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## NEW MEDIA AND THE THEATRE

Hugh Davies-Webb

You may be asking yourself what ‘New Media in Theatre’ means? In this article I’ve taken new media to mean the use of computers to playback and manipulate video and live cameras with video projectors, LED walls and other digital display devices, rather than traditional broadcast playback solutions.

New media in theatre seems to be all the rage at the moment and a quick look around recent opening shows in the West End – *Dirty Dancing* and *Lord of the Rings* both use computer video extensively. But it’s not just the big commercial shows that are using computer video. One only has to look at the recent production of *Waves* at the Cottesloe or the recent work of Theatre De Complicite, or the many contemporary dance groups who use video extensively to see that the use of computers and projectors in theatre has come of age, and is not just a West End producer’s fad. Even mainstream opera is now using computer video and projectors.

Projection has been used in theatre for many, many years. The first widely available projector was the magic lantern in the 1870s. By using multiple layers of magic lantern slides, projectionists could ‘animate’ their projections. Since then projection in theatre has evolved to using 35mm slides, film, large format and CRT projectors. Modern projection shows now make use of digital projection, and in some cases, LED walls. Digital projectors are easier to set up and maintain than earlier projectors – an important factor on long running shows. Modern computer technology ensures that the footage played back on digital projectors is more reliable than the tapes, film and slides of the past.

So why has there been such a dramatic increase in the use computer video and projection in theatre shows? Much of the technology involved, whether we’re talking about projectors, or computers are becoming smaller, cheaper and more powerful, to a point where shows don’t need to have a huge budget to consider using video. Only five years ago a 10,000 lumen projector cost a small fortune and was big, heavy and noisy. Now you can get the same power from a projector that is much smaller, quieter and fraction of the price. Also the tools to make footage are also plummeting in price. Editing and compositing

software, digital video and stills cameras get cheaper, capable of using higher and higher resolutions and have become easier to use.

Traditional broadcast playback solutions and vision mixers are often much more expensive than computer video systems, and are designed for use in OB trucks or television studios. The latest computer media servers can be programmed from a lighting console, can integrate easily with MIDI or be operated using timelines and tend to be the weapon of choice for playback of footage for projection designers. Importantly, Computers can work in a wide variety of resolutions and aspect ratios – traditional broadcast equipment works at PAL resolution (720 x 576). Even the latest high definition equipment restricts you to 16:9 – albeit at a much higher resolution. This is important, as theatre shows don't necessarily use 4:3 or 16:9 projection surfaces. These days projectors are powerful enough to project onto gauzes, do rear projection and moving video projectors like High End System's DL-1 and DL-2 fixtures allow projection designers to place animations anywhere on stage.

The use of projection, or other display media, and the creation and formatting of footage for shows generally gets lumped under the heading of projection design. Whilst projection design has been around for a while, it is still a little controversial as a department on its own. Traditionally projection came under the auspices of lighting designers. For complex projection shows, LDs would often bring another LD in to look after the projection side of things. Set designers also have something to say about projection, as projectors are invariably pointed at their sets. William Dudley, the set designer of *The Woman In White*, also designed the footage for the show. He brought projection designers Dick Straker and Sven Ortel to sort out the technical issues associated with projecting onto his set, which effectively was a series of revolving curved projection surfaces. This included system design and the specifying of a custom video playback solution to cope with playing back high resolution footage and keystoneing, soft-edge blending and distortion mapping the projections in real-time whilst William Dudley's set revolved. *The Woman In White* was controversial for some reviewers and industry pundits. Some felt that the almost completely projected set lacked depth. However, it was a bold and innovative approach, and a technical tour de force.

The projection designer's main tasks, other than pointing projectors or other display devices in the right place are the creation of footage, and the integration of projection and footage into the show. Footage can be stills, specially shot video, animations or a combination of all three. Many projection designers are

skilled animators and editors and making footage can be a very time consuming process. Projection designers often enlist help of other animators to help speed the process up, or to handle specialist tasks like 3D animation. The earlier the projection designer is involved in the creative process of a theatre show, the better. Making changes or re-shooting footage at the last minute is also very time consuming, and even with the latest computer technology, complex animations can take a long time to render.

The format that this footage ends up in depends on the choice of playback system. Popular formats are QuickTime and MPEG-2. Many projection designers will try and get every last pixel of quality out of their projectors, rendering footage at the native resolution of the projector. This means that computer playback systems have to be extremely fast to playback this high-resolution footage. There is also a problem of distributing high-resolution video from the computer playback system to the projector. This is not always as straightforward as it sounds. Curved projection surfaces, and keystone correction (often because a projector is hung in a less than ideal position due to space limitations), are other challenges for projection designers to solve.

There are now many media servers on the market that allow projection designers to integrate footage and projection together. Green Hippo's Hippotizer, and Richard Bleasdale's Catalyst software are popular in the West End. Whilst these are high end solutions, with a veritable feast of features, including being able to control things like projector shutters (very useful in theatres!) and video switchers, and terrific integration with DMX lighting consoles, there are other solutions like Troika's Isadora, or Arkaos, which are significantly cheaper, which allow those without the budget to hire or buy a high end media server to use video in live performance.

The Menier Chocolate Factory West End transfer of Sondheim's *Sunday In the Park With George* at the Wyndham's swept the boards at this year's Olivier awards, including a best set design award for designer David Farley and projection designer Tim Bird. *Sunday In the Park* is the epitome of a good projection show. To be fair, it would have been difficult to realise without the use of projection of some description, but the set, lighting, projections, costumes and most importantly the performers (the male and female leads also picked up Oliviers) all complement each other to make a great show. *Sunday In The Park* makes use of computer video extensively, with computers handling the playback and real-time keystone correction of multiple streams of video frame accurately. But, however clever the technical side of the show, it is the

animations and how they relate with the scenic elements of the show, and the performers which make this a great piece of projection design – Seurat’s masterpiece *A Sunday Afternoon on the Island of La Grande Jatte* literally comes to life, in a way that is appropriate, witty and fitting with the premise of the show. This production, a West End transfer of a fringe production, proves that you don’t need a mega-budget to do a big projection show – just a lot of imagination, a good production team, and terrific footage!

Projection design is one of the fastest evolving and exciting fields in theatre today. Even with a low budget, and cheap projectors and cameras, it is possible to do amazing things. Projection design, if it’s done well, can really enhance the audience’s enjoyment of a theatre show, which to my mind is what it’s all about.

***Hugh Davies-Webb***

*The author is a freelance media server specialist working in television, concert touring, corporate presentation and theatre. His first book, **Media Servers in Live Entertainment**, to be published by Entertainment Technology Press, is currently in preparation.*