

Repressed Light: Cinema, Technics, and the Uncanny

Kyle Stine

Before electric light was what Marshall McLuhan would call “pure information,” audiences were taught to see light.¹ When Thomas Edison debuted the incandescent bulb in Menlo Park in December 1880 after several years of experimentation, it was a grand display.² For days in advance, newspaper articles and advertisements directed attention to the newest marvel from the inventor of the phonograph, promising an event that would make incandescent light personally visible to a large public, a calculated gamble on Edison’s part because the system was still in development but one well worth taking, in the eyes of the showman, in the effort to impress the hearts and minds of the buying masses. Through the publicity and experimental displays at Menlo Park and later in several world capitals, people were made to see electric light. Electric light was in effect all they could see, and they saw it for its star quality, for its contrast to gaslight.³

Ten years later in May 1891 at Edison’s West Orange Laboratory, 147 members of the National Federation of Women’s Clubs of America had the privilege of being the first public to peer through a small aperture in a pine box and see a succession of moving images.⁴ It probably hardly occurred to these first moviegoers to take notice of the electric lights illuminating the demonstration room. Only ten years after the light bulb had been a deliberate

sensation, it was for all intents and purposes invisible. The extent of this invisibility comes into focus when we consider the virtual invisibility of even the brilliant signage on a theater marquee when it announces the name of the theater and the coming attraction. More immediately, though, it probably hardly occurred to even the earliest film spectators, let alone modern filmgoers, that electric light stands behind every film projection.⁵ Such is the story of the light bulb that even as its reach expanded, even as it illuminated all these new contents, its fame diminished. The more light it shed, the more invisible it became.

For one very famous filmgoer, however, the light bulb erupted uncannily in the movies in the form of its opposite. Against the life-affirming astonishment felt by many in the early film experience, Maxim Gorky saw instead shadows:

Last night I was in the Kingdom of Shadows. If only you knew how strange it is to be there. It is a world without sound, without colour. Everything there—the earth, the trees, the people, the water and the air—is dipped in monotonous grey. Grey rays of the sun across the grey sky, grey eyes in grey faces, and the leaves of the trees are ashen grey. It is not life but its shadow, it is not motion but its soundless spectre.⁶

The light bulb's passage from spectacle to familiarity opened up the unique technical possibility of a return whereby the medium's entry into movement showed forth one of its component technologies, reversing on its familiar luminescence in the figure of shadows. As Gorky sat in the darkness of Charles Aumont's tent that day in 1896 at the Nizhny-Novgorod All-Russian Exhibition, the shadows he saw forming a kingdom of specters were, among all the shadows in cinema, those at the very basis of photography as, literally, writing with light. In a recent and foundational essay on the shadow in cinema, Jacques Aumont explains of the early films by Auguste and Louis Lumière that the capturing of movement also necessarily entailed the capturing of "a luminous situation, with all its details and accidents": "The Lumière brothers wanted to fix movement with the *Cinématographe*; they fixed it in a photographic image. They were not mistaken in wanting to write motion; but at the same time, they also wrote light."⁷ Thus, when Gorky reassures himself in his review with the comforting idea that the passing train he sees "is but a train of shadows,"⁸ he is right to say that he indulges not at all in symbolism: the projected images he recounts were nothing other than shadows cast by the blocking filmstrip moving past the backlight lamp. They were the reverse side of a light that, in the quest for naturalistic representation, necessarily recedes into the

background, coming to provide the most fundamental material of cinematic artistry, as Josef von Sternberg would later summarize: “Each light furnishes its own shadow, and where a shadow is seen there must be a light. Shadow is mystery and light is clarity. Shadow conceals, light reveals. To know what to reveal and what to conceal and in what degree and how to do this is all there is to art.”⁹

The question then arises as to why Gorky would see only ghostly presences rather than the expected scenes composed by this art of light and shadow, the *mise-en-scènes* carefully selected by the Lumières for their recognizability and popular appeal: a Paris street, an approaching train, a gardener watering flowers. To be sure, the “grey” that Gorky describes could be seen, as the author understands it himself, as what cinema lacks—color. Yet Gorky would have had prior experience with the monochromaticity of still photography, so it seems unlikely that this alone could provoke such an uncanny impression. Nor are the shadows that Gorky cites figures within the scene. They are not the attached shadows of the roof ledges in *A Street in Paris* or the shadows cast along the ground by the engine in *Arrival of a Train* (though these shadows too, as images dancing onscreen, were derived from the same source as those that unnerved Gorky so).

The Lumière *actualités* circa 1896 show in general no conspicuous shadows and exhibit many of the characteristics of later variety films and narrative fiction films, making the impression that Gorky felt all the more curious. As Peter Baxter has argued, film lighting during the early years of American cinema, specifically between 1902 and 1912, conformed to “the model of featureless illumination provided by the stage,” using lighting setups designed to produce a “desired overall shadowless illumination.”¹⁰ Removing shadows from scenes was part of the film industry’s larger effort to conceal the medium’s artifice. Filmed narratives deployed what Rudolf Arnheim would call “luminous” scenes, evenly lighted settings that appeared to radiate their own light rather than being lighted by another source: “An evenly lighted object shows no signs of receiving its brightness from somewhere else. Its luminosity . . . appears as a property inherent in the thing itself. The same is true for a uniformly lighted room.”¹¹ Lighting was invisible.

Early on, filmmakers used open-air stages and available sunlight, as in Edison’s *Black Maria*, or closed studios open to daylight and having cloth awnings or translucent glass panes to diffuse the light to create the effect of shadowless scenery. Electric lighting was introduced to cinema around 1906, as Baxter explains, to eliminate production interruptions caused by “clouds, rain, and the short daylight of winter,” but the process was never fully completed

before the industry shifted to southern California, in part to exploit its dependable sunlight, delaying the full electrification of the California studios until 1915.¹² Even then, though, directors sought to eliminate shadows as far as possible, the exception that proves the rule coming when Samuel Goldwyn initially chided Cecil B. DeMille for his adventurous “Rembrandt chiaroscuro” before being made to realize that the new artistic flourish presented cause for a lift in rental fees.¹³ All of this is to say that filmmakers from the Lumière to the directors of feature films in the early years of Hollywood put exceptional effort into ensuring that audiences would not see the artifice of scene lighting as revealed by conspicuous shadows. And yet at a transitional moment between still photography and moving images, Gorky saw them nonetheless.

Shadows, of course, were not always eliminated. They were also the material of cinematic artistry, as Sternberg noted. In a certain fundamental sense, however, even films that emphasize shadows in a way cover over what Aumont has called the “constitutive value” of the shadow in cinema, “the art of the shadow par excellence.”¹⁴ Victor Stoichita explains that the hyperbolization of the shadow practiced in seventeenth-century painting found its greatest triumph in the new medium of cinema, as evidenced by the “thematic obsession” with the shadow/double in German cinema during the Weimar period.¹⁵ James C. Franklin argues similarly that the expressionist tradition of Weimar film mobilized the shadow to provide a further layer of narrative depth without resorting to intertitles, supplementing linear storytelling to express other temporalities and the interior dispositions of characters similar to the way sound would later come to express interiority and offscreen space. This gambit in which “style became narrative”¹⁶ was so effective as a diegetic supplement that the constitutive shadow of the cinematic apparatus remained unseen even in the most conspicuous of circumstances. In her famous essay “The Cinema” (1926), Virginia Woolf relates a peculiar experience she had while watching *The Cabinet of Dr. Caligari* (1920) in which she momentarily mistook a malfunction in the film projector draping a shadow across the screen for a part of the story:

At a performance of *Dr. Caligari* the other day a shadow shaped like a tadpole suddenly appeared at one corner of the screen. It swelled to an immense size, quivered, bulged, and sank back again into nonentity. For a moment it seemed to embody some monstrous diseased imagination of the lunatic’s brain. For a moment it seemed as if thought could be conveyed by shape more effectively than by words. The monstrous quivering tadpole seemed to be fear itself, and not the statement “I am afraid.”

In fact, the shadow was accidental and the effect unintentional. But if a shadow at a certain moment can suggest so much more than the actual gestures and words of men and women in a state of fear, it seems plain that the cinema has within its grasp innumerable symbols for emotions that have so far failed to find expression.¹⁷

Woolf's expectations were certainly primed to attribute to this encroaching shadow a host of meanings and intentions. Jean Epstein once said of the film that "Everything in *Caligari* is decor."¹⁸ The shadow plays a special role in the film's stylization, deepening the narrative by signifying the characters' monstrous hidden lives, their stratagems, lusts, and murderous intents. In short, the shadow is supposed to be read as meaningful, even if the one Woolf saw was not meaningful in that sense.

Between 1920 and Woolf's essay in 1926, the trope of the deadly shadow expanded broadly. F. W. Murnau used shadows in *Nosferatu* (1922) to communicate the threatening presence of the vampire (Max Schreck) stalking after Hutter (Gustav von Wangenheim). Arthur Robison deployed them in *Warning Shadows* (1923) to add layers of depth to the characters' personalities, suggesting the husband's jealousy, the wife's vanity and supposed infidelity, and alternative storylines juxtaposed over the actual plot that enabled the viewer to understand more than the characters themselves.¹⁹ Setting these alongside *Caligari*, a film in which Cesare's shadow (played by Conrad Veidt) towers over Alan (Hans Heinrich von Twardowski) and stabs him to death, it is understandable that Woolf would experience this monstrous "tadpole," this incursion of the materiality of film casting a shadow across the screen, as simply a ghastly eruption in the telling of the story. The crucial point is that, beyond removing shadows during film production, there was a further way of banishing them: shadows were absorbed into narrative, veiled in "style." And despite all this, Gorky saw the shadows beneath the style.

As Aumont notes, the expressionistic shadows of Weimar film almost always proceeded from a production technique that held the body of the actor who produced them offscreen, as in the example of Conrad Veidt in *Caligari* and the famous example of the vampire attack in *Nosferatu* (1922). The specters that unsettled Gorky owe similarly to the ties between the human body and the shadow as an expression of "other more or less immaterial states of the human figure."²⁰ As Otto Rank details in his psychoanalytic study of the *doppelgänger*, the shadow in many traditions is the archetypal expression and enduring figure of the soul or guardian spirit. Rank devotes a chapter to the wide spectrum of recurring

shadow motifs in mythology and literature, citing examples such as “the death of the main character at the wounding of his reflection, portrait, or double” and “the idea that one’s guardian angel appears at the hour of death and joins one’s shadow.”²¹ Among these, a prevailing shadow superstition across cultures pertains to the promise of immortality and the threat of death, embodied in the diabolical alternation of guardian spirit and shadow figure. Rank suggests that in these traditions “The shadow is coequivalent with the human soul,” often deemed “an actual spiritual being” and a “protective spirit born simultaneously with the child.”²² This close connection between the shadow and the spiritual double has prompted a long list of cultural taboos and etiquettes for interacting with the umbras: the care taken not to let one’s shadow fall on certain objects, the fear of certain people’s shadows, the avoidance of stepping on the shadows of others, the punishment of death for stepping on the king’s shadow, the taboo against casting shadows on graves, the belief that one’s health attaches to the size and strength of outline of one’s shadow, and the belief in male potency and female fertility being connected to their shadows, where, for instance, the shadowless woman is considered to be infertile.²³ This constellation of superstitions begins to explain why the shadow of all the figures of technological artifice in cinema is the one to bring forth the uncanniest responses.

In general, however, conforming to the spirit if not the letter of filming with uniform illumination, the shadow rarely shows itself as such. Aumont notes that the emphasis in film is so tied to reality that the shadow rarely “jumps,” hardly ever provoking a sense of unreality or magic, instead being steadfastly grounded to the earth: “cinema—narrative cinema, at least—has been so attached to sculpting light, to rendering volumes by light, to extolling the merits of the solidity of things in the world, that it is rare to find evanescence, the shadow that jumps, the flame of a candle.”²⁴ The shadow in this way recedes into the image. The reason for this, Stojichita explains, is that shadow is allied with image both psychologically and historically and may in fact be the prime antecedent of all the arts: “It would therefore seem likely that artistic representation in general can be traced back to the primitive shadow stage.”²⁵ Pliny made the case that painting arose from a primitive encounter with the human figure cast in shadow via the art of *skiagraphia*: “Reading between the lines, what Pliny said was this: the Greeks discovered painting, not by looking at Egyptian works of art but by observing the human shadow.”²⁶ In the shadow, nature itself transposed and reduced the complexity of the human form, rendering it for the possibility of art; the Greeks had only to trace it. Similarly,

Rank notes that the first natural doubles were shadows and reflections in water. Building on this insight, Stoichita makes the case for a “shadow stage” related to but distinct from Lacan’s “mirror stage”: “As Lacan has stated, the mirror stage involves primarily the identification of the I, whereas the shadow stage involves mainly the identification of the other.”²⁷ That the shadow stage is associated with the other, with death and absence, explains why accounts of the uncanny latch onto the shadow as being unsettling and not onto the semblance, likeness, or reflection of the visible world. The image is a matter of identification, and cinema’s emphasis on image identification has always been, at least in part, about dispelling the threat of the shadow. Baxter points out, for instance, that the cinema’s primary figure of identification early on became the brightest space of the image: “The face of the American film actor became the locus of this radiant sign.”²⁸

Rather than being bathed in light, the only faces Gorky saw were written in shadows, their radiance inverted. Importantly, however, these shadows were not expressionistic or symbolic of something else. They were their own depth—the shadow of the technique itself. What Gorky saw was the reverse side of the light immediately behind him in the Aumont tent, the projector lamp casting shadows before him—the same projector that Woolf misapprehended as part of the narrative of *Dr. Caligari*. What was uncanny for Gorky was that this light, which had been hidden literally behind a strip of moving film and figuratively behind the naturalism of photogrammatic representation, had come back. It had done precisely what Sigmund Freud suggested of the uncanny when he defined it as “something repressed which *recurs*.”²⁹ If the shadows of German Expressionism were attached to the human body, representing a ghostly presence of another side of the body or the body in absence, the shadows that Gorky saw attached to a different body, equally monstrous and foreboding: the technical body of the cinema.

Robert Spadoni, drawing from Yuri Tsivian’s excellent account of Gorky’s review, argues that in the transitional phases of cinema, particularly in very early cinema and at the coming of sound, audiences were more intensely aware of the medium’s materiality.³⁰ At these times, the human body on film and the body of film itself became, in a sense, too present, “a perception founded on the return to the foreground of general viewer awareness of cinema’s artificial nature.”³¹ What remains undertheorized, however, is the extent to which the experience of the uncanny is itself figured in particular components of technological artifice, such as the light bulb. Although studies have broached the topic of the uncanny

in terms of technology, they have done so largely in terms of what Tom Gunning refers to as “the technological uncanny,” a position that takes the uncanny of technology as but one instance of a larger cultural phenomenon of the uncanny in which the technological is a sort of mode or type of uncanniness.³² In contrast to these readings, I would like to make the case that the uncanny is fundamentally technical and that anything like “the technological uncanny” is in a way a matter of redundancy. My aim is to read into Gorky’s language, to read through it toward the images themselves, toward that peculiar imagery of the cinematic already-there: the technics of light and shadow at the very basis of the photographic image.

As Aumont notes, shadow and light share a dialectical relationship, with an important distinction: “Shadow and light need one another, but asymmetrically: there are sources of light, there are no sources of shade.”³³ If Aumont is right that the shadow in cinema reverses the situation and is the *sine qua non* of the light in terms of representation, then it follows that the projector lamp is in fact the shadow of cinema and, for this reason, is unseen. By focusing on this figure, I hope to make a return, so to say, to the specific character of the uncanny outlined by Freud in his seminal 1918 essay.

Mechanisms of Return

For Freud, the subject of the uncanny is a matter of return. As with one of his own experiences of the feeling in which the famed psychoanalyst, walking in “the deserted streets of a small provincial town in Italy,” arrives again and again by several detours to the same place, his essay circles again and again around a peculiar characteristic of the uncanny, arriving time after time by different paths at the same place: “whatever reminds us of this inner ‘compulsion to repeat’ is perceived as uncanny.”³⁴ This “compulsion to repeat,” which Freud later elaborates in *Beyond the Pleasure Principle* as a mechanism of “return to the quiescence of the inorganic world”³⁵ and to which Jacques Lacan further on lends an explicit sense of the mechanical, technical nature of such compulsion with the term “repetition automatism,”³⁶ is the secret nature of the uncanny. Such repetition, be it in everyday experiences, mechanical devices, automata, or even simply numbers, is what grounds the possibility of the symbolic reversal in *das Heimliche* such that, as Freud treats at length, the term is continually liable to switch into its opposite, *das Unheimliche*, and back again. If Freud points to and implies a deep technical structure of the uncanny by having

recourse to this revolving symbol of the (*Un*)heimliche, then Lacan (again) will make the connection explicit when, on the basis of this structure of symbolic repeatability and reversal, he places repetition at the center of the symbolic order in the following way: “The symbolic world is the world of the machine.”³⁷ And coming at the question from a different perspective, from that of technics, Bernard Stiegler makes the same move when he says that “The question of repetition immediately connotes the question of *tekhne*; indeed it is this question.”³⁸

From Freud to Lacan and from Freud through Jacques Derrida to Stiegler we see a shift from an implied technicity of repetition and the uncanny to an explicit consideration of these as questions of technicity. The missing link in this historical shift of perspective is Martin Heidegger. For Freud, the uncanny is something repressed that returns, such that “the *unheimlich* is what was once *heimlich*, familiar,” and in the negation of this term, “the prefix ‘un’ is the token of repression.”³⁹ Heidegger reverses the situation when, in *Being and Time*, he writes that being-not-at-home (*unheimlich*) is primordial, contrary to Freud’s philological discovery: “That kind of being-in-the-world which is reassured and familiar is a mode of *Dasein*’s uncanniness (*Unheimlichkeit*), not the reverse. From an existential-ontological point of view, the ‘not-at-home’ must be conceived as the more primordial phenomenon.”⁴⁰ Common to both accounts by Freud and Heidegger, however, and despite the reversal in their understandings of the originary home or *heim* of the uncanny, is the way each symptomatically ascribes the object-world to the human. Bill Brown has pinpointed this problem by calling attention to Freud’s dismissal of Ernst Jentsch’s 1906 study, which highlights several specific objects of modernity that give rise to the experience of the uncanny, noting alongside the example of automata borrowed by Freud for his own purposes, machines such as locomotives and steamboats. More than a simple corrective for Freud’s emphasis on psychical reality, Brown’s critique cuts to the core of psychoanalysis: “The repression at work may be the repression of the unhuman object-world itself, which psychoanalysis compulsively translates into the human.”⁴¹ Stiegler levels a similar critique against Heidegger’s existential analytic for placing the seat of the uncanny within *Dasein* and in this way translating the problem of the uncanny into the human. Stiegler’s departure from Heidegger is meant to show that the latter’s notion of being-not-at-home (*Unheimlichkeit*) is the result of a concrete form of repetition that gives us access to the already-there—namely, technics. In this sense, if we are to find the source of Gorky’s sense of uncanniness, it is necessary to take into account, alongside cultural and

psychological factors, which are themselves deeply technical, the technological makeup of the images he witnesses.

In an important essay on the uncanny in the late nineteenth century, Tom Gunning makes an important distinction between representational media and nonrepresentational technologies: “While a series of uncanny experiences seem to cluster around technologies of communication like the telephone, or of representation like the photograph, technologies that are arguably equally important in the environment of modernity, such as refrigeration and canned food, don’t seem nearly as subject to these responses.”⁴² Similar to this initial distinction in the propensity for technologies to elicit uncanny effects, which we might call a synchronic distinction, Gunning makes a further observation that oftentimes technologies that were once experienced as uncanny are no longer experienced in this way. This latter diachronic distinction suggests that the uncanny is a timely occurrence. There is a certain window of possibility for uncanny effects, one that accompanies media technologies in their emergence but closes down as audiences or users become familiar with the new technology.⁴³ When photography was a new medium, for instance, it could evoke threatening recognitions of one’s mortality at the same time it promised a durable image of one’s identity. When it became more or less a social fact, however, appearing in news reporting and as judiciary evidence, it gradually lost its initial openness to the uncanny. A residual potential seems always to remain—as in Roland Barthes’s *Camera Lucida* when the author in a sense recovers the initial experience of photography’s wager with mortality in the mode of theoretical reflection—but something of the initial experience is irrevocably lost. As this suggests, even representational technologies may not be subject to uncanny responses, making the instances when they are all the more striking.

Similarly, the memory character of nonrepresentational technologies, what Stiegler calls “the inorganic organization of memory,”⁴⁴ may not always have been so deeply buried and resistant to apparitions. Stiegler draws up a distinction along the same lines as that made by Gunning between representational and nonrepresentational technologies when he identifies mnemotechnics as a special case of technics.⁴⁵ There is, however, a crucial difference. Drawing on André Leroi-Gourhan’s influential example of paleolithic pebble culture, Stiegler argues that the first technology to act as a memory support was not in the strict sense a mnemotechnology. Before writing took shape as marks intended for communication—whether across space or time—an originary writing of technical practices prevailed in which the object itself was written

into existence, the instantiation of “the organized inorganic” as exteriorized memory support.⁴⁶ Before the writing of the Greeks registered the myth of Narcissus into the archive of cultural heritage, and still longer before the “primary narcissism” of psychoanalysis, the human mind enjoyed an inaugurating captivation with its image in stone, though not as a representation of any human visage but instead as a certain quality of the living in the nonliving, the coupling of organic matter with inorganic matter out of which consciousness itself arose. Before the “mirror stage,” Stieger incisively summarizes, there was the reflection of work in stone: “Flint is the first reflective memory, the first mirror.”⁴⁷

In *Medieval Technology and Social Change*, Lynn White provides further insight putting into question Gunning’s initial distinction between representational media and nonrepresentational technologies. White argues that the mechanical crank is the single most important mechanical device next to the wheel in that it allows for the translation of continuous rotary motion into reciprocal motion. Out of this mechanism of exchange between rotary motion and reciprocal motion come some of the most important mechanical devices of modern life: the mechanical clock, James Watt’s steam engine, the electric dynamo, and, not insignificantly, the cinema camera.⁴⁸ What is unusual about the crank, White explains, is that for a long time people recoiled from the prospect of it. Despite its great efficacy, it appeared only sporadically throughout history and then disappeared again, most notably taking hold in early China and with no evidence of appearing in either ancient Greece or Rome: “The crank is profoundly puzzling not only historically but psychologically: the human mind seems to shy away from it.”⁴⁹ Helmut Müller-Sievers supplies some perspective on this enigma with reference to an uncanny trope in horror cinema: “Nothing in the human body turns continuously around an axis—this is such a visceral truth that film designers need only give a figure 360-plus-degree motion in any body part (preferably the neck) to confer on it alien or horror status.”⁵⁰

With no indication that he was trying to participate in the proliferating scholarship on the uncanny, White nevertheless alights on nearly the exact same description offered by Jentsch in his seminal psychoanalytic inquiry. White suggests that the problem with the mechanical crank comes down to just that characteristic Freud dismissed in Jentsch’s study—a sense of psychical uncertainty as to whether something is living or nonliving, an uncertainty that can go either way, according to Jentsch: “doubt as to whether an apparently living being is animate and, conversely, doubt as to whether a lifeless object may not in fact be animate.”⁵¹ The mechanical crank,

as White explains, expresses both sides of this uncertainty: "Continuous rotary motion is typical of inorganic matter, whereas reciprocating motion is the sole form of movement found in living things. The crank connects these two kinds of motion."⁵² At its core, then, the avoidance of crank power seems to be associated with something like the uncanny effect of seeing a quality of the living in the nonliving, just as Jentsch had suggested. The idea is so compelling to White that he reserves some of his most poetic language to describe it: "To use a crank, our tendons and muscles must relate themselves to the motion of galaxies and electrons. From this inhuman adventure our race long recoiled."⁵³

As Jentsch remarks, industrial technologies that exhibited this inhuman motion were particularly susceptible to appearing uncanny, especially to people first experiencing, for instance, the "enigmatic autonomous movement" of steamboats and locomotives.⁵⁴ Such experiences of the uncanny seem to be particularly reliant on first encounters, but they also suggest that nonrepresentational technologies pass through the same process of uncanniness and familiarization that Gunning associates with media technologies. Indeed, even nonrepresentational technologies possess features and components that might return, sharing the unique characteristic by which Freud defines the uncanny as "something repressed which *recurs*."⁵⁵ In this sense, an inquiry into the technologies of modernity might shed light on the thread that ties these two accounts together.

In a foundational study of machine kinematics, Franz Reuleaux states simply and elegantly that the mechanism is the unseen foundation of all machine technologies. Whereas before modernity the parts of each technology had meaning in terms of their relationship with the whole of the device under consideration, with the advent of kinematics, tools and machine parts emerged in their specificity as mechanisms, that is, as specific operations of force applicable in diverse domains. What this meant for the system of technics was nothing other than an explosion of possible applications of particular repeatable functions. Each new apparatus developed on the model of machine kinematics composed an assemblage of repeatable mechanisms, each with a specific function. The composite nature of technologies allowed for the introduction of new movements, new repetitions, and also, because of this all, new ways for the past to return. Perhaps the most important discovery of machine kinematics for the phenomenon of the uncanny occurs when Reuleaux mentions in passing that "mechanisms are not seen."⁵⁶ In Reuleaux's estimation, the greatest difficulty confronting technicians is that machines develop over generations,

in a sense leading a life of their own, such that the systems that compose the machines are difficult for any single inventor to hold in mind.⁵⁷ These machines, which carry in themselves a past that each succeeding generation has not lived but inherits nonetheless, exhibit a fundamental feature of the ready-to-hand: the possibility to go missing.⁵⁸ At any moment, they may not be seen at all. As with the uncanny itself, mechanisms must be brought to visibility.

Following these insights from the history of technology and machine kinematics, we can add a distinction within the sphere of representational technologies between simple media and complex or composite media. Representational media too are made up of nonrepresentational components. These components, like the mechanisms Reuleaux cites, can slip from sight and go missing. Because all the technologies Gunning mentions—photography, phonography, and cinema—are to some extent complex in that they are composed of multiple mechanisms and chemical bases, the distinction is more one of degree than of kind. The proposed distinction holds, however, to the extent that we can consider certain later technologies to be composed of earlier technologies—composed of specific figures of the past that might return or recur in the present.

In a study of the uncanny, then, a number of things coincide at the advent of modernity. As Lewis Mumford writes, drawing on an insight from Reuleaux, “the technical advance which characterizes specifically the modern age is that from reciprocating to rotary motion.”⁵⁹ The introduction of this sphere of motion, from which, White notes, human beings long recoiled, corresponds also with a new openness to the uncanny, as Mladen Dolar explains: “There is a *specific dimension of the uncanny that emerges with modernity*.”⁶⁰ Tying together these two insights, Stiegler argues that the defining feature of modernity is that technical progress, spurred on by the “enigmatic autonomous motion” of industrial machines, comes to outstrip the ability of social systems to effectively redouble technological advances, causing moments of maladjustment.⁶¹ In what follows, I submit that the uncanny is a principle symptom of such moments of maladjustment between epochal media systems.

Erupting Light

For light to erupt uncannily in the movies in the form of its opposite, as Gorky expresses it in his review, it must be there in the first place and, moreover, be concealed. The specific character of its concealment is, fittingly, more elusive than its being there in

the first place. Cinema is, after all, the art of light and shadow in movement. Technically speaking, according to Müller-Sievers, the cinema camera and projector are “light lathes”: “In the language of kinematics and its cylindrical embodiments, cinematography begins when the translational motion of light along the axis of the lens joins the rotational motion of film that is exposed to it.”⁶² Cinema is a machine technology for carving light onto film.

For this reason, light has been among the most celebrated aspects of cinema, as when H. D. (Hilda Doolittle) exclaims of its marvelous possibilities in several articles in *Close Up* in the late 1920s, calling it at one point, “God, here electrically incarnated, LIGHT”.⁶³

I myself have learned to use the small projector and spend literally hours alone here in my apartment, making the mountains and village streets and my own acquaintances reel past me in light and light and light.⁶⁴

This mythological, allegorical light that captivated H. D. also fascinated André Bazin, who saw in the photograph a unique modern mirror that retained its image in a mask of light, separating it from traditional mirrors and other forms of artistic reproduction: “The photograph proceeds by means of the lens to the taking of a veritable luminous impression in light—to a mold.”⁶⁵ In other places, Bazin relates this “luminous impression” more specifically to the “molding of a death mask.”⁶⁶

Similarly, the shadow has been a common topos of studies of the uncanny for the way it reflects back the specter of one’s mortality, a possibility that Gunning sees at the basis of all the media technologies of the late nineteenth century, calling them “modern Memento Mori.”⁶⁷ Yet, only in the most extreme exceptions does this recognition of mortality show through in the cinema experience, the most prominent example being the experience of one’s image onscreen as a ghost or automaton, someone radically other. Derrida, in a filmed interview with Stiegler, explains how the recognition of this ghost is written into filmic representation:

This machine [the film camera] works like a kind of undertaker, recording things and archiving moments about which we know a priori that, no matter how soon after their recording we die, and even if we were to die while recording, *voilà*, this will be and will remain “live,” a simulacrum of life.⁶⁸

It was a possibility that earlier haunted Paul Valéry, as he penned in one of his cahiers circa 1927:

Saw myself at the cinema (at Agathe's wedding). An odd experience—seeing oneself like a puppet.

An intensification of the mirror effect. Narcissus moves, walks, sees himself from behind, sees himself as he never sees himself and could not imagine himself. Becomes aware of a whole domain inextricably bound up to himself, of a host of hidden connections, of the complete *otherness* on which the Same is born along. Takes in the invisible self. One is driven from oneself by such sight, change into another. Judges himself—would like to make alterations—Unbearable person.⁶⁹

As Dolar explains, these “forbidden angles” from which Valéry sees himself are the hallmark of the *objet petit a*—that unattainable object of desire, which in being missing holds together reality—appearing in the image and threatening the destruction of the self:

Lacan uses the gaze as the best presentation of that missing object; in the mirror, one can see one's eyes, but not the gaze which is the part that is lost. But imagine that one could see one's mirror image close its eyes: that would make the object as gaze appear in the mirror. This is what happens with the double, and the anxiety that the double produces is the surest sign of the appearance of the object.⁷⁰

Rank notes in a similar vein two prevalent shadow superstitions: that the double who catches sight of oneself must die within a year and that the guardian spirit will join with the shadow at the point of the person's death.⁷¹ Cinema carries with it always the latent possibility of exposing in its mirror what Valéry refers to as this “unbearable person.” Yet it hardly ever does this because the people onscreen—the shadow doubles—rarely include oneself, meaning that within the array of examples of the uncanny the recognition of one's mortality attaches to figures other than one's own body.

Moreover, the “luminous impression” or “death mask” sculpted in light that Bazin expresses does not simply appear in every movie experience. Something else has to *happen* for this repressed possibility to recur. In Gorky's description, the ghostly shadows he witnesses issue forth from a breakdown of the already-there of photography:

When the lights go out in the room in which Lumière's invention is shown, there suddenly appears on the screen a large grey picture, “A Street in Paris”—shadows of a bad engraving. As you gaze at it, you see carriages, buildings, and people in various poses, all frozen into immobility. All this is in grey, and the sky above is also grey—you anticipate nothing new in this all too familiar scene, for you have seen pictures of Paris

streets more than once. But suddenly a strange flicker passes through the screen and the picture stirs to life.⁷²

The sudden astonishment at play in the presentational gimmick of beginning the film with a still photograph has the unintended effect of breaking down the integrity of the image. The transformation into movement ripples through the familiar world of still photography, causing interruption and symbolic collapse. For Gorky, the experience is tremendously unsettling. He gains some relief only in remembering that it is all an illusion: "It is terrifying to see, but it is the movement of shadows, only of shadows."⁷³ But what is noteworthy is that this falling back on the nature of the illusion takes a definite form. It appears that what bears the weight of Gorky's reflection on the Cinématographe is the figure of the shadow itself. It is a figure he returns to no less than seven times in his short review.⁷⁴

Settling on this figure, however, Gorky's narrative disarms the scene of its deepest implication, reassuring him that it is not terrifying after all. Only briefly does the materiality of the medium appear before the viewer explains it away in the mythology of the shadow. This urge to safeguard oneself against the uncanny is so powerful, as Freud explains, that it is apt to happen *before* any realization that something uncanny has taken place. Freud gives an example from a personal experience of the uncanny:

I was sitting alone in my *wagon-lit* compartment when a more than usually violent jolt of the train swung back the door of the adjoining washing-cabinet, and an elderly gentleman in a dressing-gown and a traveling cap came in. I assumed that in leaving the washing cabinet, which lay between the two compartments, he had taken the wrong direction and come into my compartment by mistake. Jumping up with the intention of putting him right, I at once realized to my dismay that the intruder was nothing but my own reflection in the looking glass on the open door. I can still recollect that I thoroughly disliked his appearance.⁷⁵

Freud's description comes in response to a pair of examples offered by Ernst Mach in *The Analysis of Sensations* (1885):

Once, when a young man, I noticed in the street the profile of a face that was very displeasing and repulsive to me. I was not a little taken aback when a moment afterwards I found that it was my own face which, in passing by a shop where mirrors were sold, I had perceived reflected from two mirrors that were inclined at the proper angle to each other.

Not long ago, after a trying railway journey by night, when I was very

tired, I got into an omnibus, just as another man appeared at the other end. "What a shabby pedagogue that is, that has just entered," thought I. It was myself: opposite me hung a large mirror. The physiognomy of my class, accordingly, was better known to me than my own.⁷⁶

Like Gorky's experience, the mirror episodes described by Mach and Freud issue from the breakdown of an everyday situation usually experienced in the most habitual mode of perception. Mach's omnibus shakes. Freud's wagon-lit compartment suffers a violent jolt. Only then, and in the same way that Gorky's familiar photographic image becomes uncanny in erupting into movement, do Freud and Mach enter into the uncanny territory of misrecognition.⁷⁷ It is also not insignificant that all three events involve that defining technology of modernity from which generations had long shied away—the mechanical crank.

But what returns? In Freud's account of the experience, the moment of misrecognition happens as though it were an everyday happening. Freud mistakes his reflection in the mirror for an intruder. The uncanniness of the situation comes to him only after this initial misrecognition. It comes to him, moreover, in the same way the mirror reflects or doubles his appearance: it comes to consciousness in the form of a repetition. We might venture a hypothesis: What returns to Freud in his experience in the wagon-lit compartment is the figure of reflection itself, the mirror—the fact that, as we will see by way of a detour through Lacan, the ego itself is nothing other than this "way" or "how" of repetition.

In a reading of Freud's concept of the ego, Lacan proposes "a materialist definition of the phenomenon of consciousness" on such an example of mirror reflections.⁷⁸ What concerns Lacan in this seminar, as Friedrich Kittler explains, is the nature of consciousness as mediation, as a sort of transmission technology in relay with the storage technology of memory.⁷⁹ This concern with the technical basis of consciousness makes sense in relation to Freud's treatment of the death instinct in *Beyond the Pleasure Principle*, where the phenomenon of consciousness appears as an instance of the inorganic within the organic and where he anticipates the division of consciousness and memory as media functions in the discovery that "becoming conscious and leaving behind a memory-trace are processes incompatible with each other within one and the same system."⁸⁰ At any rate, for Lacan, the image in the mirror is "a phenomenon of consciousness as such":

What is the image in the mirror? The rays that return on to the mirror make us locate in an imaginary space an object which moreover is

somewhere in reality. The real object isn't the object that you see in the mirror. So here there's a phenomenon of consciousness as such. That at any rate is what I would like you to accept, so I can tell you a little apologue to aid your reflection.⁸¹

The apologue Lacan proposes is one that shifts our perspective from the most primordial of all technologies of repetition or doubling—the mirror—to some of the most advanced storage and transmission technologies of modernity, namely robotics and cinema:

Suppose all men have disappeared from the world. I say men on account of the high value which you attribute to consciousness. That is already enough to raise the question—What is left in the mirror? But let us take it to the point of supposing that all living beings have disappeared. There are only waterfalls and springs left—lightning and thunder too. The image in the mirror, the image in the lake—do they exist?

It is quite obvious that they still exist. For one very simple reason—at the high point of civilization we have attained, which far surpasses our illusions about consciousness, we have manufactured instruments which, without in any way being audacious, we can imagine to be sufficiently complicated to develop films themselves, put them away into little boxes, and store them in the fridge. Despite all living beings having disappeared, the camera can nonetheless record the image of the mountain in the lake, or that of the *Café de Flore* crumbling away in total solitude.⁸²

Understanding consciousness as “no more anyone than the reflection of the mountain in the lake is,”⁸³ as nothing other than the “how” of a reflection, the surface or screen of something repeating, Lacan's account provides an incisive explanation for Jentsch's reading of the uncanny as uncertainty about whether something is living or nonliving. Such uncertainty about the living and the nonliving points back to the primary being-not-at-home of consciousness in the sense that consciousness itself exists along a liminal zone between the living and the nonliving. Beyond Freud's recourse to repressed infantile complexes and surmounted animistic beliefs, Jentsch's initial investigation taps into the primary technical phenomenon of the uncanny, as a zone between the pleasure principle and the death drive, between the organic and the inorganic.

At moments such as Gorky's experience with the Lumière program, the realism of one medium, the photograph, which is typically experienced in the casual reassurance of representation, breaks down at the onset of an additional technical possibility—moving photographs—showing forth ghostly shadows. It is a story

that repeats throughout the history of cinema, occurring also at the coming of sound. In his detailed study of the uncanny in the early sound period, both as it arose initially in general variety shows and later in the horror genre that remobilized these uncanny effects, Spadoni provides a panoply of journalistic accounts of the unsettling, ghostly character of the early talkies. Concentrating on “the screen’s restored visibility” as an example of the medium’s resurfacing materiality, however, his account leaves the figure of the shadow largely unexplored despite acknowledging its widespread adoption in the phrase “talking shadows.”⁸⁴ Following good company, Spadoni, like Freud, returns to the human body: “At the dawn of the sound era, the both immediate and ingrained centrality of the human figure within the viewing experience guaranteed that the foremost manifestation in the freshly resurrected ghost world of the cinema would be an uncanny body.”⁸⁵ Interspersed throughout his examples of the uncanny body, however, are accounts that affirm the shadow as that particular figure at the ghostly core of cinema. As Mordaunt Hall writes in a review of the opening Vitaphone show in New York in 1926, so lifelike was the voice of Giovanni Martinelli that it emptied the screen of all vitality, leaving only shadows: “The singer’s tones appeared to echo in the body of the theatre as they tore from a shadow on the screen.”⁸⁶ Similarly, a review in *The Nation* attributes the novelty of sound to “the irrepressible technician” who had “at last succeeded in teaching shadows to talk.”⁸⁷ Most peculiar was that the shadow was reemerging just at the moment it was being abandoned as an aesthetic device. As Franklin notes, by the end of the 1920s, expressionistic shadows had become a cliché, and many of the German directors who had used them, now in Hollywood, were using naturalistic lighting.⁸⁸ The shadows thus shared a path with the impulse toward greater realism, as Eileen Creelman noted in 1926: “So remarkable is this synchronizing machine it seemed incredible the figures on the screen were only shadows.”⁸⁹

After only a couple of years of habituation, however, the effect seems to have dissipated, the unsettling experience occurring instead in response to the now outmoded medium of silent cinema: “No matter how effective your silent sequences might have been, they were still shadows, legends, phantoms. Once they become vocal, however, they become people; they come right off the screen into the laps of the audiences—whatever their effect was while mute, it trebles, and trebles again, in voice.”⁹⁰ Thenceforth the older medium carried the weight of the uncanny so that the newer medium’s wager with mortality would go unnoticed. Indeed, so powerful is the drive to explain away and integrate the ghostly

past into everyday experience that the shadow itself becomes enfolded, as evidenced by Virginia Woolf's experience at the screening of *Dr. Caligari*. Like Freud and Mach, who both narrativize their encounters with their mirror reflections and thus explain away their unsettling experiences, Woolf momentarily submerges the uncanny shadow of the film's breaking down into the reassuring flow of narrative. Like the mirror, which folds into everyday involvement, and the mechanism, which recedes into the concealment of the machine system, the shadow recedes into the systems of realism and narrative. The "mechanisms are not seen," and the projector lamp, a heritage of Edison's electrification, continues its life among the shadows.

A Return to Edison's Light Bulb

Edison himself returned to the light bulb later in life through his own sort of Freudian detour. In 1929, Westinghouse and General Electric commissioned Edward Bernays to handle the public relations for a series of events in commemoration of the fiftieth anniversary of Edison's perfection of incandescent lighting. Bernays viewed his work on the celebration, to be called Light's Golden Jubilee, as an opportunity to prove, against mounting charges of the sensationalism of public relations, that his use of psychoanalytic insights in advertising could have a positive social impact. Bernays had an intimate relationship with Freudian psychoanalysis, the theoretical side of which shows up in his 1928 book *Propaganda*.⁹¹ More intimate still was that Bernays was in a way born into psychoanalysis, being the son of Anna Freud, Sigmund Freud's sister. Bernays's correspondence with his uncle details the important role he played in popularizing Freud's writings in the English-speaking world and particularly in the United States, as he oversaw the translation and distribution of royalties for Freud's works at a critical juncture when Freud was facing possible financial ruin in Vienna. Amid other correspondences keeping Freud abreast of the "widespread interest" in his "lay analysis"⁹² and alongside general discussions of family matters, Bernays periodically updated Freud about the status of his royalties, as in a letter from May 1929 concerning the royalties for *A General Introduction to Psychoanalysis*.⁹³

May 1929 was an especially busy month for Bernays in that it marked the beginning of the publicity campaign and slate of events culminating in the anniversary gala on October 21. Among the early events to raise awareness about the celebration and raise the light bulb back to visibility was a luncheon with entertainment

executives in New York on May 29. The list of RSVPs represents a veritable pantheon of the founders of Hollywood's mature monopoly: Albert Warner of Warner Bros., S. L. Rothafel of the Roxy Theater, J. I. Schnitzer of RKO, Will Hayes of the MPPDA, Herman Starr of First National Pictures, Terry Ramsaye of Pathé Exchange, R. H. Cochrane of Universal Pictures, Adolf Zukor of Paramount Pictures, Sam Katz of Publix Theaters, and E. E. Bucher of RCA Photophone.⁹⁴ Perhaps these film moguls were too caught up in other business, or perhaps they simply failed to recognize the debt their industry owed to electric lighting—either way, most of them respectfully declined.

At the larger celebration in October, George Eastman held no reservations about the foundational significance of the light bulb in the process of film manufacture. "I do not believe that any one can estimate the full significance of the fiftieth anniversary of Mr. Edison's incandescent lamp," he asserted. "In my business the electric light has been used since 1882 when the Edison Company installed one of its first plants in our laboratory in Rochester. This system of lighting was used when film photography was invented and perfected two years later. During the past half century the electric light has contributed to the creation of more new products and manufacturing processes than any other single utility."⁹⁵

Eastman's accolades reawakened in onlookers the sort of attentiveness that accompanied the light bulb at its birth, when experimental set-ups required constant vigilance. Testing the filament in those days back in the late 1870s required technicians to check on the bulb constantly to be sure it was still lit, such that success was measured by the nonarrival of an event, by the filament not burning up. The organizers of Light's Golden Jubilee went to great lengths to ensure that the light bulb acceded to the heights of visibility it attained fifty years prior. In the lead-up to the event, workers restored Edison's Menlo Park facility in Henry Ford's Greenfield Village, with many of the buildings reassembled and housed with original equipment, a meticulously planned display of the original setting, now removed from its source, a simulacrum. Included among the restored items was an exact replica of the first lamp.

A film titled *Light's Golden Anniversary* (1929) documented the events as they unfolded. Being made in the transitional years of the coming of sound, the film was silent with informational intertitles. At a time when reviewers continued alternately to declaim and marvel at the "talking shadows" increasingly taking over film exhibition, the choice of silent film may have prevented against such eruptions of light and shadow as experienced by contemporary filmgoers, giving the production a quaint, old-fashioned

impression against the everyday specters the characters walked among. The “light and light and light” that H.D. expressed—not insignificantly in the same month of May 1929—was, even alongside the replica light bulbs and luminaries, nowhere to be seen.

Notes

I would like to extend special thanks to Steve Choe, Jonathan Sterne and his reading group at McGill University, Axel Volmar, and two anonymous readers for their guiding feedback; to Media@McGill for research funding used to comb through the Bernays Papers at the Library of Congress; and to the editors at *Discourse*.

1. Marshall McLuhan, *Understanding Media: The Extensions of Man*, edited by W. Terrence Gordon (Corte Madera, CA: Gingko, 2003), 19.

2. Edison’s 1880 demonstration followed several experimental displays going back to 1879. The first such display was held on October 22 of that year, though the device was not entirely practicable; the light bulb lasted for only fourteen hours. Edison was also not the first inventor to work with incandescent light, as Englishman Sir Joseph Swan is generally credited with developing the first light bulb in 1854. What set Edison’s demonstration apart, however, was the showmanship with which he introduced his longer-lasting bulb, which sought not simply to prove a technical possibility but also to create a psychological affinity with it, a type of spectacle that would characterize his whole career. For more on Edison’s exhibitions at Menlo Park, see Charles Bazerman, *The Languages of Edison’s Light* (Cambridge, MA: MIT Press, 1999), especially chapter 9, “The Menlo Park Demonstrations,” 179–98. For the wider context of sensationalism surrounding technologies in the late nineteenth century, see Carolyn Marvin, *When Old Technologies Were New: Thinking about Electrical Communication in the Nineteenth Century* (Oxford: Oxford University Press, 1988), especially chapter 4, “Dazzling the Multitude: Original Media Spectacles,” 152–90.

3. A *New York Herald* article from December 28, 1880, the day after the first public demonstration, illustrates this well:

The laboratory of Mr. Edison at Menlo Park was brilliantly illuminated last night with the new electric light, the occasion being a visit of a number of the inventor’s personal friends. Forty lamps in all were burning from six o’clock until after ten. The various parts of the system were explained by the inventor at length. . . .

Twenty lamps burned with exactly the same brilliancy as did one when nineteen were disconnected. The light given was of the brilliancy of the best gas jet, perhaps a trifle more brilliant. The effect of the light on the eyes was much superior to gas in softness and excited the admiration of all who saw it. (Qtd. in Bazerman, *The Languages of Edison’s Light*, 183)

4. For more on Edison’s lead motion picture engineer, W. K. L. Dickson, see Charles Musser, “Thomas Edison and the Amusement World,” in *The Emergence of Cinema: The American Screen to 1907*, Vol. 1 (Berkeley: University of California Press, 1994), 55–89.

5. It should be noted that while Edison’s first experiments with the kinoscope used incandescent light, nearly all film projectors after 1900 used carbon arc lamps. Herman Casler (1909) provides the following description of the kinoscope, testifying

to its light source being an incandescent bulb: "Just above the film is a shutter having five spokes and a very small rectangular opening in the rim directly over the film. An incandescent lamp . . . is placed below the film between the two guide drums, and the light passes through the film, shutter opening, and magnifying lens." Quoted in Gordon Hendricks, "The History of the Kinetoscope," in *The American Film Industry*, edited by Tino Balio, revised ed. (Madison: University of Wisconsin Press, 1985), 45.

6. Maxim Gorky, qtd. in Jay Leyda, *Kino: A History of the Russian and Soviet Film* (London: George Allen & Unwin, 1960), 407.

7. Jacques Aumont, *Le montreur d'ombre: Essai sur le cinéma* (Paris: VRIN, 2012),

9. All translations are mine unless otherwise noted.

8. Gorky, qtd. in Leyda, *Kino*, 408.

9. Josef von Sternberg, *Fun in a Chinese Laundry*, qtd. in Daisuke Miyao, *The Aesthetics of Shadow: Lighting and Japanese Cinema* (Durham, NC: Duke University Press, 2013), 3.

10. Peter Baxter, "On the History and Ideology of Film Lighting," *Screen* 16, no. 3 (1975): 90.

11. Rudolf Arnheim, *Art and Visual Perception* (London: 1967), 297.

12. Baxter, "On the History and Ideology of Film Lighting," 90.

13. Baxter recounts the story as told separately by Arnheim and Jesse Lasky. See Baxter, "On the History and Ideology of Film Lighting," 101.

14. Aumont, *Le montreur d'ombre*, 13.

15. Victor I. Stoichita, *Short History of the Shadow* (London: Reaktion Books, 1997), 149. Stoichita notes how this "thematic obsession" appears conspicuously in the titles of the films: "Max Mack's *The Other* (*Das Andere*) of 1913; Ernst Lubitsch's *The Doll* (*Die Puppe*) of 1919; F. W. Murnau's *Phantom* (*Phantom*) of 1922; Arthur Robison's *Warning Shadows* (*Schatten*) of 1923 (the French title is *Montreur d'Ombres*, 'shadow-master'); Paul Leni's *Waxworks* (*Das Wachsfigurenkabinett*) of 1924."

16. See James C. Franklin, "Metamorphosis of a Metaphor: The Shadow in Early German Cinema," *German Quarterly* 53, no. 2 (March 1980): 179.

17. Virginia Woolf, "The Cinema" (1926), in *Selected Essays* (Oxford: Oxford University Press, 2008), 174.

18. Jean Epstein, *Écrits sur le cinéma: 1921–1953*, Vol. 1 (Paris: Seghers, 1974), 149.

19. Baxter ("On the History and Ideology of Film Lighting," 106) relates the following quotation from a 1970 essay by Arthur Lennig concerning Robison's *Warning Shadows*: "Shadows are not used for ornamental or melodramatic effect but are actually the thematic substance of the film."

20. Aumont, *Le montreur d'ombre*, 28.

21. Otto Rank, *Double: A Psychoanalytic Study*, translated and edited by Harry Tucker Jr. (Chapel Hill: University of North Carolina Press, 1971), 52, 50. See also chapter 4, "The Double in Anthropology," 49–68.

22. *Ibid.*, 57, 58, 54. Rank relates a quotation from "a man in the Camerons," as cited by Mansfeld: "I can see my soul every day: I simply place myself toward the sun" (58).

23. See *ibid.*, 52–55.

24. Aumont, *Le montreur d'ombre*, 31.

25. Stoichita, *Short History of the Shadow*, 11–12. Stoichita writes: “They are in fact two contrasting modalities (though they sometimes interact) of the relationship between image and representation” (31).

26. *Ibid.*, 28, 12. Aumont (*Le montreur d'ombre*, 20) similarly notes that skiagraphia means literally “writing the shade.”

27. Stoichita, *Short History of the Shadow*, 31.

28. Baxter, “On the History and Ideology of Film Lighting,” 103.

29. Sigmund Freud, “The Uncanny,” in *The Standard Edition of the Complete Psychological Works of Sigmund Freud*, 24 vols., edited and translated by James Strachey (London: Hogarth, 1955), 17:241 (emphasis in original).

30. Robert Spadoni, *Uncanny Bodies: The Coming of Sound Film and the Origins of the Horror Genre* (Berkeley: University of California Press, 2007). Yuri Tsivian, focusing on the imagery of mortality invoked in the phrases “not life but its shadow” and “not motion but its soundless spectre,” outlines Gorky’s important influences from Russian literature, folk imagery, and the larger cultural setting of late nineteenth-century Russian society. See Yuri Tsivian, *Early Cinema in Russia and Its Cultural Reception*, translated by Alan Bodger and edited by Richard Taylor (New York: Routledge, 2013).

31. Spadoni, *Uncanny Bodies*, 6.

32. Tom Gunning, “Re-Newing 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*, edited by David Thorburn and Henry Jenkins (Cambridge, MA: MIT Press, 2003), 48.

33. Aumont, *Le montreur d'ombre*, 10.

34. Freud, “The Uncanny,” 238.

35. Sigmund Freud, “Beyond the Pleasure Principle,” in *The Standard Edition of the Complete Psychological Works of Sigmund Freud*, 17:61.

36. Jacques Lacan, *Écrits: The First Complete Edition in English*, translated by Bruce Fink (New York: Norton, 2006), 39.

37. Jacques Lacan, *The Seminar of Jacques Lacan, Book II: The Ego in Freud’s Theory and in the Technique of Psychoanalysis, 1954–1955* (New York: Norton, 1991), 47.

38. Bernard Stiegler, *Technics and Time, 1: The Fault of Epimetheus*, translated by Richard Beardsworth and George Collins (Stanford, CA: Stanford University Press, 1998), 219.

39. Freud, “The Uncanny,” 245.

40. Martin Heidegger, *Being and Time*, translated by John Macquarrie and Edward Robinson (New York: Harper & Row, 1962), 189.

41. Bill Brown, “Reification, Reanimation, and the American Uncanny,” *Critical Inquiry* 32, no. 2 (2006): 198. Brown provides an incisive example: “*The Interpretation of Dreams*, like *The Introductory Lectures on Psycho-Analysis*, may be chock full of objects, but each is a symbol for the human body, in whole or in parts.”

42. Gunning, “Re-Newing Old Technologies,” 47–48. It is worth noting a further

peculiarity to Gunning's point about uncanny experiences rarely issuing from technologies such as refrigeration and canned food. As Jonathan Sterne has shown, "canned music" and canned food are related at a higher level in modernity's "larger, emergent culture of preservation," meaning that the cause of uncanniness may be less connected to preservation than to its particular figuration, a point that we will return to shortly. See Jonathan Sterne, *The Audible Past: Cultural Origins of Sound Reproduction* (Durham, NC: Duke University Press, 2003), 292.

43. Walter Benjamin developed a similar idea based on the experience of distraction, noting that the ability to look past the material conditions of the medium, what he called "reception in distraction," was the sign of a higher order of apperception and a new level of interaction with the medium. See Walter Benjamin, "The Work of Art in the Age of Its Technological Reproducibility," in *The Work of Art in the Age of Its Technological Reproducibility and Other Writings*, edited by Michael W. Jennings, Brigid Doherty, and Thomas Y. Levin (Cambridge, MA: Harvard University Press, 2008), 40–41.

44. Stiegler, *Technics and Time, 1*, 174.

45. "All supplement is technics, and all supplementary technics is a storage medium 'exteriorizing' a program. But all technical supplement is not thus a technics of memorization; mnemo-technics only appears after the Neolithic period." Stiegler, *Technics and Time, 2: Disorientation*, translated by Stephen Barker (Stanford, CA: Stanford University Press, 2009), 8.

46. Stiegler, *Technics and Time 1*, 243.

47. *Ibid.*, 142.

48. On the reverse side of this, White points out that certain modern developments proceeded out of the gulf opened up by the delay in using rotary motion: "The hurdy-gurdy soon went out of use as an instrument for serious music, leaving the reciprocating fiddle-bow—an introduction of the tenth century—to become the foundation of modern European musical development." Lynn White Jr., *Medieval Technology and Social Change* (Oxford: Oxford University Press, 1962), 115.

49. *Ibid.*, 104. White explains further: "The mechanical crank is extraordinary not only for its late invention, or arrival from China, but also for the almost unbelievable delay, once it was known, in its assimilation to technological thinking" (110). As this suggests, the Western mind seems to have been particularly shy about the crank.

50. Helmut Müller-Sievers, *The Cylinder: Kinematics of the Nineteenth Century* (Berkeley, CA: University of California Press, 2012), 66.

51. Ernst Jentsch, "On the Psychology of the Uncanny (1906)," translated by Roy Sellars, *Angelaki: Journal of the Theoretical Humanities* 2, no. 1 (1997): 8.

52. White, *Medieval Technology and Change*, 115.

53. *Ibid.*

54. Jentsch, "On the Psychology of the Uncanny," 11.

55. Freud, "The Uncanny," 241 (emphasis in original).

56. Franz Reuleaux, *The Kinematics of Machinery: Outlines of a Theory of Machines*, edited and translated by Alexander B. W. Kennedy (London: Macmillan, 1876), 53.

57. *Ibid.*, 53–54.

58. Stiegler states that “A being-ready-to-hand is a being that can go missing, be in default” (*Technics and Time, I*, 244).

59. Lewis Mumford, *Technics and Civilization* (New York: Harcourt, 1934), 80.

60. Mladen Dolar, “‘I Shall Be with You on Your Wedding-Night’: Lacan and the Uncanny,” *October* 58 (Autumn 1991): 7 (emphasis in original).

61. See Stiegler, *Technics and Time, 2*, 11.

62. Müller-Sievers, *The Cylinder*, 118–19.

63. H. D., “Borderline: A Pool Film with Paul Robeson,” in *Close Up: Cinema and Modernism*, edited by James Donald, Anne Friedberg, and Laura Marcus (Princeton, NJ: Princeton University Press, 1998), 233 (emphasis in original).

64. H. D., qtd. in Laura Marcus, “Introduction to Part 3: The Contributions of H. D.,” in *Close Up: Cinema and Modernism*, 98.

65. André Bazin, “Theater and the Cinema—Part 2,” in *What Is Cinema?*, edited and translated by Hugh Gray (Berkeley, CA: University of California Press, 1967), 96. For Bazin’s discussion of cinema as a mirror that retains its image, see p. 97.

66. Bazin, “The Ontology of the Photographic Image,” in *What Is Cinema?*, 12.

67. Gunning, “Re-Newing Old Technologies,” 48.

68. Jacques Derrida and Bernard Stiegler, *Echographies of Television: Filmed Interviews*, translated by Jennifer Bajorek (Malden, MA: Polity, 2002), 39.

69. Paul Valéry, *Cahiers/Notebooks I*, edited by Brian Stimpson, Paul Gifford, and Robert Pickering and translated by Paul Gifford, Siân Miles, Robert Pickering, and Brian Stimpson (New York: Peter Lang, 2000), 145.

70. Dolar, “‘I Shall Be with You on Your Wedding-Night,’” 13.

71. Rank, *Double*, 49–50.

72. Gorky, qtd. in Leyda, *Kino*, 408, 407.

73. *Ibid.*, 408.

74. In other translations, “not movement but its soundless specter” is rendered “not movement but the soundless shadow of movement,” which would make no less than eight occurrences.

75. Freud, “The Uncanny,” 248.

76. Ernst Mach, *Analysis of Sensations, and the Relation of the Physical to the Psychological*, translated by C. M. Williams (Chicago: Open Court, 1914), 4n1.

77. Freud is careful to point out that the misrecognition of one’s double is a topic that Otto Rank treats in detail. See Rank, “Narcissism and the Double,” in *Double*, 69–86.

78. Jacques Lacan, “A Materialist Definition of the Phenomenon of Consciousness,” in *The Seminar of Jacques Lacan, Book II*, 40.

79. Friedrich Kittler, “The World of the Symbolic—A World of the Machine,” in *Literature, Media, Information Systems: Essays*, edited by John Johnston (Amsterdam: Overseas Publishers Association, 1997), 132.

80. Freud, “*Beyond the Pleasure Principle*,” 24.

81. Lacan, "A Materialist Definition of the Phenomenon of Consciousness," 46.
82. Ibid.
83. Ibid.
84. Spadoni, *Uncanny Bodies*, 24.
85. Ibid., 25.
86. Mordaunt Hall, "Vitaphone Stirs as Talking Movie," *New York Times*, August 7, 1926, 6.
87. "Hollywood Speaks," *The Nation*, September 26, 1928, 285, as cited in Spadoni, *Uncanny Bodies*, 137n82.
88. Franklin, "Metamorphosis of a Metaphor," 183–84.
89. Eileen Creelman, *N.Y. American*, qtd. in "Warner Bros. Present Vitaphone" (advertisement), *Film Daily*, August 17, 1926, 6, as cited in Spadoni, *Uncanny Bodies*, 17.
90. Harold B. Franklin, "Talking Pictures—The Great Internationalist," *Journal of the Society of Motion Picture Engineers* 15, no. 1 (July 1930): 18, as cited in Spadoni, *Uncanny Bodies*, 26.
91. See Edward L. Bernays, *Propaganda* (Brooklyn, NY: Ig Publishing, 2005). Also, no discussion of the relationship between modern advertising and Freudian psychoanalysis would be complete without mention of Adam Curtis's brilliant BBC documentary *The Century of the Self* (2002).
92. Sigmund Freud, *The Problem of Lay Analysis* (New York: Brentano, 1927).
93. Edward L. Bernays Papers, Library of Congress, Manuscript Division [hereafter cited as Bernays Papers], Box I:1, Part I: Family Correspondence, 1901–1962, Sigmund Freud, 1926–1929.
94. Bernays Papers, Box I: 224, Part I: Client, Institution, and Organization File, 1916–1964.
95. Bernays Papers, Box I: 222, Part I: Client, Institution, and Organization File, 1916–1964, Press Releases, Light's Golden Jubilee, 1929.