The Eidophusikon

9

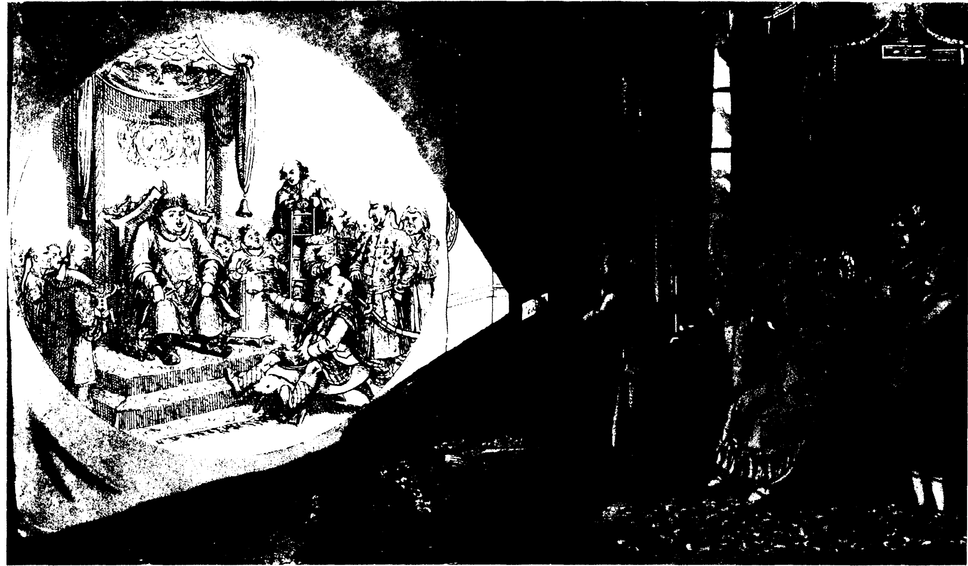
Exhibitors of moving pictures must often have regretted that no technical advance had as yet made it possible to bathe their scenes in appropriate lighting. The illusion created by peepshows had long been enhanced by concealed candles or oil lamps which lighted the miniature paintings or colored engravings from the front or the transparencies from behind. Why could not the principle of the lighted peepshow be adapted for displays on at least as large a scale as that of the mechanical theatres, with an audience of scores, perhaps even hundreds, rather than the mere handful (at most) of spectators possible for the peepshow?

The magic lantern with its scenes painted on glass "sliders," which suggested in part the direction such a development might take, was already in existence.[1] Pepys recorded seeing one in 1666, and among the many souvenirs the Six Nations sachems took back with them from their London visit in 1710 was a "Magick Lanthorn with Pictures."[2] Although there is some evidence that wandering showmen carried small magic lanterns with them as an alternative to the more familiar peepshow, the lack of a sufficiently powerful light source prevented the device from becoming a general public entertainment. Instead, it remained for many years nothing more than a domestic toy specializing in horrific effects. Edward Phillips's *The New World of English Words* (1696) defined the "magic lanthorn" as "a certain small Optical Macheen, that shews by a gloomy Light upon a white Wall, Spectres and Monsters so hideous that he who knows not the Secret, believes it to be perform'd by Magic Art."

From the mid-1770s, for some reason, interest in the lantern became more lively. Though records of performances before audiences outside the home are lacking, the existence of some sort of vogue is indicated by the facts that in 1775 an exhibition of caricatures at the Great Room, Panton Street, was called the Magick Lantern,[3] and that satirical printmakers, always alert for timely topics, were repeatedly using the magic lantern as a central accessory.* Between 1774 and 1809 at least half a dozen caricatures appeared which prominently featured it.[4] It is tempting to think that this increased interest had some connection with the invention in 1782 of the Argand lamp, which, by replacing the customary oil-lamp wick with a hollow incandescent cylinder, provided a source of concentrated light such as was required to project images on a wall or screen from a moderate distance.

A second type of optical entertainment which depended on lighting was the shadow show, otherwise known as the Schattenspiel, Italian shadows, or Ombres Chinoises.[5] The principle behind it was illustrated at the end of Ben Jonson's play *A Tale of a Tub* (1633), when, at a private merrymaking, a cooper projected shadows from an empty barrel across the top of which was stretched oiled paper with cut-out silhouettes pasted on it. Behind the paper was a light whose heat caused it to revolve, and as it did so, the cooper "interpreted" each of the five tableaux the silhouettes represented. A similar kind of show was occasionally brought to England by the Savoyards. At Bartholomew Fair in 1737, for example, could be seen

* One of these caricatures (on the trial of Warren Hastings, 1788) was titled *Galante Show:* a term which now was joining "raree show" as a common token of disparagement. The 1788 use antedates by thirty-three years the first cited in the *Oxford English Dictionary*, and the term probably is much older. It seemingly was derived from the old French *galer,* "to make a show."



26. *The Magic Lantern* (engraving by C. Williams, 1822). Another political satire: the mandarin is George IV, flanked by several political figures of the day. The man with the sword is the Duke of Wellington.

a shadow play "by the best Masters from Italy . . . which have not been seen here these Twenty years."[6] But these were isolated instances, and the shadow show was introduced (or reintroduced, if we count Jonson's play) into London indoor entertainment by different routes. About the middle of the century, the celebrated fencing master Domenico Angelo, father of the Henry Angelo who has already been quoted in these pages, saw a little pictorial drama, entitled *Le tableau mouvant,* at a carnival in Venice. "He was so delighted with its effect," says the son, "the scenes being painted as transparencies, and the figures being all black profiles, that he constructed a stage on the same plan, and it was greatly admired by Gainsborough, Wilson, and other English landscape painters."[7] At the request of the Princess Dowager, he and Giovanni Girolami Servandoni, the master illusionist of the French stage, who was in London to produce the fireworks celebrating the treaty of Aix-la-Chapelle and to design scenery for Covent Garden, produced such a show for the young princes and their guests. Inspired by this novelty, David Garrick introduced moving shadows at the end of his new and, as it proved, popular pantomime *Harlequin's Invasion* (1759). According to the original script, a concluding transparency represented "the Powers of Pantomime going to Attack Mount Parnassus. A Storm comes on [and] destroys the Fleet."[8] It was evidently then that, in the younger Angelo's words, "visionary figures were seen flitting across, upon the plan of the *Tableau Mouvant.*" The "visionary figures" were jointed cut-outs worked with strings or sticks by manipulators. As the little genre developed, the unseen showmen came to speak lines for the figures and even burst into song. Thus the shadow play was a hybrid entertainment deriving from both the puppet show and the magic-lantern principle, with (in the latter case) the relation between the audience, the light source, and the translucent curtain or reflective wall or sheet reversed.

As a separate entertainment, the Chinese shadows, as they were usually called at this time, were introduced to London in 1775, after successful engagements in France. An Italian showman, originally named Ambrogio but rechristened Ambroise for French and English audiences, joined with the English impresarios Brunn and Breslaw to present at the Great Room, Panton Street, what "a contemporary paragraphist" described as "absolutely the greatest Amusements that ever were exhibited in the Metropolis."[9] For the unusually high admission price of five shillings the audi-

ence saw seventeen scenes, the most memorable of which was a representation of a shipwreck accompanied by effects of thunder and lightning. They evidently got their money's worth, because during the show's second season in Panton Street (1776–77) a rival company operated at the Great Room, St. Albans Street.[10]

Then Philip Astley, the future impresario of the hippodrama, added shadow shows to his popular variety entertainment, first at Ambroise's location after the original company ended its season, then at 22 Piccadilly, and finally, from March 1779, at his permanent headquarters, the Amphitheatre Riding House at the foot of Westminster Bridge.[11] Here the Chinese shadows remained a standard feature of the bill for a decade. An early Astley's program is probably typical of them all, a series of brief comic scenes played out in silhouette: Diversions of a Certain Public Garden (in Paris); The Beggar and His Wife; The Humourous Courtship, or The Travelling Knifegrinder; The Sportsman, or The Duck-Hunting; The Weaver, or Militia Man, a Comic Opera; The Rope Dancer; The Cat, or The Downfall of the Porridge Pot; The Lion Catchers; The Traveller Benighted; The Broken Bridge, or The Insolent Carpenter Rewarded; The Shipwreck; The Metamorphoses of a Magician; and a Hornpipe "in a Surprising Manner." Also on the bill were a conjuring horse, a human conjuror, and a Signor Rossignol (a *nom de théâtre,* obviously) who played a concert on a stringless violin and imitated bird songs.[12]

In retrospect it is clear that during the 1770s a number of separate little genres were existing side by side in the London show business, only awaiting someone who would put them together. There were, first of all, the magic lantern and the Chinese shadows, both depending for their effect upon strong light—in the one case to illuminate and enlarge scenes painted on glass slides, in the other to illuminate transparencies which served as the illusory background for sketches performed by shadow figures. Then there was the increasingly elaborate use of transparencies not only during public celebrations and at the pleasure gardens, but—most important for present purposes—in the theatre, especially the pantomime.* In these same years, the several exhibitions of Jervais's and the Pearsons' stained glass also dramatized the spectacular possibilities of light flowing through a painted, translucent medium. Finally, there were the clockwork mechanical theatres. Some of them, descendants of the original moving pictures of Addison's time, were still being shown at fairs and once in a while in London rooms. Now a new wave of interest in mechanical figures and scenes was stimulated to some extent by the fame of Cox's Museum of jeweled automatons and, more directly, by the Spectacle Mécanique through which Jaquet-Droz publicized the clockwork marvels his family manufactured in Switzerland.

From 1770 onward, at an inn at Versailles and then in the palace itself, another maker of automatons, François Dominique Séraphin, displayed a shadow show in which the silhouetted figures were activated by clockwork rather than by concealed human agents. Included in its repertory were such scenes as "Le Chasse aux canards," "Le Magicien Rothomago," "Le Pont cassé," "L'Embarras du ménage," and "Arlequin corsair."[13] The program, in fact, bore a striking resemblance to those of the unmechanized Ombres Chinoises. Although Séraphin's show seems never to have come to England, it may well have been seen at Versailles by Philippe Jacques de Loutherbourg, the distinguished artist who was to synthesize the clockwork picture, the transparency, and one of the principles of the magic lantern and the Chinese shadows—the concentration of lighting in a confined space—into a new and memorable kind of show. Loutherbourg, in any case, had been acquainted with Servandoni (who died in 1766) and would have seen many of the sixty spectacular productions he mounted at the Paris Opéra, replete with clever mechanical contrivances, fountains, and movable colored sources of light. There is every reason, therefore, to believe Loutherbourg's statement, in 1781, that the Eidophusikon he introduced to London in that year realized a dream of twenty years' standing.[14] But it might not have come to fruition except for two fortunate circumstances: his acquaintance with John Joseph Merlin and Henri-Louis Jaquet-Droz, master mechanicians, about which we know nothing beyond the bare report that it occurred, and his long experience as London's premier scene designer.

Loutherbourg came to London late in 1771 as a man of thirty-one.[15] Born in Strasbourg, he had already acquired considerable reputation as an artist in France, where he first exhibited at the Salon in 1763 and, though several years under age for the honor, was elected in 1767 to the Académie Royale. As a painter of landscapes, battles, and sea scenes he won numerous commissions and the public praise of Diderot. Despite this early and continuing success, however, he left his large family behind in Paris and, armed with a letter to Garrick at Drury Lane from Jean Monnet, manager of the Opéra Comique, sought a new career in the English theatre. He arrived at a lucky moment. During

* Transparencies had been employed in the theatre as early as Inigo Jones's masques in the first half of the seventeenth century. The most spectacular of all Restoration plays, Purcell's *The Fairy Queen* (1692), an operatic version of *A Midsummer Night's Dream* adapted by Elkanah Settle, had a memorable transparent scene of a Chinese garden. Transparent scenes were introduced to the mass audience at Bartholomew Fair in another of Settle's productions, *The Siege of Troy,* which portrayed the burning of the city After falling into disuse except on rare occasions, transparencies had become quite common by the 1770s.

his sojourn in Paris several years earlier Garrick had been deeply impressed by Servandoni's theatrical magic and wished to emulate it on his own stage. Nor had he forgotten how much the success of *Harlequin's Invasion* owed to the spectacular effects suggested by the elder Angelo—the Chinese shadows, realized by his principal designer, John French, and the positioning of scarlet, crimson, and bright blue screens, lighted from behind, in such a way as to bathe the sets in a succession of rich colors.[16] Garrick was prepared to pay well for a talent that promised to accomplish great things in the scenic department, even though he prevailed upon Loutherbourg to accept a salary £100 lower than the £600 Servandoni had received at the opera and Loutherbourg at first demanded.

To his new life at Drury Lane—or, rather, this additional one, since he continued his prolific career as a gallery painter, exhibiting at the Royal Academy from 1772 and becoming an Academician in 1781, the year he left Drury Lane—Loutherbourg brought what the changing theatrical taste at the moment most required, a strong bent for pictorial naturalism. The public was now coming to some plays as much for the scenery as for the actors, and in reviews the press devoted more and more space to the spectacle—settings whose fidelity to nature was heightened by imitations of changing light. In the thirty-odd pantomimes and serious dramas Loutherbourg designed, he initiated a revolution whose full effects were to be felt only by the middle of the next century.

From the clockwork moving pictures, he borrowed the idea of adding moving objects—not necessarily flat pasteboard cut-outs but three-dimensional models—to the sets. Thus for the 1773 revival of Thomson's and Mallet's *The Masque of Alfred* he introduced a timely allusion to the naval display attending the king's visit to Spithead a few months earlier, in the form of fully rigged models of ships passing across the rear of the stage. For the final tableau of Henry Woodward's *Queen Mab* (1775) he staged an elaborate miniature regatta with moving barges and rowers keeping time to the music. In Sheridan's "musical entertainment" *The Camp* (1778), capitalizing upon the fad of military dress and drill briefly stirred by the American war, Loutherbourg mounted a climactic scene of army maneuvers employing mechanical figures.

More fundamental, however, were Loutherbourg's innovations in scenery and lighting. For the act drop of a pantomime, *The Wonders of Derbyshire* (1779), he painted a "terrific" landscape of mountains and waterfalls in that most proto-romantic of English counties. It was so well received that it remained standard equipment at Drury Lane until the house was pulled down in 1791. The scenic innovations revealed when the curtain rose on this and other productions were exciting. Turning decisively away from the artificial perspectives and formal outdoor settings of the baroque tradition, Loutherbourg broke up the back flat and wings into free-standing raking pieces which could be set at various angles, instead of being confined to the rigid parallelism of fixed grooves. The result was a more natural perspective and an illusion of depth such as the London stage had never before seen.

Loutherbourg constantly experimented with the distribution and control of light, liberating this element of production from long uninspired convention and using it to produce effects of chiaroscuro—substituting carefully plotted shadow-and-light patterns for the usual uniform lighting—and to heighten the physical atmosphere of a scene. He made free and imaginative use of transparencies, employed in conjunction with the flexible lighting—screens, reflectors, colored slides—that always fascinated him. In the second of his productions for Garrick, *A Christmas Tale* (1773), he transformed a forest scene from the green of spring to the russet of autumn by pivoting silk screens of different colors before concentrated lights stationed in the wings, and created a fog scene by placing dim lights behind a scrim. In another pantomime, anticipating by many years the "double effect" of Daguerre's Diorama (Chapter 12), he produced the obligatory transformation scene by a wholly novel technique: the "Cavern of Despair" visible when the light fell on the front of the transparency became the Temple of Virtue when the light came from behind and revealed the picture painted on the back of the same transparency. In *The Wonders of Derbyshire,* not content with designing eleven scenes showing particular localities, he varied these by lighting them according to different times of the day.[17]

Loutherbourg's most extravagant spectacle was his last, and the only one he designed for Covent Garden (1785): O'Keeffe's *Omai, or A Trip Round the World,* recalling at a remove of ten years the fame of Captain Cook's well-bred savage and deriving timeliness from the current popularity of published narratives of Cook's voyages.[18] The *Daily Universal Register,* soon to become the *Times,* went all out in its tribute:

The scenery is infinitely beyond any designs or paintings the stage has ever displayed. To the rational mind what can be more entertaining than to contemplate prospects of countries

in their natural colourings and tints.—To bring into living action, the customs and manners of distant nations! To see exact representations of their buildings, marine vessels, arms, manufactures, sacrifices, and dresses? These are the materials which form the grand spectacle before us—a spectacle the most magnificent that modern times has produced, and which must fully satisfy not only the mind of the philosopher, but the curiosity of every spectator.

This wrap-up of the world was also a grand recapitulation of all that Loutherbourg had contributed to the theatre. It consisted of no fewer than nineteen scenes, one of which, that of a frozen ocean, was composed of forty-two different pieces. Among the devices and effects were a moon which was reddened by pivoting screens, moving ships, a violent storm, a fire, a flying machine in the form of a fantastic balloon, a verdant spring scene, and a crimson-hued "burning cave of the devil spirit." The topographical locales ranged from London (one scene representing the house where the Learned Pig was showing) to Kamtschatka, the Sandwich Islands, and Otaheite.

But the truly remarkable distillation of Loutherbourg's innovative theatrical career had been placed before the public some years before. During his ten years at Drury Lane he had discovered that he could produce, as theatrical spectacle, effects that as yet no painter had attempted within the confines of a framed picture. As a writer put it in the *European Magazine* in 1782, probably on Loutherbourg's own authority:

He resolved to add motion to resemblance. He knew that the most exquisite painting represented only one moment of time of action, and though we might justly admire the representation of the foaming surge, the rolling ship, the gliding water, or the running steed; yet however well the action was depicted, the heightened look soon perceived the object to be at rest, and the deception lasted no longer than the first glance. He therefore planned a series of moving pictures, which should unite the painter and the mechanic; by giving natural motion to accurate resemblance.[19]

The result of this effort to add the dimension of time (as well as a more convincing illusion of depth) to painting was the "Eidophusikon, or Representation of Nature," alternatively called "Various Imitations of Natural Phenomena, represented by Moving Pictures," which was presented to its first audience on 26 February 1781 at Loutherbourg's house in Lisle Street, Leicester Square.[20] The company was select (130 persons at five shillings each), the setting luxurious.* After gathering in a foyer hung with a number of Loutherbourg's oils, the audience ascended a staircase to a splendid little theatre. "This room," wrote a witness, "is the most beautiful that can be conceived; the panels painted in the richest style with festoons of flowers, musical instruments, etc. heightened in gold; where taste seems to have banished tawdriness and elegance takes complete possession. The seats for the spectators are crimson stuff, and at the upper end is a seat of state between two pillars of the Ionic order, fit for a princely visitor."[21]

What the visitor beheld was a stage—or box—ten feet wide, six high, and eight deep. Here, when the salon was darkened, was performed a series of scenes:

1. Aurora; or, the Effects of the Dawn, with a View of London from Greenwich Park.
2. Noon; the Port of Tangier in Africa, with the distant View of the Rock of Gibraltar and Europa Point.
3. Sunset, a View near Naples.
4. Moonlight, a View in the Mediterranean, the Rising of the Moon contrasted with the Effect of Fire.
5. The Conclusive Scene, a Storm at Sea, and Shipwreck.

This last scene marked one of the first appearances in London shows of a theme that was to become a veritable obsession with English romantic painters and, transposed downward, one of the staple subjects of pictorial entertainments. As we will see, tempests and shipwrecks became as common in the commercial shows as they were on the walls of the Academy exhibitions.

At some point during the run, the Tangier-Gibraltar scene was replaced by a more timely subject, an episode in the recently declared war against the Dutch: "The Bringing of French and Dutch Prizes into the Port of Plymouth." In the intervals necessary for changing scenes, transparencies were displayed: An Incantation, A Sea Port ("conversation of Sailors of different Nations"), A View in the Alps (woodcutter attacked by wolves), and Summer Evening, with Cattle and Figures. Between the second and third scenes Michael Arne, son of the composer, and his wife presented musical selections.

The Eidophusikon's first season, with three performances a week, ended in May. The second season began on the tenth of December (1781) with the same program, but a new one was substituted for it on 31 January:†

1. The Sun rising in the Fog, an Italian Seaport.
2. The Cataract of Niagara, in North America.

* The report of the opening night in the *Morning Herald* (1 March) gives interesting particulars The room was crowded and the ladies complained of the heat, "but by a contrivance of machinery, the ventelators instantly removed the inconveniençe It is a pity," continued the writer, "that at a spectacle so well contrived to gratify the sight, the audience will not keep their seats; the eagerness of curiosity is so great, that as the scenes follow each other in a quick succession, the spectators too frequently rise from their seats so suddenly, as to destroy the perspective effects of the pictures."

† It is conceivable that the delay in introducing the new bill had something to do with a mysterious episode in Loutherbourg's life that Christmas season William Beckford, son of a former Lord Mayor of London and master of Fonthill Abbey, having celebrated his coming of age the preceding summer with a tremendous three-day fête at Fonthill, had determined to outdo himself with a Christmas revel. To a friend he wrote that "every preparation is going forwards that our much admired and admiring Loutherbourg in all the wildness of his fervid imagination can suggest or contrive—to give our favourite apartments the strangeness and novelty of a fairy world This very morning he sets forth with his attendant genii, and swears by one of his principal Imps . that in less than three weeks from time present a mysterious something—a something that eye has not yet seen or heart of man conceived, shall be created (his own unhallowed words) purposely for our especial delight and recreation " (Guy Chapman, *Beckford*, London, 1952, p. 99.) There seems to be no contemporary description of what went on at Fonthill then, but a note Beckford wrote many years later (1838) suggests that Loutherbourg surpassed himself in scenic and lighting effects, to which were added exotic perfumes and foods, and atmospheric music provided by three famous singers. "It was," wrote Beckford, "the realization of romance in all its fervours, in all its

27. The Eidophusikon, presenting the scene in Pandemonium (watercolor by Edward Francis Burney).

extravagance. . . . I wrote *Vathek* [his famous Oriental romance] immediately upon my return to London at the close of this romantic villegiatura." (Chapman, pp. 105–106, 102.) Some of Beckford's biographers, prepared to assume the worst, have believed that the "voluptuous festival," as one of them has Beckford calling it, consisted of proceedings which, if not unspeakably orgiastic, were, at the very least, occult and necromantic. (John W. Oliver, *The Life of William Beckford*, London, 1932, p. 92; André Parreaux, *William Beckford*, Paris, 1960, p. 204.) More reasonably, Boyd Alexander (*England's Wealthiest Son*, London, 1962, pp. 83–84) believes that Loutherbourg's chief contribution to the extravaganza was a preview of the Pandemonium scene which was added to the Eidophusikon program a few weeks later. How it led to the composition of *Vathek* is not clear, although, as Alexander says, Beckford had a taste for Milton as, indeed, he had for visions of hell.

3. The Setting of the Sun, after a Rainy Day, with a View of the Castle, Town and Cliffs of Dover.
4. The Rising of the Moon, with a Water Spout, exhibiting the Effect of three different Lights, with a View of a Rocky Shore on the Coast of Japan.
5. Satan arraying his Troops on the Banks of the Fiery Lake, with the Raising of Pandemonium, from Milton.

After 7 March the storm at sea was restored to the bill, presumably by popular demand. During this season, which ended on 31 May, Dr. Burney accompanied the scenes at the harpsichord with music of his own composing, and Mrs. Sophia Baddeley, who sang at Vauxhall and Ranelagh during the summer, added a "vocal Part."

Of the five scenes which constituted the first bill, the Greenwich is the most fully described in contemporary sources.[22] The view, from One-Tree Hill, was a perspective which had in the foreground Flamsteed House and Greenwich Hospital and then, increasingly distant, the towns of Deptford and Greenwich, the Thames with its busy shipping, London from Poplar to Chelsea, and, farthest away, Hampstead, Highgate, and Harrow hills. First a faint glow appeared on the horizon, to be succeeded by a vaporish gray and then by a saffron color that tinged the light clouds; then the sun rose, its rays touching the tops of the trees and glancing off the vanes of the buildings' cupolas. Cattle and horsemen moved across the fields and roads and ships sailed up and down the river. The illumination was brightest at noon, and the effects were probably less dynamic at that time. With the fading of light at sunset, the landscape, buildings, and ships reflected a series of modulated tints. As darkness fell and the moon rose, "peasants" (gypsies?) were seen sitting about a fire. In the final phase of the scene, a storm rose and the picture was racked with wind and rain and fitfully illuminated by forked lightning.

The other scenes in the first program are described

less fully; but for the second bill we have a complete account. The Italian sunrise scene followed, in general, the scenario of the Greenwich one, with the addition of a thick Mediterranean fog. In the Niagara scene, the admired effects were the tumbling of a cataract over several obstacles, the torrent that roared in from the bottom right, and the "spungy foam" where the two streams joined. The picture of Dover Castle at sunset was lighted successively in red, purple, and blue tones reflected from the clouds and castle walls. In the fourth scene, set on the coast of Japan, a lighthouse beam played on the waves and moonlight silvered the clouds, followed by a blue waterspout and a climactic tempest.

The final portion of the second bill, the scene in Pandemonium, was the most spectacular of all. Contemporary witnesses ransacked their vocabulary of the sublime in vain, they said, to convey the awful effect. "Here, in the fore-ground of a vista, stretching an immeasurable length between mountains, ignited from their bases to their lofty summits, with many-coloured flame, a chaotic mass rose in dark majesty, which gradually assumed form until it stood, the interior of a vast temple of gorgeous architecture, bright as molten brass, seemingly composed of unconsuming and unquenchable fire."[23] Beelzebub and Moloch, advancing from the burning lake with their thousands of demons, occupied Pandemonium as the lightning flashed and the thunder rolled. In this palace of the devils, serpents were entwined around the Doric pillars, and as the fires rose the intense red gave way to a transparent white, "expressing thereby the effect of fire upon metal"—a significant gesture toward eighteenth-century scientific literalism. It was a scene, all in all, which everyone agreed added a new dimension of terror to the Miltonic narrative.*

All this, it must be remembered, was accomplished in a box with a vertical picture area of sixty square feet at most, and a depth of no more than eight feet. How were these effects managed? First, there must have been a back flat to portray the most remote part of the vista, and in many scenes there were cut-out wings and raked rows, graduated in size according to distance: pasteboard miniatures of the pieces Loutherbourg had designed in such abundance at Drury Lane. It was these which provided the several distinct stages of perspective in the Greenwich scene. The clouds were painted in semitransparent colors on long strips of linen, stretched on frames and operated by a windlass. Each cloth contained a series of different cloud effects. As it rose diagonally, the clouds appeared from below the horizon, rose to the meridian, "and floated fast or slow, according to their supposed density, or the power of the wind."

Although some of the large objects represented in motion were cut from pasteboard, others were actual three-dimensional models. The ships were correctly rigged and carried only as much sail as real ones would have done in the circumstances portrayed. Their speed was regulated according to their size and their distance from the point of viewing, so that small vessels, for instance, would pass more quickly across the foreground than would larger ones in a fleet near the horizon. The coloring of distant ones was modified to take into account the effect of the atmosphere. The waves were first modeled in clay, then carved in soft wood and colored and varnished, so as to reflect the light of the sun or moon. Each row turned on its own axis to produce the illusion of alternate crests of foam, and the size of the rows diminished, with appropriate modification of color, as they receded in the distance. The whole ensemble was worked by one machine, the motion being regulated according to the effect intended, a calm moonlit sea or a rising storm. To enhance the illusion, in some land scenes, as in modern museum "dioramas," suitable materials, shaped, colored, and arranged, represented natural characteristics in the foreground. Thus, once again in the Greenwich scene, the heath was represented by "cork, broken into the rugged and picturesque forms of a sand-pit, covered with minute mosses and lichens."

But these were minor touches compared with Loutherbourg's resourceful handling of light and sound. The lighting of his miniature stage owed much to his Drury Lane experiments. William Henry Pyne, author of the fullest contemporary description of the Eidophusikon, alleges that he used the Argand lamp, but if he did, it was only in a later season, because the lamp had not yet been invented when the Eidophusikon was first demonstrated. It is certain, however, that Loutherbourg did wonders with such sources of light as he possessed; and he had the advantage of being able to concentrate the light in a small area rather than having to diffuse it over a whole large theatrical stage. As at Drury Lane, he mounted a batten of lamps above the proscenium, concealed from the audience and throwing all their light on the scene. Before these he placed stained glass slips of yellow, red, green, purple, and blue, which were changed and mixed as the passage of time and the representation of altering atmospheric conditions required. For a moonlight scene a lamp, mounted in a tin box with an inch-wide

* It was the one inevitably chosen for reenactment when a half-size working model of the Eidophusikon was displayed at Kenwood House, London, in the summer of 1973 as part of a Loutherbourg exhibition Through the aperture was seen, first, the "asphaltick lake" with a mountain glowing ruddily in the background; the scrim at the very rear varied in tint and patterns of color as the lights played upon it. The second set—a model of the Palace of Pandemonium dominated by Satan—rose in front of the former one (which could still be seen through the columns of the palace) and deployed in it were some fifty or sixty small figures representing the satanic army These were mounted on a kind of grilled platform, and gave the appearance of movement because of their intentionally loose mounting During the four-minute presentation, powered by a phase motor, a recorded voice read the relevant passage from *Paradise Lost* to the accompaniment of tempestuous sound. At the end, the model of the palace sank from view, along with its devils, and the sounds of the Cimmerian wind were replaced by the tape of a harpsichord playing interval music.

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*** The Proprietors have paid the utmoſt Attention to the elegant Accommodations of the Company.

Printed by H. REYNELL, (No. 21,) Piccadilly, near the Hay-Market.

28. Handbill advertising the Eidophusikon and added attractions, 1786.

circular aperture, played on the moving cloud-cloth from behind, as the proscenium lights with bluish-green slips played on it from above and before; when the coloring of the clouds was semitransparent, the moon could be seen through it, and when the coloring was opaque, the moon lighted only the clouds' edges.

In the Pandemonium as well as the sea-storm pictures, the spectacular lighting was accompanied by auditory effects which Pyne called "the picturesque of sound." In contrast to the perfunctory off-stage noises common to the regular theatre, the sound effects in the Eidophusikon not only were more realistic than any hitherto produced: they were carefully orchestrated with the visual action, being modulated and continued as long as the action demanded. Like the lightning, the thunder was produced in a number of forms to suit the occasion. This was the function of a thin sheet of copper suspended by a chain and expertly shaken by one of the lower corners, in conjunction with a machine that "hurled balls and stones with indescribable rumbling and noise." So realistic were the thunder and lightning combined that, according to one anecdote among the several told of the Eidophusikon, when a genuine thunderstorm passed over the theatre during a performance some edgy members of the audience, more impressed by the celestial display than by Loutherbourg's, denounced his exhibition as "presumptuous," while the more empirically inclined went out on a balcony, compared the two storms, and concluded that Loutherbourg's thunder was best.

The rush of waves and the sound of rain and hail were produced by revolving or agitating cylinders loaded with small shells, peas, beads, or seeds, depending on the effect desired. The whistling of the wind came from pressing together, in a swift motion, two circular frames covered with tightly strained silk; and to enhance the "awful din" large silken balls were rubbed over a drumhead. This "vast tambourine," when struck with a sponge at the end of a whalebone spring, imitated, with suitable variations of loudness, the sound of distress signals from a foundering ship, the answering shore gun, and the echoes they produced. The same versatile drumhead, when an assistant ran his thumb over it, emitted what purported to be the groans of the infernal spirits on the burning lake in the Pandemonium scene.

It is hard to tell how seriously Loutherbourg took all this, although a later passage in his extra-artistic career, when he acquired considerable notoriety as a self-proclaimed faith healer, suggests that there was a definite streak of showmanship in his character. In the Ei-

dophusikon, of course, no charlatanry was involved; the machine did, and evidently did well, what it was advertised to do. But when the *European Magazine* proclaimed it to be a "new species of painting . . . one of the most remarkable inventions in the art, and one of the most valuable, that ever was made," we may perhaps detect a Loutherbourgian puff.[24] Even if ridiculously oversold, however, as constituting a revolution in art, the Eidophusikon did captivate many of the cognoscenti of the day, including more than one celebrated artist. Sir Joshua Reynolds, Pyne tells us, was often in the audience, and recommended that young ladies be encouraged to attend in order to cultivate their talent for drawing from nature. Pyne also declares that Gainsborough, an old friend of Loutherbourg—they painted portraits of each other—was so entranced "that for a time he thought of nothing else—he talked of nothing else—and passed his evenings at that exhibition in long succession. Gainsborough, himself a great experimentalist, could not fail to admire scenes wrought to such perfection by the aid of so many collateral inventions."*

Except for one or two hints that it was on tour, nothing more is heard of the Eidophusikon from its closing in Lisle Street in May 1782 to its opening at Exeter Change on 30 January 1786.[25] It now was owned by Loutherbourg's former assistant, a man named Chapman, whose wife was a minor actress at Covent Garden. The auditorium at Exeter Change was just right for this show. Its capacity was two hundred—larger than the Lisle Street salon and probably accommodating as many people as could conveniently witness a performance on so small a scale.

Here the Pandemonium scene again was the finale, but the sea storm it had temporarily replaced was retained. Introduced only three weeks after the East Indiaman *Halsewell* had been wrecked off Dorsetshire with heavy loss of life, and modified to suit this news sensation, it was billed as providing an "exact, awful, and tremendous Representation of that lamentable Event," a printed narrative of which might be bought from a bookseller downstairs.[26] To publicize the nightly performance, during the daylight hours the auditorium was used as an exhibition room for Jervais's stained glass, "representing the most striking Effects of Nature," and for the late Hugh Dean's transparent paintings of Vesuvius and of the Gordon riots six years earlier.[27] As we have seen, the Vesuvius pictures had been shown with sound effects in 1780; now, however, they were motionless and silent, the greater wonders of the Eidophusikon having eclipsed their modest pretensions. In the performances themselves, the introduction of a topical note with the *Halsewell* wreck was only one of a number of devices intended to increase patronage. The program was changed from time to time, and for the former musical interludes of Arne and Burney were substituted readings and recitations. It was appropriate, in a way, that on the night the show closed, 12 May 1786, the Pandemonium scene was preceded by the diminutive Count Boruwlaski playing the guitar.

The Eidophusikon turned up again at the Great Room, Spring Gardens, in February 1793. Evidently Loutherbourg's scenes alone were insufficient to attract audiences, because the show's advertising was devoted chiefly to the live entertainment that took over in the intervals. A "Master Hummell," singing to his own pianoforte accompaniment, had a brief engagement,† followed by George Saville Cary's "Comic Songs, Readings, and Imitations," the latter being of "many characters of the past and present age" including contemporary actors and actresses. In May the Eidophusikon featured, for one week only, "the Sieur Comus, who will display his astonishing performance on Cards, Caskets, Rings, Watches, Medals, Sympathetick Clocks, and many Magical Deceptions." The next month the whole show was moved to the King's Arms Hall, Cornhill, for a limited engagement, after which it vanished from the advertising columns. No doubt the Eidophusikon itself, if not Sieur Comus, went on tour.[28]

Six years later, in 1799, Chapman exhibited a "New" Eidophusikon in a room in Panton Street, Haymarket. He made clear in his advertising that this was not Loutherbourg's show. Without saying what had happened to it, he declared that he had "been enabled to trace out its beauty, on a scale infinitely superior in size, and, by the aid of accumulated light, and power of mechanism, to exhibit the most interesting operations of nature."[29] The program, suggesting that Chapman had no intention of deviating from Loutherbourg's formula, included a view of the setting sun from Dublin Bay, "Moonlight Contrasted with Fire from a Light House," the town and harbor of Liverpool with "gradual effect of dawning day," and the requisite storm at sea and shipwreck.[30] A planted news item in April averred that there were "no less than seventy-four movements of action and reaction in the moving canvas of the Eidophusikon; and so voluminous are the component parts, as to take the Machinists nine weeks in putting it together fit for public inspection." On the same bill were a Mr. Wilkinson,

* It is often said that the Eidophusikon was the inspiration for Gainsborough's famous show box, now in the Victoria and Albert Museum an oak box equipped with candle holders and a silk screen for back lighting, in which could be inserted painted glass slides to be viewed through a movable magnifying lens This supposition, however, seems to have originated with Gainsborough's early biographer, George Fulcher (1856), Pyne does not mention the box Another, more plausible origin of the show box was also suggested by Fulcher and, much earlier, by Edward Edwards (1808) Jervais's exhibitions of stained glass in the 1770s and 1780s, in which some small works illustrating the effects of candlelight and moonlight were included. Gainsborough's peepshow was no mere toy, preoccupied as he was in his later years with problems of lighting, he intended the box and the slides he painted for it, ten of which are displayed at the Victoria and Albert, to help him design his paintings The most authoritative treatment of the show box is Jonathan Mayne, "Thomas Gainsborough's Exhibition Box," *Victoria and Albert Museum Bulletin*, 1, no. 3 (July 1965), 16–24

† Barring a coincidence of name, this was Johann Nepomuk Hummel (1778–1837), a child prodigy and pupil of Mozart, who had been in London concertizing and studying with Clementi. He would later achieve considerable celebrity as a composer and teacher.

performer on harmonic glasses; a young lady making her debut in several songs; a twenty-eight-year-old solicitor's clerk named John Britton, who was later to become well known as an antiquary and topographical artist, performing songs and recitations; and "Le Chien Savant, or, the Learned Dog."[31]

This second-generation Eidophusikon came to a sudden end on the night of 21 March 1800, when Chapman was burned out. There may be more than coincidence in the fact that he had just installed a Mount Etna scene; might not the eruption have got out of hand, just as Dubourg's Vesuvius had done fifteen years earlier? One newspaper, it is true, reported that the fire started in a nearby brothel and not in the Eidophusikon room. But start it did, in any case, and by the time it was quenched it had destroyed these buildings as well as the Hole in the Wall public house, several dwellings, and the house of a tallow chandler. Chapman's loss, uninsured, was said to have been £600.[32]

During the same season of 1799–1800 at least one other Eidophusikon-type exhibition was current, in Silver Street, Fleet Street: a miniature naumachia in the general tradition of the Bermondsey Spa's outdoor Siege of Gibraltar but framed (twenty-nine feet wide and twelve high) and evidently with added motion and noise:

> BLOWING UP OF L'ORIENT, with the Representation of the whole of the BATTLE OF THE NILE, aided by the united Powers of Mechanics, Painting, and Optics, from its commencement on the Evening of Attack, until its glorious termination on the ensuing morning. The whole in motion, the respective vessels taking their stations in the order in which the combat began, with the State of the Fleets on the ensuing Morning; part of the French Fleet effecting their Escape; the zealous Capt. Hood bearing down on them, and firing and receiving their Broadsides as she passes; the English boats rowing in different directions, taking possession of the vanquished ships, and saving the Frenchmen from the wrecks.[33]

This advertisement appeared on 13 June 1799. Later in the year the bill included "BUONAPARTE'S LAST AND MOST DESPERATE ASSAULT UPON ACRE" and a Loutherbourgian tempest, and in the following February, inspiring the rivalry which led Chapman to produce his ill-fated Etna eruption, another fearsome "ERUPTION OF MOUNT VESUVIUS VOMITING forth Torrents of Fire." "The whole," it was said, was "designed and executed by, and under the direction of Mr. Turner." Two modern authorities on J. M. W. Turner[34] have argued from a variety of circumstantial details that the Fleet Street show was a hitherto unrecognized and admittedly untypical episode in the painter's career, but the evidence against this hypothesis is fairly strong. In the Academy show of 1800 another Turner—George—exhibited a painting of the same subject, the destruction of *L'Orient;*[35] a third Turner was associated with Loutherbourg in the mounting of *Omai* (1785);[36] and, perhaps most conclusive, a certain "M. Turner, Jun." is mentioned by Charles Dibdin the younger as "a Gentleman who had invented an extraordinary naumachial exhibition, illustrative of the Battle of the Nile . . . which had attracted all the curiosity hunters in London."[37] Although Loutherbourg's influence on *the* Turner, especially in the dynamic handling of light and the dramatic treatment of storms at sea, may well have been profound, it was exerted by way of his gallery paintings, not the Eidophusikon.

The fate of the original Eidophusikon is unknown.* More certain is the persistence with which Loutherbourg's complicated toy was remembered and referred to in the next several decades. The Eidophusikon so deeply impressed itself on London memory that it became a veritable legend; its fame was disproportionate to the number of persons who could actually have seen it. As will be noted in a later chapter, exhibitions purporting to use its unique combination of mechanical action and lighting and sound effects would reappear from time to time down into the early Victorian era.

As far as the theatre itself was concerned, the Eidophusikon would prove to have been a model for the future. Loutherbourg drew upon his fruitful experience at Drury Lane, but went far beyond it, to construct a fully operative mechanical maquette representing what might be further accomplished as theatrical craftsmanship progressed beyond the point to which he had brought it. He achieved on a miniature scale a series of spectacles uniting form, perspective, color, movement, and sound such as was yet impossible in the theatre, despite the advances represented by *The Wonders of Derbyshire* and *Omai*. In effect, the little Eidophusikon was the way-station between the theatre of Garrick and that of Phelps and the younger Kean, producers of the most elaborate spectacles the nineteenth-century London stage was to witness. It raised the sights of stage designers, giving them a new magnitude and audacity of effect to aspire to when the means became available in the form of more powerful and controllable lighting and of more efficient machinery. To a large extent, the history of English theatrical

* No account of the Eidophusikon mentions the fact that its fame soon crossed the Atlantic. The Philadelphia artist Charles Willson Peale, already an expert painter of transparencies as well as something of a showman—a role he would fully realize later on—somehow learned of Loutherbourg's exhibition in the summer of 1784. Evidently his informant had actually seen how the Eidophusikon worked, because no printed description went into the backstage mechanics of the show. In the following autumn Peale added to his existing gallery of portraits of contemporary military heroes a room to house the equipment, the gallery itself serving as auditorium, and in May 1785 he opened his "Perspective Views with Changeable Effects; or, Nature Delineated, and in Motion" (simplified a year later to "Moving Pictures"). This New World Eidophusikon, like the original, presented five scenes, complete with movement and sound effects, in a performance lasting two hours. The climactic scene was, not surprisingly, Pandemonium, with Milton's text printed in the program and additional verse by Peale that was recited as the picture evolved. As at Exeter Change and in Panton Street, the intervals were occupied by variety entertainment, notably readings from classic English authors relieved by humorous pieces. Encouraged by popular success, Peale went on to air-condition his showplace by hanging twelve large fans from the ceiling and swinging them by machinery, and added a barrel organ armed with thirty tunes. In February 1786, he created a maritime scene, this one on the patriotic theme of the battle between the *Bonhomme Richard* and the *Serapis*. After a spectacular, noisy encounter the American ship, of course, triumphed. Eventually, mechanical difficulties occurred too often for the comfort of the audience, and after presenting occasional shows during the Constitutional Convention of 1787, Peale sold the whole outfit to a peripatetic showman and returned to his great project of assembling a national museum of natural history. (Charles Coleman Sellers, *Charles Willson Peale,* New York, 1969, pp. 188–211.) Some additional details,

staging during the next half-century would represent the realization of the Loutherbourgian ambitions.

Outside the theatre, apart from the minor result of giving the old clockwork theatre a tenuous extension of life, the general result of the Eidophusikon was to intensify interest in other forms of pictorial entertainment which created, above all, the illusion of reality. With one exception (the Cosmorama) the miniature scale of the Eidophusikon was abandoned and magnitude became a desideratum: the bigger the picture, the better. The illusion of perspective was sought, not by ranging successive ranks of objects and side scenes to give the effect of distance, but by experimentation with *trompe l'oeil* techniques on a flat surface. When Chapman's New Eidophusikon was burned in 1800, the age of the panorama had already arrived.

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drawn from Peale's unpublished letters, diaries, and autobiography, have recently appeared in Kenneth Silverman, *A Cultural History of the American Revolution* (New York, 1976), pp 452–54, 571–72