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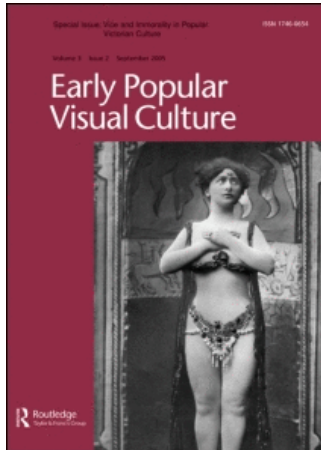
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# MOVABLES, MOVIES, MOBILITY: Nineteenth-century looking and reading

**Eric Faden**

*While one typically associates the phrase ‘moving pictures’ with early cinema, in fact, the term originates with a severely under-researched nineteenth-century literary and visual practice: the movable (‘pop-up’) book. Interestingly, movables share several visual tendencies with cinema, and one early cinema pioneer held patents on both cinematic devices as well as movable books. This article examines the movable book’s history in the nineteenth century and analyzes its various approaches to creating movement and depth on the page. Given the movable book’s lack of scholarly research, the article draws on visual and media literacy’s work on children’s picture books plus primary source research on nineteenth-century movables and interviews with contemporary ‘pop-up’ authors to formulate some initial theoretical approaches on how young nineteenth-century readers (or ‘listeners’) engaged the movable book. The article hypothesizes that the nineteenth-century movable book’s method for combining linear storytelling with visual spectacle and surprise may help explain certain visual and storytelling strategies in early cinema. Specifically the article compares the movable’s traits with early examples from Eadweard Muybridge’s chronophotographs, the Lumière Brothers actualities, Edison’s kinoscope films and early Méliès ‘trick’ films. Finally, the article suggests that certain formal and thematic paradigms in the movable book may even carry over into contemporary ‘spectacle narratives’ evident in Hollywood cinema today.*

## Introduction

Although we typically associate the phrase ‘moving pictures’ with early cinema, what we now call the children’s ‘pop-up’ book was actually what the term described in the 1860s. While this connection may seem an unusual cinematic relation, the pop-up book and cinema also share a linked etymology: pop-ups were originally called ‘movables’ and cinema was to become, of course, ‘the movies’. Movables originated as early as the thirteenth century, but achieved their first ‘golden age’ contemporaneously with cinema’s invention in the late nineteenth century. In fact, one early cinema pioneer held patents on numerous cinematic devices plus patents for constructing pop-up books.<sup>1</sup> These curious connections struck a chord with me since both movable books and the movies also significantly depend on negotiating a balance between linear storytelling and visual display. I wondered if historical research and theoretical analyses of movable books might inform and enlighten ideas on cinema’s invention and its storytelling practices. Yet, to my surprise, the movable book remains severely under-researched and virtually no scholarly work consciously connects the nineteenth-century movable book to early cinema. Given film and media study’s ongoing debates over cinema’s narrative and/or spectacular origins, I thought research into a similar contemporaneous practice

might prove valuable. Indeed, as I suggest in the conclusion, understanding how the nineteenth-century movable balanced storytelling and visual display might even help inform today's classical versus postclassical Hollywood debate.

Of course, the movable book obviously exists as a quite different medium than cinema and we must proceed cautiously in drawing comparisons. Indeed, even comparing the two forms initially strikes one as awkward and ill-advised. After all, movable books target children and most likely would be consumed by small groups in a private, domestic environment. Cinema, by contrast, appears as an almost exclusively public, mass entertainment form. Yet, we should recall that cinema's invention emerged from a long line of nineteenth-century optical technologies, many of which made their way into the home as children's toys—from the phenakistoscope and zoetrope to children's magic lanterns. Indeed, as scholar Melanie Dawson suggests in *Laboring to Play*, domestic space in the Victorian and Edwardian era became an intense site for home entertainment, games, theatrical plays and optical demonstrations.<sup>2</sup> While the Lumières much celebrated Cinématographe was clearly designed for public exhibition, they also created a domestic film viewer called the Kinora for home use.<sup>3</sup> The Kinora, though ultimately unsuccessful, demonstrates that cinema was initially an ambivalent institution experimenting with both public and private exhibition settings. So, the movable book put within the context of other nineteenth-century practices might not be so far removed from early cinema as initially suspected.

Before discussing movable books in depth, I want to define briefly how I use the term 'early cinema' since its theoretical underpinnings link to how I theorize movable books further below. Prior to recent historical revisions, scholars tended to group all cinema prior to D. W. Griffith as one monolithic genre. In the 1980s, Tom Gunning's concept of a 'cinema of attractions', which defined pre-1907 cinema as based on spectacle and direct spectatorial address rather than narrative absorption, gained considerable favor.<sup>4</sup> Now, with an ever-growing body of early cinema research, even Gunning's concept faces revision. Indeed, scholars continue to define this era with increasing precision and detail and have shown that much early cinema constituted a delicate calculus incorporating elements of both attractions *and* narrative. For instance, even a quite early revisionist essay like André Gaudreault's 'Film, Narrative and Narration' suggests that the relatively laconic Lumière films can be considered narratives precisely because they record an event's duration over time.<sup>5</sup> Gaudreault called this type of narrative 'monstration' (based on the French verb *montrer*, 'to show'). As films incorporated multiple shots and transition types, Gaudreault suggest a second type of narration—a cinematic narrator—'guides' the spectator from shot-to-shot, cause-to-effect, and event-to-event.<sup>6</sup> As Charles Musser asserts, this narrator initially existed external to the film in the form of lecturers, musicians and/or actors lip-synching dialogue.<sup>7</sup> Moreover, even first-level 'monstration' films (i.e., those relying more on attractions and spectacle) could adopt a larger narrative context by a projectionist arranging different individual films into a multi-film program shown to an audience.<sup>8</sup> Over time, film producers eventually took over this programming aspect with self-contained multi-shot films. With cinema's further institutionalization, this narrating function was increasingly internalized (for both filmmakers and spectators) and gradually eliminated the reliance on external narrators.

Recent work by Gaudreault and Philippe Marion theorizes a genealogy of how media technologies become autonomous institutions and traces early cinema's

transition into its more familiar narrative form. For them, media technologies are born twice: first, technologically and second, institutionally. That is, cinema's technical appearance marked a prolonged period of formal experimentation, reflexivity and numerous methods of production, distribution and exhibition. During this period, we see many different types of early cinema and as Gaudreault and Marion state:

This culture was of necessity intermedial and was characterized by an ongoing institutionalization—by a hodgepodge of neighbouring institutions which by definition were not 'cinematic.' It was by means of this *unstable culture* that the Cinématographe began the process of *becoming an autonomous medium of expression*.<sup>9</sup>

This pre-institutional phase of early cinema particularly interests me because it is by definition the period that cinema interacts most intensely with other media and thus when it might have its most obvious connections with movable books. Indeed, the field of intermediality has weaved a rich tapestry where early cinema emerges from a mixed variety of nineteenth-century technologies, tendencies and traditions. This work weaves another small row to that historical tapestry by examining the movable book's connection with early cinema in three sections. First, I will provide an historical overview and cultural context for the movable book, concentrating especially on the movable's visual style. Second, since the movable remains so under-studied, I draw on scholarly work in visual literacy about children's picture books plus primary source research with nineteenth-century movables to theorize how readers engaged the movable book. Third and finally, I link these historical and theoretical ideas on movables to pre- and early cinema practices. This article does not so much argue that movable books somehow anticipated or should be equated with early cinema (they are, after all, quite separate media), but that both media were interested in similar problems: how does one 'visualize' information in ways that interacted with an audience? Or, how does one mix narrative with spectacle and attraction? What's the right balance? What produces the most pleasure and entertainment? This article suggests that movable books and early cinema shared numerous similar approaches to working through these issues.

### Early movable history: Paper is not iron

Initially, the similarities between nineteenth-century movables and early cinema's content caught my attention. Several early films, in fact, appear to be loose 're-makes' of movable books with either similar stories, images, or both. After some basic research, I was struck by certain formal conventions that movables and cinema seemingly shared: their exploration of depth, an interest in three-dimensional mobility, revealing views, and encouraging spectators and readers to 'scan' the page/screen for details. Yet, the scarcity of information on movables proved daunting and the reader should understand that this article provides initial and preliminary thoughts on what seems a rich and meaningful connection with early cinema. Of course, some valuable resources exist, but even the most authoritative source—Peter Haining's *Moveable Books*—is almost 30 years old, out of print, and written for the general reader and collector.<sup>10</sup> Others, like Hildegard E. Krahé or Michael Dawson, provide strong biographical histories of early movable authors and/or publishing firms, but avoid close analysis of specific books.<sup>11</sup> More

recent work such as curator and collector Ann Montanaro's excellent short essay proves ideal as a special exhibit introduction, but remains (quite intentionally) brief and limited in scope.<sup>12</sup> Few, if any, scholars have theorized how readers negotiate the movable's balance between the narrative's linear storytelling and the visual's interactive and spectacular tendencies. In fact, only recently, with visual and media literacy's rise, have serious studies and theories of children's picture books surfaced. Yet seldom do these works mention or even consider movables, though admittedly their theorization provides us with a good starting point.

This scarcity of information probably has several sources. Movables—somewhat like early nitrate film prints—were fragile, delicately constructed objects that seemed somewhat disposable at the time of their invention. As a result, many nineteenth-century movables appear to have perished at the hands of their zealous young readers. In fact, the preface to *Little Folks Living Nursery Rhymes in Moving Pictures* (c.1860s) warns young readers in all caps to 'RECOLLECT THAT PAPER IS NOT IRON'.<sup>13</sup> Since movables were largely for children and purely 'entertainment', they appear to have spurned serious scholarly attention for many decades. Also, few scholarly resources exist for examining early movable books. Many of the most interesting examples belong to private collectors and prove difficult to access. Recently, however, a few libraries in the United States (most notably, Princeton and the University of Virginia) have built collections, and several other universities (Rutgers and the University of North Texas) have hosted special exhibits on movables.<sup>14</sup> Moreover, a professional society (the Movable Books Society) has recently formed with collectors, librarians, curators and authors meeting bi-annually.

Historically, movable books appeared as early as the thirteenth century as scientific objects for adults rather than entertainment for children. By the sixteenth century, rotating wheels called 'volvelles' (Latin for 'to turn') were used for astronomical and anatomical charts. In some ways, this initial usage mirrors pre- and early cinema's scientific-industrial transition from Etienne-Jules Marey, Georges Démeny and (arguably) Eadweard Muybridge's scientific uses of chronophotography for analyzing human and animal locomotion to Thomas Edison and Auguste and Louis Lumière's transformation of cinema into a mass entertainment medium. By the mid-eighteenth century the movable left its scientific pretenses behind as the first movable books for children slowly appeared.

Publishers employed numerous techniques to create motion on the page. For instance, 'Harlequinade' books' pages folded out in sections to show story developments. Some books, like F. C. Westley's *The Paignion* (c.1830), literally required the reader to interactively 'illustrate' the *mise-en-scène* by placing cut-out characters into various slots on the page. The 'peep show' book used cut outs to mask and layer scenes. Some books physically stretched back (up to one foot in depth) so readers viewed multiple planes (usually between three to eight different planes) of depth when looking through the peephole. Haining links these books to the traveling peepshow tradition which soon developed into traveling magic lantern and cinematograph shows.<sup>15</sup> No doubt too that the circular cut out used in peep shows, lantern shows and movable books segued into the circular iris transition so emblematically displayed in early films. Movables also emulated other visual entertainments like the panorama. For instance, Lothar Meggendorfer's *The Circus* (c.1886) is one continuous panel with each page alternately folded like a roman shade. Thus one can 'read' it as a 'normal' book turning from

page to page or, when outstretched, the reader can display it as a single panorama nearly 12 feet wide! An advertisement for *The New Magic Peep-show Picture Book* (c.1862) situates these books within the sphere of other nineteenth-century visual practices noting they exhibit ‘wonderful and life-like varying effects of distance and space, somewhat similar to the stereoscopic panoramic views’.<sup>16</sup>

By the late 1850s, British publisher Dean and Son created what we typically consider a ‘pop-up’ book today. These books used multiple cut outs aligned on the page to form three-dimensional background, middle ground and foreground images. The cut outs laid flat on the page, but were connected by a ribbon that, when pulled, raised the scene up and revealed the text underneath. The publisher adapted popularly known tales like *Little Red Riding Hood*, *Robinson Crusoe*, *Cinderella* and *Aladdin*. By the 1860s, Dean and Son expanded from folk tales to popularly known nursery rhymes and introduced discreet motion within the images (now called ‘Moving Pictures’) by adding tabs to the pages. When pulled, the tab mobilized specific characters or actions on the page. In the 1890s, Ernest Nister, a German publisher, refined Dean and Son tab engineering with their ‘changing pictures’ series. Here, when readers pulled a page’s tab, the image slowly transformed by means of cut slats that slid over each other creating a dissolve-like effect. Around the same time, Nister (and his American publisher, E. P. Dutton) also introduced ‘revolving scenes’, where tabs transformed images through a kind of circular ‘wipe’ that rotated an image away to reveal another image hidden underneath.<sup>17</sup>

Given movable book’s printing complexity and added labor, from the 1860s to the turn of the century only a few specialized artists and publishers—many of German origin—produced books. These publishers, however, continued to refine and innovate. For instance, Raphael Tuck competed early on with Dean and Son. Although Tuck was based in England, his books were printed in Germany and renowned for improved printing, shading and coloring.<sup>18</sup> Many collectors widely recognize another German, Lothar Meggendorfer, as the early movable book’s premiere auteur. He often combined various techniques onto a single page. For instance, *Always Jolly* (c.1890) includes pages with layers of depth that were also discreetly movable. Collector and curator Ann Montanaro notes:

Meggendorfer devised intricate levers, hidden between pages that gave his characters enormous possibilities for movement. He used tiny metal rivets, actually tight curls of thin copper wire, to attach the levers, so that a single pull-tab could activate all of them, often with several delayed actions as the tab was pulled further out.<sup>19</sup>

The late nineteenth century represented the movable books’ first ‘golden age’. During the 1910s, as cinema transformed from ‘attraction’ to narrative, movable books declined in popularity. The decline resulted from First World War printing constraints as well as an increase in children’s diversions (one of which was undoubtedly the movies themselves). Yet one last artist merits attention because he directly connects the movable book to cinema. In the late 1920s, Theodore Brown, a British inventor who specialized in magic lanterns and cinematography earlier in the century, patented a technique that allowed movables to display full three-dimensional images (rather than flat fore, middle and background panels) with discrete movable parts within the structures. The publisher S. Louis Giraud (the patent’s joint owner) exploited the technique in a series of annuals for the *Daily Express* newspaper and, later, the *Bookano* series.<sup>20</sup> Brown’s

innovation was merely one of several investigations into displaying three-dimensional objects. For example, in 1918, he patented a projection system called the 'Plastoscope' for projecting stereoscopic motion pictures. Brown even carried over certain nineteenth-century 'screen practices' into the pop-up book. For instance, according to Herbert, in *Bookano Stories #2*, he uses the 'Pepper's Ghost' technique to display an ethereal, translucent angel.<sup>21</sup> When turning the page a three-dimensional house 'pops-up' and the reader looks through a window to observe the ghostly angel free-floating within the house.

### Movable theory: 'The open-both-your-eyes book'

As mentioned above, movables remain under theorized. There is, however, recent scholarship on children's picture books that provides a starting point for considering how readers engage and understand movables. While the static nature of children's picture books obviously differs from movables, picture books do require their readers to negotiate different modes of address and this, at least, can provide us with some theoretical beginnings for understanding movable books. Below I introduce some of the picture books' more predominant theoretical concepts. From there, I will suggest some theoretical elements specific to movables and link these practices to pre- and early cinema traditions.

Like movables, picture books primarily address children though, of course, certain 'mutations' (the comic book or graphic novel) cross over into adolescence and adulthood. Scholars have only recently studied how children (and adults, for that matter) navigate between a book's linear narrative versus its visuals. For education scholars Evelyn Arizpe and Morag Styles picture books are not simply stories with illustrations, but something more complex: 'books in which the story depends on the interaction between written text and image and where both have been created with a conscious aesthetic intention'.<sup>22</sup> Indeed, much research has centered precisely on this *interaction* between word and image. Initially, this interaction might seem paradoxical. As Lawrence Sipe observes, picture books force readers to negotiate two different presentational modes: 'The verbal text drives us to read on in a linear way, where the illustrations seduce us into stopping to look.'<sup>23</sup> Despite this seemingly contradictory negotiation, picture books' enormous popularity must obviously produce pleasure. Hence, many scholars explain this process not as a tension, but as a calculated method encouraging an *interactive engagement* by the reader. For instance, several researchers note successful picture books depend on creating intentional 'gaps' in meaning between the reader, the image and the text. David Lewis describes how images and text, rather than repeating information, fill in the other's fissures: 'A picture book's "story" is never to be found in the words alone, nor in the pictures, but emerges out of their mutual interanimation. The words change the pictures and the pictures change the words and the product is something altogether different.'<sup>24</sup> Children's author Anthony Brown pushes the point further when asked by an interviewer if he consciously creates certain meanings for words and certain meanings for pictures: 'Yes, *and some things you say in the gap between the words and pictures*.'<sup>25</sup> For Sipe, this practice where readers must actively engage and negotiate between different presentational modes encourages critical inquiry: '[P]icture books seem to demand rereading; we can never quite perceive all the

possible meanings of the text, or all the possible meanings of the pictures, or all the possible meanings of the text-picture relationships.’<sup>26</sup>

Where do movables fit into this process? Obviously, the same negotiation between narrative development and visual arrest remains. Yet, movables emphasize visual scanning, tactility and exploration even more than the picture book. While much of the picture books’ theoretical discussion centers on properly ‘balancing’ word and image, with movables, this balance skews more toward the visual and tactile. Renowned contemporary pop-up artist and author Robert Sabuda notes pop-ups interactively engage the reader in a direct, physical way: ‘It’s a completely different book experience. There’s a different kind of engagement mechanism. . . . They come right out and touch you. I’ve seen people jump back and that’s a serious reaction, very visceral.’ Cinema—as both a medium and an industry—has long promoted the type of engagement Sabuda describes, from the myth of the Lumière audience fleeing an oncoming locomotive to the publicity and marketing campaigns for widescreen, 3-D and digital effects spectacles.

Even in the 1860s, the movables’ marketing hinted at this ‘different kind of engagement’. For instance, Dean and Son books were subtitled ‘scenics’ or ‘surprise picture books’. These descriptors imply a different reading procedure—one based on looking, scanning and contemplation. These books included dense illustrations thick and overflowing with ornamental details and often depicting large crowds, perhaps echoing other nineteenth-century obsessions with urban, anonymous masses like Edgar Allan Poe’s ‘Man of the Crowd’, Gustave Caillebotte’s urban impressionist paintings or the Lumière actualities. Books displaying multiple planes of depth (or later books, like Brown and Giraud’s three-dimensional displays) encouraged readers to study carefully the illustrations for small details and nuances. In fact, their layout *necessitated* reader interactivity by their very design. Dean and Son’s *Cinderella* (c.1862) provides a typical example. On page three, the fairy godmother prepares Cinderella for the ball: ‘The fairy just touched the pumpkin with her wand and lo! it became a splendid carriage!’ The two exclamation points emphasize the action’s spectacular nature. Yet, on the page’s accompanying pop-up, Cinderella and the fairy godmother stand in the middle ground, completely obscuring the carriage that resides in the background and to the *mise-en-scène*’s far right (Figure 1). In effect, the reader must actively search out this central narrative detail because it remains hidden on initial viewing.

This example (one of many found in Dean and Son’s books) suggests nineteenth-century readers had to carefully view and then *re-view* the images from different perspectives while comparing them to the text. With Dean and Son’s books, the reader had to literally stop reading and rotate the book to reveal different details and/or views that corresponded to the text’s narrative. The preface to Ernest Nister’s *The ABC Surprise Book* (c.1890s), explicitly encourages this kind of visual scanning while reading:

This is the book for you and me/‘The ABC Surprise Book’/  
I think it ought to be/‘The Open-both-your-eyes Book.’/  
For oh! The things there are inside/And what you see behind them/  
Will open all your eyes quite wide/The moment that you find them./  
For don’t you think that that’s the book/To make you stare with wonder/  
That shows one picture while you look/And then another under?



**FIGURE 1** Dean & Son's *Cinderella*. Image courtesy Cotsen Children's Library at Princeton University Library.

Indeed, other books provided pedagogical instructions on how to 'look' and 'read' both the text and images. For instance, in Meggendorfer's *Drehbilder-ABC* (c.1890), nearly every page depicts children gazing at particular framed objects or tableaux—chalkboards, mirrors, paintings and so on. In every case, the object of their gaze was also the 'movable' element in the page (Figure 2). Thus, for the reader, the *mise-en-scène*'s characters served as a type of visual surrogate instructing, pointing and guiding the reader on where to look. Several early films like *As Seen Through a Telescope* (1900), *Sick Kitten* (1903) and *Grandma's Reading Glass* (1900) use a similar pedagogical strategy where early audiences were acclimated to close-up views through a mediated viewer within the *mise-en-scène* using various optical devices like telescopes or magnifying glasses.



**FIGURE 2** Pedagogical Looking: Meggendorfer's *Drehbilder-ABC*. Image courtesy Cotsen Children's Library at Princeton University Library.

Beyond spatial *mise-en-scène*, the movable—like cinema—also employs a temporal aspect. Robert Sabuda notes: 'I like the idea of a four-dimensional book which has not just the three spatial dimensions but also the element of time.' This temporal aspect especially dominated Meggendorfer's early pull tab books. Yet, with Meggendorfer and others, the goal was not simply having a single, central predictable action, but a *sequence* of multiple unexpected and surprising events often occurring on the page's periphery. For instance, in Meggendorfer's *Für Brave Kinder* (c.1885), a cat, centered on the page, eyes a frightened mouse in the lower left-hand corner. Predictably enough, when the reader pulls the tab, the cat lunges for the retreating mouse. Surprisingly, however, at the sequence's halfway point, a previously unseen mouse emerges from behind a fence at the top of the page poised to pounce on the unsuspecting cat.

All of these visual aspects were not completely at the narrative's expense, however. For instance, the preface to *Little Folks Living Nursery Rhymes in Moving Pictures* reminds the (apparently adult) reader that if the visuals move 'at the proper place in the verse, the interest of the child is intensified, as the author and artist have found by experience'.<sup>27</sup> In effect, this preface calls for a kind of 'synching' between text and image for a particular narrative effect. Furthermore, numerous nineteenth-century movables were derivative texts—that is, they 'adapted' popular stories and nursery rhymes with which their young readers were likely already to be familiar. Thus, while movables initially appear to favor visual and tactile elements over narrative, it is likely that their young reader's external knowledge (or, at the very least, the reader's parents or nanny) compensated for the book's relative paucity of narrative information.

To relate movable books back to André Gaudreault's work, we might theorize movable books as simultaneously containing two levels of narration: the movable image

that shows a space, action or transformation over time ('monstration', to use Gaudreault's term), and the text and its external referents that tells ('narrates') a linear story. Early cinema operated similarly. Film scholar Noël Burch, for example, notes that Edwin S. Porter's film adaptation of *Uncle Tom's Cabin* (1903) remains almost completely 'un-readable' to today's audiences because, unlike contemporary narrative cinema's holistic diegetic universe, the 'story and characters were assumed to be familiar to the audience'.<sup>28</sup> Thus, Porter's film does not even follow the book's chronology, but instead highlights the book's most exciting or spectacularly visual moments and it was up to the audience (and the exhibitor) to situate these scenes into the larger narrative sequence.

### Movables and pre- and early cinema

How does this initial theoretical analysis relate to early cinema and the various screen practices just prior to cinema's invention? While clearly movable books and early cinema struck a balance between narrative and spectacle, I want to concentrate below on their shared visual approaches to storytelling and spectacle. In his canonical essay, 'The Cinema of Attractions', Tom Gunning argues the aesthetic division established by previous film historians between the Lumières' realistic actualities and George Méliès' magical trick films might be united conceptually under the umbrella of 'attractions'.<sup>29</sup> I find Gunning's concept useful, but want to suggest that some of the movable book's storytelling and visual display patterns might shed even more light on early cinema's formal paradigms.

Beyond their 'ability to *show* something',<sup>30</sup> the Lumière and Méliès films also share a visual aesthetic of play and exploration similar to the movable. For instance, many Lumière actualities emphasize the three-dimensional depth central to movables by framing actions so they move both *across* the frame as well as from foreground to background (or vice-versa). Their first film, *Sortie d'usine* (1895), shows their workers exiting the factory toward the camera and then fanning out toward the frame's left and right edges. The Lumières' constant emphasis on depth may have been a response to other nineteenth-century stereoscopic and three-dimensional devices (movables included). Many motion picture innovators, including Etienne-Jules Marey, Eadweard Muybridge, William Friese-Greene and Augustin Le Prince, all toyed (mostly unsuccessfully) with recording and projecting three-dimensional images. The Lumières, however, abandoned that approach and instead used deep-focus photography and lateral, curvilinear and diagonal motion within the *mise-en-scène* to propose effectively a 'software' solution for stereoscopic motion pictures.

Moreover, their films 'play' with elements of surprise and excess employed by movables and storybooks. Just as Sipe noted how the picture books' surfeit of meaning compelled audiences to re-view the text and images, the Lumière films' numerous simultaneous details (e.g., crowded street scenes with multiple elements moving in discreet directions) overwhelmed audiences and often required repeated viewings so spectators could ingest the individual details and layers of depth. Indeed, an 1897 review of a Lumière exhibition in Rochester, New York, notes: 'People go to see it [the film screening] again and again, for even the familiar views reveal some new feature with each successive exhibition.'<sup>31</sup> Just as movables encouraged readers to contemplate and

explore different planes of depth, early cinema spectators seemed equally attuned to foreground *and* background details. For instance, from the same Lumière review quoted above, the writer comments on both *Repas de bébé*'s (1895) central action (i.e., the baby eating) as well as 'the pretty background of trees and shrubbery, whose waving branches indicate that a stiff breeze is blowing'.<sup>32</sup>

One can see a similar aesthetic in Méliès' films. Unlike the Lumière actualities, Méliès filmed primarily indoors on constructed sets and openly embraced spectacular effects through cinematic manipulations. Several of his films depended on 'magical' rearrangements of static tableaux. For instance, in *The Cook in Trouble* (1904), Méliès shows a kitchen tableau with ovens, doors, sinks and various storage boxes. When a chef (played by Méliès) unwisely turns away a begging wizard, he unleashes several magicalimps on the kitchen and, predictably enough, chaos ensues (Figure 3). For Méliès, the chaos follows Meggendorfer's pop-up logic: given a static tableau and the possibilities of stop-motion substitution-splicing, how many different areas of the *mise-en-scène* can be manipulated and moved? Unfortunately for the chef, the answer appears to be 'a lot' as theimps surprisingly emerge from the oven or a storage box, roll down the stairs and then magically disappear before rematerializing in some other part of the set. Like the movable book, this film engages its audience in a type of game bouncing between narrative expectations and visual surprise. In both the movable and Méliès' films, the narrative creates a familiar and basic frame in which any number of unexpected and surprising events might occur. Noël Burch suggests a similar aesthetic in the Lumière's films where the camera's literal frame anticipates general actions (e.g., the train arriving in a station), but audiences revel in the particular, unpredictable details depicted within the *mise-en-scène*.<sup>33</sup>

In other films, Méliès 'plays' with the possibilities of depth and flatness. For instance, in *Voyage dans la lune* (1903), the second scene depicts a space capsule's construction. Initially, as the actors walk on screen, the capsule appears as a flat façade, a mere painted backdrop. The actors, however, soon demonstrate to the contrary as they walk *inside* the capsule, pointing out its various attributes and 'occupy-able' spaces. An opposite convention, exemplified in the capsule boarding sequence, relies on 'flattening' a three-dimensional space. Here, the relatively flat capsule and 'cannon' are painstakingly made to look three-dimensional with painted light reflections providing the illusion of depth. Yet the actors soon spoil this illusion when loading the capsule into the cannon, quickly revealing both props as flat panels rather than fully realized three-dimensional objects.



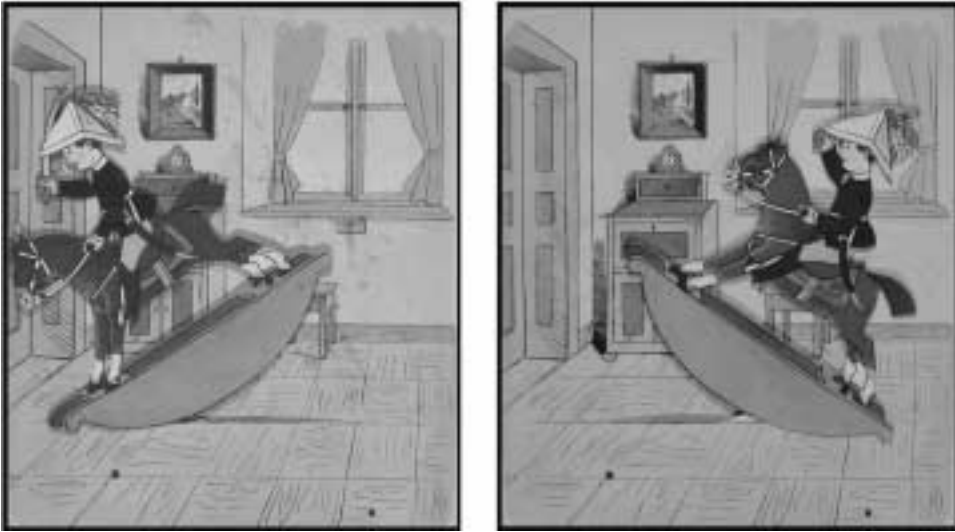
**FIGURE 3** Méliès' *The Cook in Trouble*.

So just as the movable flattens and pops-up with each turn of the page, many early films, by continually reversing the polarity of conventions like depth, framing, editing and *mise-en-scène*, constantly challenged, tested and exploited audience expectations. If Nister asked the movable's reader 'to open both your eyes', Noël Burch notes early cinema's audiences were ever 'on the look-out for the surprises of a *booby-trapped surface*'.<sup>34</sup>

Beyond sharing similar spatial conventions with movables, pre- and early cinema also incorporated a particular temporal practice found in the movable book: the motion cycle.<sup>35</sup> This practice 'loops' a single action cycle (like a see-saw's to-and-fro motion, or in chronophotographer Eadweard Muybridge's case: a horse's gait) creating the illusion of perpetual motion. Several pre-cinematic devices like the zoetrope and the phenakistoscope utilized motion cycles to indefinitely extend 'running times' by carefully repeating a short image series. Chronophotographers like Muybridge and Ottomar Anschutz extended this practice with projections of photographically based loops.<sup>36</sup> This illusion of perpetual movement, however, required *very* precise matching of the action's first and last frame to appear smoothly continuous. While there is no direct evidence of Muybridge 'editing' for continuity, Marta Braun's impressive research demonstrates he routinely manipulated, arranged, and cropped his sequences.<sup>37</sup> Moreover, H. L. Bell, one of Muybridge's photographic assistants at the University of Pennsylvania in the 1880s, recalls Muybridge designated certain photographic plates as 'zoopraxiscopic'—that is, short sequences that could repeatedly loop in Muybridge's film projector, the zoopraxiscope.<sup>38</sup>

Prior to Muybridge, both magic lanterns slides and movable books demonstrated the same principle. With magic lanterns, a variety of slides simulated repeatable movements—for instance, rackwork slides used a crank to rotate a circular glass plate behind a fixed glass plate. John Barnes notes these slides were ideal for depicting on-going movements like 'windmills with revolving sails and watermills'.<sup>39</sup> Meggendorfer's book *Für Brave Kinder*, depicts a similar continuous motion with a child riding a rocking horse: when the reader pulls the page's tab, the horse 'rocks' to the far left; restoring the tab 'rocks' the horse to the far right (Figure 4). Thus, repeatedly moving the tab to-and-fro creates a perpetual animation of the child gleefully rocking away. Likewise, Meggendorfer's *Prinz Liliput Ein Fustiges Ziehbilderbuch* (c.1882) depicts a bird flying. Here, a tab pull causes the wings to flap up and restoring the tab 'completes' the cycle with the wings flapping down. What purpose might this type of movement serve? While only conjectural, it is possible that this looped movement responded to a storytelling problem. As mentioned earlier, the preface of some movable books cautioned their adult readers to 'synch' the page's various movements with the proper narrative moment. These warnings' existence implies a lack of 'synch' spoilt the storytelling process by having the visuals 'jump ahead' of the narrative. By contrast, continuous motion cycles can visually play 'across' the adult reader's potentially long-winded narration with no worries as to when a younger listener should start or stop the movement. This idea might also explain Dean and Son's polycentric design in books like *Cinderella*: obscuring narratively important visual elements and arranging them across the tableau may have kept the book's young reader (or listener) visually engaged and occupied as the story unfolded.

While we typically associate this type of looped movement with chronophotography and its associated screen practices, in fact, the motion cycle carries over into early cinema and as I suggest in the conclusion, also to contemporary cinematic practices. Of



**FIGURE 4** Motion Cycles: Miegendorfer's *Fur Brave Kinder*. Image Courtesy Cotsen Children's Library at Princeton University Library.

course, early devices like Edison's Kinetoscope were literal endless 'loops' of 35mm film. As an early Edison sales catalog indicates, the coin-operated Kinetoscope was merely timed to run for about 30 seconds with no specific start or end point.<sup>40</sup> And, according to Deac Rossell, the Vitascope's 1896 premiere (Edison's projecting device) used two Vitascopes, where one device repeated a continuous loop while a projectionist threaded a second device.<sup>41</sup> A newspaper review of that evening notes the repeated imagery: 'Then came the waves, showing a scene at Dover pier [Robert Paul's *Rough Sea at Dover* (1896)] after a stiff blow. This was by far the best view shown, and had to be repeated many times.'<sup>42</sup> Given these initial exhibition conditions, we might infer that Edison's various devices 'naturally' leaned toward subjects avoiding a clearly demarcated beginning and end.

While Edison's Kinetoscope forcibly looped its movies, the Lumière films aesthetically embraced the idea even though their Cinématographe could not physically loop film like the Kinetoscope. For instance, Marshall Deutelbaum observes that many early Lumière films begin and end with similar imagery. He notes, referring to *Sortie d'usine*, 'so similar in appearance are these opening and closing images to one another, in fact, that if one were to loop the film into a continuous band the action would appear to be a single periodic event'.<sup>43</sup> However, in some cases, one does not have to imagine the film as a 'loop' because some Lumière films were *literally* constructed out of repeated footage.<sup>44</sup> One obvious example might be *Demolition of a Wall* (1895), where workers sledgehammer a wall until it collapses. To our surprise, however, after the wall crumbles, the footage loops backwards to resurrect the wall back into place. This film perhaps reflects more about exhibition practices and the uncanny pleasures audiences must have felt when early projectionists played a film backwards, but it nonetheless demonstrates a practice where footage repeats back to its starting position. Another Lumière film, *Children Swimming in the Sea* (1895), represents a much more subtle, but



**FIGURE 5** The Lumiere Brothers' *Children Swimming in the Sea*.

literal example. This film shows four children taking turns running down a dock and bounding into the sea only to swim to shore again and repeat the process. Under careful viewing, however, we can see that this 48-second film is, in fact, really only a 29-second film that almost loops twice (Figure 5).

Why did the Lumières work this way? A number of explanations are possible and point out directions for further research. From a purely pragmatic viewpoint, filming cyclical actions might have served as a type of 'insurance' policy against camera malfunctions or celluloid defects.<sup>45</sup> If the *Cinématographe* was in any way unreliable or inconsistent, then filming a linear action with a clearly designated 'beginning' and 'end' proves more challenging than cyclical actions. On a more theoretical level, this practice might fit into what Tom Gunning calls early cinema's tendency for 'unified' and 'continuous' viewpoints. Gunning explains that Méliès' substitution-splice technique maintains 'a continuity of action *and* (in contrast to later continuity editing) a continuity of framing'.<sup>46</sup> In essence, Méliès' near-invisible editing technique used separate shots to present the illusion of an uninterrupted, continuous flow of time. The Lumières' cyclical films suggest a variation on Gunning's idea. Here, the *same* shot—but carefully timed, matched and framed to present a cyclical action—repeats to produce a perpetual motion. In either case, the illusion of an uninterrupted, continuous time/space sequence is presented. A final explanation might situate this practice in relation to the movable books' perpetual motions: like Meggendorfer's perpetual movement or Dean and Son's obscured layouts that 'occupied' the listener while the story was read aloud, we should remember that the earliest films were far from coherent, unified narrative products. Indeed, the images were merely one of several (and by no means necessarily the most central) simultaneous 'texts' (musical scores, a lecture's notes) delivered to audiences to create a unified 'presentation'. Edison and the Lumières' looped imagery might have been an historically temporary 'placeholder' as musicians and lecturers moved through their more elaborated and defined scores and scripts.

### Conclusion: Contemporary storytelling and spectacle

Does this research on the earliest 'moving pictures' and their relationship with cinema's invention have relevance to today's filmmaking practices? I think it does. Within the classical versus postclassical theory debate, a number of scholars like Geoff King,

Michelle Pierson and Angela Ndalians suggest contemporary Hollywood cinema returns to a 'cinema of attractions' presentational mode.<sup>47</sup> Indeed, even Gunning himself noted that the cinema of attractions never disappeared completely after early cinema, but goes 'underground' sporadically re-emerging in certain phases of film history. If Hollywood's digital-effects-driven 'spectacle narratives' represent a returned 'cinema of attractions', then do the formal and thematic paradigms associated with movable books also re-appear? Though speculative, I want to suggest three contemporary practices that parallel the movable's presentational mode.

From a visual viewpoint, spectacle narratives share the movable's fascination with depth and mobility. In these films, the establishing shot's function changes. In classical cinema, the establishing shot introduces location with long shots often including narratively significant characters or objects within the space. After establishing location, the director remains free to cut into medium shots or close-ups without fear of spatially 'losing' the audience. In contemporary spectacle cinema, however, the establishing shot does more than merely spatially locate and orient the spectator. For instance, in *Lord of the Rings: Return of the King* (Jackson, 2003), a basic narrative action occurs: Gandalf (Ian McKellen) and Pippin (Billy Boyd) leave Edoras via horse and arrive at Minas Tirith. Nothing happens to Gandalf and Pippin as they arrive: they are not attacked, nobody dies, there is no resistance (in fact, the townspeople barely take notice of them), they do not fall off the horse, the horse is not spooked by a loud noise (or the deafening musical soundtrack) and so on. Yet this basic narrative information—'Gandalf and Pippin have arrived'—takes 17 separate shots and over 90 seconds of screen time.<sup>48</sup> Here, the establishing shot does not so much indicate the characters' arrival as 'explore' Minas Tirith with slow, sweeping virtual long shots of the walled city. The shot's distance renders the central narrative action as barely visible in the *mise-en-scène* and the sequence slowly rotates, as if a giant pop-up, so the spectator can observe the city's architectural details. These shots establish location, but also temporarily *deviate* from the narrative by inviting the spectator to survey the virtual on-screen space with shots that rotate, zoom and track around the location. This narrative *deviation* through visual exploration recalls Anne Friedberg's concept of the 'virtual mobilized gaze':<sup>49</sup> a new perceptual mode initiated by nineteenth-century practices based around wandering, gazing, shopping, *flânerie* and cinema. While not mentioned explicitly, the nineteenth-century movable book's visual techniques fall squarely within Friedberg's perceptual theory.

A second carry-over from the movable involves spectacle cinema's (perhaps unconscious) use of motion cycles. Because it would be too labor and time intensive to individually animate a digital effect frame-by-frame, programmers often create a single digital motion cycle of an object or animal and then repeat the movement. For example, in *Jurassic Park* (Spielberg, 1993), the gallimimus stampede near the end of the film is not only a single gallimimus 'copied and pasted' to form a herd, but also just a single motion cycle of its gait endlessly repeated to create the illusion of continuous movement. This 'copy and paste' economy paradoxically lends itself to spectacle cinema's *excess* of detail. Programmers utilize this technique to populate elaborate cityscapes with buildings, landscapes with fauna and open spaces with crowds. For instance, the hundreds of digital 'extras' roaming the boat's deck in *Titanic* (Cameron, 1997), were, in fact, based on just a handful of digital humanoid archetypes. By making slight changes to their costuming, gait and off-setting their movement, they appear as a mass of unique individuals. When

watching the film closely, eagle-eyed spectators can spot various ‘clones’ sauntering along the deck. Interestingly, this ‘behind-the-scenes’ technique bleeds over into spectacle cinema’s content on a number of occasions. In movies like Lucas’ *Star Wars: Attack of the Clones* (2002), Proyas’ *I, Robot* (2004) or Bay’s *The Island* (2005), the cloned motion cycle becomes the film’s foregrounded subject matter in an uncanny instance of technical form determining film content.

Yet perhaps the contemporary spectacle narrative’s most important but unrealized debt to the nineteenth-century movable book involves recent Hollywood’s fracturing of content into discreetly different media products. Like the picture book and movable book’s matrix of meaning between word, image, reader and listener, Hollywood has similarly distributed story and visual information across a range of experiences. Just as the movable book, pre-cinema ‘screen practices’ and early cinema exhibitions were an amalgam of mixed media and modes of address that created a ‘unified’ end product, recent Hollywood cinema’s storytelling practices depend on consumers accessing a wide range of products to receive a movie’s ‘definitive’ version. Ironically, critics, scholars and audiences, not unlike previous historians of early cinema, still engage spectacle cinema as a coherent, unified narrative product and, not surprisingly, these films are often considered narrative cinema ‘done badly’. No doubt, as self-contained narratives, recent Hollywood spectacle cinema critically fails, but we should remember that these films are *not* self-contained narratives. Instead, they are Hollywood franchises and not just in the vertical sense of sequels, but also in the horizontal sense of multiple profit centers from multiple types of products.

Thus, like early movable books, spectacle cinema’s narrative may not be wholly integrated into the film, but instead rely on the spectator’s external knowledge to flesh out general settings, plot points and character development. Indeed, *The Matrix* franchise utilized websites and an animated series to ‘let you in on a lot of what Andy and Larry [Wachowski, *The Matrix*’s directors] had in their minds as back story behind *The Matrix*, but never gets explained in the films themselves’.<sup>50</sup> Given the contemporary Hollywood blockbuster’s intensely derivative nature (and the audiences’ familiarity with those derivations), filmmakers perhaps feel more comfortable devoting additional screen time to visual excess, visceral experiences and spectacular display rather than narrative housekeeping. How contemporary cinema’s narrative and storytelling organization ultimately impacts film content, style and audiences requires more research and reflection. Cynically, we might conclude that unlike the self-contained experience of the picture book or movable where engaged readers critically re-read the text to glean and correlate narrative details, Hollywood’s dispersal of story information across a range of products merely creates an active consumer. Yet, we might also optimistically conclude that today’s second ‘golden age’ of movable books parallels the DVD’s rise. Indeed, we might consider the DVD as a kind of cinematic ‘pop-up’ book where users combine multiple presentational modes ranging from conventional viewing of cinematic narratives to more ‘active’ *re-viewing* by selecting audio commentaries, alternative endings, production back stories and other typical extras. Of course, the DVD’s success as a profit center now has studios reconsidering theatrical exhibition’s importance and, ironically, ‘moving pictures’ may once again become a purely domestic, private experience. The movable book’s relation to cinema still needs substantial development, but I think this initial research indicates promising avenues for explaining not only certain formal and thematic patterns behind cinema’s initial invention, but also that

earlier modes of presentation and address continue to haunt contemporary movies and image technologies.

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## Notes and references

1. See S. Herbert (ed.) (1997) *Theodore Brown's Magic Pictures*, Projection Box, London.
2. M. Dawson (2004) *Laboring to Play: Home Entertainment and the Spectacle of Middle-class Cultural Life, 1850–1920*, University of Alabama Press, Tuscaloosa, AL.
3. See A. Barry (1996) *The Kinora*, Projection Box, East Hastings.
4. T. Gunning (1990) 'The cinema of attractions', in *Early Cinema: Space Frame Narrative*, ed. T. Elsaesser, British Film Institute, London; T. Gunning (1990) "'Primitive" cinema: A frame up? Or the trick's on us?', in *Early Cinema: Space Frame Narrative*, ed. T. Elsaesser, British Film Institute, London.
5. A. Gaudreault (1990) 'Film, narrative and narration', in *Early Cinema: Space Frame Narrative*, ed. T. Elsaesser, British Film Institute, London, p. 70.
6. Gaudreault, 'Film, narrative and narration', p. 73.
7. C. Musser (1994) 'Rethinking early cinema: Cinema of attractions and narrativity', *Yale Journal of Criticism*, vol. 7, no. 2, pp. 203–232.
8. Musser, 'Rethinking early cinema', p. 215.
9. A. Gaudreault & P. Marion (2005) 'A medium is always born twice ...', *Early Popular Visual Culture*, vol. 3, no. 1, p. 5; emphasis in original.
10. P. Haining (1979) *Movable Books*, New English Library, London.
11. H. Krahe (1988) 'The importance of being Ernest Nister', *Phaedrus*, pp. 73–90; M. Dawson (1991) 'S. Louis Giraud and the development of pop-up books', *Antiquarian*

- Book Monthly Review*, vol. 18, no. 5, pp. 218–222; M. Dawson (1991) ‘S. Louis Giraud: The wizard of Bookano’, *Antiquarian Book Monthly Review*, vol. 18, no. 6, pp. 250–256.
12. A. Montanaro (2005) ‘A concise history of pop-up and movable books’. Available online at: <http://www.libraries.rutgers.edu/rul/libs/scua/montanar/p-intro.htm>.
  13. Quoted in Haining, *Movable Books*, p. 32.
  14. Outside the United States, notable collections include the Osborne Collection at the Toronto Public Library and the Renier Collection at London’s Victoria and Albert Museum.
  15. Haining, *Movable Books*, p. 22.
  16. Quoted on the back cover of *Cinderella*, Dean & Son, London, c.1862.
  17. An earlier Dean and Son series called ‘Dissolving Picture Books’ explicitly links movables to the magic lantern and, later, cinema’s lap dissolve transition.
  18. Significantly, Tuck also published a children’s book about magic lanterns called *The Magic Lantern Alphabet of Animals* (c.1900). The inside cover contains an advertisement for Tuck’s other toy books, including movable books.
  19. See note 12.
  20. For an outstanding overview of Giraud’s work, see M. Dawson (1991) ‘S. Louis Giraud and the development of pop-up books’, *Antiquarian Book Monthly Review*, vol. 18, no. 5, pp. 218–222; M. Dawson (1991) ‘S. Louis Giraud: The wizard of Bookano’, *Antiquarian Book Monthly Review*, vol. 18, no. 6, pp. 250–256. Stephen Herbert sublimely revises and expands Dawson’s work in *Theodore Brown’s Magic Pictures* (S. Herbert (1997) *Theodore Brown’s Magic Pictures*, Projection Box, London).
  21. Herbert, *Brown’s Magic Pictures*, p. 112.
  22. E. Arizpe & M. Styles (2003) *Children Reading Pictures*, Routledge, London, p. 22.
  23. L. Sipe (1998) ‘How picture books work: A semiotically framed theory of text-picture relationships’, *Children’s Literature in Education*, vol. 29, no. 2, p. 101.
  24. D. Lewis (2001) *Reading Contemporary Picture Books: Picturing Text*, Routledge, London, p. 36.
  25. Quoted in Arizpe & Styles, *Children Reading Pictures*, p. 207; emphasis in original.
  26. Sipe, ‘How picture books work’, p. 101.
  27. Quoted in Haining, *Movable Books*, p. 32.
  28. N. Burch (1990) *Life to Those Shadows*, University of California Press, Berkeley, CA, p. 189.
  29. Gunning, ‘The cinema of attractions’, p. 57.
  30. Gunning, ‘The cinema of attractions’, p. 57.
  31. Quoted in G. C. Pratt (1973) *Spellbound in Darkness*, New York Graphic Society, Greenwich, CT, p. 17.
  32. Quoted in Pratt, *Spellbound in Darkness*, p. 18.
  33. N. Burch (1973) *Theory of Film Practice*, Praeger, New York, p. 109; N. Burch (1982) ‘Porter of ambivalence’, in *Cinema, 1900–1906*, ed. R. Holman, Fédération Internationale des Archives du Film, Brussels, p. 104.
  34. Burch, *Life to Those Shadows*, p. 155.
  35. See E. Faden (2002) ‘Chronophotography and the digital image: Whoa ... déjà vu’, in *Arrêt sur image: Fragmentation du temps*, eds F. Albera, M. Braun & A. Gaudreault, Editions Payot, Lausanne.
  36. While scholars today examine Muybridge’s work primarily as photographs, we should recall that his work as a lecturer and showman received a far wider exposure than sales of his photographs or books in his lifetime. Anita Mozley notes that the original publication of *Human and Animal Locomotion* only sold 37 copies (see A. V. Mozley (1979)

- 'Introduction to the Dover edition', *Muybridge's Complete Human and Animal Locomotion, Vol. 1*, Dover, New York, p. vii). Almost certainly, far more people in the nineteenth century experienced his work as zoopraxinoscope projections of moving images.
37. M. Braun (1992) *Picturing Time*, University of Chicago Press, Chicago, IL, pp. 246–254. Muybridge does note that he had to 'omit' certain images from his zoopraxinoscopic projections because his cameras recorded more phases than his projection device could accommodate (see E. Muybridge (1893) *Descriptive Zoopraxography*, University of Pennsylvania Press, Philadelphia, PA, p. 43; reproduced in S. Herbert (2000) *A History of Pre-Cinema, Vol. 1*, Routledge, London, pp. 111–218). The Kingston-upon-Thames Museum's collection of Muybridge discs, however, shows the number of phases on the discs varied significantly from nine images to 35.
  38. Mozley, 'Introduction', p. xxxii.
  39. J. Barnes, 'Classification of magic lantern slides for cataloguing and documentation', in *The Ten Year Book*, Magic Lantern Society of Great Britain, London, p. 82.
  40. See R. Phillips (1997) *Edison's Kinetoscope and Its Films: A History to 1896*, Greenwood Press, Westport, CT, p. 51.
  41. D. Rossell (1998) *Living Pictures: The Origins of the Movies*, State University of New York Press, Albany, NY, p. 146.
  42. *New York Mail and Express* 24 Apr., (1896), p. 12; quoted in C. Musser (1990) *The Emergence of Cinema: History of the American Cinema, Vol. 1*, University of California Press, Berkeley, CA, p. 116.
  43. M. Deutelbaum (1983) 'Structural patterning in the Lumière films', in *Film Before Griffith*, ed. J. Fell, University of California Press, Berkeley, CA, p. 302.
  44. The Lumière analyses derive from Kino Company's *Movies Begin* series and Image Entertainment's *Landmarks of Early Film* and *Lumière Brothers' First Films*. While more research is necessary to determine if these exhibition prints match up to the Lumière negatives, we can reasonably assume these versions of the film were presented to audiences 'as is'.
  45. See A. Gaudreault & J.-M. Lamotte (2003) 'Fragmentation and segmentation in the Lumière "Animated Views"', *Moving Image*, vol. 3, no. 1, pp. 111–131.
  46. Gunning, "'Primitive" cinema', p. 99.
  47. See G. King (2000) *Spectacle Narratives*, I.B. Tauris, New York; M. Pierson (2002) *Special Effects*, Columbia University Press, New York; A. Ndalianis (2000) 'Special effects, morphing magic and the 1990s cinema of attractions', in *Meta-Morphing*, ed. V. Sobchack, University of Minnesota Press, Minneapolis, MN, pp. 251–271.
  48. The shot count and timing refer to the theatrical release. The sequence is ever so slightly longer in the 'Special Extended DVD Edition'. Also, since I am not a *Lord of the Rings* follower, thanks go to my Bucknell colleague and *Lord of the Rings* human database John Hunter who generously supplied me with character and location names. He also graciously reminded me that the little people were 'Hobbits' and not—as I referred to them—'Munchkins'.
  49. A. Friedberg (1993) *Window Shopping*, University of California Press, Berkeley, CA, pp. 20–38.
  50. See M. Arias (n.d.) 'Interview'. Available online at: <http://www.intothematrix.com>.