so some lamps can be usefully positioned for action on that truck. The free-ranging trucks being produced by Stage Technologies, while superb at allowing artistic freedom, made it very hard to decide where to put any lights.

David Hersey went as far as he could along his normal route of claiming as much space as possible and filling it with lights - though this did lead to an unusual assortment of split bars necessary to work around the flown trees. Hersey went down the route of automated lighting because a light that can move and change colour can not only be focused quickly as and when required, but can serve many functions, so making as much use as possible of the limited rigging space. The set seemed likely to call for strong backlight, so 10 pitching Digital Light Curtains were included in the overhead rig, for their ability to provide strong directional strips of light through the wooden structures - and for the possibility of pitching them in and so getting light inside the trucks even if they ended up quite close together. The wooden texture of the set also seemed likely to take sidelight well, and so strips of three non-pitching Digital Light Curtains were rigged on each of three booms either side of the stage - which were actually custom-made ladders from MetScene Fabrication.

There was also need for a washlight of some kind, and for this Hersey turned to the Vari\*Lite VL5B, the variation of the successful VL5 with a revised set of dichroic filters that promised to be able to deliver the cool blue tints that the original couldn't. Six of these per side were deployed on bar-ends above the tracks for the small side trucks, the intention being that their primary function would be to provide light into

***"As Martin Guerre sets off on what will hopefully be a long run, it leaves behind a bunch of people slowly trying to re-adjust to real life."***

these trucks wherever they ended up on stage. In practice, they do this very well, even in cool blue shades; they also do much more besides, including the strong colour and movement for one deliberately surreal 'nightmare' moment in the show.

Which left two gaps in the 'armoury'. The first was for a hard-edged moving light, mainly to provide gobo washes into the set. The problem with all of the hard-edged moving lights currently available, from our point of view, was their light source - generally some kind of HMI, MSR or other discharge bulb dimmed using a mechanical shutter. For rock and roll this is fine, but for theatre, especially on those where the rigs are predominantly tungsten, it is a problem. The white discharge lamp always stands out, and it is impossible to match colours to the rest of the rig. And the dimming, especially when controlled by DMX, is always - whatever the manufacturer's claim - 'different' from every conventional lamp. In the past, lighting designers have lived with these problems because the lamps' versatility made up for it.

But this was a big-budget, large-scale West End musical. Why should we live with it? Anyone able to offer an alternative would have a long-term West End hire that was essentially guaranteed, probable 'repeats' of the show around the world and a brilliant product for other theatre lighting designers into the bargain. There have been accusations that shows like this are all about 'boys talking about their toys'; in fact, it is this kind of show that provides the impetus (and funding) for this type of toy to be developed. And, over time, those 'toys' will filter down through the rest of the industry. The scroller was once a 'toy' developed for this scale of show. It can now be found on productions at all levels.

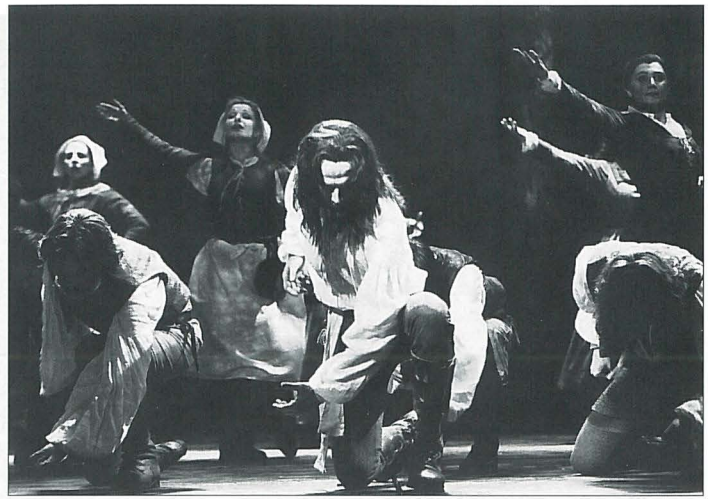
Vari-Lite have been making gentle mutterings

about a tungsten version of the VL6 for some time, and Ed Jackson and the team at Greenford quickly took up the challenge, modifying a 6 to take the old VL3 tungsten bulb and altering one of their new Constant Current Control dimmers to generate the 55V supply it required. Once Hersey had agreed the light met his requirements, Dallas produced a batch of the 'real thing', or the VL6BX as it is known. The result is a compact, versatile little tool. It's not as bright as the traditional VL6 with its 400W MSR lamp - and having something as bright as a 1k lamp (or a Source 4) would, of course, have been better. To achieve this, Dallas need to commission a custom bulb and modify the reflector, and I sincerely hope that they decide to move forward with this project. But the highest testament to the 6BX is that, in *Martin Guerre*, you never notice them. They are the same colour temperature as the rest of the rig, and fade in and out in exactly the same way.

While pressuring Vari-Lite for that product, a little bit more pressure was thrown in by asking them to make the lights controllable by 16-bit DMX - i.e. using two control channels for each of pan and tilt to increase the positional resolution of the light. This is becoming common practice in moving lights, and is something else Vari-Lite had been thinking about for some time. Brian Glenn and the programming team in Dallas decided that the time was right, and so Vari\*Lite DMX software version 4 was born. The result is that, for the first time, it is possible to do long, slow movements on the lights using a DMX desk, yet still retain much of the smoothness they have when run from an Artisan. More importantly, the lights return to plotted positions more accurately. Here another 'new' piece of technology proved invaluable: electronic mail really does banish the problem of dealing with people in different time zones.

Whereas the VL6BX was a modification of an existing product, the other 'gap' in the armoury took much more work to fill. David Hersey has long been a fan of beamlights, specifically the R&V 500W unit, which appear on most of his shows either as on-stage followspots, as specials, or both! His 'dream product', which he has long talked about, is a beamlight which can move and change colour. But the beamlight is a niche product - none of the big players in moving lights could understand the attraction of that type of unit. When they said the same thing about the Light Curtain, DHA set to work to develop their own version, completing the first DLCs for *Miss Saigon* in New York.

DHA had been kicking the Digital Beamlight project around gently for a while and so some initial design work was already underway, but suddenly the team, led by chief engineer Philip Nye and hardware designer Richard Harrison, had a real deadline to beat. In six months between November 1995 and April 1996, the Digital Beamlight was born. It uses the same 500W crown-silvered bulb as the R&V unit, but everything else from the reflector out is completely new. With its single swing-arm design and compact lamphouse it looks like no other moving light: the lamphouse is so small because the spill-rings are integrated into the scroller, and the scroller is incredibly thin because the drive motors are built into the colour spindles. Its optical performance is also unlike any other moving light: when first brought into the theatre, it was subjectively a tighter beam than any R&V 500W - but also



much brighter, with the brightness approaching that of a 1k R&V. More importantly, the beam is remarkably free from the scatter that plagues some R&V units. DHA later measured the unit, recording an output of 13506 lux at 10m and a half peak angle of 1.9 degrees.

And, of course, it moves - very smoothly and very accurately, running in 16-bit mode from DMX. It also changes colour (the scroller containing up to 11 colours) and you can remotely control the movement of the bulb in the mirror, so if the beam is ever too tight - and this is a distinct possibility with this unit - you can spread it a little. It's also remarkably easy to set up - you simply give it one piece of independent mains, which provides both control power and power to the built-in dimmer and either DMX or DHA's own LightTalk protocol. The final version will be launched onto an unsuspecting world at the PLASA Show. It will be well worth looking out for.

Of course, all of this equipment is completely useless without something controlling it. The Prince Edward owns a Light Palette 2 - a legacy of *Chess* 10 years ago - but it was realised from the beginning that it wouldn't be used to run this show! The ambition was to devise a control system which would leave the control of both the conventional and moving lights with one operator. On *Oliver!* this led to the combination of the house Galaxy 2 running the conventionals and an Imagine 3 running the moving lights, both triggered from one 'go' button by one operator. When that set-up was specified, lighting control manufacturers were only just beginning to wake up to the problem of moving lights - and it is this that has become the main theme of desks launched in the past 18 months. This meant that there were plenty of options to examine. We were increasingly looking to pick one desk that could run the whole show - over 300 conventional channels, 80-odd scrollers, and 40 moving lights.

Which led us to Strand and their 550 range. This desk had interested me when first previewed at the PLASA show in 1994 and software upgrades since have seen it come along in leaps and bounds. We tentatively proposed using it on *Martin Guerre*, sending Strand a list of software improvements we'd like to see implemented. They achieved most of them (including 16-bit position fades, thus allowing us to make full use of the 16-bit control available in all of our moving lights), and the desk was on the show.

Or rather, two desks were. The problem with dealing with a big mixed rig isn't usually the

technology keeping up - it's the humans. A lighting designer will generally interact with moving lights in a different way to conventionals and plotting a show is therefore quicker if one person can get on with dealing with the moving lights while the other plots the conventionals. We thus specified a Strand 550 to plot the moving lights, and a 530 which Kevin Burgess, the theatre's chief electrician, would use on the conventionals; once the show had opened and settled down, the data from the two desks was merged leaving one desk and one operator running the show.

Power and data from the desks then had to be distributed to the rig. The conventional lights, DLCs and VL5s were run from the theatre's own Bytecraft dimmers. For independent power to the automated lights, Gerry Amies had White Light build a custom breaker rack that allowed independent power to be patched into spare ways on multicores running dimmer feeds, so reducing the number of cables that had to be run to each bar. For data, we decided to run two separate DMX rings, one controlling the house dimmers, scrollers and Pani projectors, and the other all of the moving lights.

The Prince Edward contained a simple DMX network installed by Howard Eaton Lighting as part of the earlier refurbishment, but it wasn't really designed for the amount of equipment on *Martin Guerre*. HELL were thus called back in to replace it with a DMXPort installation, which ran two separate DMX rings to every useful point below, on and above the stage, and to the top of each of the front-of-house lighting booms. At each position the data could be accessed by plugging into a buffered outlet box, and in key positions multiple boxes were installed to allow isolated data to be run to different locations without the need for splitter boxes. Data could be fed into the system from the stalls or the lighting box, and data could be returned to either location.

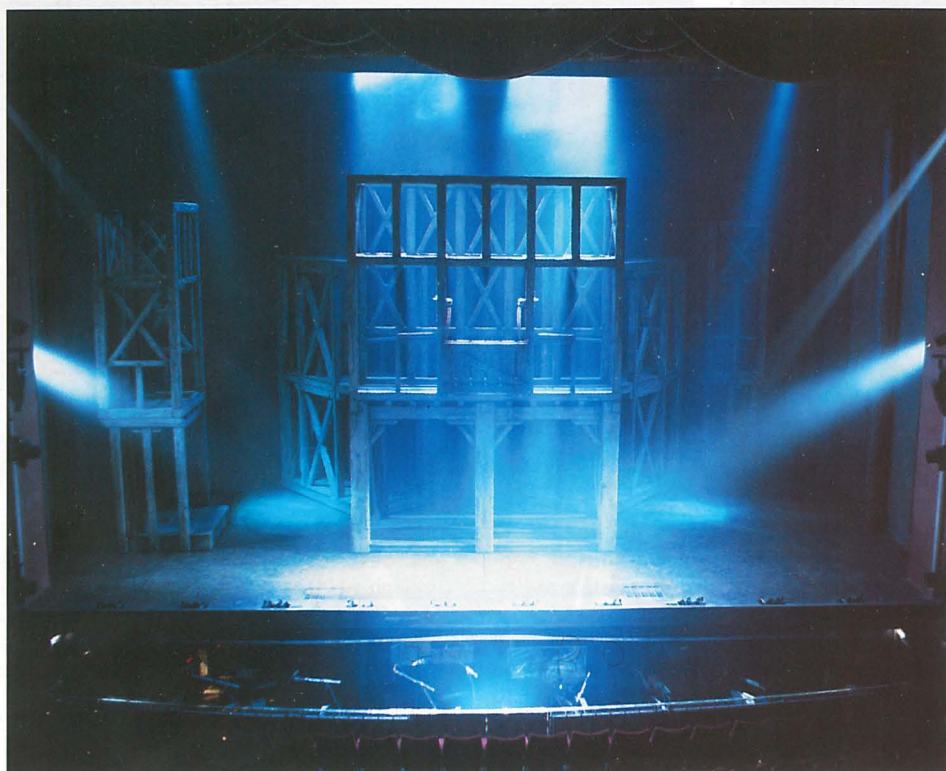
Returned? Well, with an Autopilot box kicking around on stage, it seemed silly not to make use of it! Originally, there was a nightmare sequence in the show which David Hersey envisioned lighting by having a beam of light follow an Autopilot-wired actress. To achieve this, one of Martin's PAL1200 moving mirror lights was included in the rig. Having taken part in the moving light super-session at last year's PLASA show where Autopilot was used in 'Co-Pilot' mode to record moving light positions back into the desk, it seemed wise to include that function as well - especially since the 550's 'copy from DMX' command makes

this so easy. DMX from the Autopilot box is thus split, being fed both to the PAL and to the VL5Bs (though we haven't had time to upgrade the Autopilot with the new software necessary to drive the 16-bit VL5s) and back to the 550.

In the end, the data recording mode proved most useful: the nightmare scene was re-written to a version that didn't need auto-following, but we gained a sequence where the PAL needed to follow a point on the revolve - a hard task, since the PAL was rigged away from the revolve's centre. But by placing a transmitter on the edge of the revolve, having automation rotate it by a series of known amounts and recording the positions back into the desk, a movement sequence was built up that could then be used as required. In the end, that sequence was cut as well - but not because the technology couldn't cope! And the PAL has still proved invaluable - its gobo wheel is deep enough to take the dichroic colour glass gobos that DHA are now producing, in this case, a beautiful stained-glass window.

And the results achieved with all of this technology? From a technical viewpoint, the equipment has all worked very well. The desks are a triumph; the way that the 550 groups colour information with lamps makes it very easy to keep track of what is going on. When we started plotting the show (indeed, for most of the technical period), Declan Donnellan would launch into a scene pausing only when absolutely necessary to let the scenery catch up. Then, with the actors and scenery sorted out, he would move on, leaving us desperately trying to light over a departing set.

The majority of the show's 'looks' are combinations of broken gobo light and images that translate the green surround into a forest, or an imaginary cathedral, or the centre of a village. This is the lighting that has had praise heaped upon it by many of the critics. It is the result of a combination of two sources. The first is large-format projection, with images created by artist Frances Hamel Cooke, based on both Bruegel images and images inspired by the set, projected from two Pani 2.5k compact HMI projectors with A-15 random access slide changers and LCD grey-scale dimmer shutters mounted on the auditorium booms, and four 2.5k tungsten Pani projectors on stage - all of the projection equipment having been supplied by Production Arts' new European operation in one of their first contracts. The projections completely change the base 'look' of the set, and at times provide practically all of the front-light into the stage, giving it a vast, dramatic open feel.



The framework is lit with two Light Curtains pitching towards centreline. The two upstage pools are created by VL5s and the low side beams are from two Digital Beamlights. photo: Wyatt Enever

The second source is the Source 4. Practically every Source 4 in the rig contains a gobo, and the results are incredible. Source 4s on the circle front project images of tree trunks onto the upstage wall; the images are photorealistic and, even though they are monochromatic, where they fall on the upstage scenic trees, they appear to have colour. Overhead, Source 4s throw a variety of gobo toplights and backlights onto the stage and eight contain gobo rotators.

The Source 4s make the lighting of this show possible; the gobos give life to the surround and floor, turning them from flat surfaces into a living, breathing, three-dimensional world. Light is then cut through the gobos, whether from the beamlights, Vari\*Lites, Light Curtains or the two ColorArc followspots front-of-house and two R&V 500W followspots on stage, operated by the Prince Edward's excellent followspot crew.

## SOUND

A seat at the back of the stalls at the Prince Edward Theatre costs around £25. With eight performances a week, that adds up to over £10,000 a year. Multiply that by 30 seats, and you hit £300,000. No wonder, then, that the sound designers of large musicals are starting to feel gentle pressure from their producers about the number of prime seats occupied by mixing desks. On the current production of *Tommy* at the Shaftesbury Theatre, the team's solution was to pile the processing equipment as high as possible, with some of the racks reaching the ceiling. For *Martin Guerre*, sound designer Andrew Bruce decided to take a different approach: to locate as much of the equipment as possible out of the way in the theatre's sub-stage area.

The ultimate aim was to use Soundcraft's new Broadway computerised mixing desk. Sadly, it wasn't quite ready in time for this show, though there can be no doubt that it will be appearing in a musical theatre somewhere, soon. In the meantime, the sound team turned back to the tried-and-tested: a 68 input, 14 VCA

Cadac J-type desk, with a shallower 26 input K-type wing added to handle the stage microphones and reduce the space occupied to a minimum. The desk is controlled by Matt McKenzie's MIDI control program, which handles the switching of channels to VCAs.

Eschewing the Cadac flying fader system, Bruce instead uses Outboard Electronic's Octopus automated submixers to handle the work that can be automated - one is used to mix the effects, fed in from an Akai S3200 sampler with a MiniDisk player always on standby as a backup, and the other handles the foldback mixing. However, the sound department received some help with their foldback from an unexpected area: the automation team.

The two roving trucks each have several small foldback loudspeakers built in to them. The signal is fed into the truck through a radio link, but it was found that different speakers needed to be used depending on which way the trucks were parked on stage. Spare automation control ways were thus pressed into use, and there are several automation cues which just switch relays to alter the truck's foldback routing!

Despite the loss of some seating due to the size of the Cadac, Bruce, associate designer Nick Gilpin and production sound engineer Tim Lynn, were still determined to keep as much equipment as possible out of the way; the majority of the processing equipment is thus now housed in the substage area. This led to the problem of sending control and channel insert signals there and back, which in turn led to the use of BEC fibre-optic multicores to carry MIDI signals, remote signals for the Lexicon reverb units and the channel inserts.

The system has proved very robust and reliable - though the quantity of MIDI control channels used meant that they couldn't find a spare for sending triggers to the lighting desk; the sound-to-light linked cues in the battle sequence are thus now triggered by a slightly lower-tech contact closure. A second contact closure produces one superb effect in the show

- a cannonball is heard whistling over the auditorium then down to the stage. Precisely at the moment it lands, a pyrotechnic is triggered - the sound control program switches a contact, which passes through a 'clear to fire' switch held down by DSM Linda Winton and so triggers the effect bang on cue.

Like its two predecessors, *Martin Guerre* is a through-sung show, and is therefore mic'ed throughout. 32-channels of Sennheiser SK50 radio mics are used; when the chorus are on-stage, they tend to all be on stage and so there are just two microphone changes during the course of an evening. The signals are received by Sennheiser 1046 receivers - these include a graphic display of RF and audio strength which is run to the desk and other points around the stage, and sound technicians Stuart Andrews and Van Burden can also listen in to the signals at three points around the stage using a system devised by Autograph's Tony Robinson.

When the radio mic frequencies are added to the radio signals used for controlling the trucks, sending foldback to the trucks and for the walkie-talkies used by the stage management team, the potential for catastrophe quickly becomes clear: Great Circle Design and ASP Frequency Management were employed to ensure that all of the equipment would work happily together.

The signals then run up to operator Veronique Haddesley at the Cadac, bounce up and down the fibre optics a few times, are fed through the VariCurve equalisers, then out through a mixture of Cyberlogic and Amcron amplifiers to the predominantly Meyer UPA-2 speaker system. The Cyberlogic amps were chosen for their space saving capabilities, as they cram eight channels into a six-unit high module. The UPA-2s, a new box from Meyer, are being used because their trapezoidal shape allows them to be arrayed more precisely than earlier Meyer units; the speakers are located on the proscenium booms and on the theatre's sound advance bar.

More speakers lurk elsewhere, most notably in a void above the auditorium ceiling. This contains two Meyer 650 bass units, two DF2 mid-bass units and two UPAs, with their amplifiers also located in the roof. They are used for the cannon and battle sound effects, and for the fire at the end of the show - though some discretion is called for so as not to set the roof trellis and all the houselights rattling.

To set the system up, Bruce, Gilpin and Mark Menard, Bruce's American associate, used the Meyer SIM system to analyse the 'real world' behaviour of the loudspeakers. The system uses either music or test tones collected through a series of measuring microphones to build up a frequency response display of the auditorium.

The team could then alter the system's equalisation using the VariCurve EQs, and measure the effect of those changes. To help compare options, Bruce used the VariCurve remote control connected to a radio microphone transmitter, allowing him to change EQ settings freely as he moved around.

The result of this careful setting up is a sound which many people have described as being 'softer' than some of Bruce's work on earlier Boubllil/Schönberg shows - understandably, given that this is perhaps their softest and gentlest show. When the system has to kick out, during the battles and the fire, it certainly can. But it is equally happy just taking two



As Martin Guerre is a through-sung show, the cast of almost 40 is therefore mic'ed throughout.

voices from the stage, blending them with the sound of Jonathan Tunick's lush, sweeping orchestrations generated by the 27-piece band and carrying them out to the audience.

#### PUTTING IT ALL TOGETHER

More than two years of planning by production manager Nic Harris eventually started to move to fruition in the middle of March, as a team led by production carpenters Glyn Cook and Michael Murray and riggers Colin Le Gendre, Simon Holley and Tony Harvey started moving the theatre's flying system around to suit the show, and work began on installing the lighting catwalks. A week later the lighting rig started moving into the building, with production electricians Gerry Amies, Martin Chisnell, Richard McBarnett and the house crew of Kevin Burgess, Elaine Bridgeman, Ali Morgan, Nathan Bowler and George Green rigging, cabling and flashing out the overhead conventional lights before carefully wrapping them in plastic bin bags, not to be seen again for a month.

With the overhead rig out of the way, Paul Craven, Adrian Dellar and Richard Nunn and the theatre's crew, led by master carpenter Alan McCall, could then begin the serious work of installing and carefully levelling the steel rings that the revolve would run on, the showdeck that would surround it, and the tracks and mechanics that would be installed in it.

Tim Lynn and his team could start knocking through roof voids to rig speakers, and crawling through floor voids to run fibre optic cables. And the lighting team could move off round the front-of-house positions, installing Source 4s in the theatre's superb FOH bridge, up its three auditorium booms and around the lower and upper circle fronts, as well as having the mid-auditorium booms reinforced to take the weight of the Pani 2.5k projectors.

Even as this work started, though, pressure was lifted by the announcement that the opening of the show was being moved back, with previews now starting from June 21st leading up to a July 10th first night. By mid-April we had well-and-truly moved in, as demonstrated by the number of production desks spread across the stalls. Lighting held the real-estate record (the centre section of six rows, and the side sections of two more), and the monitor-count record (15, at one point).

Behind us was a long sound production desk with another three monitors; behind that was the mixer with another two monitors. In front of us was the Acrobat! automation desk with a few more monitors, and to the right of that was Nic Harris's desk complete with laptop.

Most visitors to the stalls immediately remarked on the visual similarities to NASA's mission control, before going on to decry the excessive number of computers in use. But there were no more than in an office containing a similar number of people, and for the duration of the production, the stalls became our office and home. David Hersey even moved in a new acquisition, an A0 colour plotter, that became the envy of every other department.

In early May, we caught our first glimpse of the show; this was the week that the cast were originally scheduled to arrive on the stage, and so they lost the use of their rehearsal room. No other suitable rehearsal space was available for that week so a forestage was installed and, every morning, work stopped and the stage became a rehearsal venue.

The following week, programming started, with James McKee, Greg Shimmin and design assistant Jonathan Allen patiently taking the set positions devised in the rehearsal room and transferring them into actual positions for the real trucks. Apart from that the set was complete, and the stage was ready for the cast to move in and technical work to begin. Only, Declan preferred to work to a final show in the rehearsal room before letting his cast get distracted by the problems of scenery, sound and lighting.

It was therefore another two weeks before we saw or heard any more of the show, though there was another cause for celebration when the Digital Beamlights - the first, and only 12 in the world at that point - arrived. And even more so when they connected to the data cables installed two months earlier and started moving around without any problem, quickly attracting interested glances from visitors - even Richard Pilbrow was impressed!

Gerry Amies, meanwhile, was working on an lower-tech, but equally impressive, solution to another technological problem: the lights on the bottom of the scrollers, glowing distractingly in the auditorium. His solution

involved attaching a strip of plastic prism to the bottom of the Rainbows. This bends the light from the LEDs through 90 degrees, directing it towards the stage. The LEDs are no longer visible to the audience, but can still be seen by electricians carrying out a rig-check on stage. Rumour has it that you may get to see these at the PLASA Show - and they probably have to be called 'BendyLight'!

It is May 24th when we get to see the show. Of the many oddities in working on something of this kind, perhaps the oddest is that most of the people working on it actually know very little about it until their work is almost done. The first run through immediately made it clear that all of the commitment and effort was worthwhile. Four days later, the cast moved into the theatre for real. Twenty-three days later we performed the show in front of an audience - albeit an invited audience - for the first time.

Those 23 days are a blur. There are over 300 lighting cues alone, but it is hard to remember actually creating any specific cue. The trouble with having an infinitely versatile set is that there are an infinite number of possibilities just waiting to be explored. The most dreaded change became the 'half revolve' change - if you cut or added a complete turn, then all of the trucks would still be in the correct position to start their next move. Cut or add half a revolution and they would all be the wrong way round, and so their movements through the rest of the act would need replanning.

In the midst of this chaos, Andrew Bruce and his team patiently got on with the job of making the show sound good, while simultaneously fending off comments from the composer, conductor, orchestrator, producer and anyone else who happened to be listening.

The previews became a period of re-writing and re-directing scenes. And there was further re-writing and re-directing right up to the star-studded press night on July 10th. The first night was flawless. The audience were on their feet applauding at the end. The show couldn't really have achieved a better reaction. And yet the reviews were still mixed, though most praised the 'cleverness' of the set, and the lighting. Fortunately the show's producer is Cameron Mackintosh, who loves his show and has the money to ensure that it rides those reviews. That may mean some changes are still to come - Declan Donnellan is used to working on his Cheek by Jowl shows throughout their lives, believing that theatre should stay alive by evolving; it would be surprising if this show were to be any different.

Even as it stands, *Martin Guerre* is a fine new addition to the West End; a musical that sometimes tends towards the operatic, that isn't afraid to tell its story through mime and dance as well as words, and carries the evening without the big 'spectacle' moment that many expected of it.

As it sets off on what will hopefully be a long run, it leaves behind a bunch of people slowly trying to re-adjust to real life. To having leisurely lunches rather than snatched sandwiches. To being outside in the evening. To daylight! It's a surprisingly hard adjustment to make, and one that won't last, because later in the year we re-convene to do it all again: *Jesus Christ Superstar*, the Lyceum Theatre, September. Can't wait.

**All photos Michael Le Poer Trench, unless otherwise stated.**