Technology and Theatrical Innovation

14

Clown Bill Irwin provides comic commentary on our fascination with technology as he finds his identity fragmented between his physical and technological selves, in *Largely New York*. Written and directed by Bill Irwin, St. James Theatre, New York.

pectations concerning the theatrical event, and ultimately how we understand the nature of theatre itself. Some theatre practitioners are resistant to new technology because of its potential to eclipse the live performer, while others embrace new possibilities to enhance their productions. In either case, it is impossible simply to ignore the technological changes that continue to reshape our daily lives and their potential influence on how we experience the theatre.

Technology and Culture

Technological devices shape our interaction with the world around us, but they also reveal how we see ourselves within that world. Some theatrical traditions use very few devices and rely on the actor or dramatic language to carry meaning. Others exploit a variety of means to create a theatre of spectacle and illusion. In every historical period, the use of artificial devices on stage has exhibited not just technical accomplishments, but cultural values.

Ancient Greece

The ancient Greeks did not make extensive use of technical devices in their theatrical productions, but the few they did use clearly reflected their cultural attitudes and their aesthetic sensibility. The ***mēchanē*** was a large hand-powered crane that hoisted actors

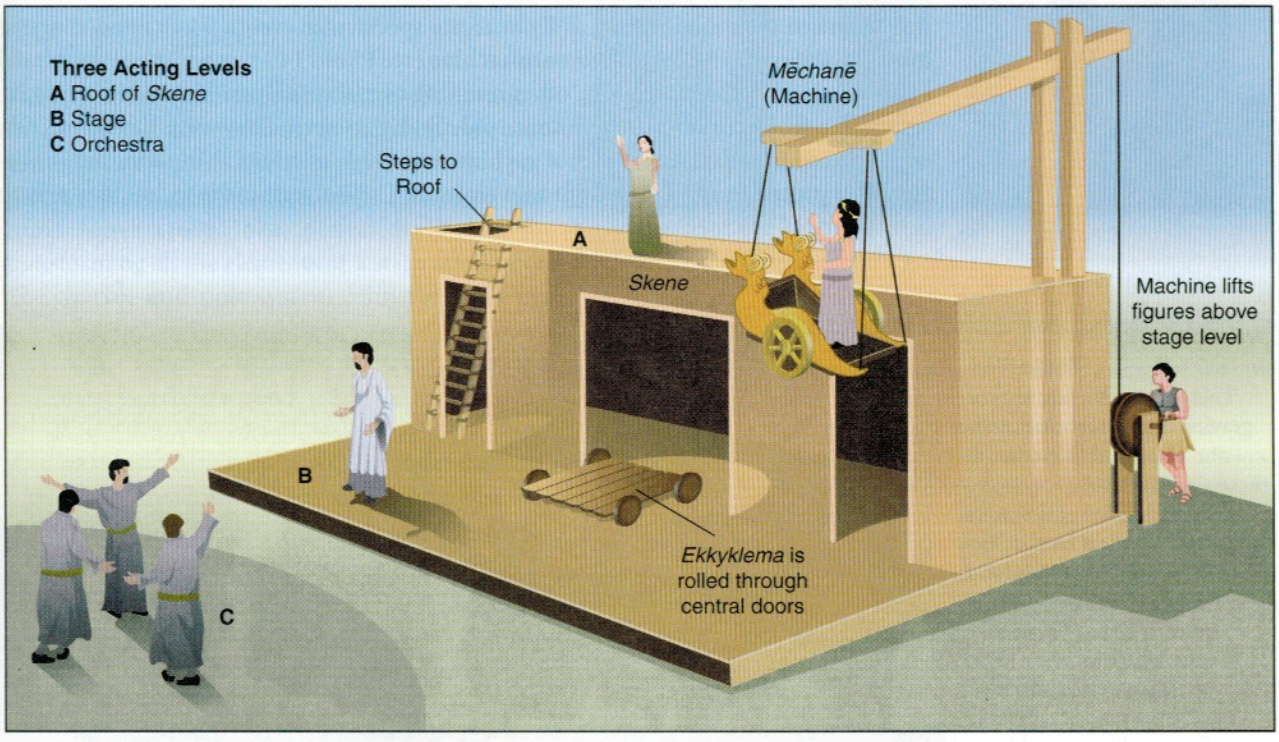

Figure 14.1 Stage Devices of the Ancient Greek Theatre. The *mēchanē* on the right was a crane used to lift actors playing gods above the *skene.* The *ekkyklema,* a platform on wheels, could be rolled out of the central doors to display a tableau, a visual scene depicting the aftermath of an off-stage event.

The Middle Ages

During the Middle Ages, when liturgical dramas took place inside churches and cathedrals, young celebrants costumed as angels adorned with wings and halos were hoisted on ropes and pulleys to the highest rafters to portray God's heaven on Earth. Occasional accidents only reaffirmed the importance of faith in the afterlife. When religious dramas moved outdoors, local guilds constructed pageant wagons that traveled through the town to carry the settings for cycle plays that depicted Christian history from Creation to Judgment Day. Each guild designed and constructed the set for one biblical story, so these productions gave artisans a chance to display their skills to the community. In England the shipwrights' guild staged the story of Noah with a swaying ark. Other effects included fountains springing from the ground, trees withering, and miraculous transformations such as Moses' staff turning into a snake. The Hellmouth, the mouth of a beast representing the entryway to hell, spat out real fire. These Christian religious plays used machinery and special effects to bring God's miracles to life for their audiences.

The Renaissance

The Italian Renaissance prompted new explorations in science and art, and both found their way onto the stage in the form of elaborate, illusionistic perspective sets. Later, between 1641 and 1645, Giacomo Torelli (1608–1678) perfected a system for transforming all the elements of a stage set at once. The **chariot-and-pole system** consisted of a series of ropes and pulleys attached to a succession of painted flat wings set in grooved tracks on the stage and then hitched to a pulley system located beneath the stage. When the gears moved, it pulled the ropes, moving all the flats simultaneously to reveal a new scene instantaneously. This device startled and amazed audiences at the time, both for the magical transformation it effected on stage and for the ingenuity that accomplished it. Torelli's fame led to a royal summons to the court of France, where he introduced his scenic practices.

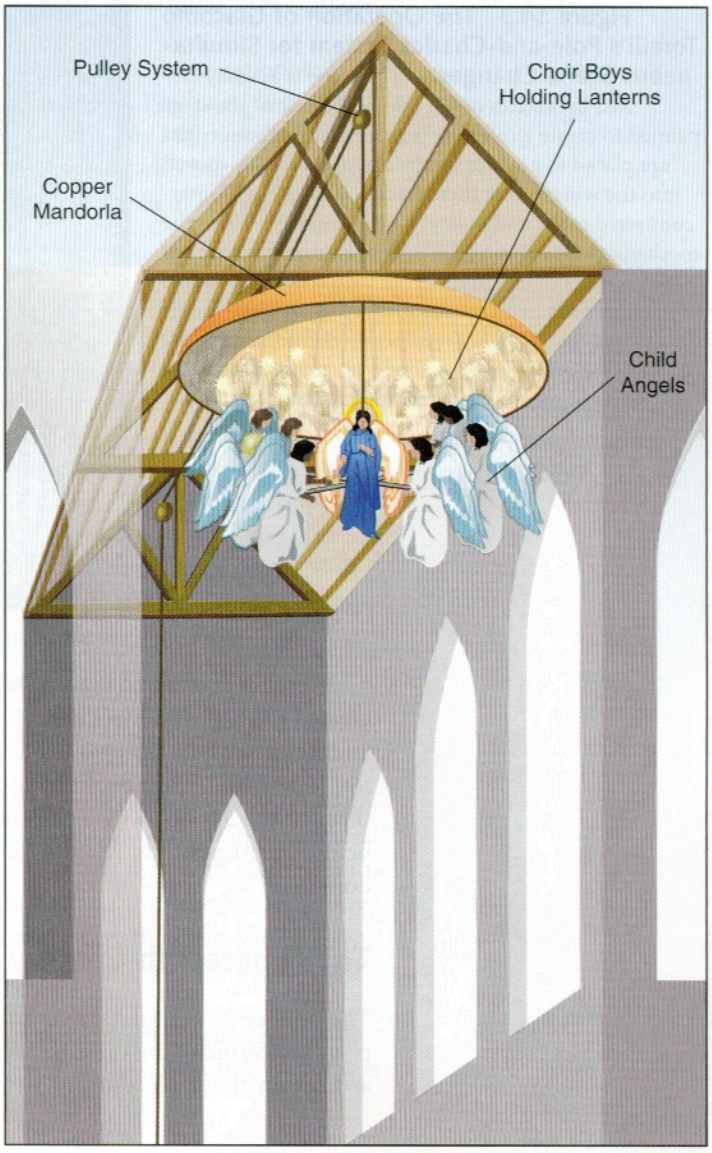

Figure 14.2 A device to create a Paradise effect for the Feast of the Annunciation, developed by Filippo Brunelleschi (1377–1446) in Florence, c. 1426. A wood structure holding three rings of lanterns representing stars and twelve choir boys dressed as angels, held by iron belts, was hoisted through a pulley system high up into the rafters of cathedrals, and suspended from the church roof. Below this device, eight more angels and the angel of the Annunciation hung from the pictured copper *mandorla,* or almond-shaped structure, also studded with star lanterns, which could be lowered toward the actor playing the Virgin in the church when the annunciation arrives.

The chariot-and-pole system was a perfect addition to lavish court productions that already had glorious sets and costumes created by professional artists and featured music and dance rather than dramatic text. It put new developments in art and science to use for the theatre and seemed to confirm the divine right of the princes who commissioned these entertainments by manifesting heavenly magic in the form of grand theatrical illusion.

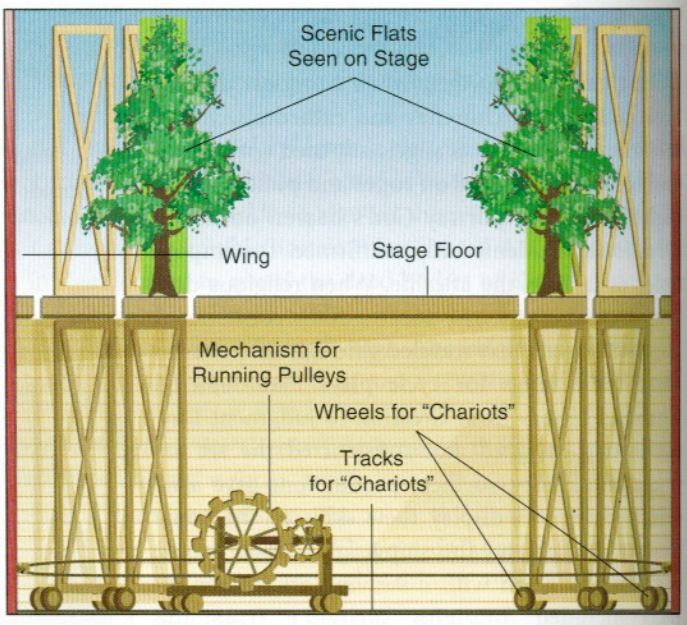

Figure 14.3 The Operation of Giacomo Torelli's Pole-and-Chariot System for Simultaneous Scene Changes. The scene is actually created by a series of flats along the side of the stage painted to create a receding perspective. The scenic flats are placed in grooves on the stage and can be moved into the wings along these tracks by a system of interconnected ropes and pulleys below the stage. When the mechanism for running the pulleys is turned, one set of flats slides out and another set with a different scenic design rolls in simultaneously, creating rapid scenic changes that dazzled seventeenth-century audiences. Photo 14.2 below shows a Torelli set created through a series of painted flats manipulated in this manner.

Torelli's position in France was later usurped by Gaspare Vigarani (1586–1663), who created the Salle des Machines. This hall of machines was the largest theatre in Europe, and its curious dimensions led to both its success and failure. Only 52 feet wide by 232 feet long with a stage depth of 140 feet, spectacular effects of perspective were possible through the 32-foot-wide proscenium arch. Unfortunately, technological feats were put before practical needs, resulting in the acoustics being so poor that the theatre was seldom used.

The Nineteenth Century

The nineteenth century saw an increased interest in the application of science to all aspects of life, including the arts. Even popular journals such as the *Scientific American* ran articles on the application of new technologies to the theatre, and one of its editors,

Photo 14.2
Engraving by Pierre Aveline of the forest landscape designed by Giacomo Torelli for the third act of the opera *Venere Gelosa* (Jealous Venus), first performed in Venice in 1643.
Photo from Sveriges Teatermuseum