See The Light (And More)

How theaters are using projection and how to do the same in your venue.

By Cathy Hutchison

When the WaterTower Theatre in Addison, Texas, decided to include Stephen Sondheim and James Lapine's *Into the Woods* as part of its 2006–2007 season, it wasn't without a bit of trepidation. The company resides at the Addison Theatre Center, an award-winning flexible theater space that can be dramatically reconfigured for each production. The space has a proscenium in some configurations, but it lacks the type of storage and rigging capacity to accommodate the number of backdrops needed to stage the show.

In planning the production, the scenic and media design team began to explore the idea of using video projection for the backdrops. "We really wanted to be able to surprise the audience. Without a fly space, it is difficult to do," explains Clare DeVries, the scenic designer.

For this production, video projection enables a number of surprises, including seeing the giant's foot stomp the Baker's house Monty Python style. "If we had attempted this with a constructed set piece, it would have been visible to the audience throughout the show. There simply wasn't a place to conceal it," says DeVries.

Through projected backdrops, DeVries was able to incorporate a certain amount of whimsy in the set through her original art. For example, the exterior of the Baker's house was created with a photograph of a loaf of bread. The interior of the house was the same loaf sliced in half and hollowed out. It also allowed DeVries to change the look and feel of the woods as the characters moved through it.

"The images had to be laid out in a storyboard. In many ways, we created a movie that ran behind the action on the stage," DeVries continues. Technical director Scott Guenther and sound designer Curtis Craig worked closely with DeVries through the painstaking job of bringing the art to life via PowerPoint using **MIDI Show Control** (MSC).

"We actually determined the size of the screen by the size needed for the three houses—[Cinderella's, Jack's and the Baker's]," explains DeVries. Two columns blocked the area necessary to get the image large enough for the three houses to sit realistically side by side with rear projection. Consequently, front projection was used. Resolving the challenges to front projection was simply a matter of blocking. Actors had to stay six feet in front of the backdrop in order to stay out of the cone of projection.

Another company using video projection is the New Theatre in Overland Park, Kansas. Its most recent production of *Fiddler on the Roof* projected the image of actor Cathy Barnett, in her role as the ghost of Fruma-Sarah, onto Tevye's bedroom wall. "Set designer Scott Heineman worked to design a set piece that would double as a projection surface," relates Joe Fox, vice president of production for the New Theatre. "Then came the process of determining projector hanging location, appropriate lens for the throw, etc. There were lots of calculations. Company Manager Ryan Klein, our resident electronics fiend, coordinated the equipment portion of our projections. Duane Hoberg, our technical director, handled the difficult process of under-hanging the 50-pound projector directly over our audience's heads in just the right spot."

In combination with the lighting and the scenery, the complete effect was theater magic. Fruma-Sarah appears at just the right moment in Tevye's nightmare, as if crossing from her dimension to ours. Her recorded voice is accompanied by live musicians and the chorus onstage. Each night the audience was wowed by the mix of theatrical artistry, which ends with a large flashpot and Fruma-Sarah's disappearance.

In its production of *Driving Miss Daisy*, the New Theatre used rear projection onto a 16- by 12-foot screen that was finished flush and tight to the rest of the scenery. "The set was in sepia tones, as were all the images," says Fox. "We were able

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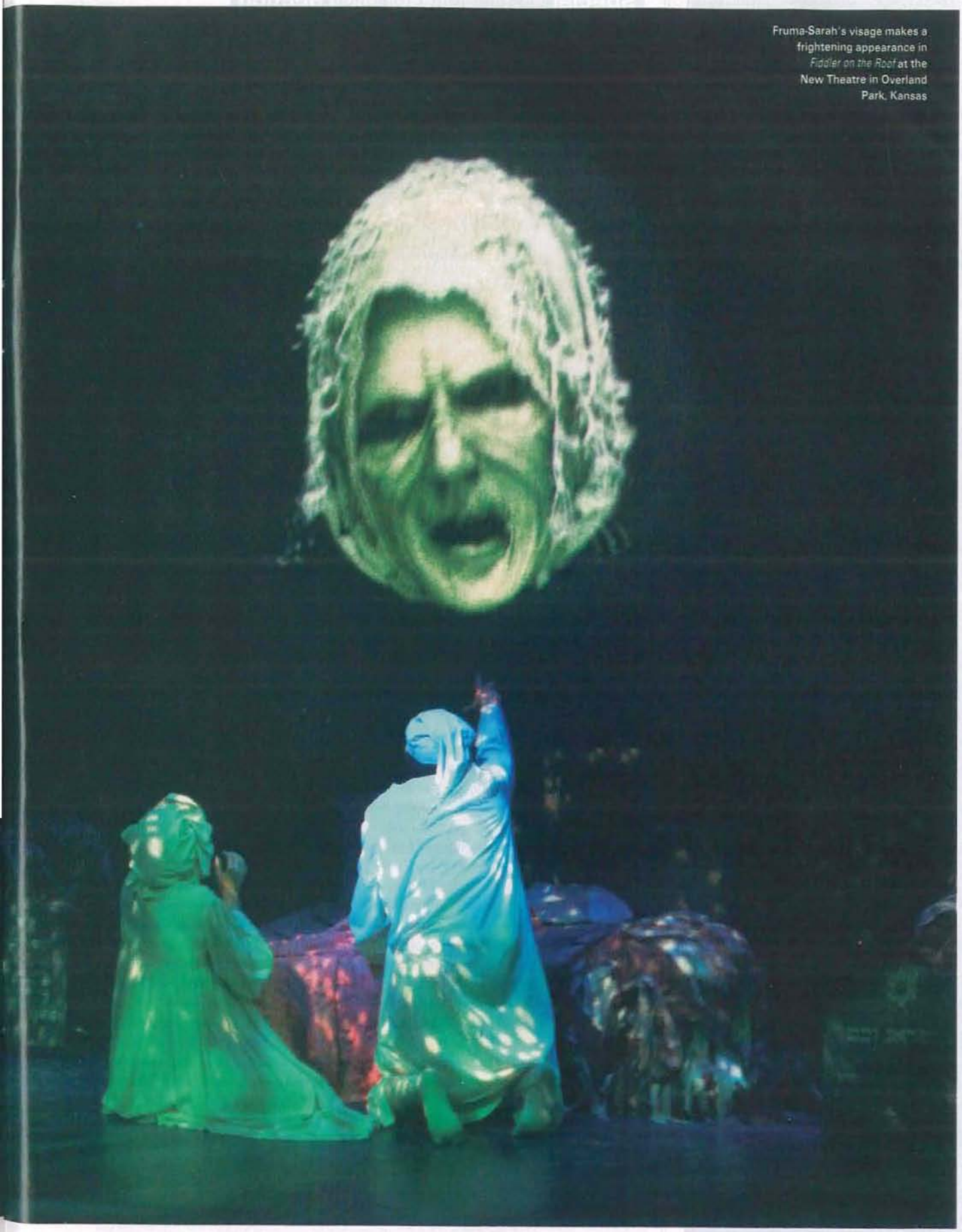
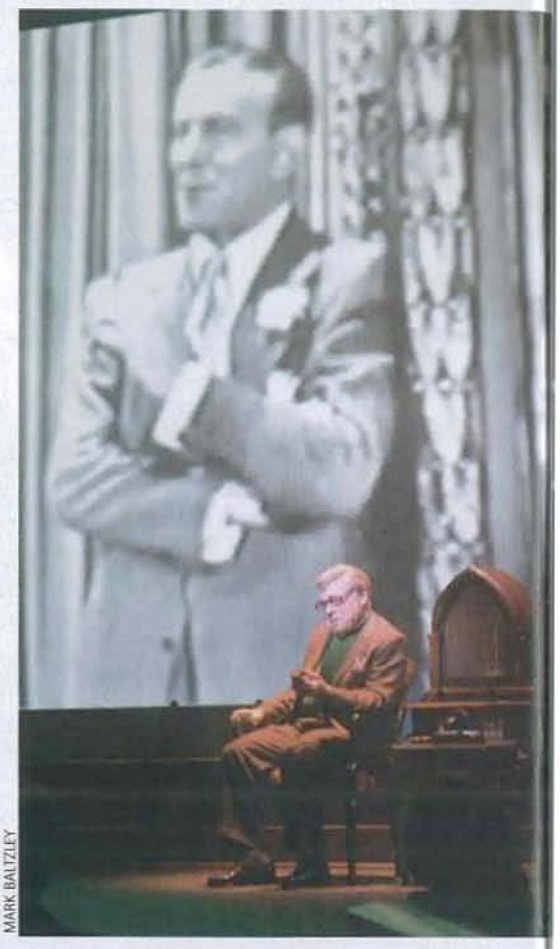


Fruma-Sarah's visage makes a frightening appearance in *Fiddler on the Roof* at the New Theatre in Overland Park, Kansas



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This page: Joel Rooks in *Say Goodnight, Gracie* at the New Theatre

Opposite: Clare DeVries's artwork for the projections in WaterTower Theatre's production of *Into the Woods* in Addison, Texas

to introduce some of the sights along the way, but in a very subtle, fluid and artistic manner. Some transitions were through time, as we presented images of seminal events from the '40s through the '60s. All images were stills, and all transitions were crossfades.

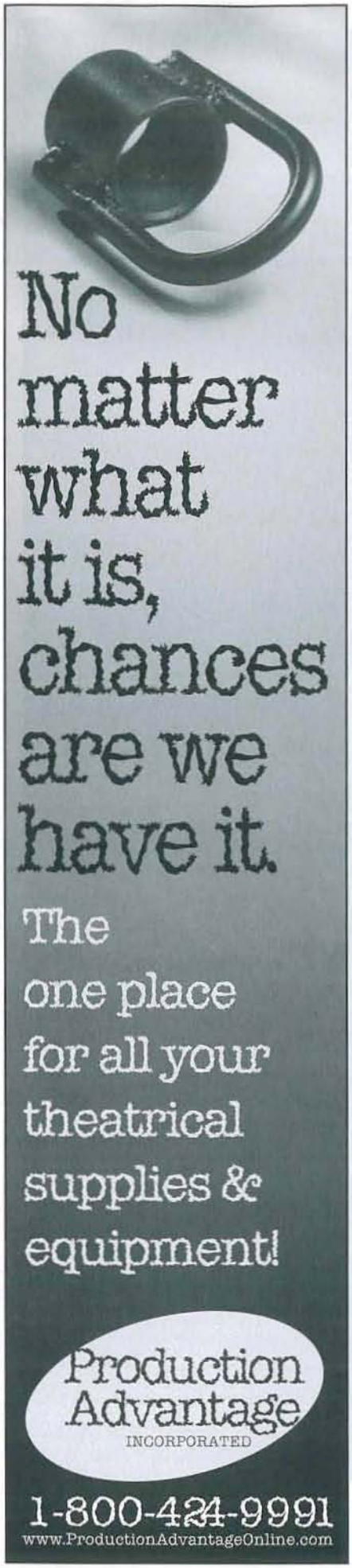
"Our first experience with video projection was *Say Goodnight, Gracie*," recalls Fox. "Joel Rooks starred as George Burns in our production of the one-man show. The director, Richard Carrothers, set the show in an old vaudeville house, where George relates the story of his life with Gracie Allen. This gave us a natural projection surface, as we incorporated a movie screen into the set, complete with an ornate border. We rented the media from the original Broadway producers—still images from vaudeville, moving images from motion pictures and television."

Despite the success of video projection for the WaterTower Theatre and The New Theatre, there are still a limited number of theatrical companies incorporating video projection into their productions. "Many theaters haven't incorporated video technology into dramatic productions because it has traditionally been a large ticket item," admits Ben Cating of Acoustic Dimensions, which designs video systems for auditoriums and theaters. "However, the cost of video projection technology is becoming more affordable. Costs have dropped almost 20 percent in the past three years.

"Prosumer grade LCD [liquid crystal display] and DLP [digital light processing] projectors generally run $3,000 or less. They will provide enough quality for artistic purposes such as projecting video and graphics," continues Cating, who adds that these projectors are less clear in projecting words. "When you first venture into video projection, it is possible to begin with a single computer running media software (such as **iMovie, Arkaos**, or **Final Cut Pro**) connected directly to a projector. If you want to run source from several computers, there are affordable graphics switchers made by companies such as **Edirol** or **Analog Way**."

According to Cating, if you do want to upgrade from prosumer video projectors to professional LCD projectors of 5,000 lumens or greater, be prepared to shell out anywhere from $6,000 to $15,000. It might be a costly expense in the short run, but completely worth it in the long term. SD

Cathy Hutchison is a freelance writer whose interests include the impact of technology on performance.



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Need a mini tutorial on video projection in all its nuances? Read on.

What is the difference front projection and rear projection?

Front projection is the type of projection system most people are familiar with because it is the same system used in movie theaters. Essentially, the projector is placed in front of the screen and content is projected onto it. For small, dark rooms, front projection is very effective, and is generally the most affordable solution. Care has to be taken with the theatrical lighting, which can dilute the image on the screen.

Rear projection involves projecting an image to the back of a display screen. Rear projection often has more brightness and contrast than front projection because it is less affected by ambient light. This means you can use a smaller projector in rear projection to achieve the same brightness as a larger projector in a front projection situation. The projector must be located a certain distance from the screen. Complete single or double mirror rear projection packages reduce overall depth needed in projection room.

What is an ANSI lumen?

Most projectors have an ANSI lumen rating on them. An ANSI lumen is a measurement of light, commonly used to rate the brightness of projectors that has been standardized by ANSI (American National Standards Institute). An ANSI lumen rating uses an average of several measurements taken across the face of the light source. For a small theater, front projection typically requires from 3,000 to 5,000 ANSI lumens, whereas a large auditorium using front projection may need 16,000 or more. The higher the ANSI lumens, the more energy required to operate the projector.

What is the difference between LCD and DLP Projectors?

LCD projectors usually contain three separate LCD glass panels, one each for the red, green and blue components of the video signal. As light passes through the LCD panels, individual pixels can be opened to allow light to pass, or closed to block the light.

DLP is the more advanced technology. The image is created by about a million microscopic mirrors per chip. The advantage to DLP projection is a clearer image and a longer life of the projector; however, DLP projectors generally cost more and are more costly to maintain.

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