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ILLUMINATING OBSOLESCENCE

Eastman Kodak's Carousel Slide Projector and the Work of Ending

Paige Sarlin

In my end is my beginning.

—T. S. Eliot¹

Never New Again

On October 22, 2004, the last Eastman Kodak Carousel slide projector rolled off the assembly line in Rochester, New York (see Figure 20.1). There was a crowd watching as four workers completed tasks in sequence, fastening together parts that had been manufactured in China. On this occasion, the projector's final assembly took a little longer than usual—the line was held up because some thirty-five people, ranging from the assemblers to middle management, wanted to sign the inside cover of the machine. As could be expected, digital cameras (both video and still) captured the occasion. Vicky Christakis, one of the employees who had worked on the projectors for over 20 years, planted a kiss on the machine before she rolled it

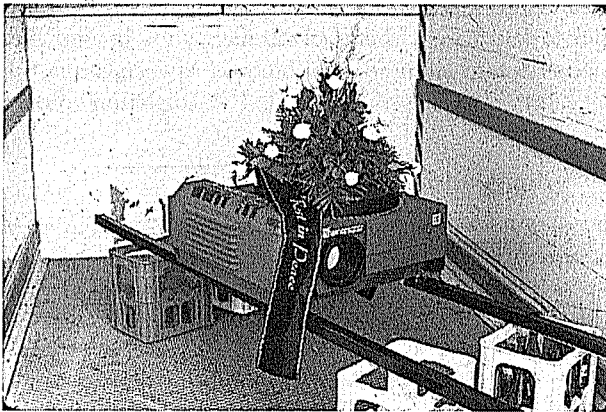


Figure 20.1 "Rest in Peace, Carousel Slide Projector". Video still from Paige Sarlin, *The Last Slide Projector*, 16mm and digital video transferred to DVD, 2006.

over to her colleague for the final test. A small screen was pulled out across the width of the conveyor belt, the machine was plugged in and turned on. It projected three slides and was deemed suitable for retail. The worker picked up the machine and carried it over to another station for final packaging. Applause followed.

Three weeks later, there was a private Kodak event at the George Eastman House to commemorate the Carousel's significance for Kodak and the Rochester business community that it supported. Neither Vicky Christakis nor her colleagues attended the festivities. Instead, the room was replete with Kodak executives, managers, and dealers as well as small business owners and producers for whom slides were crucial.

Strictly speaking, both of these scenes came many years after slide projectors became outmoded. Neither of these events marked the point at which digital projectors began to replace Carousels, nor the moment in 1979 when the first commercial digital presentation software, BRUNO, was introduced by Hewlett-Packard.² But this milestone signaled an endpoint in the slide projector's role in the narrative of technological progress and in the corporate existence of the Carousel as a mass-produced object, though the two cannot be equated. This episode also indicates the non-identity between technological development and corporate strategy. Not simply the result of shifting consumer patterns or the emergence of digital technology, the close-out represents the culmination of a whole host of shifts in the political economy that are less immediate or visible, but no less tangible or powerful. Such a phase-shift in the life of the Carousel needs to be understood in relation to broader trends within American manufacturing and global production.

If obsolescence describes the state in which a technology is no longer sold or used, then the last day of production was just another point in the story of media technology—given that the second-hand market for the Carousel was still going strong and many galleries, museums, and schools still employed these machines in 2004 and continue to employ them in 2017. But this event marked the moment at which employees at Kodak stopped assembling these machines. So the question emerges: *What role does the end of production play in our construction and understanding of obsolescence?*

Dialectics at a Standstill

As a concept, obsolescence is central to the development of media history as a discipline, to narratives of technological progress and to counter-histories that seek to challenge these narratives. Beginning with Walter Benjamin's *The Arcades Project* written in the 1930s, critics have been envisioning the moment when a technology becomes outmoded as a moment to counter the fetish of the new and novelty that dominates corporate and popular accounts of technology.³ For Benjamin, when a technology becomes outmoded it is released from the tyranny of the market, and its potential as a subject of critical analysis emerges. It becomes possible to produce "dialectical images", to imagine how things might have been, how a certain technology might have been used for emancipatory or even revolutionary purposes.

The slide projector's decline into obsolescence lasted much longer than a moment. No single event or dynamic shaped its trajectory; no solitary scene can be used to encapsulate the economic and cultural significance of its life-cycle. Instead, there is a string of events and turning points that need to be read in order to illuminate the work of ending: what so-called "obsolescence" can mean for this particular machine and for the medium, the industries, and experiences it enabled; for the people who designed and supported it, and who made and transported it, who depended upon its continued production for their livelihoods.

A temporal marker, “obsolescence” indicates that an object has not moved in step with the progressive march of history. This designation refers to something that was once new but will never be new again; it designates that an object, mode of production, notion, or term has a past. Unlike new technologies, obsolete technologies have histories—they are subject to historical forces that extend beyond that of their inventors or developers. Their futures develop at different paces—subject to new timelines, they travel in less regularized circuits of exchange. They are divorced from the realm of production and manufacturing in more than the form of their appearance as commodities and objects of exchange. They are dead labor that is also orphaned. When viewed as inevitable or necessary, a designation of obsolescence naturalizes the rhythms of late capitalism and conflates consumption with production in ways that ignore important economic, political, and social realities. For this reason, it is important that we historicize the category and practice of obsolescence.

The corporate strategy of planned obsolescence emerges at the beginning of the 20th century. Alfred P. Sloan, then director of General Motors, introduced a plan to develop, market, and produce a new model of car every year. This approach to manufacturing transformed the American automobile industry, as it was contrary to Henry Ford’s business model. Having invented the assembly line, Ford believed the mass production of high-quality machines would be most efficient if they kept producing the same model, minimizing change and avoiding the need for further investment in new machines for production or research and design. However, within a very short period after the implementation of their plan, GM’s bottom line increased and they surpassed Ford in sales. Eventually Ford followed suit and adopted Sloan’s approach to manufacturing. Since then, planned obsolescence has become the central corporate strategy within the American auto industry. Many other technology-heavy industries have developed within the milieu in which this ethos was central to growth—and it has become the dominant *modus vivendi* for computer, phone, and camera manufacturing—moving even more quickly with the speed of changes brought about by digital innovation.

Emerging at the same time as Ford, Eastman Kodak subscribed to the Fordist approach to product development and manufacturing. Eastman Kodak prided itself on perfecting and maintaining existing hardware and film stock alongside the development of innovative new models. The company’s historic investment in research worked side-by-side with its commitment to supporting and improving hardware and film stock that was meant to last. Building its reputation as an “imaging” company, the market for Kodak’s products expanded beyond household consumption to professional arenas—from the film industry to medicine and business. The slide projector’s history in this developmental diversification is archetypal, serving a pivotal role at different moments in the growth of the company.

Much that has been written about planned obsolescence focuses on the ways in which this profit-driven strategy has consequences that permeate our society—acclimating consumers to the rampant production of waste, the pace of a market-driven economy, and a culture of disposability.⁴ And it is true that obsolescence has ensured that slide projectors have found their way to eBay, museums, galleries, and landfills the world over. But this essay suggests another approach to obsolescence that salvages the category and practice from being colored by an overemphasis on the consumption of new technology. To some extent, obsolescence has been seen heretofore as either a corporate designation or as a cultural or consumer category. But obsolescence can also be a potential political designation when it is understood as a condition of possibility for the construction of a series of “dialectical images”, to use Benjamin’s concept.

For Benjamin, dialectical images “emerge suddenly, in a flash”.⁵ Made manifest with the speed of light, they are expelled from the historical continuum and they are redeemable

as instants only, not as parts of stories, but rather as configurations which “flash up in the now of their recognizability”.⁶ Discrete, like slides, they are infinitely re-readable and re-captionable, and as such they require a form and a method to be made legible.⁷ For Benjamin, this is “a materialist presentation of history”; a method that makes possible a reading in which “what has been” can “come together in a flash with the now to form a constellation”. At the moment of obsolescence, historical movements and forces can be framed by an image, apprehended as “dialectics at standstill”. Contradictions and antinomies can be seen and analyzed in their relation, in the dynamic *between* them, not simply as independent factors. Understood not as a singular moment, but as series of turning points, the scenes associated with the end of production allow structural dynamics to become legible in ways that foreground the class character of the processes shaping our social and cultural circumstances and the oppositions between ideology and materiality that define the stories we tell about media technology and practices.

A Machine with a History

The story of the slide projector actually begins in the 1600s with the invention of the magic lantern. The first apparatus organized a lens, a light source, and an image on glass in such a way as to reproduce a drawing in shadows on a wall. The discovery of this arrangement of parts enabled the creation of the medium of the slideshow, whose history has been marked by remarkable versatility. Slideshows have been illuminated by candles, gaslight, and electricity; they have been shown in parlor rooms, classrooms, auditoriums, church basements, and boardrooms; and they have projected millions of images that came to be called “slides” because of the way in which the initial glass plates were shuttled into view on a magic lantern (see Figure 20.2). The medium of the slideshow has outlasted the obsolescence of its technological support a number of times—most notably in 1895, when the magic lantern was declared outmoded and overshadowed by cinema, reduced to a mere light source for the new machines that projected moving images as opposed to still slides. The projector as a category of machine also played a significant role in the history of ideas, providing a figure and a model for ideology and critique.



Figure 20.2 “MacLean Visual Resource Center, Flaxman Library, School of the Art Institute of Chicago”, video still from Paige Sarlin, *The Last Slide Projector*, 16mm and digital video transferred to DVD, 2006.

Eastman Kodak's entry into the storyline begins with the development of the Kodaslide projector in 1937.⁸ Powered by electricity, this device could be loaded with only one slide at a time and relied on a "douser method" to lower each picture into place. Only two years later, Eastman Kodak released an improved version that utilized a side-to-side slide-changing mechanism rather than the top-down design of the previous model. This year also saw the introduction of the first Kodachrome transparencies fitted with Kodaslide Readymounts, designed especially for this machine. Kodak had already introduced the two-by-two-inch design with the first Kodaslide machine, but the creation of Readymounts established a standard format for all slide film and projectors going forward. This sort of proprietary scheme was characteristic of George Eastman's approach to product development; he consistently sought to dominate the market by providing cameras, film, and the means to develop photographs. In this case, the simultaneous introduction of Kodaslide Readymounts with the new projector ensured the sale of Kodak's new hardware and launched what was to be the primary platform for the circulation and amateur consumption of color photographs until the advent of cheap color prints in the late 1970s (also introduced by Eastman Kodak).

The introduction of the Carousel projector in 1961 was a moment of resurgence. The Carousel's round tray was a vast improvement over other straight-tray models on the market, and this innovation made possible a dramatic increase in use that coincided with and contributed to a whole range of economic transformations. Situated at the nexus of changing modes of production, the Carousel's emergence coincides with the general post-war production boom. The most successful piece of hardware ever made by Eastman Kodak, over 19 million of these vehicles for projection were made during 40 years of continuous production.⁹ The machine was a shining example of low-cost mass production and it helped to reconfirm Kodak as a model American company grounded in Ford's paradigmatic approach to manufacturing. Focused on improving existing models, Kodak's investment in scientific research and development is legendary, and the Carousel was a result of this commitment to quality and innovation.

This machine was a peerless vehicle for the projection of images whose myriad uses and popularity far exceeded Kodak's own expectations. More than simply a tool for amateur photography and education, the Carousel became a central instrument for the development of corporate culture. In response to increasing demand, the first professional non-consumer round-tray design, the Kodak Ektagraphic slide projector, was released in 1967. By 1979, the slideshow was the most ubiquitous medium for corporate and educational communications.¹⁰ Production of Carousel slide projectors for European consumers began in Stuttgart in 1964 and these machines were developed alongside the American models, ensuring Kodak's dominance of the global market. This rise in use coincided with the crisis of overproduction that plagued the American economy of the 1970s. Kodak continued to invest heavily in research and development for its booming slide business, introducing significant improvements to existing models until the first major redesign in 1981. But the twin recessions of 1981 and 1983 hit the company hard, and the slide projector department in Rochester suffered layoffs despite the fact that Carousel slide projectors were in constant use in offices, schools, theaters, and conference centers.

The total gross revenues of this industry of producers, photographers, labs, and technicians rivaled the movie business throughout the early 1980s.¹¹ The slide projector was both a product of the old manufacturing economy and a tool for the "new" information economy. Following trends in manufacturing across the United States, there was a marked increase in worker productivity despite the decline in the number of workers employed in producing

the machines. Housed in the huge Elmgrove plant in Rochester, New York, hundreds of workers continued to meet increasing demand through the 1980s into the 1990s, and the slide projector remained profitable even as other aspects of Kodak's business were weakening. In fact, the machine was transferred between different groups during periodic corporate reorganizations in order to maintain the bottom line of failing sectors of the company. Other product lines were gradually outsourced and workers laid off, but the slide projector production and assembly remained in the Elmgrove facility. Different aspects of projector manufacturing slowly began to be moved off site to local manufacturers. It was not until 2001 that the production of projector parts was outsourced to China, which coincided with Kodak's sale of Elmgrove. Only eight of the dozens of workers from the assembly line were transferred to Building 205 in Rochester. They continued the final assembly of these mechanical projectors as the digital revolution swirled all around them. In Stuttgart, Germany, the assembly line had been fully mechanized for many years; by 2004, there were only two workers cranking out thousands of machines in one corner of a large factory (see Figure 20.3).

The Beginning of the End

Near the end of 2003, in the midst of the many discussions of the shift from analog to digital, a group of managers at Eastman Kodak sent out a letter to all Kodak dealers and various slide-related professionals. The letter announced that projector production was going to end

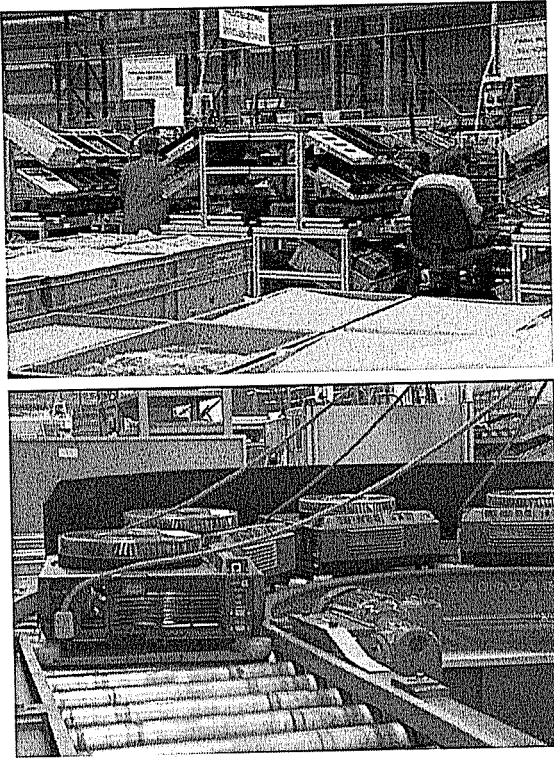


Figure 20.3 "Kodak Factory, Muhlhausen, Germany, 2004", video stills from Paige Sarlin, *The Last Slide Projector*, 16mm and digital video transferred to DVD, 2006.

by spring of the next year. But this was not like the ordinary corporate announcements that herald the introduction of new products and the retiring of old ones. This letter was unique, and read as follows:

An official statement was issued in September that read something like this: Eastman Kodak Company will discontinue the manufacture and sale of 35mm slide projectors by June of 2004. The company will continue to provide service and support for slide projectors through June 2011.

While those are indeed the facts, those of us who have been intimately involved in the slide projector business for some time have stronger feelings about it. To us, it has had a personality all its own; some would call it indomitable. The character traits of the slide projector industry are comprised of the numerous good qualities of the people who have been our partners for many years – people like you. For such a large, competitive, and, at one time, booming business as this has been, who would have guessed that so much camaraderie would have developed? But, it did. We not only shared the birth, growth and maturity of a business, we shared friendship. Brought together professionally, we connected in personal ways, too.

With that in mind, we who are left to close Kodak's slide projector business offer you our heartfelt gratitude for the personal and professional relationships that have been forged. We greatly appreciate your support for Kodak and its products over the years, and we look forward to your continued cooperation as the trusted slide projector retires. The projector's last day "on the job" here at Kodak will be March 31, 2004. That's when final production orders must be in to the factory. . . . It has been an honor and a pleasure working with you. Sincerely,

Merri-Lou McKeever, Ginger Hunneyman, Joe Paglia, James Auburn, and John Beerse¹²

This document makes clear that the end of projector production was not simply about the paradigm shift from analog to digital or the transformation of a technology for sharing and projecting images. The human consequences of obsolescence are myriad, and this was a milestone in the work lives of many people.

First and second tier management addressed this letter to people who sold, repaired, and used the slide projector. Framing this letter as a thank you, these employees distinguished themselves from the corporate line and acknowledged the social bonds that they had built over years of working with the slide projector and beside each other. By drawing an analogy between the story of the machine and the industry it enabled, this letter called attention to a shift in corporate practices and culture that runs parallel to changes in technology. A touchstone for connection and attachment, the Carousel was a foundation for a production line that represented an approach to manufacturing and business that had become anachronistic itself. Kodak slide projectors were built to last and in order to develop products at that level, there needed to be longevity among the engineers, technicians, and sales team; there had to be a willingness to build relationships with dealers and customers, and to foster trust and confidence in the product within the company as well as on the market. But from the 1990s onwards, that sort of "camaraderie" dissipated across all arenas of manufacturing. Kodak's extended investment in its workers and research supported the image of Kodak as a corporate family and helped to keep unions out of the Rochester factories. But this strategy had become outmoded. The Carousel had persisted past any predictions, having resisted outsourcing and various other forms of restructuring that other manufacturing entities had

weathered throughout the 1990s. Even the last day of production had to be extended past the date that this letter announced because of the volume of demand. Clearly not an end to the slideshow as a medium, this moment was the marker of something else that was deeply felt—a transformation at the level of the social, between people.

A few months after the slide projector group sent out their letter, Kodak announced their decision to focus entirely on digital technology, and with that shift they would need to cut at least 10,000 jobs before the end of 2004.¹³ This was a huge blow, and it was the first of a wave of layoffs and restructurings that culminated in Kodak filing for bankruptcy in January 2012.¹⁴ There had been waves of layoffs before, but this reorientation was decisive. The stronger feelings of the projector group were echoed and amplified throughout Rochester (see Figure 20.4).

Nostalgic Projections

This device isn't a space ship—it's a time machine.

—Don Draper

The first season of *Mad Men* ended with an episode entitled “The Wheel” which aired on October 18, 2007. Near the end of the episode, Don Draper pitches an ad campaign for a new slide projector to Eastman Kodak executives. Using the very machine he is trying to promote, Draper explains the ways in which this particular commodity furnishes advertising with an ideal object to sell:

Technology is the glittering lure. But there is the rare occasion when the public can be engaged on a level beyond the flash: if they have a sentimental bond with the product . . . the most important idea in advertising is new. It creates an itch – you simply put your product in there as a kind of calamine location, but [*there is also*] a deeper bond with the product: Nostalgia. It's delicate but potent.

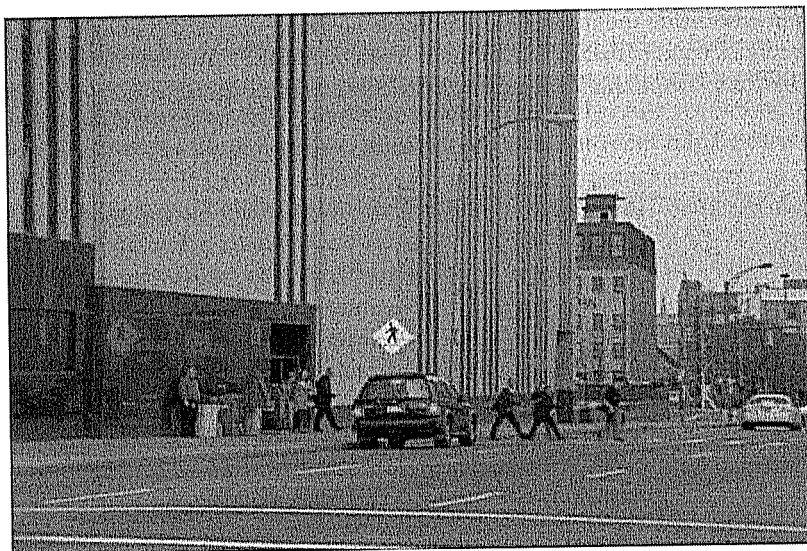


Figure 20.4 “Workers Leaving the Kodak Factory, Rochester, NY, 2004”, video still from Paige Sarlin, *The Last Slide Projector*, 16mm and digital video transferred to DVD, 2006.

Accompanied by the whirring sound of the fan and the regularized mechanical click of the mechanism, the circular tray advances and a series of snapshots of Draper's family including his newborn child fall into view. This scene in the fictional offices of Sterling Cooper Draper Pryce dramatizes the ways in which advertising as an industry has shaped the stories we tell about media technology and the role of the slide projector in cultural and economic development. Simultaneously a family slide show and an advertising pitch, Draper's presentation illustrates the importance of advertising's myth-making to the history of media technology. Nostalgia was crucial to the marketing of the image-making that Eastman Kodak perfected and upon which it capitalized. The company built a multi-billion-dollar business by packaging the Kodak moment, selling the ability to capture experience and preserve memory.¹⁵ But unlike Kodak's other products, this piece of hardware did not capture images. Rather, it enabled the projection and circulation of images; it reproduced and reanimated experiences and memories.

Draper describes the emergence of the Kodak slide projector as a rare moment in industry—and a unique opportunity in advertising—because this product is simultaneously an embodiment of the new and a product that is capable of transporting people to an idealized past, showing them images of themselves and their lives. In this fictionalized account, Draper changes the name of this machine from “The Wheel” to the Carousel—a dramatization that serves to underscore the evocative potential of this piece of hardware and the novelty of its design. This scene demonstrates the ways in which this particular machine was representative of the intersections of commodity culture with the idealization of national and familial relations (see Figure 20.5). A potent object for the production, reproduction, and circulation of ideology, it is no wonder then that this image emerged after the last Carousel projector was made.

On some level, this episode verifies the cultural significance of the Carousel as a machine and the slideshow as a medium. But it is precisely this representation of the projector that I was hoping to supplement by including these other dates in the timeline. In this scene, the slide projector allows for a brilliant celebration and articulation of commodity fetishism.¹⁶ Draper's description personifies this object at the same time that it both erases any reference to the people who made the machine and projects idealized images of family that are detached from the social realities that they document. For Draper, the Carousel “isn't a space ship—it's a time machine”. And this scene demonstrates that, from a particular vantage point,

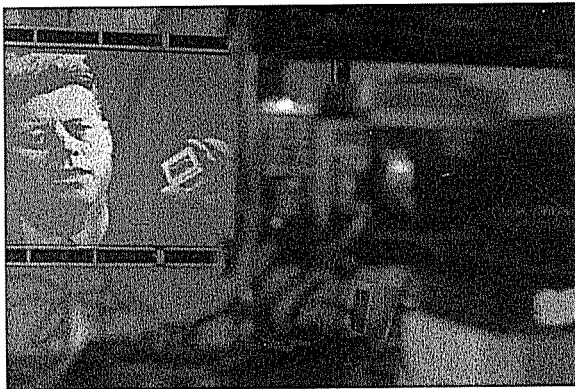


Figure 20.5 “Carousel Multi-Image Slideshow, Germany, 2004”, video still from Paige Sarlin, *The Last Slide Projector*, 16mm and digital video transferred to DVD, 2006.

the machine seems only capable of turning toward an idealized past. But the story of this machine extends beyond the parameters of nostalgia and novelty. The Carousel's history precedes and postdates this moment of emergence in ways that are symptomatic of our relation to technology and the transformation of its role in our lives since this fictionalized moment.

For Thomas Elsaesser, a prolific scholar of contemporary cinema, this scene epitomizes the value and power of the Carousel projector as a "solution" to the problems of PowerPoint and boring lectures dominated by linearity and staid juxtapositions.¹⁷ Elsaesser suggests "the Kodak Carousel may be the place to which we need to return."¹⁸ Seen as a gesture toward a reconsideration of history, this proposition is appealing. But as an expression of the type of nostalgia that serves the motor of capitalist accumulation, the logic of commodity fetishism, and the nationalist projects embodied in the promotion of retrograde design and politics,¹⁹ this characterization of the Carousel advances an instrumental view of media technology that ignores the material conditions of technological development and manufacturing. Celebrating the Carousel's beginning as "a place" to which we need to return, Elsaesser's encomium perpetuates a potent fiction—one that encourages reverie rather than critique and values beginnings over endings.²⁰

ILLUMINATING OBSOLESCENCE

A thoroughly modern category, obsolescence is neither ideologically neutral nor objective. Obsolescence is planned by corporations; it is shaped by technological developers; it is accepted by consumers as an aspect of cultural life under capitalism; it is embraced by artists and collectors; and it is used by scholars to explain the role of media in our lives. Obsolescence is a concept and category, a practice and a designation that derives from material conditions and which impacts many different strains of social and economic relations that extend beyond that of consumption or imagination. Critics are most keen to point out that obsolescence *is* created, a result of market and technological forces. But the playing out of obsolescence from the perspective of manufacturing is an uneven process; it occurs at various paces in assorted places, affecting people in a range of different ways.

For Walter Benjamin, obsolescence allows for a moment in which we can *imagine* a technology freed from the circuits of exchange. But machines like the Carousel do not cease to be commodities after they stop being made new. Just because we can imagine what different *uses* a machine can be put to does not mean that it is entirely free from the circulation of objects—market and commodity fetishism. If anything, since Benjamin, we can see that the fixation on old media has generated an industry in the realm of art and media studies. The retrograde has emerged as a category in the framework of overproduction, an answer to the pervasive anxiety about change in the atmosphere of neoliberal capitalism.²¹ At the end of slide projector production, we can recognize the work of ending—the players and processes engaged in the reorganization of labor and technology that the Carousel both enabled and epitomized. At this moment, it becomes possible to reconsider the conditions under which media hardware and software are manufactured. Seen dialectically, these moments invite us to imagine how the social relations of production might have been organized and might yet be organized.

Media technologies are both vehicles of the future and the product and inheritors of the past. Situated in this way, they are machines that both help us to remember and to imagine. These machines offer models for the construction of histories and narratives, of society and technology itself. The story of the Carousel should not be reduced to tales of its domestic or art historical use, to dramatizations of its role in what Deborah Tudor calls "the selling of nostalgia."²²

This piece of hardware animated other circuits of exchange and value creation over the course of its manufacture. The Carousel was implicated in a historically specific process of outsourcing and the introduction of longer supply chains and more complex logistics. But it was also crucial in the establishment of social relations, of friendships and alliances, of face-to-face contact built on the assembly line as much as in the boardroom or classroom.

When Eastman Kodak stopped the production of Carousel slide projectors, it was the end of an era. The Carousel slide projector had helped to picture the world for over 40 years. It was a vehicle for the projection and illumination of ideas and images that made visible large-scale changes in labor and society. The machine also contributed to transformations in the use and significance of the visual within the very restructuring it made visible. At the end of projector production, the machine was perched on the edge of a certain kind of visibility, it became ready for a kind of critical illumination, one that both inverted and converted an ideological and consumption-focused account of obsolescence into an opportunity to examine the relations between use and production and between things and their apprehension.

In *The German Ideology* (1932), Karl Marx and Frederick Engels liken ideology to a camera obscura in an effort to illustrate how images and ideas of society and the world are related to the conditions they seek to describe. To quote Marx and Engels, "If in all ideology men and their circumstances appear upside-down as in a camera obscura, this phenomenon arises as much from their historical life-processes as the inversion of objects on the retina does from their physical life-process."²³ For Marx, the figure of the camera obscura helps to explain how ideology produces an inverted image; but it also demonstrates the operation by which these inverted images relate to material and historical conditions. The image of the camera obscura provides a representation of both sides of a dialectical relation, the side of production and the side of the image produced. In this way, the camera obscura is a diagram of the very relation that ideology obscures. For me, the significance of this figure is not in its characterization of ideology as a technology of inversion, a notion whose simplicity has been made obsolete, complicated by the critique of many thinkers since Marx. Rather, the image of the technology itself (in this case, the structure of a camera obscura) becomes a tool because it illustrates both sides of a relation. For Marx and Engels, "Life is not determined by consciousness, but consciousness by life."²⁴ Our thinking is determined by material conditions, the images and descriptions we produce of the world are shaped by this relation. In my reading, this image becomes a demonstration of Benjamin's "dialectics at standstill". The figure of the camera obscura stands in contrast to a one-sided ideological image, just as Benjamin's notion of a dialectical image is meant to stand in contrast to the ideological plot points that make up the narratives of technological progress. In this way, dialectical images do not simply oppose a version of history as progress, but rather they supplement and complicate a one-sided view of history. They show us a plurality of oppositions, contradictions, and antinomies.

The end of production of the Carousel projector marks a moment distinct from that of strict obsolescence. It comes over twenty-five years after what might be termed the "literal" moment of obsolescence, when the first digital presentation software emerged. This distinction helps to make clear that at the moment of the end of production, a complex of forces and dynamics form a nexus that extends beyond the relation between the stories of dis-use and innovation. In contrast, this moment helps to extend a consideration of obsolescence from a focus on the perspective of consumption to one in which changes in modes of production are highlighted. The moment of the end of production shows how obsolescence as a phenomenon explicitly holds together a dialectic between use and production, illustrating not simply a moment in these trajectories but also a change in the very relation between consumption and production—and even more significantly, the distinction between our ideas and images of technology and concrete conditions.

A vehicle for the projection of images, the slide projector was an instrument for business to represent itself to itself and to other constituencies. In schools and boardrooms, the Carousel was a means the slide projector was a vehicle for the projection of images and an instrument for communication. It was a tool that finance capital needed in order to maintain profitability when information became the premier commodity. It is this rise in the importance of immaterial production, the making and distribution of images, advertising and knowledge, that the slide projector illustrates most clearly.²⁵ To say that the slide projector was an agent of these changes is to mis-diagnose the complications of the ways in which media technology and capital are intertwined. But it is precisely the condition of possibility that this technology helped to organize and structure that contributed to its eventual demise. The story of the slide projector as both a product of the old manufacturing economy and a tool for the “new” information economy is illustrative of the ways that declarations of obsolescence are generally the most visible manifestations of the cycles of hollowing out that have to precede capitalist accumulation. The story of the machine illustrates the transformation from manufacturing to a paradigm of “immaterial” labor²⁶; it demonstrates the interconnection of cognitive and material labor. In addition, we can see how the organization of social relations changes with the transformation of the means of production and technology. More than a shift in the paradigm of image making and distribution, the end of slide projector production reveals a transformation in our images and understanding of the distinctions between work and leisure, production and consumption, and even our definitions of “the social”. From this perspective, the moments associated with the work of ending can be read as dialectics at a standstill—as moments of stillness in the ongoing transformation of forces that will continue to move and effect the forms in which these very changes can be apprehended.

Coda: An Afterlife of Things Made

For Walter Benjamin, the project of history, of writing, and interpreting the past is always in the service of capturing something on the brink of being “irretrievably lost”.²⁷ Benjamin’s work diagnoses the difficulties and dangers of nostalgia, of responses to change that forget the present. It is, therefore, instructive to use Benjamin’s project as a lens through which to examine the slide projector, whose history is closely tied to the production of nostalgia. The question of the Carousel’s relation to “irretrievable loss” is complicated by the fact that the medium it enabled has persisted past these “historic” moments. The mechanisms and dynamics that it illuminates, the forces that determine the image of the slide projector have continued to persist past the fading of this machine. In some respect, this is the point of Benjamin’s historiography: to call attention to the persistence of the forces of capitalism, and to suggest that there are moments within its history where this persistence can be interrogated.

This essay began with a description of the last day of production in Rochester, New York, in 2004. Three weeks after that moment, I arrived at Vicky Christakis’s house to talk with her about her experience working on the line at Kodak for over twenty years. My cinematographer, Mary Billyou, and I set up our cameras and lights in her living room and she pulled out her Carousel projector and a projection screen (see Figure 20.6). I handed her a round tray with the 35mm slides that I had made from the footage shot on October 22. She had not seen the digital video, so she watched the parade of stills with some disbelief. In stop-motion, the scene was elongated, available for contemplation and inspection. It had a mechanical, methodical rhythm that gave her and I time to talk. We were not swept into the tempo of calendrical time. Instead, the recent past kept coming into view; what-had-been became available to discuss and reconsider. The frozen instants looked different to me sitting next to Vicky; simultaneously abstract and intensely personal. The last day of Vicky’s

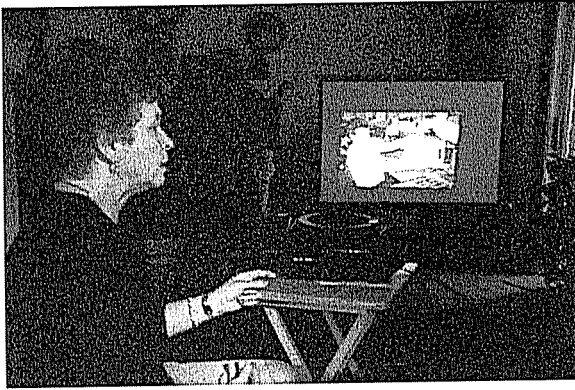


Figure 20.6 “Vicky Christakis, Rochester, NY, November 2004”, video still from Paige Sarlin, *The Last Slide Projector*, 16mm and digital video transferred to DVD, 2006.

work-life was represented on that screen. The house we sat in was paid for with paychecks from Eastman Kodak, the company pictured in the photos. Now retired, Vicky sat beside a working Carousel, a machine she had built for years. I sat between a 16mm camera and a digital video camera, the tools I was using to make a documentary film *The Last Slide Projector*. The finality of events was held in abeyance as we sat in the midst of the contradictions made visible. Confronted with the scene, Vicky giggled when she watched herself kiss the last projector. She turned back to me and said “Someday, you watch, it’s going to come back.” I smiled. As if on cue, she articulated a desire for an afterlife for the Carousel slide projector, not as an object of consumption or even as the agent for projections, but as the object of production, the organizer of social relations, the basis for a living, a community, and a way of life. Comprised of oppositions and inversions, this scene of my devising was as close as I could get to producing something like a dialectical image for others to see.²⁸

To produce a dialectical image of the slide projector at the end of its production is to call attention precisely to the changes in what Marx calls the “general illumination” which bathes everything in its light—the illumination that the dominant mode of production produces. In the 1857 “Introduction to a Critique of Political Economy”, Marx writes:

In all forms of society there is one specific kind of production which predominates over the rest, whose relations thus assign rank and influence to the others. It is a general illumination which bathes all the other colours and modifies their particularity. It is a particular ether which determines the specific gravity of every being which has materialized within it.²⁹

To some extent, it is the role of projection in the analysis of the transition from one “dominant” mode of production to another that the slide projector’s history helps chart. From the vantage point of decline and the work of ending, it becomes possible to articulate and image the contradictions inherent in various changes in the mode of production and to begin to apprehend the significance of technological change in a way that is much broader than the singular attention on use and consumption can reveal. By offering this final figure of Marx’s “general illumination” and extending Benjamin to consider the moments of at the end of production, it becomes possible to reconsider the role of manufacturing and labor in the imaging and apprehension of the present (see Figure 20.7).



Figure 20.7 “Last Projector”, video still from Paige Sarlin, *The Last Slide Projector*, 16mm and digital video transferred to DVD, 2006.

Obsolescence is made; it is contingent. The figures and technologies through which this can be made visible are involved in the very processes of that production. Considered “in light” of Marx’s model of ideology, today’s dominant mode of production can and should be read in relation to the historical processes by which this mode of production came to dominate and determine the appearance of all the objects in its light. It must be read in relation to the “other” side of the figure, the material conditions and labor that make this illumination possible. The mechanical models of the camera obscura and slide projector remind us to think spatially, and to hold the dynamics and the antinomies in relation to one another, dialectics that are often obscured within the digital ether, relations and oppositions that might be changing but which are not collapsible. Among these dialectics are the relations between users and producers, activity and analysis, production and consumption, description and diagnosis, physical and intellectual labor, and representation and enactment. In this way, a dialectical image of the slide projector, with its histories and legacies, can make visible the dynamics and contradictions of capitalism, but can remind us that the point is to imagine how to render that technology and those forces obsolete.

Notes

An earlier version of this chapter appeared as “The Work of Ending: Eastman Kodak’s Carousel Slide Projector”, *PhotoResearcher*, No. 24, October 2015.

- 1 T. S. Eliot, “East Coker” in *The Four Quartets*, San Diego: Harcourt Brace & Company, 1988.
- 2 Another important event in this timeline of “strict” obsolescence occurred in 1987 when Microsoft first shipped PowerPoint to customers. See Robert Gaskins, *Sweating Bullets: Notes about Inventing PowerPoint*, San Francisco: Vinland Books, 2012; and https://en.wikipedia.org/wiki/Presentation_program.
- 3 Walter Benjamin, *The Arcades Project*, edited by Rolf Tiedemann, translated by Howard Eiland and Kevin McLaughlin, Cambridge, MA: Belknap Press, 2002. See “Convolute N”, pages 469–481.
- 4 See Vance Packard, *The Wastemakers*, New York: Van Rees Press, 1960; Jonathan Sterne, “Out with the Trash: On the Future of New Media” in Charles R. Acland, editor, *Residual Media*, Minneapolis: University of Minnesota Press, 2007, pages 16–31; and Lisa Parks, “Falling Apart: Electronics Salvaging and the Global Media Economy” in Charles R. Acland, editor, *Residual Media*, Minneapolis: University of Minnesota Press, 2007, pages 32–47.

- 5 Benjamin, *The Arcades Project*, [N9,7], page 473.
- 6 Benjamin, *The Arcades Project*, [N9,7], page 473.
- 7 Walter Benjamin writes: "The object constructed in the materialist presentation of history is itself the dialectical image. The latter is identical with the historical object; it justifies its violent expulsion from the continuum of historical process." Benjamin, *The Arcades Project*, [N10a,3], page 475.
- 8 Merri-Lou McKeever, "A Brief History of Slide Projectors", 2004, available at <http://resources.kodak.com/support/pdf/en/manuals/slideProj/history.pdf> (24.08.15).
- 9 Information concerning the history of the audiovisual industry and Carousel projector production was compiled from interviews with Tom Hope, publisher of *Hope Reports*, the leading industry report on slide projector and AV industry sales from 1962 until 2004, and Merri-Lou McKeever, Manager of the Presentation Group at Eastman Kodak from 1994 to 2004.
- 10 Thomas W. Hope, "Large Screen Presentation Systems", Rochester: Hope Reports, 2000.
- 11 Thomas W. Hope, "Presentation Slides V: Electronic and Film – Update", Rochester: Hope Reports, October 1999, page 7.
- 12 James Auburn, John Beerse, Ginger Hunneyman, Merri-Lou McKeever, and Joe Paglia, "Letter to Kodak Dealers", Rochester: Eastman Kodak, November 2003.
- 13 Ben Rand, "Worldwide Kodak Layoffs", *Democrat and Chronicle – Rochester, N.Y.*, January 23, 2004.
- 14 Steve Sink, "Kodak Files Chapter 11 Bankruptcy", *Democrat and Chronicle – Rochester, N.Y.*, January 19, 2012.
- 15 Kamal A. Munir and Nelson Phillips, "The Birth of the 'Kodak Moment': Institutional Entrepreneurship and the Adoption of New Technologies", *Organization Studies*, November 26, 2005, pages 1665–1687; Reese V. Jenkins, "Technology and the Market: George Eastman and the Origins of Mass Amateur Photography", *Technology and Culture* Vol. 16, No. 1 (Jan., 1975), pages 1–19.
- 16 Marx explains: "The commodity-form... is nothing but the determined social relation between humans themselves which assumes here, for them, the phantasmagoric form of a relation between things." Karl Marx, *Capital*, vol. 1, Frederick Engels, editor, Samuel Moore and Edward Aveling, translators, 1887, New York: International, 1967, page 165.
- 17 Thomas Elsaesser, "Kodak Carousel" in *Objects of Knowledge, of Art and of Friendship: A small technical encyclopaedia for Siegfried Zielinski*, David Link and Nils Röllner, editors, Leipzig: Institut für Buchkunst, 2011, page 70.
- 18 *Ibid.*, page 71.
- 19 Christian Thorne, "The Revolutionary Energy of the Outmoded", *October*, Vol. 104, Spring 2003, pages 97–114.
- 20 In this instance, Elsaesser reveals himself to be an archaeologist who follows in the line of Siegfried Zielinski—celebrating the potential of an historical approach to emphasize both the humanistic and artistic possibilities inherent in media technologies. In contrast to Elsaesser, Jason Mittell reads against the grain of the scene, locating in it a "criticism of the illusion of nostalgia." I am not certain I believe that this scene serves as critique so much as reproduction—a reproduction of the false paradox between spectacle and reality. As Irene Small has argued, the dialectic between depth and surface that *Mad Men* perpetuates needs to be countered because it serves to perpetuate the investment in image-making that places profit and innovation as the high water marks for technology. Jason Mittell, "On Disliking *Mad Men*", *Just TV* 29 (2010). Irene Small, "Against Depth" in *Mad Men, Mad World: Sex, Politics, Style, and the 1960s*, Lauren M. E. Goodlad, Lilya Kaganovsky, and Robert A. Rushing, editors, Durham: Duke University Press, 2013, pages 181–194.
- 21 Christian Thorne, "The Revolutionary Energy of the Outmoded."
- 22 Deborah Tudor, "Selling Nostalgia: *Mad Men*, Postmodernism and Neoliberalism", *Society*, Vol. 49, No. 4, 2012, pages 333–338.
- 23 Karl Marx and Frederick Engels, *The German Ideology: Part One*, edited by C. J. Arthur, New York: International Publishers, 2004, page 47.
- 24 *Ibid.*
- 25 Information concerning the history of the audio-visual industry and Carousel projector production was compiled from interviews with Tom Hope, publisher of *Hope Reports*, the leading industry report on slide projector and AV industry sales from 1962 until 2004, and Merri-Lou McKeever, Manager of the Presentation Group at Eastman Kodak from 1994 to 2004.
- 26 Roggero, Gigi, "The General Illumination Which Bathes All Colours: Class Composition and Cognitive Capitalism for Dummies", *Culture Unbound: Journal of Current Cultural Research*, Vol. 6, 2014, pages 125–135.

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- 27 A different version of this complete passage reads: "The dialectical image is one flashing up momentarily. It is thus, as an image flashing up in the *now* of its recognisability, that the past . . . can be captured. The redemption which can be carried out in this way and in no other is always only to be won out of the perception of that which is being lost irretrievably." Walter Benjamin, "Central Park" in *Selected Writings Volume 4*, Cambridge, MA: Harvard University Press, 1996–2003, page 190.
- 28 Max Pensky, "Method and Time: Benjamin's Dialectical Images" in *The Cambridge Companion to Walter Benjamin*, David S. Ferris, editor, Cambridge University Press, 2004, pages 177–198.
- 29 Karl Marx, *Grundrisse*, New York: Penguin Books, 1993, page 107.