
Abstract

The article unfolds a proposal to approach a history of spectacle. With a specific focus on technologies of spectacle it tends to trace the interconnectedness of technics, art and science events across disciplinary and geographical borders at the cusp of modernity around 1800 in Europe. Technics, arts and science went hand in hand to produce a new spectacular knowledge culture resulting from the relation of both analogy and causality between industrial transformation and the social revolution. It is claimed that on the one hand the arrival of new technologies like the steam machine, electricity, magnetism and so on produced the spectacular; on the other hand, spectacular practices like panorama, diorama, and phantasmagoria right up to the melodrama (all emerging in that time) took intrinsically part in the formation of modern societies.

KEYWORDS: Technics; Performance; Imagination; Industrial Revolution; Knowledge

State of the Art

With the rise of visual culture studies at the end of the last millennium, spectacular cultures started to gain considerable attention in art and media history. This interest might be most prominently represented by Jonathan Crary’s widely-cited study on Suspensions of Perception: Attention, Spectacle, and Modern Culture (1999) and Vanessa Schwartz’s seminal work on Spectacular Realities. Early Mass-Culture in Fin-de-Siècle Paris (1999). In both cases, spectacular cultures comprise a broad range of popular entertainment practices that attracted a mass audience, like for instance boulevard theatres, the popular press, wax museums, stereoscopic shows, early film, and so on. Moreover, both identify the moment of the emergence of a modern visual mass culture in the late nineteenth century, along the lines of the development of technologies of mechanical reproduction, increased urbanisation in Western societies and a reorganisation of habits. Crary, for example, places the beginning of visual
modernity exactly in the late 1870s, claiming that ‘alongside the emergence of new technological forms of spectacle, display, attraction, projection, and recording [...] ideas of perception and attention were transformed.’ This means that spectacular practices (or realities as Schwartz calls them) are intrinsic to the emergence and formation of modern societies. But while Crary argues that ‘spectacular culture is not founded on the necessity of making a subject see, but rather on strategies in which individuals are isolated, separated and inhabit time as disempowered’, Schwartz, on the other hand, challenges the idea that spectacular cultures generate distraction and alienation and instead suggests that modern life produced crowds united in pleasure.

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This is, most concisely, the background against which I will unfold my argument for a historical approach to the spectacle. It departs from questions such as: Why does the spectacle, as argued by Crary, often carry negative connotations of distraction and disempowerment? To which extent might delving into histories of spectacular cultures prove, as Schwartz claims, that pleasure and, above that, a certain agency, an access to meaningful knowledge, go along with it? And, last but not least, in which ways are spectacle and modernity quite closely related, and, most importantly, which problems do we confront when claiming a history of spectacular cultures?

To start with, I want to suggest that we have to go back to the ‘birth of the modern world’. I argue with Christopher A. Bayly that the time of massive and dramatic transformations into what we now call modernity has started at the end of the eighteenth century and lasts in various constellations until today. Therefore, while most studies on spectacular cultures, like the above mentioned, place the moment of the emergence of mass visual culture in the late nineteenth century, I propose to look back to the period around 1800 for several reasons.

Firstly, this ‘saddle period’, as Reinhard Koselleck called it, led to the advancement of new kinds of societies in the course of industrial and political revolutions. Their character was one of transformation caused by the effects of power that changed methods of production, targeted constant modifications in living conditions and even challenged the idea of progress itself. Nation-states, urban life-style, meritocracies as well as commercial and intellectual exchange on an international scale emerged. The development of new industrial objects in this period, especially streamlining machines, fundamentally questioned the traditional relationship between man and technics. Above all, automatisation led to a reaction of defence of man’s nature against the alienation caused by technology. Given this background, I propose to look at the ways spectacular cultures were involved in the emergence of modernity. More precisely, I propose to ask which role spectacles played in this historic constellation of technology and modernity from a genealogical perspective. This means looking at those events around 1800 that led to particular circumstances that were called spectacle and that claimed modernity as spectacle. These are constellations in which (new) technical, artistic and scientific procedures created an insoluble connection with spectacular performance practices before the invention of photography in 1839, thus, before the invention of technologies of mechanical reproduction.
At this point, I come to the second reason for my choice of the period. There is a considerable amount of studies that point to the ‘emergence of the spectacular’ in the context of inventions of new visual and audio-visual media in that time, such as the eidophusikon (1781), the phantasmagoria (1792), the ergoscopia (1805), the panorama (1787), the diorama (1822), and many other -ramas (like the myriorama (1802), pleorama (1831), neorama (1827) and so on).
In spite of the qualitative difference of each medium, all of them are placed in the sphere of the spectacular, that means: in the sphere of entertainment, attraction of large audiences, the causing of sensation, and the dependence on commercial success. However, research on these modern media is mostly of (mono)disciplinary and, therefore, constrained nature. Dependent on the focus, the panorama, for example, is a topic of art history (when painting is considered) or film history (when the apparatus is considered). Moreover, in most of the cases, these media are written into a pre-history of the cardinal modern media such as photography, film, or television. This means that they are measured in terms of an advancement of technologies in the sense of a continuous improvement in performance, along the lines of traditional deterministic milestones such as ‘the invention of photography’ or ‘the invention of film’. In more
recent times, media archaeological approaches tend to overcome these teleological and monofocal perspectives on the emergence of modern media – like the seminal study on the moving panorama by Erkki Huhtamo impressively demonstrates – by figuring out recurrent topoi in media history ‘without positing large scale cultural formations and ruptures between them.’

But nevertheless, the focus on singular media and their disciplinary reception prevents in many cases an understanding of the heterogeneous field they emerged in. Moreover, the performative stance of the audio-visual media mentioned above is mostly overlooked. Most of them were part of a performative experimental culture where staging’s of automata, optical attractions, sensationalist experiments, mesmerism or experiments on the bodies of living subjects were part of daily entertainment life. Therefore, I claim that modern media caused the emergence and establishment of technologies as performative practices by being tested live in front of the audience’s eyes. Lastly, many of the so-called ‘inventors’ of new media technologies operated in diverse fields, constantly crossing borders. But a mono-disciplinary perspective does not take that into account. Therefore, it is hardly known – except among specialists – that, for example, Louis Jacques Mandé Daguerre, widely famous as inventor of photography, has experimented extensively with effects of lighting, colours and perspective on opera and theatre stages in Paris since the beginning of the nineteenth century.

Summarising all these kinds of practices under the umbrella term of ‘technologies of spectacle’ would enable us to trace the interconnectedness of the above-mentioned technic, art and media events across geographic and disciplinary borders. Moreover, it would allow for a better understanding of the extent to which spectacular practices take intrinsically part in

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the emergence and formation of modern societies. Lastly, it could be productive to put these still under-researched ‘known unknowns’ of culture and media history on a broader research agenda. In order to achieve this, it is necessary to bring together disciplines like cultural history, technic history, film history, art history, media history/archaeology, history of literatures, and theatre and performance history.

The spectacle in a Theatre Study’s scope

From the perspective of theatre studies, approaching a history of spectacle means to confront even more considerable difficulties, first of all concerning the history of concept and its semantics. Deriving from the Latin specto (I watch, observe, look at, see) and spectaculum (show, spectacle, public event) the term spectacle refers in the first instance to the act of looking at something. Consulting general dictionaries, one finds more explicit definitions that point to the sensational character of the word. In the German *Duden* we read that spectacle (Spektakel) means: ‘a) (veraltet) [Aufsehen erregendes, die Schaulust befriedigendes] Theaterstück: ein billiges, schauriges, alernes sentimentales S.; b) Aufsehen erregender Vorgang, Anblick; Schauspiel [...] c) große, viele Zuschauer anlockende Veranstaltung.’ The Oxford English dictionary proves a more complex semantic content but also stresses the meaning of heightened attraction:

spectacle [...] I. 1. a) A specially prepared or arranged display of a more or less public nature (esp. on a large scale), forming an impressive or interesting show or entertainment for those viewing it. [...] 2. A person or thing exhibited to, or set before, the public gaze as an object either (a) of curiosity or contempt, or (b) of marvel or admiration. [...] 3. An event of striking or unusual character [...] 4. a. A sight, show, or exhibition of a specified character or description [...] b. With descriptive adj. denoting the impression (agreeable, imposing, or otherwise) conveyed by the thing seen.

The (especially in the German context) persisting negative connotation of the spectacle as a flashy, cheap show that causes sensation, satisfies scopophilia and seduces the masses produced a certain exclusion of spectacles in canonical theatre histories. Moreover, neither specialised dictionaries dedicated to the semantics and history of terms nor dictionaries on aesthetical terms nor theatre dictionaries have included the term spectacle. Referred to as a theatrical aesthetics ‘based on visual attractions’ (and this includes melodramatic theatre practices as well), the spectacle might have been incompatible with the canonical educative mission or mandate of national theatres that dominated theatre histories for a long time.

However, this negative attitude against the spectacle has not always existed, and in recent times a certain turn can be observed. In their research on French ‘Théâtre Classique’, theatre scholars Bram van Oostveldt and Stijn Bussels observe a current move away from the emphasis on the dramatic text and representation. This move away, they claim, is motivated by the seventeenth-century notion of the spectacle:
During the nineteenth and the twentieth centuries, spectacle has acquired a pejorative connotation as mere entertainment that – according to Guy Debord – alienates or even sedates the spectator. However, in early modernity the notion of the spectacle in French (and English) had a much more general meaning that is often overlooked. To prove this claim, they quote several early eighteenth-century French dictionaries, finding that the word refers here to a broad range of phenomena like ‘operas, plays, ballets, or everything that is to be seen in theatres or amphitheatres’ but also public rituals and cultural performances such as royal entries, coronations, and religious, judicial, or military ceremonies and events. They stress that in all these examples the spectator is particularly emotionally affected.

There are two reasons why these observations are of special significance for the proposal I am presenting here. Firstly, the period that I am indicating as the rise of modernity around 1800 must have formed a transition zone for the changing signification of the spectacle. Even Diderot and Alembert’s *L’Encyclopédie ou dictionnaire raisonné des sciences, des arts et des métiers* (1751–1772) still emphasises the ‘necessity’ of spectacles for all nations: anybody (whether educated or not) needs spectacles to train and develop their senses and perceptive abilities and, as a result, the mind. More precisely, Louis de Jaucourt writes here:

> SPECTACLES, (Invent. anc. & mod.) représentations publiques imaginées pour amuser, pour plaire, pour toucher, pour émouvoir, pour tenir l’âme occupée, agitée, & quelquefois déchirée. Tous les spectacles inventés par les hommes, offrent aux yeux du corps ou de l’esprit, des choses réelles ou feintes; & voici comme M. le Batteux, dont j’emprunte tant de choses, envisage ce genre de plaisir. L’homme, dit-il, né comme spectateur. [...] aussitôt qu’il a transmis à l’esprit l’image de ceux qui l’ont frappé, son activité le porte à en chercher de nouveaux, & s’il en trouve, il ne manque point de les saisir avidement. C’est de - là que sont venus les spectacles établis chez presque toutes les nations.

In spite of the fact that De Jaucourt is devaluating the bloody and bodily spectacles such as battles or gladiator fights, preferring those that are based on mimesis, he clearly affirms their visual effects and praises their educational potential for the human soul. In light of this mid-eighteenth-century enthusiasm, one should ask to which extent the transformations of the spectacle into the modern age went along with transformations of the term’s meaning. Looking into spectacular practices of that time in a more detailed way can certainly contribute to learning more about the features of this semantic transformation.

Secondly, it is important to acknowledge that the early modern understanding of spectacle has, to a certain extent, interesting parallels with the understanding of performance that is propagated by performance studies since the 1960s. From an anthropological scope, performance refers to a broad phenomenon that is not limited to pure theatrical representation but that includes different cultural-social behaviours, rituals and actions that can be considered as performance. My proposal follows a similar line of direction: bringing the
notion of spectacle into the foreground means extending the current body of research on theatre around 1800. While spectacular culture in the early modern time was closely linked to royal courts and mostly served to represent feudal power, spectacular culture on the verge of the modern industrialising age has to be aligned with the rise of a distinct new urban culture engendering spectacular practices of another sort. To specify these practices, it is most exemplary to look at what happened in urban centres of culture and amusement like London and Paris.\(^{33}\) In London, for instance, more and more people could afford to seek pleasure at the city’s new ‘spectacles within doors.’\(^ {34}\) Especially Leicester Square was known as a hub for public amusement and was believed to have everything: ‘theatre, music halls, panoramas, poses plastiques, exhibitions, galleries, &c., &c.\(^ {35}\) including Philippe Jacques de Loutherbourg’s miniature moving light and sound show called the ‘Eidophusikon’ that ran there from 1781–1786. ‘Alongside traditional pastimes such as annual fairs, a wide variety of new diversions were accessible to paying customers’\(^ {36}\), Denise Blake Oleksijcuk writes in her detailed study on *The First Panoramas* in London: ‘masquerades, waxworks, magic-lantern-shows, cockfights, hippodromes, puppet theatres, models, transparent paintings, the Royal Academy’s annual exhibitions, private art collections, curiosity museums, and magic shows.’\(^ {37}\) One of the most vivid and ironic descriptions of spectacular cultural life in Paris in 1821–22 stems from Honoré de Balzac. In the second part of his his novel *Illusions perdues* (1837–1843), *Un grand homme de province à Paris*, the central character Lucien is introduced to the famous Galleries:

The Wooden Galleries of the Palais Royal used to be one of the most famous sights of Paris. Some description of the squalid bazar will not be out of place; for there are few men of forty who will not take an interest in recollections of a state of things which will seem incredible to a younger generation. [...] But it was in the passage known by the pompous title of the ‘Glass Gallery’ that the oddest trades were carried on. Here were ventriloquists and charlatans of every sort, and sights of every description, from the kind where there is nothing to see to panoramas of the globe. One man who has since made seven or eight hundred thousand francs by traveling from fair to fair began here by hanging out a signboard, a revolving sun in a blackboard, and the inscription in red letters: ‘Here Man may see what God can never see. Admittance, two sous.’ The showman at the door never admitted one person alone, nor more than two at a time. Once inside, you confronted a great looking-glass; and a voice, which might have terrified Hoffmann\(^ {38}\) of Berlin, suddenly spoke as if some spring had been touched, ‘You see here, gentlemen, something that God can never see through all eternity, that is to say, your like. God has not His like.’ And out you went, too shamefaced to confess to your stupidity.

Voices issued from every narrow doorway, crying up the merits of Cosmoramas, views of Constantinople, marionettes, automatic chess-players, and performing dogs who would pick you out the prettiest woman in the company. The ventriloquist Fritz-James flourished
here in the Cafe Borel before he went to fight and fall at Montmartre with the young lads from the Ecole polytechnique. Here, too, there were fruit and flower shops, and a famous tailor whose gold-laced uniforms shone like the sun when the shops were lighted at night.\textsuperscript{39}

While the variety of spectacular phenomena of the emerging mass-culture in that time provides a huge body of material for the investigation of spectacular cultures, for instance in terms of popular entertainment, my approach tends to limit these diverse practices to what I call – as already indicated above – technologies of spectacle. This includes spectacular technologies like automatons, phantasmagoria, panorama, diorama and other kinds of optical and audial devices that were performed publicly in theatres, academic environments, exhibition spaces, at fairs, et cetera.\textsuperscript{40} Moreover, I take into account stage practices of opera and theatre (especially melodrama) that integrated these kinds of spectacular technologies.

**Technologies of Spectacle**

The choice to limit my scope to technologies of spectacle has three reasons. Firstly, histories of early modern theatre prove a close relationship between marvellous technologies, elaborated stage machineries and spectacular effects of performances in, for instance, Baroque theatre.\textsuperscript{41} A pivotal example is what Jan Lazardzig calls the ‘mechano-poetology of the spectacle’\textsuperscript{42} that the Jesuit theorist and organiser of courtly spectacles Claude-Francois Ménestrier developed in his treaty on court spectacles, *Traité des tournois, joustes, carrousels et autres spectacles publics* (1669).\textsuperscript{43} To reframe the machine as spectacle machine, he relied on its ability to surpass human force using leverage – a technological marvel that generated spectacularity.\textsuperscript{44}

In theatre studies, historical research on the relationship between art and science, and more precisely, theatre and technology, has until recently mainly concentrated on the early modern period.\textsuperscript{45} Concerning the period of the rising modern age, however, we are confronted with a considerable lacuna. This might be due to the fact that theatre, over the course of the enlightenment period, had been considered mostly as a dramatic form with related issues such as acting styles, stage sceneries, costumes, and so on. Moreover, the expertise on technologies of vision of that time – as mentioned already – has been provided mainly by film studies, which created a research field that looked into phenomena adhering to pre-cinematic history.\textsuperscript{46} There are only some exceptional cross-overs like Nicolas Vardac’s *Stage to Screen. Theatrical Method from Garrick to Griffith* from 1949.\textsuperscript{47}

To fill in this lacuna is not only justified by the relevance of a chance to provide new insights into the interconnections between performance and media culture of that time. Rather – and this is the second reason for my claim – the period I am talking about formed an in-between-zone, where the conceptual borders between art, technology, science and magic were still rather blurred and had only just begun to crystallise. For instance, the term technology has only been used since the late eighteenth century within a ‘discourse describing and explaining the evolution of specialised procedures and techniques, arts and trades – either the discourse
of certain types of procedures and techniques, or that of the totality of techniques inasmuch as they form a system: technology is in this case the discourse of the evolution of that system.\textsuperscript{48}

It was during that time that science and technics started to be regarded as inseparable (like today) and that the rationality of technology was confined to usefulness. Consequently, technologies of spectacle in that period still operate in a kind of twilight zone. It is, for instance, remarkable that in 1787, the portrait painter Robert Barker first presented the new picture format of the panorama as an art work to the director of the Royal Art Academy, Joshua Reynolds, who dismissed it. Shortly after that, he took out a patent for the same object. According to Buddemeier, it was the first art work ever that was patented as a technical innovation.\textsuperscript{49} In the wake of the patenting, a veritable discourse unfolded in journals and in the form of treatises that discussed whether this invention had to be viewed as ‘the greatest improvement to the art of painting that has ever yet been discovered’\textsuperscript{50} or as a ‘kind of art industry’ that ‘brought the sense for visual arts to a higher level, made it popular and raised some of what had been arts and crafts to the level of art.’\textsuperscript{51}

Another ambiguous invention is the phantasmagoria. Performed with the help of the technical apparatus of a magic lantern that was supposed to conjure up ghosts, it was an important part of an experimental public culture, located between magic show and science experiment. It was staged by popular physicists or ‘experts in spectrology’. On a large scale, it was most famously represented by two Belgian showmen who worked independently of each other: Paul de Philipsthal (17??-1829)\textsuperscript{52} and Étienne Gaspar Robertson (1763–1837). Both of these (and other kinds of) media performances contributed to a spectacular knowledge culture that partook significantly in the project of modernity that unfolded around 1800 in the course of the industrial revolution. It went along with rearrangements of knowledge that – much earlier than Crary states – caused moments

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\caption{Paul de Philipsthal: Title page of The Portfolio, 10 February 1825.}
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of severe crisis of perception and representation. According to the French philosopher Bernard Stiegler, there is general agreement on the change in technics since the advent of the industrial revolution, insofar as it caused the appearance of a machine apparatus of production that called into question the traditional relation between man and technology. To address this change and, above all, to determine its true nature, a new form of knowledge became necessary that established the competence of the ‘technologist’. The contradiction between affirmative belief in and a sceptical view of technical progress created a tension that fundamentally determined the modern age from then on. Media historical studies, like for example Oliver Grau’s widely-cited Virtual Art: From Illusion to Immersion (2003), which depart from contemporary discourses on technologies like the digital or virtual reality, are unfortunately not able to grasp these tensions properly because they highlight immersion as a dominant effect of spectatorship. Concluding – in the wake of Debord – that spectators have been deprived of their capacity for critical reflection means to misunderstand the important role of technologies of the spectacle in the teaching of a scientific attitude that eventually made audiences familiar with new technologies of a modernising age. Or, as the physicist Sir David Brewster wrote in 1834 in his Letters on Natural Magic, to Walter Scott praising the educative value of phantasmagoria: ‘Hence, very much in proportion to our ready knowledge or intelligence we are either credulous or sceptical the words are used in a philosophical sense merely; and history has shown that men are often quite as far from the truth in the extremity of their scepticism as they are in the extreme of credulity itself.’

An important objective of my proposal is, therefore, to ask to which extent spectacular technologies contributed to the development of the competences of technologists. Gabriele Brandstetter und Gerd Neumann have convincingly argued that the transfer between sciences and arts generated an interplay of perception and imagination that played a part in the construction of a modern reality in that time. More precisely, they claim that the dynamics of art and knowledge were inserted by a third component: the medial field, or the stage, where ‘the drama of the poetics of knowledge’ was performed. Consequently, the attention for the apparatuses of perception, for their medial and technical conditions, moved centre stage. It comprised different practices and apparatuses like the microscope, the telescope, the panoramic gaze from a tower or a balloon, mesmeric practices, living images, the camera obscura, and electric apparatuses. But while they focus on the ‘drama of knowledge’, thus concentrating on ‘high art’ contributions, I think ‘spectacles of knowledge’ would be more apt to express the sensational and popular character of the performances of new technologies and visions. To give one example, on April 28, 1821, the French Journal de commerce announced the first performance of the diorama in the following way:

We have Panoramas, Cosmoramas, Panstéréoramas, a Diaphanorama, and soon we will have a Diorama. This word sufficiently indicates that this is a daytime spectacle, and in which sunlight is used. It is destined to reproduce on a scale greater than eighty feet the principal artistic monuments and the greatly varied effects of nature in movements such as storms, effects of sunlight, moonlight, tempests, etc. New processes constitute this entirely French invention, fruit of the research of two distinguished painters, MM Bouton and Daguerre.
At the same time, the academy praised the ‘success of an enterprise whose principal goal is to expand the bounds of painting by procuring France the merit of an invention as agreeable as it is useful to the progress of the art.’ This shows that the celebration of the new invention and new technology, of spectacle and of artfulness, commonly went hand in hand in contemporary perception. In that sense, technologies of spectacles denote spectacular performance practices, which simultaneously imply a general know-how of technologies as well as the technologies themselves that call forth the spectacular in Europe around 1800.

Towards an interconnected historiographic approach to spectacle

Against this background, proposing a historiographic approach to spectacle means taking into account the specific hybridity and complexity of this phenomenon. Moreover, it should regard the diverse threads that come together in spectacular practices. This entails an interdisciplinary approach that – diachronically – would help filling the gap between theatre historiographic research on theatre machines in the early modern period and the media historic research on pre-cinematographic media since the nineteenth century. Moreover, – synchronically – it would provide an opportunity to look into events in between theatre, art, technology, entertainment, and knowledge production but also to consider the circulation of images, technics, knowledge, motives and so on that happened in between places, people, and media. To illustrate my consecutive proposal to approach, what I call, interconnective historiography, I will provide one example that shows the difficulties one is confronted with when delving into historical research on technologies of spectacle. That means taking into account the necessity, in Huhtamo’s words, ‘to uncover the object of study from the layers of historical residue under which it has been buried, [and to] avoid the temptation to clean and polish it until it will sparkle in the unambiguous

Figure 8. Diagram of Ballooning Experiments. Robertson, Mémoires récréatifs.
With that in mind, I present the case more as an indicator of a considerable need for research in this field than as new primary-source based insights.

My case looks at the work of the painter, stage scenographer, alchemist, and machinist Philippe Jacques de Louterbourgh (1740–1812). Nearly all literature on media history of the modern age mentions his invention of the ‘Eidophusikon’ in London in 1781 as a milestone in the emergence of new media. It is often considered a forerunner of the panorama, the diorama, or even film. Since the fate of the original Eidophusikon is unknown, we have to rely on textual and very
few iconographical sources that are scarce and probably not always reliable. Therefore, the most quoted reference is still Richard Altick’s account on the Eidophusikon in his *Shows of London*, which refers back to William Henry Pyne, author of the most comprehensive contemporary description of this actor-less device that was accompanied by sound and music:

[T]he truly remarkable distillation of Loutherbourg’s innovative theatrical career had been placed before the public’s eye [...] on 26 February 1781 at Loutherbourg’s house in Lisle Street, Leicester Square. [...] The result of his effort to add the dimension of time (as well as a more convincing illusion of depth) to painting was the ‘Edophusikon, or Representation of Nature,’ alternatively called ‘Various Imitations of Natural Phenomena, represented by Moving Pictures’. [...] 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: [...] 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: [...] The clouds were painted in semi-transparent colors on long strips of linen, stretched on frames and operated by a windlass. [...] Although some of the large objects represented in motion were from a 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 circumstances portrayed. [...] The rush of waves and the sound of rain and hail were produced by revolving and agitating cylinders. Loaded with small shells, peas, beads, or seeds, depending on the effect desired.

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Figure 10. Figure 10–13: Eidophusikon, reconstructed by Robert Poulter. Picture credits Norbert Neumann. See http://www.newmodeltheatre.co.uk/eidophusikon.html. Figure 11 depicts Donata Predic, who is in charge of performances of Eidophusikon. With special thanks to Richard Poulter for granting permission to reproduce the images.
While Altick in his much more abundant descriptions regularly refers to experiments that de Loutherbourg had carried out for the theatre stage at Dury Lane, there is generally little consideration for his extensive work as stage designer and machinist at Dury Lane Theatre under David Garrick and Richard Brinsley Sheridan between 1771–1772 and 1781–1782.65 The most extensive study Die Szenenbilder Phillipe Jacques de Loutherbourgs by Rüdiger Joppien stems from 1971, followed by Christopher Baugh’s Garrick and Loutherbourg (1990).66 Joppien states that even though Loutherbourg has to be considered as precursor of modern stage design, we are
confronted with a ‘nahezu vollständige[m] Fehlen de Loutherbourgs in den Quellen der The-atergeschichtsschreibung.’ Due to this lacuna, the importance of his experiments in stage scenography that preceded the Eidophusikon is unfortunately rather underestimated. In The Masque of Alfred (1773), his first work as permanent stage designer at Dury Lane, he designed three-dimensional realistic stage elements – like miniature armies or flotillas of ships that moved across a painted cyclorama at the rear end of the stage – that immediately caused sensational effects. This design was an allusion to a political event of high importance at that time: King Georg III’s visit to Spithead (Portsmouth) a few months earlier, accompanied by a parade of English naval forces. The reactions were enthusiastic:

The general view is so critically exact that one can hardly give human invention credit for the execution. And wonderful as it may appear in point of distance, perspective etc., it is not chargeable with the small impropriety. The view of Spithead and the fleet is taken from the saluting battery, which we here see mounted with cannon. Every ship of the line is a beautiful perfect model with rigging etc. completely dressed with their proper suite of colours and carrying their regular numbers of guns; the Isle of White in the background, forms a just and beautiful relief, the Royal Yacht is seen sailing into the harbour, under a salute of battery and the whole fleet. Numberless and various kinds of vessels are beheld under weigh, with their sails full, making their different tacks, amongst is readily distinguished the mode of the beautiful cutter belonging to the Duke of Richmond, remarkable for its blue and white striped sails. The deception of the sea is admirable.

It is hardly known how these models worked. Joppien suggests that the idea to work with moveable mechanics can be traced back to the then famous Swiss automata mechanic and artist
Jacques Droz, who, at that time, had performed his inventions together with his son in Paris and London, among others.\textsuperscript{70} However, this connection has not been proven yet. Yet, for a theatre study’s perspective it is important to note that, although he used marvellous stage machinery, he overcame the Baroque stage design by creating an entirely new aesthetics of the picturesque that preceded the exploration of meteorological phenomena and exact depictions of topographical landscape-features in panoramas, dioramas, and modern stage design.

The multiplicity of practices Loutherbourg performed has not yet been considered in their synchronic interconnectedness. Having been born in Strasbourg and educated as landscape painter in Paris as well as having studied with Carle van Loo and Francois Joseph Casanova, he was especially interested in Dutch landscape painting of Nicholaes Pietersz. Berchem (1620–1683) and Philips Wouwerman (1619–1668).\textsuperscript{71} Subsequently, he was the first to connect this style to English landscape painting. He earned considerable reputation in Paris while exhibiting in the Salons, and received special praise by Denis Diderot. He was honoured as member of the art academies in Paris, Marseille and London, while at the same time he gained a reputation as alchemist and religious spiritu-alist due to his interests and membership in freemason societies that were initiated into the more occult Continental strains of the movement. In 1781, he staged a three-day necromantic spectacle for William Beckham that produced a huge scandal.\textsuperscript{72} At the same time, it led Loutherbourg to anticipate the Phantasmagoria of Étienne Gaspar Robertson and Paul de Philipsthal.\textsuperscript{73}

In a diachronic perspective, his link with the work of the set designer, painter and inventor of scenic contrivances for fêtes at the marriage of royal personages, Jean-Nicolas Servandoni (1695–1766), could provide important insights into interconnections between early modern technics of theatre machinery and modern stage design technology.\textsuperscript{74} He was

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\includegraphics[width=\textwidth]{Figure_14}
\caption{Philippe-Jacques de Loutherbourg (1740–1812), An Avalanche in the Alps, 1803. Oil on canvas. Tate, Britain.}
\end{figure}
educated as an artist of perspective in Rome and in 1724 he became director of decorations at the Paris Opera and kept this post until 1742. Servandoni produced a series of successful theatrical productions in the style of seventeenth-century machine plays, often set to music and with an emphasis on elaborate changes in décor and special effects. In the years 1738–1742 and 1754–1758, Servandoni was showing his Spectacle d’Optique in the Salle des Machines aux Tuileries in Paris. It is very probable that de Loutherbourg attended these performances while staying in Paris. Moreover, there are some obvious congruencies between The Grand Scene from Milton that was depicted in the last part of the Eidophusikon-Show in the second season and Servandoni’s Description du Spectacle de La Chute des Anges Rebéliés. Sujet tiré du Poème du Paradis Perdu de Milton, which he presented on 12 March, 1758 as part of his Spectacle d’Optique. However, these observations are only indications, and the subject requires further in-depth research.

The hybridity of de Loutherbourg’s artistic and scientific experiments as well as their sometimes-dubious character, which was due to their proximity to the unscholarly terrain of magic and conjuring tricks, might have contributed to the late attention for his work in media and theatre historical scholarship. Added to this, is the problem of little, and often-scattered sources, which means a big challenge in envisioning a history of spectacle. But if one confronts these challenges, a huge field of interconnected practices opens up that provide new insights into the beginning of modernity. Looking into the cultural and artistic life of early nineteenth-century Berlin by developing an interconnective historiographic perspective, means asking questions like: How do the optical and perspective experiments of Johann Adam Breysig (1760–1831) in panorama painting and stage design relate to the early panoramas and later stage designs of Karl Friedrich Schinkel (1781–1841), the renowned architect and urban designer of Berlin? How are the Optisch-Cosmoramische Anstalt of Johann and Carl Enslen, the phantasmagoria-shows of Philidor, E.T.A. Hoffmann’s poetic work, Schinkel’s friendship with Karl Wilhelm Gropius (1793–1870), the first diorama-entrepreneur in Berlin and famous stage designer (for example, of Carl Maria von Weber’s Freischütz at the Theater am Gendarmenmarkt in 1821), and the new aeronautic technology of ballooning related to each other? Why did musical automata in that time, like the Android Clarinettist by the Dutch clock and mechanical instrument maker Cornelis Jacobus van Oeckelen (1762–1837), so often play melodies from Carl Maria von Weber’s Freischütz? These are only a few of many possible questions, which could motivate research that could provide a better understanding of technologies of the spectacle and their contribution to the emergence of modernity. It might help to identify a series of ‘technical lines’, a kind of accumulative practice of technical and artistic experiments that overlap on several levels, like, for example, scientific knowledge, technical and artistic application, and spectacular performance. Following the interconnections and interdependencies between practices, practitioners, and spectators might enable us to indicate an accumulative technical knowledge as well as point out the ambivalences of modern techno-logics at work.
Figure 15 and 16. Android Clarinetist. 1838, Cornelis Jacobus van Oeckelen (Dutch, 1798–1865). John Gaughan Collection. With special thanks to John Gaughan for granting permission to reproduce the images.
Closure

While modernity was epitomised by new technologies that resulted in rationalisation and new knowledge, the spectacularity of displays of new inventions within the field of mechanics, electricity or optics should not be underestimated. Furthermore, theatres and operas in the metropolises of Europe became a spectacular experimental ground for physicists, engineers, painters, and set designers (often combined in a single person) with the aim to develop new techniques to imitate nature, for instance in the field of lighting. These types of stage events interacted with the new media of (mass-) entertainment that emerged, amongst others, in
the form of panoramas, dioramas or phantasmagorias. If, within this context, a genealogical perspective is applied to the spectacle and to modernity, the use and effect of new technologies within the wider field of theatre (including opera and other media of entertainment related to theatre) will need to be closely examined for their interconnectedness in order to analyse to what extent the spectacle was an integral and constitutive element of modern society.

Notes

2. This notion is widely held; see for instance Nic Leonhardt, Piktoral-Dramaturgie. Visuelle Kultur und Theater im 19. Jahrhundert (1869–1899) (Bielefeld: Transcript, 2007).
3. Crary, Suspensions, 12, 2.
5. Christopher A. Bayly, The Birth of the Modern World, 1780–1914. Global Conceptions and Comparisons (Oxford: Blackwell Publishing, 2004). That does not mean that I neglect the notion of modern for earlier periods. But I share with Bayly the consideration that only from the 1780s onwards, people started to perceive themselves as modern, which means to keep up with the times, and that this attitude marks modern man.
16. Huhtamo, Illusion, 17. Here he points to the difference of his approach in relation to Crary, Kittler and Foucault.
17. Such as Christian Friedrich Ludolff’s (1701–1763) performances with the so-called electrification machine that contributed to the research of electricity slowly becoming a fashionable science. See Siegfried Zielinski, Archäologie der Medien. Zur Tiefenzeit des technischen Hörens und Sehens (Reinbek bei Hamburg: Rowohlt, 2002), 192.


20. For example, considering Flemish-Dutch spectacular cultures in a broader scope.


22. The French word ‘spectacle’ has a similar meaning.


32. Van Oostveldt and Bussels, *The Sublue, 209.*

33. At this point it is important to mention the lacuna in research on other geographical spaces than the most vibrant ones in that time. See for instance Sylvia Alting van Geusau, *Panorama’s in Amsterdam als onderdeel van de 19de eeuwse spektakelcultuur, MA thesis* (Amsterdam: Universiteit van Amsterdam, 2012).


38. He is referring to the German poet, composer, scenographer and media technician E.T.A. Hoffmann (1776–1822). He performed countless experiments with electro-technical, optical and mechanical apparatuses that oscillated between physical experiments and spectrology. He was especially fascinated with phantasmagoria. In his novels, representing German Romanticism, he developed a ‘Poetics of Technics.’ See: Rupert Gaderer, *Poetik der Technik. Elektrizität und Optik bei E.T.A. Hoffmann* (Freiburg i.Br.: Rombach, 2009).

40. In his extensive study on ‘Bildermusik’: Panoramen, Tableaux Vivants und Lichtbilder als multimediale Darstellungsformen in Theater- und Musikauflührungen vom 19. bis zum frühen 20. Jahrhundert (Remscheid: Gardez, 2006) Anno Mungen makes a distinction between exhibition (Ausstellung) and performance (Vorstellung) concerning art forms in time and space in the nineteenth century, stating that for most of the mentioned spectacular practices, these categories are fluid (31).


43. For information about the complex publishing-history of that treaty see Ibidem.

44. At this point I would like to refer to Dolf Sternberger’s considerations about Hermann von Helmholtz’ popular-scientific lectures on machine force and work force (held in the forties of the nineteenth century) in relation to the vision-machine of the panorama. It would be an interesting ‘technological line’ to follow but would expand the limits of this article. See Dolf Sternberger, *Panorama oder Ansichten vom 19. Jahrhundert* (Frankfurt am Main: Suhrkamp, 1974), 33–41.


46. See for instance Karel Dibbets en Frank van der Maden, *De geschiedenis van de Nederlandse film en bioscoop tot 1940* (Weesp: Het wereldvenster, 1986).


48. Bernard Stiegler, *Technics and Time, 1: The Fault of Epimetheus* (Stanford, California: Stanford University Press, 1998), 94. In 1777, Johann Beckmann was one of the first to introduce a complex notion of technology that is becoming again relevant today. It was meant to expand what was then called art history. See Johannes Beckmann, *Anleitung zur Technologie, oder Kenntniß der Handwerke, Fabriken und Manufakturen, vornehmlich derer, die mit der Landwirtschaft, Polizey oder Cameralwissenschaft in nächster Verbindung stehen. Nebst Beiträgen zur Kunstgeschichte* (Göttingen: Wittwe Vandenhoek, 1777).


50. Benjamin West in *World*, 19 April 1790, I.

51. *Spenerische Zeitung*, 16 December 1809.

52. Also known as Paul Philidor. See Heard, *Phantasmagoria*, about the successions of his ‘slow materialisations and sudden, spectacular disappearances’, 57–84, 57.


54. When Crary establishes a ‘unmistakable historical discontinuity between the problem of attention in the second half of the nineteenth century and its place in European thought in previous centuries in the second half of the nineteenth century’, he is overlooking the discrepancy between man and technology that emerged with industrial machines. Crary, *Suspension*, 19.


56. Denise Blake-Oleksijczuk stresses the “ambivalence” of seeing and knowing that was provided by the first panoramas: The First Panoramas, 11.


59. no. 118, 28 April 1821, 4: “Nouvelles des Theatres”.
60. Archives Nationales Paris, F 12 6832, “Projet d’association entre Bouton et Daguerre”.
61. On another occasion and in a broader context, I explained these movements in terms of media theory in the following way: This means observing the spectacle in its inter- and transmedia interaction. To the extent that media become events in a performance or a concrete historic situation in front of the audience’s eyes in a transformative interplay, I will speak of intermedial processes. However, if motifs, images, melodies, techniques and other such things wander from one medium to another over the course of time and space (e.g. from text to stage to film), I will speak of transmedial processes. For example, the figure of the vampire is a transmedial phenomenon, if one observes its journey from the stage to silent films, from Hollywood film to present-day television series. However, if the figure is a part of a specific staging in an interplay with other media that spawn it (body, technique, words, music, etc.) and investigated as such, then it is a part of an intermedial process that takes place in a performancehic etnunc, as event. Kati Röttger, “Technologien des Spektakels,” Transmedialë Genre-Passagen. Neue Perspektiven der Medienästhetik, ed. I. Ritzer and P. Schulze (Wiesbaden: Springer VS, 2016), 43–70.
69. Whitehall Evening Post, 9–12 October, 1773.
70. Joppien, Die Szenenbilder, 49.
71. Some sources mention that he was educated by the German painter Johann Heinrich Tischbein. See: Ulrich Thieme, Felix Becker et al, Allgemeines Lexikon der Bildenden Künstler von der Antike bis zur Gegenwart. Band 23 (Leipzig: E. A. Seemann, 1929), 418.
72. He had for example arranged a gothic party for William Beckford pioneering his science fiction opus Vathek. See McCalman, “The Virtual Infernal”.
73. It is not known if de Loutherbourg was familiar with the ghost-raising performances of Johann Georg Schröpfer (1730–1774) in Leipzig, a man who ‘would become the professor emeritus of the phantasmasgoria’ (Heard, Phantasmasgoria, 42), and who also was a mason.
75. Giovanni Niccolo Servandoni, Description du Spectacle de La Chute des Anges Rebélés. Sujet tiré du Poème du Paradis Perdu de Milton (Paris: A Salle des Machine, aux Thuilleries. Permis d’imprimer, ce 7 Mars 1758, Bertin). See: http://gallica.bnf.fr/ark:/12148/bpt6k5772093w. Ian McCalman hints to a miniature Gothic movie scene based on the Pandemonium episode in Milton’s Paradise Lost produced in 1782 that according to him precedes a part of the phantasmasgoria show of Robertson. This could be an interconnective line that needs to be followed more extensively.
76. He was the originator of the first German panorama in June 1800 in Berlin: *Ansicht Roms von den Ruinen der Kaiservilla aus*. In 1808, he promoted a modern stage design reform at the Königsberger Neues Schauspielhaus that is almost entirely overlooked in scholarship. See: Ingeborg Krengl-Strudthoff and Bärbel Rudin ed., *In blauer Ferne. Von der Kulissenbühne zum Königsberger panoramischen Theater. Schriften zur Bühnenreform von Johann Adam Breysig (1766–1831)* (Wiesbaden: Harrassowitz, 1993).

77. Johann Carl Enslen (1759–1848) was a pioneer of aeronautics (organizing the first balloon voyages in Germany), photography, and constructed panoramas. Gaspar Robertson was involved in the first balloon experiments in France. See also: Lily Ford, “‘For the Sake of the Prospect’: Experiencing the World from Above in the Late 18th Century” (https://publicdomainreview.org/2016/07/20/for-the-sake-of-the-prospect-experiencing-the-world-from-above-in-the-late-18th-century/) and Part II “‘Unlimiting the Bounds’: the Panorama and the Balloon View” (https://publicdomainreview.org/2016/08/03/unlimiting-the-bounds-the-panorama-and-the-balloon-view/).


Biography

Since March 2007, **Kati Röttger** is professor and chair of the Institute of Theatre Studies at the University of Amsterdam. She had completed her doctoral studies at the Freie Universität Berlin, Germany, on Collective Creation in the New Colombian Theatre. After having completed a postdoc at the Graduiertenkolleg ‘Gender-Difference and Literature’ at the Ludwig-Maximilians-Universität München (Germany) in 1998, she was appointed at the Johannes Gutenberg Universität Mainz (Germany) as Assistant Professor where she wrote a *Habilitation* about ‘Theatre as Medium of Vision’. Her recent research topics are International Dramaturgy and Technologies of Spectacle.