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Seeing through Spirits:

Superimposition, Cognition, and *The Phantom Carriage*

ABSTRACT: Superimposition was long a popular technique for showing ghosts in films. Through the example of Victor Sjöström's film *Körkarlen* (The Phantom Carriage, 1921), the article will examine the technique and its critical reception. André Bazin wrote an important essay on superimposition (first published in 1945) where he dismissed the use of double exposure to depict ghosts in films. The article examines Bazin's remarks in detail. The credibility—and the fraudulent associations—of multiple-exposure effects may derive from their similarity to spirit photography, but the article also argues that our understanding of superimposed phantoms may be enhanced if we draw on the cognitive study of religion.

KEYWORDS: Victor Sjöström, André Bazin, special effects, ghosts in film, cognitive film theory

In his article "To Scan a Ghost," a fascinating meditation on the cultural history of vision, Tom Gunning asks: "What does a ghost look like?"¹ He does not quite tell us since his real concern is with the phantasmal qualities of the medium of photography. But if we take

Gunning's question in a different direction, we find that the great French film critic André Bazin had already provided at least a partial answer back in the 1940s: a ghost does *not* look like a movie ghost. Movie ghosts, he writes in his essay "The Life and Death of Superimposition," have typically ("since Méliès") been semitransparent and insubstantial, created through the technique of double exposure. In the essay, originally published in two parts in *L'Écran français* in 1945, Bazin dismissed the use of double exposures to convey dream states and picture ghosts as "pure convention," continuing: "Superimposition on the screen signals: 'Attention: unreal world, imaginary characters'; it doesn't portray in any way what hallucinations and dreams are really like, or, for that matter, how a ghost would look."² How could Bazin know what a ghost would look like? At first glance, the remark is an exceedingly strange one, but I think what Bazin was getting at is not as occult as it may seem.

My interest in understanding Bazin's point grew out of my work on a film he mentions as a high point in the history of the use of superimposition for showing supernatural apparitions in films: *Körkarlen* (The Phantom Carriage [distributed in the 1920s as *The Stroke of Midnight*], 1921), the classic Swedish film directed by Victor Sjöström.³ *The Phantom Carriage* presents a fascinating mixture of social realism and overtly supernatural elements, using complex multiple-exposure effects to show the phantoms that are central to its story. Bazin's article is part of the reception history of this film, which was hailed as one of the pinnacles of film art in the 1920s but soon afterward declined precipitously in the esteem of historians and critics. I will argue that by elucidating Bazin's arguments about the shortcomings of double exposures, we will get a clearer understanding of the objections raised against *The Phantom Carriage*. We will also see that not all of these objections are equally fair, giving us a fuller sense of the film's achievement.

A canonical film like *The Phantom Carriage* has a history of its own, a (sometimes shifting) place in the overall history of the cinema, as well as in other historical series,⁴ in this

case, the history of special effects and the history of the convention of showing ghosts as transparent phantoms. I will first present the film and its ghosts, briefly sketching its reception history. Then I will look at the history of transparent phantoms, a film convention that has its most obvious source in the practices of spirit photography. Working on an individual older film, I have often found it useful to look at both contemporary and later critical responses and then to re-examine the film itself and the way it was made. The latter step is particularly important because even if the critical responses help to illuminate aspects of the film, they do not necessarily describe it accurately.

Sometimes the illumination works indirectly: the critical response, belonging to a different historical context, may be obscure, and trying to understand it may also shed light on the work that occasioned it. In this case, for instance, I found that in order to properly assess André Bazin's concerns about the plausibility (or lack thereof) of transparent phantoms, additional theoretical tools were needed. In the third section, I argue that cognitive theories of religion and the supernatural may provide such tools, and I go on to show in the fourth and final section how an approach informed by these cognitive theories may clarify Bazin's view of ghosts and allow us to see that *The Phantom Carriage* actually satisfies Bazin's idea of what a "real ghost" should look like rather better than his article lets on. An examination of the technical aspects of some of the special effects processes is important for a full understanding of Bazin's account because it is not entirely clear in this area, and the English translation of his essay adds more confusion. A number of scholars have returned to Bazin's thoughts as a key resource in the age of digital cinema, where special effects have become increasingly important to both filmmaking and film theory. The fuller understanding of Bazin's views on ghosts and double exposures that I hope to provide in this article should give us a better basis for engaging with his ideas in a contemporary context. Accordingly, my investigation of this particular film, Sjöström's *The Phantom Carriage*, will not only enhance

appreciation of it as a key work in the history of special effects cinema but also shed new light on an important work of film theory that discusses it.

OUTDATED SUPERIMPOSITIONS?

The Phantom Carriage is the story of a man whose past comes back to haunt him but is finally saved by his recognition of the evil he has done and his profound remorse. It is based on a short 1912 novel also entitled *Körkarlen*, but translated into English as *Thy Soul Shall Bear Witness*. The author was Selma Lagerlöf, who in 1909 became the first woman to win the Nobel Prize in literature. It was Sjöström's fourth film from Lagerlöf's works, and Sjöström seems to have been particularly fascinated by the elaborate flashback structure of the novel *Körkarlen*, which he kept in his film.⁵

On New Year's Eve, a Salvation Army girl, Edit (Astrid Holm), is dying of consumption, but David Holm (Sjöström himself), a vicious drunk she has devoted herself to saving, refuses to come to her bedside. Instead, sitting with his drinking companions in the churchyard, he tells the story of a past New Year's Eve where his friend Georges (Tore Svennberg) described the horrific consequences of dying that night: the last person to die in the old year, at the stroke of midnight, must drive Death's cart for the whole of the following year, travelling about and collecting the spirits of the dead (*Körkarlen* means "the carter" or "the drayman": "Not Death himself, but only his driver," as one of the characters in the novel explains⁶). This is presented as a double flashback: nested within a flashback showing Holm listening to Georges, we get Georges's tale of the Death Cart.

We see the cart in dark silhouette driving through a dark landscape, visible against the relative brightness of the road and the sky; neither here nor in a subsequent silhouette shot is the cart transparent. But we then cut to a frontal shot where the dark outline of the landscape is clearly visible through the transparent figure of the driver and his cart (fig. 1). In the two

following situations, we see the driver first pick up a wealthy suicide in his study, then a drowned sailor on the bottom of the sea. In both cases, the driver, as well as the spirits he gathers, are transparent.

In the framing story, Holm brawls with his companions; they strike him down with a bottle, and he expires at the stroke of midnight. His spirit leaves his body, and immediately after, the Death-Cart appears. The driver is none other than Georges, who died himself on New Year's Eve one year ago. Again, Holm, Georges, and the cart are all transparent (fig. 2).

Georges shows Holm all the evil he has done in three flashbacks; before the third flashback, Georges takes Holm from the churchyard to Edit's deathbed. The spirits of Holm and Georges, visible to us but transparent, can pass through closed doors and are invisible to the living (fig. 3). Edit, at death's door, can see Georges; just before she dies, Holm also becomes visible to her for a moment, and she expires peacefully. Finally, Holm is brought to the hovel where his battered and mistreated wife lives, just as she prepares to poison herself and her two children to end their misery. Georges allows Holm, now completely overwhelmed and changed by remorse, to return to his body, and he stops the wife at the last moment. The wife perceives that Holm is indeed a changed man, allowing the film to end on a note of hope.

The elaborate double-exposure effects used to show the supernatural apparitions were created by the cinematographer Julius Jaenzon (who appears in the credits under the name of J. Julius). The effects were done in-camera. That is, the background image was shot first, then the film was rewound inside the camera and the ghostly figures were shot, often against a completely black background. A particularly difficult and important matter was to ensure that sight lines were consistent across exposures, so that actors whose images were shot in separate exposures would appear to look at each other. Jaenzon also worked very carefully with the lighting to give the figures a bright, unearthly glow.⁷

The effects impressed contemporaries enormously. Double exposures had been seen before, of course: Georges Méliès had introduced them as early as 1898, and in the following years, they were frequently used to show ghosts and spirits.⁸ In *The Phantom Carriage*, however, they were felt to have achieved a degree of perfection not seen before, but also were completely integrated with the plot. One example is the review (appearing under the byline “Quelqu’une”⁹) in the newspaper *Svenska Dagbladet*: “One of Selma Lagerlöf’s most bizarre fantasy creations with its usual idealist symbolic orientation has been combined in Victor Sjöström’s film with modern photographic tricks which impart it with all the horrid mystery one could ask for. The double exposure procedure which has been used here is perhaps not in and of itself that remarkable, but to the eye of the uninitiated the result behaves in a most effective manner, which is indeed the point. It is impossible to commend the cinematographer Mr. J. Julius enough.”¹⁰

In their pioneering 1935 film history, Maurice Bardèche and Robert Brasillach wrote that it was the special effects that “drew both the general public and the highbrows to the film, and made it one of the most famous of all films, as famous as *The Gold Rush* and *Caligari* and *Potemkin*.”¹¹ Today, *The Phantom Carriage* is a much less familiar film than any of the other three. Sjöström is now best remembered for playing the lead role in Ingmar Bergman's *Smultronstället* (*Wild Strawberries*, 1957), and the importance of *The Phantom Carriage* tends to be seen in terms of its impact on Bergman and his evocation of it in the same film.

One reason for its decline in status may be that audiences have grown uncomfortable with stories directly asserting that good and bad deeds will be rewarded and punished in the afterlife, but its dependence on outmoded special effects also plays a part. *The Phantom Carriage* remains the most famous Swedish silent film, but some experts have sought to dislodge it from even this much more limited preeminence. Tom Gunning, while

acknowledging “the beauty and quality” of *The Phantom Carriage*, describes its representative role as by far the best-known Swedish silent film as “unfortunate.”¹² He complains of its “too-pat allegory” and compares its “flamboyant” effects unfavorably to other “more elegant and innovative” Sjöström films: “*Körkarlen* wears its technique on its sleeve, overtly displaying its unquestionable mastery of superimposition and complex narrative structure.”¹³

Gunning’s objections are surprisingly similar to those raised by the pioneering film historians of the 1930s and 1940s. As early as 1930, the critic Georges Charensol wrote that the film “had withstood the test of time less well” than some of Sjöström’s other pictures, but that was not surprising: it was “the fate of all films where the technician’s art plays an important role.”¹⁴ Writing in the mid-1930s, less than fifteen years after the release of the film, Bardèche and Brasillach state that it “seems rather old-fashioned to us today, partly because of its somewhat excessive moralizing and partly too because technically it was at the time so very important and so new. It seemed literally dazzling then: now it seems almost obvious.”¹⁵

Bazin also believed that time had passed the film and its effects by: “The Swedes made abundant use of superimposition in their heyday (the period of *The Phantom Carriage*), when they were turning the fantastic into a national specialty. One might have thought that the process that had helped so many films to achieve the status of masterpiece, had once and for all gained its patent of nobility and credibility.”¹⁶ As Daniel Morgan points out in his commentary on Bazin’s article, Bazin clearly regarded it as a mistake to think that “there could be a ‘once and for all’” as far as the acceptability of any particular stylistic device was concerned.¹⁷ Superimposition had become a cliché.

Even more than Bazin, Bardèche and Brasillach objected to the use of double exposures, a device they called “rather tedious” and “erroneous” as a way of showing ghosts

and other supernatural phenomena. “The moment [the invisible] is translated into the perceptible, the invisible is invisible no longer, but just a clever photographic trick.”¹⁸

It must be said, however, that what we see on the screen corresponds well with how Selma Lagerlöf described her ghostly figures. They are invisible to the living, and even to each other, they are semitransparent. Lagerlöf describes how Holm suddenly realizes that he “could actually see the trees, on the other side of the avenue, right through the cart!” They are also insubstantial; the driver, the passage continues, “stretched out his hand, and David saw that a drop of water, from the dripping branches above, fell upon it—but the drop was not arrested, but fell clean through the hand to the ground.”¹⁹ They are, finally, like reflections disconnected from what they are images of. The driver tells Holm about his spectral body: “You must not regard it as something solid or heavy, or endowed with strength, but you are to regard it as an image that you have seen in a mirror, and then try to fancy that it has stepped out of the mirror and can speak [and see] and move.”²⁰ Sjöström’s visualization is remarkably faithful to Lagerlöf’s descriptions, but these may themselves have been influenced by the kind of “tedious” visualizations to which Bardèche and Brasillach object. They certainly rely on the same convention for the appearance of ghosts: the transparent phantom.

HISTORICAL TRANSPARENCIES

In his book *Ghosts in the Middle Ages*, Jean-Claude Schmitt examines how ghosts were described in medieval accounts and depicted in medieval images, mostly illuminations in manuscripts. He finds that “between the twelfth and the fifteenth centuries there were six distinct and partially successive modes of representing ghosts”:

- The Lazarus: the ghost is depicted as being resuscitated

- The living dead: there is no perceivable difference between the ghost and the living person or persons to whom it appears
- The soul: the ghost takes the form of a small naked child, following the most frequent conventional mode of representing souls
- The phantom: the ghost appears enveloped in a diaphanous shroud
- The macabre: the ghost appears as a living cadaver in a more or less advanced state of decomposition
- The invisible: this is a borderline solution to the image, in strict dependency with regard to a text [i.e., no ghost is shown, but an accompanying text indicates an invisible presence]²¹

Schmitt calls the last category “borderline,” because there are obvious problems with representing completely invisible figures in a visual medium; we may note in passing how this makes it hard for the cinema to address Bardèche and Brasillach’s complaint about the “invisible” being made “perceptible.”²²

Our concern here, however, is with the phantom, which, “while presenting the appearance of a body, is only an image.”²³ Its earliest appearance, according to Schmitt, is in an illuminated manuscript that can be dated rather precisely to around 1270. “One might say,” writes Schmitt, “that the Western phantom, that of cartoons and fantastic films, was born at the end of the thirteenth century.”²⁴ Schmitt remarks that “since the nineteenth century,” images of ghosts as phantoms “have been imposed on us to the exclusion of all others.”²⁵ The French historian of photography Clément Chéroux cites this passage from Schmitt’s book to underscore that while earlier examples of the ghost-as-phantom certainly exist, “such representations are characteristic of romanticism.”²⁶

The early Romantic period coincides with the flourishing of the phantasmagoria, a magic-lantern entertainment involving rear-projected images of spectral figures that would

appear to advance upon the spectators through the use of a mobile lantern with a focus-pull system.²⁷ In Romantic art, we find some striking images of transparent ghosts: in 1806 or so, William Blake painted a watercolor of Richard III surrounded by the ghosts of his enemies, rendering the ghosts as white, transparent, and airy phantoms. Blake would have been able to visit a phantasmagoria; one was presented in London in 1801.²⁸ The characteristic phantasmagoria effect, however, was based on rear projection and would not necessarily have produced an impression of transparency, although the projection of a lantern image on smoke—another favorite of occult-oriented lantern shows—would certainly have done so.

Transparent phantoms had made their appearance in photographs relatively quickly. An important early example, mentioned by Simone Natale, is the discussion found in the Scottish physicist Sir David Brewster's book *The Stereoscope* where he "suggested a technique to produce, 'for the purpose of amusement,' an effect similar to spirit photography."²⁹ The book was published in 1856, before the emergence of spirit photography in the sense of images purporting to show actual spirits. Although Arthur Conan Doyle claimed in his *History of Spiritualism* that some were made as early as 1851, the earliest documented and preserved spirit photographs are those made by the American William Mumler in 1861 or 1862.³⁰ Accordingly, Natale speaks of the "*ante-litteram* spirit photographs" that were produced in the wake of Brewster's book: "the 'Ghost in the Stereoscope' series, for instance, were a series of stereoscopic prints of the kind that was commercialized in the 1850s."³¹

Other kinds of ghost photographs clearly understood to be fictional are those that use double exposures to show ghosts created onstage through other technologies. In Paris in June 1863, the showman Henri Robin presented a ghostly stage spectacle called "Spectres vivants et impalpables."³² In the 1860s, photographs of actors posing had become a way of promoting the plays they appeared in, but it was not possible at the time to take photographs

in a darkened theater: “To promote his show, Robin had [photographer] Eugène Thiébauld photograph him with one of his specters, using double exposure.”³³ The specter on the stage was created through a very different technique, known in English as Pepper’s Ghost, because it had been patented in February 1863 by Professor John Henry Pepper of the Royal Polytechnic Institute and the engineer Henry Dircks and presented to the public that April.³⁴ (It is unclear whether the close similarity between Robin’s *spectres vivants* and Pepper’s Ghost was a case of independent invention or plagiarism.)

In his excellent history of modern stage magic illusions, *Hiding the Elephant*, Jim Steinmeyer elegantly explains the principle behind the illusion: “When you look through a window into a dark night, you can see your hazy image reflected in the glass and superimposed on the setting just outside. The figure staring back at you is Pepper’s ghost. The window is transparent, but with the proper lighting, it can also reflect as a mirror. Most important, as Henry Dircks realized, it can be transparent and reflective at the same time.”³⁵ The stage version consisted of placing the performer playing the phantom in a pit on the stage, hidden from the audience. A very large pane of glass (the production of which had only just become feasible) was placed diagonally above the pit. When the performer in the pit was illuminated with a powerful lamp, his reflection in the mirror would become visible to the audience, seemingly floating in the air as far behind the glass as the actual performer was lying below it, while backdrops and actors behind the glass could also be seen through it.

One of the challenges confronting the showmen employing the Pepper’s Ghost illusion was coordinating the movements of the ghost performer with the actors on the stage. Neither could see the other; the ghost performer did not have a view of the stage, and the reflection would not be visible to the actor looking at the glass from the other side. Music was apparently used to help the actors get their timing right, and it is tempting to speculate that

when making *The Phantom Carriage*, Sjöström and Jaenzon also used music—and perhaps a phonograph—to achieve the necessary synchronization of actions shot at different times.

Tom Gunning has discussed the Pepper's Ghost illusion in one of the more recent of a long series of articles on what he has called "cultural optics," examining "the complex role images play in modern culture"³⁶ through "an investigation of specific optical devices and the discourses that surround them."³⁷ Gunning has looked at the wider cultural implications and interrelations of technologies such as the phantasmagoria, spirit photography as well as photography more generally, the phonograph, world expositions, magicians' mirrors, and trains.³⁸

Gunning has also examined the way certain prescientific theories of vision persisted into the nineteenth century, theories that tended to emphasize the uncanniness of the new optical technologies. According to these theories, things in the world were thought to be constantly shedding immaterial copies of themselves that would hit the eye of the observer, allowing sight to occur. Modern optics left no place for these copies, called phantasms, but the idea persisted.³⁹ The phantasms Tom Gunning discusses are eerily similar to the "nothing-images" by which the dead manifest themselves in Lagerlöf's novel. When David Holm realizes that he is the double of the bloody corpse lying on the ground, he looks back at himself:

Yet he was not completely a double, for he was a nothing—perhaps it is wrong to say a nothing; he was an image of the other, such as might be seen in a mirror, an image that had stepped out of the glass, and now lived and moved.

He turned round hurriedly. There stood George[s], and he realised now that the latter, too, was nothing—only an image of the body that he once had possessed.⁴⁰

In his work on particular optical technologies, Gunning has consistently been interested in their uncanny aspects. Gunning argues that the modern devices, the products of

science and technology, are shadowed—as if by transparent phantoms—by magical thinking and uncanny imaginings: “radical new technologies on first appearance can seem somehow magical and uncanny, recalling the wish fulfillments that magical thought projected into fairy tales and rituals of magic.”⁴¹ From this perspective, the spiritualist movement takes on a great deal of significance: “Spiritualism promoted values that went beyond mere materialism, but it also maintained that its tenets could be confirmed by scientific investigating, leading to a modern synthesis of knowledge and religious belief.”⁴² And nowhere does this synthesis become more evident than in spirit photography, the belief in the ability of the camera to capture the images of disembodied phantoms usually imperceptible to ordinary vision: “Spiritualists forged a solution,” Gunning writes, “a synthesis of technology and the supernatural that endowed photography with a spiritual dimension and supplied Spiritualism with an apparently scientific form of evidence.”⁴³

Selma Lagerlöf was herself interested in spiritualism and in her twenties lived for a time with an older relative who was an ardent spiritualist.⁴⁴ Lagerlöf had a strongly mystical bent, and although the image of the world beyond she presents in the novel *Körkarlen* is most strongly influenced by theosophy, she does not appear to have distinguished precisely between its ideas and those of spiritualism or Swedenborgianism, which are after all kindred occult doctrines.⁴⁵ She would certainly have been aware of spirit photography, and her biographer Henrik Wivel suggests that her whole aesthetic method as a novelist, her peculiar kind of magical realism, can be described through an analogy with spirit photography: “Selma Lagerlöf is capable of *double exposure* and thereby of turning reality transparent, into a double field of possibility, where the invisible, the unconscious, fades in and solidifies as apt and suggestive symbols of the ideas and central moral conflicts contained in the books” (emphasis in original).⁴⁶

An even more direct link can be traced between spirit photography and the use of superimposition in early trick films, as Simone Natale shows in his article “A Short History of Superimposition.” In the last third of the nineteenth century, stage magicians like Henri Robin and John Nevil Maskelyne (Méliès’s great inspiration) were among the most vocal opponents of spiritualist mediums, decrying them as charlatans and confidence artists. The magicians incorporated antispiritualist exposés into their acts and included tracts against spirit photography in their publicity. The early filmmakers who first and most eagerly took up superimposition as a trick effect were Méliès and the Englishman George Albert Smith, both of whom were successful magicians before they became filmmakers and would thus have been “particularly aware of the artifices used by spiritualist mediums,”⁴⁷ including both the iconography and the techniques used in spirit photography.⁴⁸

Gunning is more interested in the way spirit photography seems to reveal a fundamental, uncanny aspect of the photographic medium as such. But his discussion of spirit photographs also suggests that they gave the use of double exposures to create phantoms deeply ambiguous cultural contours: on the one hand, spirit photography undoubtedly played an important role in solidifying the convention of representing ghosts as transparent phantoms; on the other hand, it also took on an association of fraudulence. As Gunning explains, “the tenacity with which its devotees clung to the authenticity of spirit photography, even as its devices were exposed as fraudulent,”⁴⁹ played a key role in undermining the scientific respectability of spiritualism; spirit photographs became the most visible evidence that spiritualism was a sucker’s game.

In his book about the interconnection between stage magic and silent cinema, *Disappearing Tricks*, Matthew Solomon strongly emphasizes the antispiritualist commitments of magicians like Méliès and argues: “Photography evinced lasting links to the occult through spirit photography, but cinema, by contrast, was a definitively anti-spiritualist

medium that was never understood in ontological connection to the paranormal, despite occasional efforts to involve cinema in psychical research.”⁵⁰

The use of superimposition to create transparent phantoms in the cinema in general and in *The Phantom Carriage* in particular thus seems closely connected to the conventions and techniques of spirit photography, perhaps building on the older tradition going back to the late Middle Ages. The disfavor into which *The Phantom Carriage* fell once its novelty had worn off might even be connected to the associations of fakery that are also part of the heritage of spirit photography. But this still begs an important question: why did the transparent phantom ever seem like a plausible way for a ghost to appear in the first place?

COGNITIVE CONJURINGS

It is hard to appeal to realism when one is dealing with something that does not exist, and even if one decided to take an accepting attitude toward the paranormal, it seems far from certain that a phantom would turn out to be the most realistic way to represent a ghost. As one might imagine, Stanley Kubrick researched how ghosts appeared in testimonies of paranormal experiences when he was preparing to make *The Shining* (1980): “From the more convincing accounts I have read of people who have reported seeing ghosts, they were invariably described as being as solid and as real as someone actually standing in the room. The movie convention of the see-through ghost, shrouded in white, seems to exist only in the province of art.”⁵¹

The power and persistence of the motif of ghostly transparency seems difficult to explain simply as a cultural convention. A possible explanation is that it relies on basic and universal human mental dispositions. More than other kinds of film theory, cognitive film theory has sought to explain the film experience through reference to such universal psychological dispositions, but it would be wrong to see it as antithetical to the cultural-

historical work of someone like Gunning. In 1997, David Bordwell (well-known as a proponent of cognitive approaches) took Gunning to task for making overly strong claims about how cultural forces mold the human perceptual apparatus (which is, after all, the product of an evolutionary process and works the same way across the whole of the human species)—the so-called modernity thesis debate.⁵² The idea of cultural optics was, it seems, developed partly in response to this critique, and while Gunning has continued to stress the importance of cultural history, he has also acknowledged the relevance of a cognitive approach that focuses on the perceptual apparatus and other traits as products of evolutionary history that are more or less universal among humans: “Wonder and curiosity seem to be *universal human traits* and I believe their investigation provides insight into their historical manifestations,” writes Gunning, invoking the work of the neuro-art historian John Onians (emphasis added).⁵³ Gunning also describes how the novelty of various optical attractions produces an initial response of astonishment that cannot persist and gives way to acceptance and familiarity: “Although this arc of reaction exemplifies the response to new technology in modernity, it draws on fairly universal cognitive patterns.”⁵⁴ We may then reasonably ask if there might be any fairly universal cognitive patterns that explain the appearance of ghosts and spirits.

In the field of religious studies, cognitively oriented scholars have in fact sought to explain the supernatural entities that populate many religious belief systems as by-products of human mental dispositions: “Cognitive approaches are characterized by identifying pan-cultural features of human cognitive systems that then help account for patterns in religious cultural expression,” writes Justin Barrett.⁵⁵ One such feature is human overeagerness to explain random events in the world as being produced by active agents. Researchers have referred to this tendency as “agency hyper-detection.” They draw on the psychological research on perceptual causality and animacy going back to the experiments of Albert

Michotte and those of Fritz Heider and Mary-Ann Simmel in the mid-1940s.⁵⁶ This research has found that “children and adults spontaneously interpret the contingent movement of dots and geometrical forms on a screen as interacting agents who have distinct goals and internal motivations for reaching those goals.”⁵⁷ These tendencies make good evolutionary sense; in the ancestral environment, those who reacted to trembling bushes with thoughts of hidden tigers presumably survived and reproduced more frequently than their more carefree fellows. The cognitive scientists of religion argue that it is a small step from this well-attested mental disposition to the postulation of invisible entities or *agents* like gods, ghosts, and spirits to explain many events not caused by any visible agent. Scott Atran and Ara Norenzayan write: “[S]upernatural agents are readily conjured up because natural selection has trip-wired cognitive schema for agency detection in the face of uncertainty.”⁵⁸

If agency hyperdetection leads humans to imagine supernatural agents, another mental disposition explains why these imaginary entities are the way they are in the stories humans tell about them: invented beings are particularly salient and memorable if they differ from real beings in only one or a few striking ways. Except for the features that make them memorable, the supernatural agents conform to our default assumptions about real-world agents. Ghosts, for instance, lack solid bodies and may be invisible, but otherwise they are just like living humans both physically and mentally.

Anthropologist Pascal Boyer developed this understanding of supernatural entities and concepts in the 1990s, and Justin Barrett introduced the term *minimally counterintuitive* to describe them in 2000.⁵⁹ Cognitivists have striven to provide experimental evidence for the hypothesis that minimally counterintuitive representations are particularly easy to recall and therefore are more likely to be passed on and spread within a cultural group.⁶⁰ Evidence has also come from the probing of the convictions of religious believers, showing that if the professed doctrines of their religions have too many counterintuitive elements, believers will

adopt “theologically incorrect,” less counterintuitive variations: the Christian god, for instance, is supposed to be omniscient, omnipresent, and limitless; however, when researchers asked the same religious test subjects to paraphrase short, deliberately ambiguous stories, a different picture emerged: “Overall, subjects showed evidence of treating God as a being that requires the use of sensory information, has a limited focus of attention, performs tasks serially, has a particular location, and cannot always differentiate competing sensory information.”⁶¹

In short, we seem to apply our basic intuitions about how the world works, derived from our embodied experience of it, to imaginary supernatural realms as well. The death cart of *The Phantom Carriage* was an idea that came out of an old legend from Brittany, written down by folklorist Anatole le Braz and included in a large compilation of Breton legends about Death that Lagerlöf read in 1904.⁶² While some particulars of the story of l’Ankou, as the driver of the Death Cart is called in Brittany, are unique, in most respects he is a typical psychopomp, a figure who transports the spirits of the dead to the otherworld. The whole idea of such a figure is easy to see as an extension of real-world assumptions: the land of the dead must lie elsewhere; getting there must be a long journey; a guide and a means of transportation must be necessary to get there.

The transparent phantom would appear to obey the same kind of logic. Ghosts are usually the spirits of the dead. When a person dies, it is the breath that leaves the body, and the words for breath and spirit are indeed the same or similar in many languages and cultures. The breath, like the air, is invisible, and many ghosts are invisible, but those that do become visible still lack their bodies, and therefore substance. Instead, they are somewhat like visible air—smoke or mist. Thus, if we accept that the dead live on, it follows quite readily that they should appear as phantoms.

Clearly, similar chains of reasoning can be applied to other kinds of ghosts: those that look completely solid may turn out to be entirely insubstantial, and even if they are not, they tend to appear and disappear suddenly and mysteriously. The point here is that while the phantom is not universal and has historically varied considerably in popularity, our ideas about plausible supernatural entities are constrained by the mental models of the real world we derive from our everyday existence as embodied beings, and the phantom fits in with them quite well.

Thus, while ghosts may be insubstantial, in many ways they behave as if they were part of the physical world. In *The Phantom Carriage*, the Death Cart travels on roads, and the driver climbs down from his box to enter houses. When we first see the driver entering the house of the wealthy suicide, he enters through the door (although he passes straight through it). Again, when the ghostly figures of Georges and Holm enter Sister Edit's house, they pass through first the (closed) front door and then the (also closed) door to the sickroom rather than directly through the wall or even the window, and they walk and stand on the same floor as the mortals around them (fig. 4). The technique of superimposition, however, may violate this naturalistic logic, and I believe this was the basis of Bazin's objection to the technique as a convincing way of depicting ghosts.

REAL GHOSTS

Like a number of Bazin's other articles, "Life and Death of Superimposition" was originally occasioned by current cinema premieres. It was first published in two parts, quite lavishly illustrated, in 1945.⁶³ Several early 1940s Hollywood films with supernatural elements, both comedies and dramas, had just arrived in Paris, and Bazin praised them for their convincing ghosts and used the occasion to compare them to the shortcomings of the recent French cinema's use of special effects and suggest what might be done about it. When revising the

essay for inclusion in *Qu'est-ce que le cinéma?* in 1958, Bazin cut this entire concluding section as well as a number of brief passages. Apart from these (highly interesting) deletions and the lack of illustrations, the revised essay is substantially unchanged from the first version.

In the essay, Bazin singles out *Our Town* (1940) for being the first film to show “a real ghost,” “un vrai fantôme” (emphasis in original).⁶⁴ The ghost in question is a luminous, transparent phantom, invisible to the people around her, so Bazin clearly accepts this way of representing a ghost. What makes this one *real* and reveals that “traditional superimposition” gave “a very inadequate approximation of a ghost’s appearance” is that it behaves like an object with a position in real space with respect to visual occlusion: “This ghost is transparent to the objects and persons located behind it, but is apt to be hidden like you and me when there is something in front of it” (fig. 5).⁶⁵

In regular superimposition, this occlusion does not occur because the two images are mutually transparent, so if someone moves between the camera and the place where the ghost is supposed to be standing, the view of the ghost is not blocked; the background and the occluding figure are both part of the same image, and any part of it is visible through the transparent ghost, as if “the objects themselves become spectral to the degree that they share space with the ghost.”⁶⁶

The cognitive science of religion would predict that a transparent phantom that has a position in real space just like an ordinary person (so if we blocked our view of it with a solid object, we could not see it any more) would be more acceptable (because minimally counterintuitive) than one that bends the laws of optics in bizarre ways. This would allow it to remain visible even if we interpose solid objects between it and our eyes, “in defiance of perspective and common sense.”⁶⁷ It may seem obvious—nothing but “common sense”—that this should be so. And in a way it is, even if there is something peculiar about applying

common sense to things that don't exist. But I think the cognitive approach allows us to take a step further and begin to understand why it seems commonsensical, why Bazin's claim about the ghost in *Our Town* being "real" in a way previous ghosts were not should seem self-evident. The self-evident character of the claim is itself, I would suggest, strong evidence for the claim of cognitive science that much of our reasoning proceeds from our experience of the world as embodied beings, positioned in time and space, rather than from, say, linguistic or logical categories.

In his article about Bazin's superimposition essay, Daniel Morgan seems to be making the same point about the positioning in space of the ghost in *Our Town* when he writes that it is "able to fully inhabit the three-dimensional world of the diegesis."⁶⁸ This is not wrong, but I think that it does not quite make clear how the information about the ghost's position in space is conveyed to us, the spectators: through the occlusion of the ghost by objects positioned between it and the camera. Morgan accepts Bazin's claim that this effect has only become possible through recent technical innovation, but as we shall see, *The Phantom Carriage* does in fact include similar occlusion effects.

Before returning to *The Phantom Carriage*, however, we need to look more closely at the then-recent technical innovations that Bazin commends. It has become possible to create a "real ghost" like the one in *Our Town*, Bazin claims, "through the perfection of a process called 'dunning.'"⁶⁹ The lower-case initial letter is misleading here, since it is called the Dunning process after its inventor, C. Dodge Dunning. The Dunning-Pomeroy process, as it is also known, is a complicated travelling matte process patented in 1927⁷⁰ that allowed a background or "plate," typically shot on location, to be composited with a studio-shot foreground, as in *Anna Christie* (1930), where it is used to show Greta Garbo and George F. Marion on a boat sailing down the East River.⁷¹ The background plate (in this example, Manhattan seen from the river) was shot first. A special orange-dyed positive print of this

footage was then bipacked with unexposed negative film; that is, the two strips of film were placed right on top of each other in the camera magazine. The foreground scene (here, Greta Garbo) was then illuminated with orange light against a blue-lit background. Because the gray and black areas of the bipacked background plate were orange-colored, they became effectively transparent where the orange-lit foreground figures were, allowing the foreground to pass right through and be captured on the negative. Where the blue background light was not blocked by the foreground, it caused the background image to be clearly transferred to the negative.⁷² For most purposes, the Dunning process was replaced by rear projection after 1933, and it is therefore improbable that it was used for the ghostly special effects in *Our Town*.

In discussing these effects, Bazin confusingly speaks of “certain improvements due in particular to the use of bipack film (two layers, one orthochromatic and one panchromatic, separated by a layer of red filter).”⁷³ But what he refers to here is bipack color, a different use of bipacking from the Dunning process. In bipack color processes like Prizma, the color spectrum would be separated and captured on two different kinds of black-and-white negative; the blues and greens would be captured on the non-red-sensitive orthochromatic stock in front while the red filter backing it would allow only the reds and oranges through to the red-sensitive panchromatic film behind it.

There is a clear connection between the two kinds of bipacking; Dunning’s father owned the Prizma Color Process Company. In this passage, however, Bazin seems to regard bipacking and the Dunning process as two separate things, and this is even more evident if we go back to the 1945 version of the essay, where the somewhat longer section on the Dunning process included the sentence, “An examination of the sequence in *Our Town* suggests that it involves an *improved* dunning using the properties of bipack film” (emphasis

added), continuing with a long parenthesis on color bipack.⁷⁴ But the Dunning process, as we have seen, was always dependent on bipacking.

In the same passage, Bazin adds another factor to the success of the effects in *Our Town*, “an important improvement in the synchronization of sound and image through the use of masking and counter-masking.”⁷⁵ The mention of sound synchronization in the last sentence is a mistranslation of the French word *repérage*, which should have been translated as “registration,” that is, the precision with which “each frame of film is positioned [...] relative to the perforations”;⁷⁶ precise registration is extremely important when compositing images, but sound is quite irrelevant. Therefore, the last sentence is probably better rendered as “an important improvement of registration in the use of masking and counter-masking” (fig. 6).

This is relevant because *Our Town* did use some kind of travelling matte process to create the ghost, just not the in-camera Dunning process. Instead, an optical printer was probably used. An optical printer is basically a camera set up to allow the frame-by-frame copying of one film to another. To composite two images (say, a background and a foreground figure), the first one is copied onto the negative in the optical printer, the negative is rewound, and then the second is copied. The separate film strips to be composited are bipacked with, respectively, a master matte or “male” matte (a black mask allowing light only through the area of the foreground figure, so that the background area remains unexposed when the foreground figure is copied) and a counter-matte or “female” matte (a black silhouette of the foreground figure that creates an unexposed hole fitting the figure when the background image is copied). In the case of *Our Town*, the counter-matte would have been left out, allowing the background to show through the transparent apparition, and the master matte would have been reshaped (possibly through rotoscoping) to produce the occlusion effect that so impressed Bazin. This would fit with Bazin’s talk of “l’utilisation des caches et

contre-caches,”⁷⁷ which could be translated as “the use of mattes and counter-mattes” rather than “masking and counter-masking.”

It also agrees with a report in the *New York Times* published in March 1940. According to this, William Cameron Menzies, the film’s production designer, devised the technique. First, the ordinary scene was shot. “The mature Emily then was shot against a black velvet backdrop, and, in a white dress, she was flooded with an excess of light. This film has been superimposed on the other, a traveling matte blotting out the normal scene and allowing the light radiation to dominate the screen.”⁷⁸

It is the *vraisemblance* produced by the use of cutting-edge special effects that Bazin wants to emphasize more than any particular technical process. In the first part of the 1945 version of the essay, Bazin praises the “remarkable discretion” of the effects, the way they subordinate technical display to “the verisimilitude of the supernatural.”⁷⁹ In the final section of the 1945 version, dealing with the shortcomings of the French cinema’s use of special effects, Bazin writes that it is possible to evoke the fantastic without using special effects, but when it comes to those, “we are seriously outdistanced by the Americans” who have developed exacting processes involving careful lab work and special perforations ensuring precise registration: “Such processes are not only long and costly, they require specialized equipment and personnel that we need to acquire or train. The good old superimposition is dying. If the French cinema wants to make its own perfected phantoms and leave the rags of the spectres that even our children no longer fear in the storeroom for outdated props, it will have to pay what it costs.”⁸⁰ This clarion call to the French film industry may have seemed less relevant thirteen years later, but it interestingly underscores Bazin’s commitment to what Stephen Prince has called “perceptual realism” as a precondition for making the fantastic seem convincing. Perceptually realistic images, writes Prince, are those that match “the

viewer's own experientially based understanding of light, space, motion, and the behavior of objects in a three-dimensional world," even if they show things that do not exist.⁸¹

When we examine *The Phantom Carriage*, we can see that Julius Jaenzon, Sjöström's cinematographer, went to considerable lengths to enable the ghostly figures to be occluded by solid objects in the foreground, even though the effects were done in-camera, without the benefit of an optical printer. He accomplished this by carefully masking off parts of the ghost shots. The effect can be seen in the sequence of the Death Cart travelling across the water to pick up a drowned sailor, where the rocks in the foreground appropriately occlude the cart passing behind them. It is also visible in the shot of Georges and Holm entering Edit's house, where they disappear from view as they pass through the doorway. Most importantly, it can be seen in the scene where Edit sees Holm's spirit just before she dies: the bed Edit is lying in occludes the lower bodies of Holm and Georges, standing behind it (figs. 7 and 8).

When Bazin wrote his essay in 1945, it is possible that Julien Duvivier's 1939 adaptation of Lagerlöf's novel, *La Charette fantôme*, was fresher in his memory than Sjöström's film; there is a suggestion of this in the passage in the superimposition essay where Bazin alludes to *The Phantom Carriage* (quoted at note 166, above). In the 1945 version of the essay, when the film is mentioned parenthetically —“(the period of *The Phantom Carriage*)”⁸²—the title is followed by the qualifier, “of which a French version shot by Duvivier has just been re-released in Paris.”⁸³ This is significant, because the superimposed phantoms in Duvivier's film violate the principles of perceptual realism more than do those in Sjöström's *The Phantom Coach*.

Duvivier claimed he had not seen Sjöström's film,⁸⁴ which is why I haven't called his version a remake, and Duvivier's version is certainly very different. The story is rearranged chronologically, so we reach the fatal New Year's Eve (with nearly all the effects shots) less than twenty minutes before the end of the movie. In Duvivier's film there are a few shots

from the deathbed scene, where the spirits of Holm and Georges are occluded in a manner somewhat similar to Sjöström's film. On the other hand, in the next-to-last shot of the film, when the redeemed Holm enters his house, he looks back at the spirit of Édith (as Edit is called here), who quite clearly appears to be standing on the porch outside; but then the door closes, and Édith is not occluded but remains clearly visible—a striking example of the “defiance of perspective and common sense” that so annoyed Bazin (figs. 9 and 10).

I came to Bazin's essay through my interest in a particular film, *The Phantom Carriage*, and what critical responses to it might lead us to discover in it. Bazin's essay made pertinent Tom Gunning's question, “What does a ghost look like?” As far as cinematic, fictional ghosts are concerned, my answer would be that their appearance will probably follow certain cultural conventions for representing them, but these conventions will be constrained by the need for such representations to be minimally counterintuitive, and, as far as possible, perceptually realistic. I hope to have shown that André Bazin's commitment to realism did not mean that he was hostile in principle to movies using special effects to show the fantastic and the unreal. On the contrary, he urged the French film industry to invest in the technology and skills necessary to “make its own perfected phantoms.”⁸⁵

Going back to Sjöström's *The Phantom Carriage* and reexamining its ghost shots in the light of these ideas, we can see that not only did it portray its disembodied spirits in a way that closely matched the descriptions in the source novel, influenced by both nineteenth-century occultism and nineteenth-century cultural optics, but that great efforts were made to make them “*real* ghosts” in the way Bazin recommended. They sometimes were felt—even in Bazin's day—to fall short of prevailing standards of perceptual realism, but we can nevertheless still admire the artistry with which they were created and the effort that went into ensuring the verisimilitude of the supernatural.

Notes

¹ Tom Gunning, “To Scan a Ghost: The Ontology of Mediated Vision,” *Grey Room*, no. 26 (2007): 103.

² André Bazin, “The Life and Death of Superimposition,” in *Bazin at Work: Major Essays and Reviews from the Forties and Fifties*, ed. Bert Cardullo (London: Routledge, 1997), 74. An online version can be found at <http://www.film-philosophy.com/index.php/fp/article/view/665/578>.

³ See my audio commentary for the BluRay/DVD edition of *The Phantom Carriage* (New York: Criterion Collection, 2011).

⁴ For the concept of historical series, see Casper Tybjerg, “Artifacts, Series, Solutions,” in *A History of Cinema Without Names*, ed. Diego Cavallotti, Federico Giordano, and Leonardo Quaresima, *Proceedings of XXII Udine International Film Studies Conference* (Udine: Forum, 2016).

⁵ See Victor Sjöström, “Selma Lagerlöf och filmen,” in *Mårbacka och Övralid: Minnen av Selma Lagerlöf och Verner von Heidenstam av 41 författare*, ed. Sven Thulin (Uppsala: J. A. Lindblads förlag, 1941). I discuss the similarities and differences between the novel and the film in detail in my audio commentary.

⁶ Selma Lagerlöf, *Thy Soul Shall Bear Witness!*, trans. William Frederick Harvey (London: Odhams Press, 1921), 30. Available at <http://archive.org/details/ThySoulShallBearWitness>.

⁷ Bengt Idestam-Almquist, *Den svenska filmens drama: Sjöström - Stiller* (Stockholm: Åhlén, 1939), 196–97.

⁸ For an overview, see Tom Ruffles, *Ghost Images: Cinema of the Afterlife* (Jefferson, NC: McFarland, 2004), 34–43.

⁹ A pseudonym for Märta Lindqvist; see Jan Olsson, “‘Den dramatiserede folklivsskildringen i landskapets miljö’: Ett receptions collage över den nationella filmkulturens gränssnit,” in *“As Time Goes By”*: *Festskrift i anledning Bjørn Sørenssens 50-årsdag*, ed. Gunnar Iversen, Stig Kulset, and Kathrine Skretting (Trondheim: Tapir, 1996), 101.

¹⁰ Leif Furhammar, “Körkarlen,” in *Svensk filmografi*, ed. Lars Åhlander (Stockholm: Svenska filminstitutet, 1982), 99. The same filmography entry contains extensive quotes from other glowing Swedish reviews of the film.

¹¹ Maurice Bardèche and Robert Brasillach, *The History of Motion Pictures*, trans. Iris Barry (New York: Norton, 1938), 179.

¹² Tom Gunning, “‘A Dangerous Pledge’: Victor Sjöström's Unknown Masterpiece, *Mästerman*,” in *Nordic Explorations: Film before 1930*, ed. John Fullerton and Jan Olsson (Sydney: John Libbey, 1999), 205.

¹³ Gunning, “‘A Dangerous Pledge,’” 205.

¹⁴ Georges Charensol, *Panorama du cinéma* (Paris: Éditions Kra, 1930), 136.

¹⁵ Bardèche and Brasillach, *The History of Motion Pictures*, 179.

¹⁶ Bazin, “Life and Death,” 75.

¹⁷ Daniel Morgan, “The Afterlife of Superimposition,” in *Opening Bazin: Postwar Film Theory and Its Afterlife*, ed. Dudley Andrew and Hervé Joubert-Laurencin (Oxford: Oxford University Press, 2011), 132.

¹⁸ Bardèche and Brasillach, *The History of Motion Pictures*, 179.

¹⁹ Lagerlöf, *Thy Soul Shall Bear Witness!*, 63.

²⁰ *Ibid.*, 57.

²¹ Jean-Claude Schmitt, *Ghosts in the Middle Ages: The Living and the Dead in Medieval Society*, trans. Teresa Lavender Fagan (Chicago: University of Chicago Press, 1998), 206.

²² Bardèche and Brasillach, *The History of Motion Pictures*, 179.

²³ Schmitt, *Ghosts*, 212.

²⁴ Ibid.

²⁵ Ibid.

²⁶ Clément Chéroux, “Ghost Dialectics: Spirit Photography in Entertainment and Belief,” in *The Perfect Medium: Photography and the Occult*, ed. Clément Chéroux, et al. (New Haven, CT: Yale University Press, 2005), 53n2.

²⁷ Laurent Mannoni and Donata Pesenti Campagnoni, *Laterne magique et film peint: 400 ans de cinéma* (Paris: Éditions de La Martinière/Cinémathèque française, 2009), 127–32; Ruffles, *Ghost Images*, 11–25.

²⁸ Laurent Mannoni, *The Great Art of Light and Shadow: Archaeology of the Cinema*, trans. Richard Crangle (Exeter: University of Exeter Press, 2000), 173.

²⁹ Simone Natale, “A Short History of Superimposition: From Spirit Photography to Early Cinema,” *Early Popular Visual Culture* 10, no. 2 (2012): 130, quoting David Brewster, *The Stereoscope: Its History, Theory, and Construction: With Its Application to the Fine and Useful Arts and to Education* (1856), 205.

³⁰ Chéroux, “Ghost Dialectics,” 46.

³¹ Natale, “Short History,” 130.

³² Laurent Mannoni, “La Lanterne magique du boulevard du Crime: Henri Robin, fantasmagore et magicien,” *1895*, no. 16 (1994), 5-26; the “spectres vivants” are discussed on pp. 12-18.

³³ Chéroux, “Ghost Dialectics,” 60.

³⁴ Jeremy Brooker, “The Polytechnic Ghost: Pepper's Ghost, Metempsychosis and the Magic Lantern at the Royal Polytechnic Institution,” *Early Popular Visual Culture* 5, no. 2 (2007), 189-206.

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- ³⁵ Jim Steinmeyer, *Hiding the Elephant: How Magicians Invented the Impossible* (London: William Heinemann, 2004), 32–33.
- ³⁶ Tom Gunning, “‘We are Here and Not Here’: Late Nineteenth-Century Stage Magic and the Roots of Cinema in the Appearance (and Disappearance) of the Virtual Image,” in *A Companion to Early Cinema*, ed. André Gaudreault, Nicolas Dulac, and Santiago Hidalgo (Oxford: Blackwell, 2012), 53.
- ³⁷ Tom Gunning, “Phantasmagoria and the Manufacturing of Illusions and Wonder,” in *Le Cinématographe, nouvelle technologie du XXe siècle/The Cinema: A New Technology for the 20th Century*, ed. André Gaudreault, Catherine Russell, and Pierre Véronneau (Lausanne: Editions Payot, 2004), 33.
- ³⁸ Gunning, “Phantasmagoria”; “The Long and the Short of It: Centuries of Projecting Shadows, from Natural Magic to the Avant-Garde,” in *Art of Projection*, ed. Stan Douglas and Christopher Eamon (Ostfildern: Hatje Cantz, 2009); “Phantom Images and Modern Manifestations: Spirit Photography, Magic Theater, Trick Films, and Photography’s Uncanny,” in *Fugitive Images: From Photography to Video*, ed. Patrice Petro (Bloomington: Indiana University Press, 1995); “Ghosts, Photography and the Modern Body,” in *The Disembodied Spirit*, ed. Alison Ferris (Brunswick, ME: Bowdoin College Museum of Art, 2003); “Invisible Worlds, Visible Media,” in *Brought to Light: Photography and the Invisible, 1840–1900*, ed. Corey Keller (New Haven, CT: Yale University Press, 2008); “Doing for the Eye What the Phonograph Does for the Ear,” in *The Sounds of Early Cinema*, ed. Richard Abel and Rick Altman (Bloomington: Indiana University Press, 2001); “Renewing Old Technologies: Astonishment, Second Nature and the Uncanny in Technology from the Previous Turn-of-the-Century,” in *Rethinking Media Change: The Aesthetics of Transition*, ed. David Thorburn and Henry Jenkins (Cambridge, MA: MIT Press, 2003); “‘We are Here’”; “Landscape and the Fantasy of Moving Pictures: Early Cinema’s Phantom

Rides,” in *Cinema and Landscape*, ed. Graeme Harper and Jonathan Rayner (Bristol: Intellect, 2010).

³⁹ Gunning, “To Scan a Ghost.”

⁴⁰ Lagerlöf, *Thy Soul Shall Bear Witness!*, 63.

⁴¹ Tom Gunning, “Uncanny Reflections, Modern Illusions: Sighting the Modern Optical Uncanny,” in *Uncanny Modernity: Cultural Theories, Modern Anxieties*, ed. Jo Collins and John Jervis (New York: Palgrave, 2008), 68.

⁴² Gunning, “Invisible Worlds,” 59.

⁴³ *Ibid.*, 61.

⁴⁴ Erik Eliasson, “Om Selma Lagerlöf och spiritismen,” *Lagerlöfstudier* 4 (Torsby: Selma Lagerlöfsällskapet, 1971), 110-116.

⁴⁵ For a very detailed study of how the novel *Körkarlen* relates to the various occult doctrines, see Ulla-Britta Lagerroth, *Körkarlen och Bannlyst: motiv-och idéstudier i Selma Lagerlöfs 10-talsdiktning* (Lund: Bonnier, 1963), 161–216.

⁴⁶ Henrik Wivel, *Snedronningen: En litterær biografi om Selma Lagerlöf* (Copenhagen: Gyldendal, 2005), 184.

⁴⁷ Natale, “Short History,” 140.

⁴⁸ See also Clément Chéroux, “The Great Trade of Tricks: On Some Relations Between Conjuring Tricks, Photography, and Cinematography,” in *Between Still and Moving Images*, ed. Laurent Guido and Olivier Lugon (Sydney: John Libbey, 2012).

⁴⁹ Gunning, “Invisible Worlds,” 63.

⁵⁰ Matthew Solomon, *Disappearing Tricks: Silent Film, Houdini, and the New Magic of the Twentieth Century* (Urbana: University of Illinois Press, 2010), 8.

⁵¹ “Kubrick on *The Shining*: An interview with Michel Ciment,” 1980, <http://www.visual-memory.co.uk/amk/doc/interview.ts.html>.

⁵² David Bordwell, *On the History of Film Style* (Cambridge, MA: Harvard University Press, 1997), 144–46; for an overview of the subsequent debate, see Frank Kessler, “Viewing Change, Changing Views: The ‘History of Vision-Debate,’” in *Film 1900: Technology, Perception, Culture*, ed. Annemone Ligensa and Klaus Kreimeier (Sydney: John Libbey, 2009).

⁵³ Gunning, “Re-Newing Old Technologies,” 43.

⁵⁴ *Ibid.*, 41.

⁵⁵ Justin L. Barrett, “Cognitive Science of Religion: Looking Back, Looking Forward,” *Journal for the Scientific Study of Religion* 50, no. 2 (2011): 233.

⁵⁶ For an overview, see Brian J. Scholl and Patrice D. Tremoulet, “Perceptual Causality and Animacy,” *Trends in Cognitive Sciences* 4, no. 8 (2000), 299-309.

⁵⁷ Scott Atran and Ara Norenzayan, “Religion's Evolutionary Landscape: Counterintuition, Commitment, Compassion, Communion,” *Behavioral and Brain Sciences* 27, no. 6 (2004): 719.

⁵⁸ Atran and Norenzayan, “Religion’s Evolutionary Landscape,” 720.

⁵⁹ Pascal Boyer, *Religion Explained: The Evolutionary Origins of Religious Thought* (New York: Basic Books, 2001); Justin L. Barrett, *Why Would Anyone Believe in God?* (Walnut Creek, CA: AltaMira Press, 2004), 22, 30; and Justin L. Barrett, “Exploring the Natural Foundations of Religion,” *Trends in Cognitive Sciences* 4, no. 1 (2000): 30.

⁶⁰ Ara Norenzayan et al., “Memory and Mystery: The Cultural Selection of Minimally Counterintuitive Narratives,” *Cognitive Science* 30, no. 3 (2006): 531, and throughout.

⁶¹ Justin L. Barrett and Frank C. Keil, “Conceptualizing a Nonnatural Entity: Anthropomorphism in God Concepts,” *Cognitive Psychology* 31, no. 3 (1996): 238–40.

⁶² Lagerroth, *Körkarlen och Bannlyst*, 136.

⁶³ André Bazin, "Vie et mort de la surimpression I: A propos de *Ses trois amoureux*," *L'Ecran Français*, no. 8 (1945), 12-13; "Vie et mort de la surimpression II: Le fantômes de *Our Town*," *L'Ecran Français*, no. 9 (1945).

⁶⁴ André Bazin, "Vie et mort de la surimpression," in *Qu'est-ce que le cinéma?* (Paris: Denoël, 1958), 29.

⁶⁵ Bazin, "Life and Death," 75.

⁶⁶ *Ibid.*, 76.

⁶⁷ *Ibid.*, 76.

⁶⁸ Morgan, "The Afterlife of Superimposition."

⁶⁹ Bazin, "Life and Death," 75.

⁷⁰ "Dunning-Verfahren," Lexikon der Filmbegriffe, August 3, 2011, <http://filmlexikon.uni-kiel.de/index.php?action=lexikon&tag=det&id=2971>.

⁷¹ *Special Effects Artists: A Worldwide Biographical Dictionary of the Pre-Digital Era with a Filmography*, s.v. "C. Dodge Dunning and Carroll H. Dunning," by Rolf Giesen (Jefferson, NC: McFarland, 2008), 52.

⁷² For a more detailed explanation of the Dunning process, see Richard Rickitt, *Special Effects: The History and Technique* (London: Virgin, 2000), 60.

⁷³ Bazin, "Life and Death," 75.

⁷⁴ Bazin, "Vie et mort II: *Our Town*"; "dunning" italicized in original.

⁷⁵ Bazin, "Life and Death," 75.

⁷⁶ Raymond Fielding, *The Technique of Special Effects Cinematography*, 4th ed. (Oxford: Focal Press, 1985), 20.

⁷⁷ Bazin, "Vie et mort de la surimpression," 30.

⁷⁸ Douglas Campbell, "Little Emily in Hollywood," *New York Times*, March 31, 1940.

Thanks to David Bordwell for furnishing me with this reference.

⁷⁹ Bazin, “Vie et mort I: *Ses trois amoureux*,” 12.

⁸⁰ Bazin, “Vie et mort II: *Our Town*.”

⁸¹ Stephen Prince, “True Lies: Perceptual Realism, Digital Images, and Film Theory,” *Film Quarterly* 49, no. 3 (1996): 34–35.

⁸² Bazin, “Life and Death,” 75.

⁸³ Bazin, “Vie et mort II: *Our Town*.”

⁸⁴ Eddy Moine, “Notes de production,” *La Charrette fantôme* (SNC/M6 Video, 2007), DVD, onscreen text supplement, screen 1.

⁸⁵ Bazin, “Vie et mort II: *Our Town*.”

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