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Domestic Phantasmagoria: The Victorian Literary Domestic and Experimental Visuality

Illusion is a source of trauma in the opening sections of Harriet Martineau's *Autobiography*. One encounter with a domestic magic lantern sends Martineau into a state of high anxiety. In its dismantled state, the lantern holds no mysteries for her. She recalls seeing it cleaned by daylight, handling all its parts, and "understanding its whole structure." It was a different story at night, in a darkened room, when "my panics were really unaccountable. They were a matter of pure sensation without any intellectual justification whatever, even of the wildest kind. . . . such was my terror of the white circle on the wall, and of the moving slides."¹ Familiar apparitions flickering on a wall trigger an irrational affective response that reinforces Martineau's alienation from her domestic environs. A possible explanation for this reaction lies a few pages earlier in a dream sequence: "Sometimes the dim light of the windows in the night seemed to advance till it pressed upon my eyeballs, and then the windows would seem to recede to an infinite distance. If I laid my hand under my head on the pillow, the hand seemed to vanish almost to a point, while the head grew as big as a mountain."² Martineau's vivid dreaming takes on a phantasma-

goric aspect. The play of light in a darkened room distorts and threatens to dissolve the boundaries of body and mind. These intense psychological phenomena may have only “seemed” to take place, but they still summon frightful specters. Like Lewis Carroll’s Alice, Martineau’s body appears to be out of control, expanding, contracting, and threatening to vanish altogether, as she falls deeper into the dream. Terry Castle has identified such affects with the transformation of the mind into a phantasmagoria given over to “spectral presences and haunting obsessions” in the metaphors of post-Enlightenment psychological parlance.³ The literal phantasmagoria materialized new ways of thinking about the mind in altered states of dreaming, heightened imagination, or delirium. This, in turn, resulted in the term *phantasmagoria* being abstracted from its original technical meaning and context as a form of popular entertainment made famous by Étienne-Gaspard Robertson and Paul de Philipstal in early-nineteenth-century London and Paris. This metaphoric displacement was not confined to the phantasmagoria. Throughout the nineteenth century, a range of new optical metaphors—*kaleidoscopic* would be another example—was taken up by writers as an evocative form of visual shorthand to capture various perceptual and psychological phenomena.

This essay traces the provenance of this visual shorthand back to the everyday material culture where most Victorian readers would have encountered actual optical devices in parlors, nurseries, and drawing rooms. As inconsequential to plot and character development as these optical references initially appear to be, this essay will argue that they are symptomatic of a more general shift toward an increasingly interactive and skeptical engagement with perceptual phenomena both within and beyond the novel. Fundamental to this analysis is the idea of domestic space as an ideological fiction: the idea that the home was experienced through a variety of carefully constructed cultural and material lenses that colored its perception by its inhabitants. Illusion in this sense is fundamental to the conception of the Victorian domestic, as well as a carefully orchestrated distraction from its more nullifying constraints. The overt encouragement of readers to question their perception of even the most banal everyday objects subtly undermines the comfy excesses of Victorian domesticity, unsettling familiar surfaces and relationships and reinforcing the critical role played by domestic fictions of various sorts in mediating and reinscribing the most intimate spaces of its middle-class consumers.

Rather than being ushered into a safe nurturing refuge from the ravages

of industrial modernity, the thickly described domestic interiors of the Victorian novel present the reader with a space that literally warps before his eyes, as objects expand and contract, moving in and out of focus in a carefully fabricated reality so cluttered with minutiae that associative digression is integral to its design; indeed, it could be argued that it is one of its most fundamental pleasures.

Such digressive pleasures were reinforced by popular literature on optical phenomena that encouraged readers to test their capacity to reason through an illusion by actually experimenting with various aspects of illusion as part of their own *self-culture*, to invoke the Victorian terminology for self-improvement. In these texts the domestic is the space where one re-created one's own versions of illusions dramatized in familiar novels. Sir Walter Scott, for example, was a popular literary source of these scenarios. The illusion would be explained, often accompanied by detailed diagrams, and reinforced by a quote from a literary inspiration. Literary quotations and references are also a feature of guides to optical devices, such as Sir David Brewster's discursive manuals on *The Kaleidoscope* and *The Stereoscope*.⁴ Reciprocally, optical devices are one of a plethora of "things" that clutter the Victorian novel's thickly described domestic and psychic interiors. What I will suggest here is that the particular historical interest of these references to optical devices is their implicit invitation to readers to consume fiction as an analogical representation of their own quite literal experiments with the real. To describe Dorothea Brooke's mind as a series of magic lantern transparencies, as George Eliot does in *Middlemarch*, for example, or to speak of the "kaleidoscope of the imagination" when describing the rich inner life of her heroine, as Charlotte Brontë does in *Jane Eyre*, creates a familiar point of entry for the reader into the psychic life of each character.⁵ In both cases the optical metaphor evokes a heightened psychological state, but its effectiveness lies in what Roland Barthes has usefully described as the "reality effect" of apparently "insignificant notation."⁶ Both the magic lantern and the kaleidoscope were such familiar forms of entertainment throughout the century that reference to their effects reinforces the unexceptional experience of both women. Their intense psychological responses viewed through such familiar optics were made to seem only too real to Victorian readers in ways that might not immediately seem so meaningful or convincing to twenty-first-century readers.

In a range of playbooks and manuals devoted to household education, as well as various guides to scientific and cultural phenomena, including

natural magic, experimenting with optical illusion and testing the limits of the real had been a recurring topic since well before the Enlightenment. What distinguishes such works in the Victorian period is the sheer volume and diversity of this literature, made possible, among other things, by technological advances such as steam-powered printing, machine-made paper, public libraries, cheap woodcuts, secular education, the postal system, and railway distribution. In some cases, the stress is solely on the rational and mechanistic. In others, exemplary anecdotes and dialogue draw the reader into a fictional or phantasmic scenario to achieve a particular end, whether pleasure or knowledge. This can be as simple as being invited to stare into the sun and then shut one's eyes to experience the most basic form of optical illusion, the retinal afterimage and the analogies it inspires, or as elaborate as transforming a nursery, parlor, or library into a camera obscura or phantasmagoria.

During the same period, the popular gothic tale and ghost story reproduced fantastic narrative incarnations of similar visual effects. These were designed to exploit the period of uncertainty that Tzvetan Todorov identifies with the genre, hinging as it does on a series of questions: reality or dream? natural or supernatural? truth or illusion? Todorov writes, "Once we choose one answer or the other we leave the fantastic for a neighboring genre."⁷ What I want to suggest here, however, is that the duration of uncertainty of which Todorov speaks can also be applied to explicitly nonfantastic genre such as literary realism and the sturdily literal-minded discourses of Victorian self-culture and useful knowledge. Often in the novels of Eliot, Charles Dickens, Elizabeth Gaskell, Thomas Hardy, and Charlotte Brontë, the use of illusion invites questioning and digression into the reader's realm of experience by drawing on familiar perceptual effects that were the mainstay of the popular literature on optics. The optical reference creates what Pierre Macherey has called a moment of "splitting" in the narrative that reveals "the play of history beyond its edges, encroaching on its edges," inviting us to "trace the path which leads from the haunted work to that which haunts it."⁸ Realism, as George Levine has defined it, explores "the known as though it were unknown."⁹ This defamiliarizing description is grounded in the epistemological assumptions of an empiricism that values "immediate experience over continuities and systems of order" (18). Levine also stresses, following Eric Auerbach, realism's tendency to explode the distinctions between high and low in art, revealing the traces of its roots in a comic "low mimetic" tradition (6). Illusion occupies

both the high and low in Victorian fiction, sometimes serving as a device to capture the intensity of a particular psychological experience, while at other times encouraging the reader to experiment, explore, and discover in a manner that locates her literary reading within the expansive and interdisciplinary discourse network of nineteenth-century popular science. It is thus consistent with the precepts of realism, as well as romance and supernatural genres. As György Lukács has argued, realism was “a method of discovery, not of representation of pre-established realities,” a literary experiment that encouraged playful analogy and exploratory digression, as well as high-minded reflection.¹⁰

Some nineteenth-century scientists, such as Henry Fox Talbot, the inventor of photography, were quite explicit about their desire for a new form of fiction that reflected the technological sophistication of its middle-class readership. In his photographically illustrated account of his invention of photography, *The Pencil of Nature* (1842), Talbot offers his own version of the shape that this new fiction might take. Opposite a photograph of two shelves of books titled “A Scene in a Library” is the following fantastical account of an experiment:

Among the many novel ideas which the discovery of Photography has suggested, is the following rather curious *experiment or speculation*. . . . When a ray of solar light is refracted by a prism and thrown upon a screen, it forms there the very beautiful coloured band known by the name of the solar spectrum.

Experimenters have found that if this spectrum is thrown upon a *sheet of sensitive paper*, the violet end of it produces the principal effect: and, what is truly remarkable, a similar effect is produced by certain *invisible rays* which lie beyond the violet, and beyond the limits of the spectrum, and whose existence is only revealed to us by this action which they exert. Now, I would propose to separate these invisible rays from the rest, by suffering them to pass into an adjoining apartment through an aperture in a wall or screen of partition. This apartment would thus become filled . . . with invisible rays, which might be scattered in all directions by a convex lens placed behind the aperture. If there were a number of persons in the room, no one would see the other: and yet nevertheless if a *camera* were so placed as to point in the direction in which any one were standing, it would take his portrait, and reveal his actions. For to use a metaphor we have already employed, the eye of the camera would see plainly where the human

eye would find nothing but darkness. Alas! That this speculation is somewhat too refined to be introduced with effect into *a modern novel or romance; for what a denouement we should have*, if we could suppose the secrets of the darkened chamber to be revealed by *the testimony of the imprinted paper*.¹¹

Prophetically capturing the future appeal of infrared photography and X-ray images, Talbot positions the reader in a domestic space transformed into a camera obscura that in turn contains a camera. The reader is cast in the role of an amateur sleuth with a scientific bent who exposes the potentially nefarious activities of the invisible occupants of the darkened chamber.¹² Talbot delights in the speculative mentality photography inspires, imagining a narrative form capable of embracing its revelatory potential and a technologically literate reader equipped to make such “refined” insights. Illusion in this context stimulates critical thought by destabilizing the foundations of belief in transparency, light, and truth. As Carol Armstrong observes, “Talbot’s ultraviolet dream” figures self-reflexivity as a theme and metatext.¹³

The camera inside the camera obscura also suggests a playful experimental interaction between visual modes that counters Jonathan Crary’s controversial, yet influential, narration of the early-nineteenth-century ascendancy of physiologically based optical devices, such as the stereoscope, the kaleidoscope, and photography, over Enlightenment or classical models of vision, such as the camera obscura.¹⁴ Crary’s polemic also centers on an account of a camera obscura, Goethe’s decisive closure of the hole through which light enters so that he can focus on the eye’s internal processing of color. Crary argues that this is an exemplary moment in the history of vision’s transition from “a privileged form of knowing” into an embodied “object of knowledge” housed within an individual nervous and cognitive system (70). The alienation of individuation is integral to this process, as is the destabilization and flux of modernity. Optical devices for Crary not only reinforce the individual subjectivity of the modern observer, but they are infinitely alienable in their portability and consequent indifference to their setting: “Observation is increasingly a question of equivalent sensations and stimuli that have no reference to a spatial location. What begins in the 1820s and 1830s is a repositioning of the observer, outside of the fixed relations of interior/exterior presupposed by the camera obscura and into an undemarcated terrain on which the distinction between internal sensation and external signs is irrevocably blurred” (24). Modernity is asso-

ciated here with a pervasive sense of homelessness. But this account sits uneasily with the heightened ideology of domesticity and the private sphere with which the nineteenth century and Victorian England, in particular, are synonymous.

In everyday practice, optical devices appear, in contrast, to have a heightened awareness of the elements that constitute and distinguish spaces and objects, focusing the eye on details of objects and the interplay between light and matter, as well as inspiring analogies with the cognitive dynamics of memory and perception. Similarly, references to optical devices, or the self-conscious use of visual effects in the fiction of the period, ranging from the fantastic to realistic, invited a self-reflexive experimental approach to the familiar dynamics of everyday acts of perception. Domestic spaces were one of the most common contexts in which Victorian observers interacted and experimented with the wide variety of optical devices that were available to them by the 1820s and 1830s. As Thad Logan observes, in the inventory lists of the contents of midcentury Victorian parlors, magic lanterns, stereopticons, and other optical devices had become standard features of aspirant middle-class homes, as well as familiar forms of street and fair entertainment.¹⁵ This meant that an increasingly diverse audience had access to a wide range of visual experiences with which they engaged in equally various ways, depending on class, age, gender, and education. Moreover, optical devices, such as the kaleidoscope, came with instructions about using objects from one's domestic environment to produce visual effects, including manipulating object slides so that the room in which one found oneself became part of the illusion created by the turn of a hand.¹⁶

Talbot's phantasmagoric scenario also resonates with a familiar experimental practice elaborated in a range of educative material from the period that encouraged readers to transform their domestic space into a backdrop for experimenting with various illusions. A popular example is Jane Marcet's *Conversations on Natural Philosophy in Which the Elements of That Science Are Familiarly Explained and Adapted to the Comprehension of Young Pupils* (1819).¹⁷ This volume, like so many of Marcet's successful popular guides, went through multiple editions throughout the century and was a favorite of and later inspiration for Martineau's own forays into self-culture, *How to Observe* and *Household Education*.¹⁸ Marcet's work exemplifies the ways in which the home is constructed as "furniture to think with," in Barbara Maria Stafford's phrase.¹⁹ Often addressing herself explicitly to girls, Marcet writes in dialogues or conversations designed to foster

interaction. Her *Conversations on Natural Philosophy* quickly establishes the characters of the three interlocutors, the all-knowing Mrs. B. and her two curious charges, Emily and Caroline, before moving through a series of experiments, including the transformation of the nursery into a camera obscura. Mrs. B. instructs: "We shall again close the shutters, and admit the light through the small hole, and you will see a picture on the wall, opposite the aperture, similar to that which is delineated on the retina of the eye." Caroline enthusiastically responds: "Oh, how wonderful! There is an exact picture in miniature of the garden, the gardener at work, the trees blown about by the wind. The landscape would be perfect if it were not reversed: the ground being above and the sky beneath." Mrs. B. replies: "It is not enough to admire, you must understand this phenomenon, which is called a camera obscura from the necessity of darkening the room in order to exhibit it" (321). The following explanation reinforces the fallibility of perception. Sight may be "an extremely useful sense," Mrs. B. warns, "but it cannot be implicitly relied on: it deceives us both in regard to size and the distance of objects; indeed, our senses would be very liable to lead us into error, if experience did not set us right" (334). When Emily responds too smugly, "Between the two, I think we contrive to acquire a tolerably accurate idea of objects," Mrs. B. agrees, but qualifies with further details about the nature of color and light. She discusses Sir David Brewster's theories of the color spectrum, as well as outlining in detail the advantages and structure of the microscope, the telescope, and the magic lantern (359–64). This sequence includes the following dialogue that also plays with the idea of the illusory nature of racial difference:

Mrs. B. You can never see objects without light. Light is composed of colours; therefore, there can be no light without colours; and though every object is black, or without colour, in the dark, it becomes coloured as soon as it becomes visible. It is visible, indeed, but by the coloured rays which it reflects; therefore we can see it only when coloured.

Caroline. All you say seems very true, and I know not what to object to it; yet it appears at the same time incredible. What, Mrs. B., are we all as black as Negroes in the dark? You make me shudder at the thought!

Mrs. B. Your vanity need not be alarmed at the idea, as you are certain of never being seen in that state.

Caroline. That is some consolation, undoubtedly: but what a melancholy reflection it is, that all nature, which appears so beautifully

diversified with colours, should be one uniform mass of blackness!
(364)

In the guise of impartially communicating objective data, Mrs. B. teaches Caroline and the audience she metonymically embodies not only to decipher the phenomena that constitute her reality, but to shrug off irrational affective responses, which in this case take the form of racial anxieties. Mrs. B. also does nothing to disabuse Caroline of her anxieties about the illusory nature of her own whiteness. In a seemingly simple form, this dialogue thus enacts what Lorraine Daston calls the “moral economy of science”—both the explicit and implicit psychological and normative shaping integral to scientific ways of knowing.²⁰ But it also expands the possible meanings that can be attributed to the most banal everyday objects and phenomena. Everything in one’s immediate environment, no matter how insignificant, is redolent with potential meaning or disquieting portents, and nothing is as it appears to be. Mrs. B.’s commonsensical responses assure her pupils that there is always a logical explanation for the imagination’s fantastical refurbishing of their domestic reality, partly because the nature of reality itself is a matter of constant speculation. She also insists on the need to continuously test the limits of one’s assumptions and perceptions, using the tools at hand.

Illusion works in just such a way in one of Victorian realism’s definitive texts, George Eliot’s *Middlemarch*. Dorothea begins to recognize the limitations of her own experiment with the real on her return to Lowick from her emotionally arid honeymoon in Rome: “The very furniture in the room seemed to have shrunk since she saw it before: the stag in the tapestry looked more like a ghost in his ghostly blue-green world; the volumes of polite literature in the bookcase looked more like immovable imitations of books. . . . Each remembered thing in the room was disenchanting, was deadened as an unlit transparency” (308). In a novel where, as Elaine Freedgood observes, no object is left to a chance reading, this scene in which all is reduced to either a microscopic or magic lantern transparency recalls a previous reference to an optical device.²¹ A few chapters earlier, magic lantern pictures are invoked at a similarly climactic moment of self-realization, when Dorothea looks out of a very different window from the boudoir of an apartment in the Via Sistina in Rome:

All this vast wreck of ambitious ideals, sensuous and spiritual, mixed confusedly with the signs of breathing forgetfulness and degradation,

at first jarred her as with an electric shock, and then urged themselves on her with that ache belonging to a glut of confused ideas which check the flow of emotion. Forms both pale and glowing took possession of her young sense, and fixed themselves in her memory even when she was not thinking of them, preparing strange associations which remained through her after-years. Our moods are apt to bring with them images which succeed each other like the magic-lantern pictures of a doze. (226)

In many cases a visual technology materializes an intense psychological process triggered by a dramatic redefinition of Dorothea's domestic reality. In the Lowick scenario, Eliot's confident use of the reference to the microscope assumes her readers will recognize what had become a fairly standard optical device in middle-class Victorian homes. Similarly, the reference in the Rome sequence to "magic-lantern pictures" draws on the familiar association of the projected transparencies of the magic lantern and the visualizing machinery of memory. As with Martineau's text, it is assumed that the reader will know how these optical devices work, to break down their elements into parts and yet still be capable of experiencing the empathic and/or interpretive frisson they are intended to stimulate. Earlier in the novel, the narrator of *Middlemarch* overtly sanctions a digressive affective response: "Signs are small measurable things, but interpretations are illimitable, and in girls of sweet, ardent nature, every sign is apt to conjure up wonder, hope, belief, vast as a sky, and coloured by a diffuse thimbleful of matter in the shape of knowledge" (47). This is a revealing frame through which to interpret these two very distinctive, yet connected, optical allusions. In both cases the optical device invoked is associated with memory. At Lowick, objects once redolent with association and possibility are compressed into two-dimensional object slides. Bereft of illumination, they are lifeless matter that clutters the mind and its environs with the deadening knowledge of thwarted expectations remembered. The use of the word *transparency* adds a further layer of interpretive association, since it could apply to either a microscope or a magic lantern. The first summons associations with specimens under a glass, resonating with Tertius Lydgate's Bichat-inspired embrace of the microscope's revelatory powers:

That great Frenchman first carried out the conception that living bodies, fundamentally considered, are not associations of organs which can be understood by studying them first apart, and then as it

were federally; but must be regarded as consisting of certain primary webs or tissues, out of which the various organs—brain, heart, lungs and so on—are compacted, as the various accommodations of a house are built up in various proportions of wood, iron, stone, brick, zinc, and the rest, each material having its peculiar composition and proportions. No man, one sees, can understand and estimate the entire structure or its parts—what are its frailties and what its repairs—without knowing the nature of the materials. (177)

When compared to the lessons of Marcet's Mrs. B, Eliot's familiar didacticism seems even more pointed. Like Marcet, Eliot's omniscient domestication of Xavier Bichat's pathological research for her middle-class readers exemplifies the strange wonders of science with the aid of everyday domestic spaces and objects. The intricate design of the body exposed by the searching lens of the microscope further inspires architectural analogies that tame and organize its unknown mysteries into a sequence of knowable empirical truths.

Alternatively, if one reads Eliot's reference to deadened unilluminated transparencies as magic lantern slides, a slightly different interpretation is possible, one that links this passage more closely with the earlier reference to "magic-lantern pictures" to evoke Dorothea's feverish immersion in the attractions and distractions of Rome. Viewed through disenchanting eyes, the once-animated material things that fill the blue room at Lowick have become dematerialized, spectral projections of a tortured psyche confronted by the deadening constraints of domestic convention. In this reading the magic lantern reference reinforces the standardization of Dorothea's life into a sterile cliché, a product of the commodified "polite literature" she so scathingly dismisses—an image from which, Eliot hopes, her compliant well-trained readers will also recoil. The previous reference to "magic-lantern pictures" in relation to her response to Rome, however, also suggests that Dorothea's sensibility is too provincial to process the sensations she is experiencing. They register an unconsciously awaiting recollection when future events illuminate their significance, like "the magic-lantern pictures of a doze." On a literal level, Dorothea's thoughts are thus not that far removed from standardized serial reproductions of slides of historical scenes and faraway places made popular by domestic magic lantern companies from the 1870s to the 1890s. By this time, large companies in London boasted exhibition galleries displaying thousands of glasses that could be viewed prior to purchase by special viewing devices.²² Dorothea herself

reinforces these prosaic tendencies, blithely informing Will Ladislaw as she explores Rome through the formulaic lens of Baedeker or the like that she fails to see the value of the beautiful things that surround her: “I never could see any beauty in the pictures which my uncle told me all judges thought very fine. And I have gone about with just the same ignorance in Rome. There are comparatively few paintings I can really enjoy” (238). Eliot’s finely calibrated optical allusions work against the interests of her idealistic heroine, subtly undermining the reader’s belief in her evaluative capacities to negotiate the epistemological anxieties that constitute her lot in life. Eliot’s insistent guidance of the reader through Dorothea’s various experimentations with bending the real to her desires reinforces the presence of uncertainty in the most banal phenomena of everyday life, an effect heightened by the narrator proving her point by inviting readers to experiment with similar objects in their own domestic space. This is exemplified by the familiar pier glass analogy:²³

An eminent philosopher among my friends, who can dignify even your ugly furniture by lifting it into the serene light of science, has shown me this pregnant little fact. Your pier-glass or extensive surface of polished steel made to be rubbed by a housemaid, will be minutely and multitudinously scratched in all directions; but place now against it a lighted candle as a centre of illumination, and lo! The scratches will seem to arrange themselves in a fine series of concentric circles round that little sun. It is demonstrable that the scratches are going everywhere impartially, and it is only your candle which produces the flattering illusion of a concentric arrangement, its light falling with an exclusive optical selection. (297)

Eliot’s analogy works on the memory of the reader, calling on familiar patterns of skeptical thought in relation to an optical illusion that takes readers back into their own domestic space. The materiality of a simple domestic object metonymically embodies Eliot’s particular conception of the representation of the real, but not, as Freedgood has argued, at the expense of the thing itself (134). Rather than the act of knowing being “abstracted from the known,” as part of the process of “amassing cultural capital,” readers are invited to conduct their own analogical narrative experiments with the tangible everyday experience of holding a candle up to a pier glass (134). The pier glass is momentarily taken up, made visible by the narrator’s gaze, experimented with, and generalized as a paradigmatic instance of the

novel's overarching insistence on the weblike nature of the real. This resonates with Ludwig Wittgenstein's observation that there can be no "feeling of the ordinary" without some change in circumstances that brings it to our attention, taking it out of the ordinary.²⁴ The distortive play of light across a familiar surface makes the ordinary an object of knowledge, but it also pulls the reader's focus out of the frame of the narrative, inviting a digressive analogical engagement with the domestic space where the act of reading is taking place. This scenario could have been rehearsed through a different, yet equally moralizing, frame in a popular text such as Marcet's *Conversations on Natural Philosophy*.

Familiar Wonders

John Ayrton Paris's popular *Philosophy in Sport Made Science in Earnest, Being an Attempt to Illustrate the First Principles of Natural Philosophy by the Aid of Popular Toys and Sports* (1827) takes a similar narrativizing approach to Marcet's. Paris also foreshadows the young reader's potential transition to the more complex narrative experiments with everyday objects and spaces one finds in Eliot's ambitious struggle to remake familiar domestic spaces and scenarios as new and difficult.²⁵ Paris was a medical researcher and physician, best known for his invention of the thaumatrope, a simple device consisting of a disk with an image on either side. When twirled by connecting string, the images combine to create the illusion of movement, an effect that Paris used to demonstrate the persistence of vision.

The scene when Paris introduces his invention to his readers takes place in the drawing room of the Seymour family's countryseat. The Seymours, the narrator informs us, prized the newest inventions from London for the instruction of their children. On his return from his honeymoon, a family friend presents Mr. Seymour with a little box containing "a very amusing and philosophical toy, which had lately made its appearance in the scientific circles of London" (3:2). After gathering the family in the drawing room, Mr. Seymour reads out "the account of [the thaumatrope's] operation," which is enclosed in the box with the thaumatrope, a familiar practice that Brewster, for example, made use of in promoting the "proper" use of his kaleidoscope:

This philosophical toy is founded upon the well-known optical principle, that an impression, made on the retina of the eye, lasts for a short interval, after the object which has produced it has been with-

drawn. During the rapid whirling of the card, the figures on each of its sides are presented with such a quick transition that they both appear at the same instant, and thus occasion a very striking magical effect. On each of these cards a device is introduced, with an appropriate motto, or epigram; the point of which is answered, or explained, by the change which the figure assumes during the rapid whirling of the card. (3:6)

In the scene that follows, the family gathers around as one card after another is taken out of the box and twirled, accompanied by the reading of an appropriate pun, often political. The first twirl engaging a rat prompts the “motto”—“Why is the rat like an opposition member in the House of Commons, who joins the ministry? . . . because by *turning around* he gains a snug birth, but ceases to be free.” Another, which twirls a set of arms and legs bereft of a body into a unified “figure of a king, invested with all the insignia of royalty,” comes with the motto:

Head, legs, and arms, alone appear;
 Observe that *nobody* is here:
 Napoleon-like I undertake
 Of nobody a king to make. (3:9)

Paris also includes the following Swift-inspired detour on the thaumatrope as a means of mechanizing the creative process, which the playful Mr. Seymour reads out to his bemused family: “It is well known that the Laputan philosopher invented a piece of machinery, by which works could be composed by a mechanical operation; . . . the author of the present invention claims for himself the exclusive merit of having first constructed a hand-mill, by which epigrams may be *turned* with as much ease as tunes are played on the hand-organ” (3:10). While all this punning is a source of great hilarity, Mrs. Seymour is inspired to apply this magical new invention to the more worthy task of “impressing classical subjects upon the memory of young persons”: “Why can we not . . . thus represent the Metamorphoses of Ovid; or, what you say . . . to converting the fleet of Aeneas into sea-nymphs, as Virgil has it?” (3:10). Similarly, Mr. Seymour takes his son Tom aside to clarify the optical principles of the persistence of vision. This prompts the compliant Tom to confirm in a somewhat automaton-like manner that “I perfectly understand all that you have said” and remember “very well” how all the disassembled parts of the thaumatrope work together to produce the illusion of movement, a demonstration that not

only involves taking the thaumatrope apart but experimenting with windows and candles to produce various illustrative effects (3:16).

This harmonious domestic scene is rehearsed in various forms in a range of works of popular science. Another example is Fulgence Marion's *The Wonders of Optics*, translated into English by Charles W. Quin and lavishly illustrated with seventy engravings.²⁶ In one chapter, Marion portrays a Christmas fireside scene as the context for children experimenting with luminous impressions created by firelight, which in turn inspired the invention of the thaumatrope, as well as similar optical devices, such as the phenakistoscope and phantascope. Kaleidoscopes, magic lanterns, the camera obscura and its evolution into photography, and how to create one's own phantasmagoria also feature in Marion's enumeration of wonders, which culminates in an account of Dr. John Henry Pepper's adaptation of Charles Dickens's *The Haunted Man* at the Royal Polytechnic Institution in 1862, an extraordinarily popular illusion of the period. Many of these scenes take place in domestic spaces flooded with light, warmed by fire, and populated by happy folk who gather around delighted children answering questions and thinking of new entertaining experiments. Such fantastic interiors, where there is time and space for experimenting with illusions, were an ideological chimera that fed into the invention of the Victorian domestic that Nancy Armstrong so convincingly attributes to the nineteenth-century novel. As Armstrong argues, the novel's "densely interwoven fabric of common sense and sentimentality" is intimately linked to the empowering of the English middle class.²⁷ So too is the literature of self-culture, with its stress on character and "practical education."²⁸

Reworked through the lens of bourgeois aspiration, the domestic in the latter becomes a space of productive labor, where the mind of the child is actively shaped by the rationalizing energies of the family dedicated to the principles of useful knowledge. Marion's numerous references to both Brewster and Pepper are also typical of the tightly knit discourse network in which these texts circulated, comprised as they were of endless repetitions of evidentiary anecdotes cited elsewhere. Lengthy swaths of Brewster's *Letters on Natural Magic* are cited in Marion's chapter on everyday illusions, which is itself a tissue of familiar anecdotes, including scenes drawn from Scott, the volume's addressee and inspiration.²⁹

Pepper, the author of popular texts such as *The Boy's Playbook of Science*, is also praised for his entrepreneurial promotion of the magic lantern's phantasmagoric effects as the prelude to an account of his extraordinarily

successful ghost illusion.³⁰ Pepper at this time was being portrayed in the press as an avuncular figure lecturing small audiences of fascinated adults and children in private homes. His popular *Boy's Playbook* reinforces this image of accessibility, moving engagingly through a variety of scientific wonders, including the kaleidoscope, the stereoscope, the camera obscura, and the magic lantern, as well as more magical devices such as the following Scott-inspired detour into the pleasures of magic mirrors:

One of the most startling effects that can be displayed to persons ignorant of the common laws of the reflection of light, is called the "magic mirror," and is described by Sir Walter Scott in his graphic story of that name. The apparatus for the purpose, and if carefully conducted, may surprise even the learned. A long and somewhat narrow room should be hung with black cloth, and at one end may be placed a large mirror, so arranged that it will turn on hinges like a door. The magician's circle may be placed at the other end of the chamber in which the spectators must be rigidly confined . . . [and] directed to look into the mirror; they may even be ordered singly to fetch a skull off the mantel-shelf beside the mirror, and whilst doing so to look full into the mirror, and then return to the circle. . . . The picture is made visible by the confederate gently drawing the mirror from its position parallel with the frame to an angle of 45 degrees, and then throwing on from the side a picture from a magic-lantern. The picture is small and indistinct whilst the confederate holds it near the mirror and out of focus, but as he moves backwards and focuses the lenses, the picture gradually increases in size, and the reflecting angle having been well planned beforehand, only those in the circle will be able to see the picture, and great fun may be elicited from the magic mirror by pretending to tell the future. (277)

This scenario is a literal reenactment of the climactic moment in Scott's popular tale "My Aunt Margaret's Mirror," published in the *The Keepsake Stories* (1828), in which two women consult a mysterious Paduan doctor, Baptista Damiotti, to discover the fate of a missing husband.³¹ Ushered into a darkened room, the aggrieved wife and her skeptical sister-in-law are told to stand still in a particular spot before a mirror lugubriously surrounded by a skull and candles. They are instructed to keep silent by the doctor, who stands to one side, as soft music fills the chamber, and then a scene appears revealing the miscreant husband in the act of marrying another

and killing his avenging brother-in-law who has inadvertently discovered his crime. Scott, in characteristic natural magical style, undermines the doctor's prophetic powers by revealing the European connections that provided him with prior knowledge of the projected events but leaves the illusion itself unexplained. Inversely, Pepper assumes a familiarity with Scott's tale before proceeding to explain how one might conduct a similar experiment in the comfort of one's own home with the aid of a domestic magic lantern and mirrors. In a similar scenario to the one outlined in Paris's book, Pepper frames his experiment as a group activity, a trick one might play on one's guests or on family members that rehearses the familiar plot twists of a literary favorite. The instructive pleasures of similar group activities are also promoted in a popular guide to raising ghosts by making one's own "Parlour or Drawing-Room Phantasmagoria": "How delightful is one of those gatherings! where youth, infancy, and maturity are, for different reasons, equally interested in mimic scenes so vividly presented; infancy charmed with the rapid change of form and colour and grotesque fun, and its infectious laughter echoed by young and old."³²

However, not everyone was so enthused. These glowing endorsements of family fun were counterbalanced by the more cautious advocates of instructive experiments with illusion, including the enduringly popular Edgeworths. Maria and R. L. Edgeworth were quick to remind their readers of the moral dangers of too much pleasure, citing another popular source of parlor tricks and optical illusions, William Hooper's *Rational Recreations*: "When children are busily trying experiments upon objects within their reach, we should not, by way of saving them trouble, break the course of their ideas, and totally prevent them from acquiring knowledge by their own experience." But, they continue, "it will be best to avoid such as have the appearance of jugglers' tricks, as it is not our purpose to excite the amazement of children for the moment, but to give them a permanent taste for science."³³ Hooper was another famous advocate of the rational recreation movement. He also created elaborate home entertainment devices for wealthy consumers, including a magic theater—a box consisting of a lantern and moving slides that could project complicated narratives such as the battle of Troy.³⁴ The Edgeworths, while clearly appalled by the excesses of the rational entertainment market that Hooper represented, were nevertheless sympathetic to the romantic ethos of the imaginative child with the inherent capacity to develop his or her own reasoning capacities through play. A similar ethos drives one of the most popular Victorian evocations of

an imaginative child impeded by the strictures of a brutally literal evangelical education, Charlotte Brontë's *Jane Eyre*.

Domestic Illusions

Read alongside Scott's fantastical tale of charlatanry and treacherous husbands, Brontë's symbiosis of illusionistic effects and realistic description appears rather subdued. Her reference to the kaleidoscope would seem to typify Barthes' concept of "insignificant notation." When Jane Eyre returns to Gateshead at the request of her dying Aunt Reed, she is thrust once again into the hostile domestic space of her tormented childhood. At this stage in the narrative, her irregular autobiographical account, as she calls it, appears to have come full circle (115). Faced with the barely veiled hostility of her cousins Georgiana and Eliza, she withdraws to the familiar sanctuary of the parlor window seat. Her imagination again proves to be her salvation, as it reanimates fragments of the marvelous Arctic landscapes of Bewick's *History of British Birds*, one of Jane's favorite books as a child:

Provided with a case of pencils, and some sheets of paper, I used to take a seat apart from them, near the window, and busy myself in sketching fancy vignettes representing any scene that happened momentarily to shape itself in the ever-shifting kaleidoscope of imagination: a glimpse of sea between two rocks; the rising moon, and a ship crossing its disc; a group of reeds and water-flags, and a naiad's head, crowned with lotus-flowers, rising out of them; an elf sitting in a hedge-sparrow's nest, under a wreath of hawthorn bloom. (261)

This whimsical sequence of images uncannily recalls a succession of vignettes from Bewick that had once inspired "strangely impressive," "half-comprehended notions" in her "child's brain": "The words in these introductory pages connected themselves with the succeeding vignettes, and gave significance to the rock standing up alone in a sea of billow and spray; to the broken boat stranded on a desolate coast; to the cold ghastly moon glancing through the bars of cloud at a wreck just sinking" (40). The "kaleidoscope of the imagination" reilluminates these scenes, transforming the somber palette of the younger Jane's "marine phantoms" into a succession of vignettes that lightly flickers through the older narrator's mind before taking shape on the pages of her sketchbook (40). As with Eliot's invocation of the magic lantern and microscope, the kaleidoscope's associative effec-

tiveness here relies on the reader's familiarity with the visual effects of the actual device—the perpetually shifting images, the illusion of transformation, and a lightness of touch that result in seemingly magical illusions. In this context the allusion reinforces Jane's liberty from the specters of the past. Now she has the imaginative power to transcend and transform the elements of the domestic space that once threatened to subsume her into an enchanting sequence of distracting images, such as those one might find in a kaleidoscope. As Jane notes a few pages earlier, when she observes Bewick and her other favorite books on the shelves as she is ushered once again into the breakfast room at Gateshead: "There was every article of furniture looking just as it did on the very morning I was first introduced to Mr. Brocklehurst: the rug he had stood upon still covered the hearth. Glancing at the bookcases, I thought I could distinguish two volumes of Bewick's *British Birds* occupying their old place on the third shelf, and *Gulliver's Travels* and the *Arabian Nights* ranged just above. The inanimate objects were not changed; but the living things had altered past recognition." (256). Jane relishes her newly acquired mastery over the objects and living things that had once loomed so large in her psyche. Objects once animated by the inchoate romantic effusions of an "undeveloped understanding and imperfect feelings" now register an overturning of the domestic hierarchy at Gateshead (41). The "living things" that once lived there, including her, are altered beyond recognition. The kaleidoscope reference subtly reinforces Jane's newly acquired mastery. Gone is the gothic horror of earlier illusions brought on by the trauma of the red room, where she was imprisoned as a child. Jane's kaleidoscopic visions also resonate with Rochester's characterization of her mode of watching the follies of the Ingrams and company at Thornfield: "I wonder what thoughts were in your busy heart during all the hours you sit in yonder room with the fine people flitting before you like shapes in a magic-lantern: just as little sympathetic communion passing between you and them as if they were really mere shadows of human forms, and not the actual substance" (227). Both optical allusions associate Jane's gaze with the visualizing power of the romantic imagination. The kaleidoscope allusion emphasizes Jane's creative power to transcend and transform the real, while the magic lantern reference stresses her capacity for self-contained observation, both recurring themes of Brontë's narrative. When Jane first sees Rochester, his face appears "like a new picture introduced to the gallery of memory" (199). The sensory deprivation of Lowood inspires slightly more phantasmagoric

visions: “I feasted instead on the spectacle of ideal drawings, which I saw in the dark—all the work of my own hands; freely pencilled houses and trees, picturesque rocks and ruins, Cuyp-like groups of cattle, sweet paintings of butterflies hovering over unblown roses, of birds picking at ripe cherries, of wrens’ nests enclosing pearl-like eggs, wreathed about with young ivy sprays” (106). As Jane is sequestered at Thornfield, these visions intensify into Brontë’s familiar assertion of the rights of European women, at least, to feel, think, and act on their desires:

Then my sole relief was to walk along the corridor of the third story, backwards and forwards, safe in the silence and solitude of the spot and allow my mind’s eye to dwell on whatever bright visions rose before it—and, certainly, they were many and glowing; to let my heart be heaved by the exultant movement, which, while it swelled it in trouble expanded it with life; and, best of all, to open my inward ear to a tale that was never ended—a tale my imagination created, and narrated continuously; quickened with all of incident, life, fire, feeling, that I desired and had not in my actual existence. (141)

The heightened rhetoric that characterizes what George Henry Lewes describes as Brontë’s “strange power of subjective representation” divides the versions of self that inhabit Jane’s mind into spectator and spectacle.³⁵ Phantasmagoric images rise up in the darkness of her mind, both premonitory and nostalgic in kind, moving back and forth in time, as Jane herself marks time pacing back and forth along the third-story corridor at Thornfield. Jane’s “bright visions” move against the impulse to linearity that drives her desire for a future that exceeds both the constraints of the self-suppressing excoriations of the evangelical pedagogic regime that had shaped her childhood and the conventions of Victorian domestic ideology that continue to prescribe her present existence. Even Martineau found Brontë’s heroine too passionate, noting in an otherwise admiring obituary, “Passion occupies too prominent a place in her ‘pictures of life,’ mistakenly leading women to think that ‘love’ should be women’s ‘whole and sole concern.’”³⁶ Brontë’s attribution of such a phantasmagoric interiority to her heroine persistently flouts both the earnest defense of a woman’s intellect by Martineau, Edgeworth, and others, as well as the precepts of more conservative advocates of self-culture for women such as Mrs. John Sandford, the author of *Woman, in her Social and Domestic Character*, who urged that women “must not be on the look-out for excitement of any kind.”³⁷

Brontë's visual shorthand, like Eliot's, places the viewing apparatus, whether a magic lantern or a kaleidoscope, firmly in the hands of the reader. These seemingly fleeting references open the text up to specific intertexts. There is an assumed knowledge of the visual effects of both technologies that is indicative of the emergence of a new descriptive lexicon, which, as I have elaborated here, gave readers the power to generate and reflect on their own analogous visual experiments with the real. A reconfiguration of domestic space is fundamental to this self-conscious estrangement of familiar everyday phenomena. Rooms take on a life of their own when viewed through the shifting formations of the kaleidoscope or when overlaid by the distorting illumination of a domestic magic lantern, as Martineau's horrified response to the latter evidences. Correspondingly, fictional evocations of the domestic incorporate these familiar visual practices as part of a careful invention of a new aesthetic that locates the ethos of bourgeois self-improvement at its center. The consummate test of character becomes the capacity to control and mediate the seemingly perplexing phenomena that inundate one's senses. In this context, the discourse of illusion functions as a set of visual cues reminding readers of their own analogous struggles to master the "kaleidoscope of the imagination" or discipline their desire to venture too far into the distracting pleasures (or horrors) of their own domestic phantasmagoria.

Notes

- 1 Harriet Martineau, *Autobiography*, vol. 1, ed. Maria Weston Chapman (Boston: Elibron Classics, 2005), 12.
- 2 *Ibid.*, 9.
- 3 Terry Castle, *The Female Thermometer: Eighteenth-Century Culture and the Invention of the Uncanny* (New York: Oxford University Press, 1995), 144.
- 4 David Brewster published multiple variations on these guides during his lifetime, and his guide to the stereoscope continued to be published after his death. David Brewster, *The Kaleidoscope: Its History, Theory, and Construction, with Its Application to the Fine and Useful Arts* (London: John Murray, 1858); David Brewster, *The Stereoscope: Its History and Construction with Its Application to the Fine and Useful Arts and to Education* (London: John Murray, 1856); and David Brewster, *A Treatise on the Kaleidoscope* (Edinburgh: Constable and Company, 1919).
- 5 George Eliot, *Middlemarch* (Harmondsworth, UK: Penguin, 1969), 308, 226; and Charlotte Brontë, *Jane Eyre* (London: Penguin, 1966), 261. Both works are hereafter cited parenthetically by page number.
- 6 Roland Barthes, *Critical Essays*, trans. Richard Howard (Evanston, IL: Northwestern University Press, 1972), 19.

- 7 Tzvetan Todorov, *The Fantastic* (Ithaca, NY: Cornell University Press, 1970), 25.
- 8 Pierre Macherey, *A Theory of Literary Production*, trans. Geoffrey Wall (London: Routledge and Kegan Paul, 1986), 94.
- 9 George Levine, *The Realistic Imagination: English Fiction from Frankenstein to Lady Chatterley* (Chicago: University of Chicago Press, 1982), 13; hereafter cited parenthetically by page number.
- 10 György Lukács, *Studies in European Realism* (New York: Grosset and Dunlap, 1964), 11.
- 11 Henry Fox Talbot, *The Pencil of Nature*, ed. Larry J. Schaff (New York: Kraus, 1989), plate VII.
- 12 Carol Armstrong analyzes this scene in the context of photographic illustration in *Scenes in a Library: Reading the Photograph in the Book, 1843–1875* (Cambridge, MA: MIT Press, 1998), 125–30.
- 13 *Ibid.*, 128.
- 14 Jonathan Crary, *Techniques of the Observer: On Vision and Modernity in the Nineteenth Century* (Cambridge, MA: MIT Press, 1990), 2–3; hereafter cited parenthetically by page number.
- 15 Thad Logan, *The Victorian Parlour: A Cultural Study* (Cambridge: Cambridge University Press, 2001), 110.
- 16 I discuss this fascination with kaleidoscopic effects in “Kaleidoscopic Vision and Literary Invention in an ‘Age of thins’: David Brewster, *Don Juan*, and ‘A Lady’s Kaleidoscope,’” *ELH* 74.1 (Spring 2007): 217–38.
- 17 Jane Marcet, *Conversations on Natural Philosophy in Which the Elements of That Science Are Familiarly Explained and Adapted to the Comprehension of Young Pupils* (1819; London: Longmans, Green, and Co., 1872); hereafter cited parenthetically by page number. This was the fourteenth edition of this volume alone, an indication of the impact of Marcet’s work.
- 18 Harriet Martineau, *How to Observe: Morals and Manners* (London: Charles Knight, 1838); and Harriet Martineau, *Household Education* (1849; London: Smith, Elder, and Co., 1876). The latter edition, held in the British Library, was previously owned by the Preston Public Free Library and includes instructions for readers.
- 19 Barbara Maria Stafford uses this phrase in the context of a discussion of optical devices: “Like other smart tools, such furniture-to-think-with not only had a socializing effect but also contributed to the ongoing formation of human intelligence.” See Barbara Maria Stafford and Frances Terpak, *Devices of Wonder: From the World in a Box to Images on a Screen* (Los Angeles: Getty Publications, 2001), 11.
- 20 Lorraine Daston, “The Moral Economy of Science,” *Osiris* 2.10 (1995): 2–24, 2.
- 21 Elaine Freedgood, *The Ideas in Things: Fugitive Meaning in the Victorian Novel* (Chicago: University of Chicago Press, 2006), 6; hereafter cited parenthetically by page number.
- 22 Steve Humphries, *Victorian Britain through the Magic Lantern* (London: Sidgwick and Jackson, 1989), 25.
- 23 I refer in particular to Gillian Beer’s seminal reading of this image in *Darwin’s Plots: Evolutionary Narrative in Darwin, George Eliot, and Nineteenth-Century Fiction* (London: Routledge and Kegan Paul, 1983).
- 24 Ludwig Wittgenstein, *The Blue and Brown Books* (New York: Harper and Row, 1965), 127–30.

- 25 John Ayrton Paris, *Philosophy in Sport Made Science in Earnest, Being an Attempt to Illustrate the First Principles of Natural Philosophy by the Aid of Popular Toys and Sports*, 3 vols. (London: Longman and Rees, 1827); hereafter cited parenthetically by volume and page number.
- 26 Fulgence Marion, *The Wonders of Optics*, trans. and ed. Charles W. Quin (London: Sampson and Low, 1868), 39. The book is illustrated with seventy engravings on wood and a colored frontispiece.
- 27 Nancy Armstrong, *Desire and Domestic Fiction: A Political History of the Novel* (Oxford: Oxford University Press, 1987), 5.
- 28 This was a popular term for describing education that distinguished itself from both entertainment and, in the case of girls, the acquisition of accomplishments. See the analysis of the Edgeworths in the text for an example of its application.
- 29 David Brewster, *Letters on Natural Magic, Addressed to Sir Walter Scott* (London: John Murray, 1833).
- 30 John Henry Pepper, *The Boy's Playbook of Science: Including the Various Manipulations and Arrangements Required for the Successful Performance of Scientific Experiments, in Illustration of the Elementary Branches of Chemistry and Natural Philosophy* (London: Routledge, 1860), 277–78; hereafter cited parenthetically by page number. See also John Henry Pepper, *Popular Lectures for Young People and Half Hours with the Alchemists* (London: Sampson and Low, 1855). This volume included other Scott-inspired scenarios drawn principally from *Kenilworth*.
- 31 Sir Walter Scott, "My Aunt Margaret's Mirror," reprinted in *The Talisman; and the Two Drovers, My Aunt Margaret's Mirror, the Tapestryed Chamber, the Laird's Jock* (Edinburgh: T. C. and E. C. Jack, 1898), 55–61.
- 32 "A Mere Phantom," in *The Magic Lantern: How to Buy and How to Use It, Also, How to Raise a Ghost* (London: Houlston and Sons, 1866), 9–10.
- 33 Maria Edgeworth and R. L. Edgeworth, *Essays on Practical Education*, 2 vols. (London: J. Johnson, 1811), 1:35–37.
- 34 William Hooper, *Rational Recreations, in Which the Principles of Numbers and Natural Philosophy Are Clearly and Copiously Elucidated, by a Series of Easy, Entertaining, Interesting Experiments: Among Which Are All Those Commonly Performed with the Cards*, 4 vols. (London: L. Davis, 1774). This work, in various incarnations, went through multiple editions throughout the nineteenth century.
- 35 Cited in Heather Glen, *Charlotte Brontë: The Imagination in History* (Oxford: Oxford University Press, 2002), 23.
- 36 Harriet Martineau, review of *Jane Eyre*, reprinted in *The Brontës: The Critical Heritage*, ed. Miriam Allott (London: Routledge, 1974), 302–4.
- 37 Mrs. John Sandford, *Woman, in her Social and Domestic Character* (London: Longman, Rees, Orme, Browne, and Green, 1831), 169.