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Media Hysteresis: Persistence Through Change

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Abstract: *For media scholars, locating the old in the new helps to debunk the inflation around the "newness" of contemporary media. Several approaches have been put to work in the exploration of these multiple temporalities within media: remediation, media revival, residual media, media archeology. In this article, we explore another temporal concept—hysteresis—as a way to think through the folding of time within and across media. The first part of the article presents a theoretical overview of the concept of hysteresis, from the field of experimental sciences in the late nineteenth century to Marx, Bourdieu, Baudrillard and others in the social sciences. In the second part, we introduce the concept of "media hysteresis" and illustrate it with two examples: the design of the keypad by Bell System's push-button phones and the QWERTY keyboard. In the third and final part, we weave the concept of media hysteresis through a discussion of some of the major changes in cinema. More specifically, we examine how the aesthetic of the analogue persists in digital media and how media hysteresis can be useful to apprehend the celluloid revival. Our main argument throughout the article is the need for a theory of asynchronous simultaneity to analyse persistence and continuity across technological changes.*

Media studies scholars and historians have worked hard to debunk the myth of the "newness" of media by approaching the ways in which past media forms remain active in contemporary ones. As Simone Natale and Gabriele Balbi put it, "'Old' media technologies are the basis on which innovation becomes possible, and the new medium finds in the old ones many of its technical, socio-cultural and organizational novelties" (206). Scholars of media studies have articulated this argument in different ways. In 1964 Marshall McLuhan famously noted that the content of a new medium was, in fact, another medium; in 1999 Jay Bolter and Richard Grusin argued that the new encoding technologies of the Web were processes of "remediation" of past media forms; and more recently Charles Acland, borrowing from Raymond Williams's theory of the residual, emergent, and dominant in culture, analysed how the residues of past media cultures were still at play in contemporary ones. The research tradition of media archaeology has also been instrumental in the last two decades in retracing discursive and material media footprints while upsetting the linearity of history and presence. Erkki Huhtamo, for instance, worked out a media archaeology seeking to locate the cyclical returns in media that he calls "recurring topoi" (*Illusions in Motion*). Others, like Garnet Hertz and Jussi Parikka, have focused on the material persistence of media forms, which they illustrate with the concept of "zombie media".

For these scholars, revealing the old in the new is a critical practice. They resist any antiquarian desire to commemorate the grandeur of the past, and refuse the linearity of

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conventional media history. Rather, as Acland puts it, looking into the past enables them to begin a critique of the "fetishization of the new" (xix). This celebration of the "new" (and this is especially true for communication technologies) can be situated historically, as it coincides with the rise of the values of progress and innovation, foregrounding the consumption-driven markets of modern societies. For more than a century now, innovators, developers, designers, and marketers have been working within institutional and ideological structures (beginning with the patent letter) that posit the "new" as an obligatory point of passage. Attempts to efface or diminish the importance of past technology serve precisely to give more space to novelty. As Wendy Chun noted, to "call X 'new' is to categorize it, to describe and prescribe it, while at the same time to insist that X is wonderful, singular, without opposite or precedent" (3). Behind the homogenous claims to novelty, one always finds disparate connections between previous media functions, desires, and hopes.

In this article, we introduce the concept of "hysteresis" as a way to further address the tension between old and new in media. In sciences, hysteresis refers to various phenomena where effects persist when causes have disappeared. We define "media hysteresis" as the persistence of effects at the cultural level even after the causes have disappeared at the technical level. With the concept of media hysteresis, we propose an alternative to the two standard ways scholars approach media past and present, namely the linear and circular models. First, in the wake of the scholars mentioned above, we reject the linear narrative where the new obliterates the old in a continuous and irreversible march toward progress—or as Victor Hugo famously wrote, "This will destroy that" (181). Second, the concept of hysteresis also breaks with the idea of a return or revival, as found in the concepts of remediation, residual, or revival. Instead, hysteresis allows us to locate these moments when the effects of technologies are deferred in time, and demonstrates how old, obsolete, or archaic media forms and functions in fact persist (rather than reappear) in the so-called new media. Ultimately, what the concept of hysteresis enables media scholars to do is to start thinking that the familiar and old can be seen not as deterrents to technological progress but as tactics employed to ease or slow down the acceleration of the new.

In the first part of the article, we outline a short genealogy of the concept of hysteresis in various fields, from mechanical engineering, sociology, and philosophy. We then explain how hysteresis helps us to understand, in technology studies, the multiple temporalities at play in innovation. We illustrate media hysteresis in a few case studies, from touch-tone phones to digital cinema's use of lens flares and the growing interest in celluloid, and conclude with what media hysteresis can do for cinema and media studies.

Hysteresis: A Short Conceptual Genealogy

The term hysteresis was coined by James Alfred Ewing in 1881 in a paper he published in the *Proceedings of the Royal Society*. Ewing borrowed the Greek substantive ὑστέρησις, meaning "to come after, come late or too late", to describe the persistence of a polarisation in an iron wire even after the magnetising force is removed (22). Ewing's analysis of magnetic hysteresis provided the general definition for a concept that would later be applied in a wide variety of disciplines, including hard and social sciences: the persistence of an effect after the

cause no longer exists. Thus, the concept of hysteresis designates the interplay between plural temporalities in situations of change.

Even if it means "lagging behind", hysteresis first defines the property of a system before it is evaluated as benefit or drawback. For example, ever since Charles Proteus Steinmetz's research on magnetic hysteresis in 1892, the principle has been used as the basis for the design of various forms of recording equipment ("Magnetic Force" 7). Sound remains on a magnetic tape long after the magnetic heads used to make the recording have been removed. Music playing on a tape player is a process where a medium—the magnetic tape—allows an effect to manifest after its cause has disappeared. The same principle applies to other physical materials, such as metal and rubber, when they are subjected to deformation (Lee 60). What is applicable to a music tape is also applicable to a credit card or hard drive. Hard drives store digital information on disks coated with magnetic material. Magnetic hysteresis once again describes the process by which the disks retain information even when the magnetic heads are not activated. The persistence of information after the end of the writing process is also what allows users to restore data when hard drives suffer catastrophic failures (Kirschenbaum xi–xii).

The concept has also been productively put to use in sociology. Pierre Bourdieu, for instance, contended that Karl Marx had a hysteresis effect (*un effet d'hystérésis*) in mind when he wrote about Don Quixote (Bourdieu 62). In "Commodity and Money," which appears in the first volume of *The Capital: A Critique of Political Economy*, Marx used the figure of Don Quixote to illustrate how a way of life can become ill suited for a changing socioeconomic context (176). The main character from Cervantes's famous novel clings to the values of chivalry that were a product of courtly life in the Middle Ages while living in a post-medieval world. His beliefs and behaviours persist, despite the fact that the historical context that gave them meaning has vanished. In other words, Don Quixote lags behind the steady march of history. In the broader perspective of Marxism, Don Quixote's hysteresis is a case of social and political alienation; it is bound to a critical stance, associated with moral judgement. Jean-Paul Sartre used the term "hysteresis" in a similar vein when, while discussing Marxism, he described the relationship between Gustave Flaubert's *Madame Bovary* and the contemporary reality in which it was written (64). Bourdieu employed the concept of "hysteresis" to attempt to provide scientificity to the field of sociology (Hardy 133). He used it to examine the mismatch between a set of practices or dispositions (*habitus*) in regard to a given contextual environment (*field*). Hysteresis accounts "for cases in which dispositions function out of phases and practices are objectively ill-adapted to the present conditions because they are objectively adjusted to conditions that no longer obtain" (Bourdieu 62). Jean Baudrillard also used hysteresis in his writings to characterise the ongoing disappearance of the political (*The Transparency of Evil*; *The Illusion of the End*). In *The Transparency of Evil*, he argued that we now face a world of pure effects where all causes—the traditional founding references—have disappeared: "Of the political sphere one can say that the idea of politics has disappeared, but that the game of politics continues in secret indifference to its own stakes" (Baudrillard, *Transparency* 6). Societies progress zombie-like, even after all the principles and values that defined them have disappeared.

Thus, hysteresis describes the delay in the release of effects but also in the friction between two structures or systems that are not uniformly coordinated in time and space. For that reason, hysteresis has also been useful to explore the effects of technology. Philosopher of

technology Gilbert Simondon once explained in a 1968 filmed interview, a transcription of which was published in the *Revue de Synthèse*, that the problem with modern societies was not that they were "too technical", but "poorly technical" (Simondon and Le Moyne 109; our translation). By this he meant that new forms of technology were systematically evaluated and judged according to outdated cultural criteria. Designers and innovators are forced, he added, to disguise the technical essence of a machine with artifices to meet the demands of users whose expectations of technology are shaped by their experience of previous technology. According to Simondon, this was a form of "cultural hysteresis" (Simondon and Le Moyne 109; our translation). Historian of technology Paul David made another noteworthy use of the concept of hysteresis in technology studies when he revisited the alternating and direct current controversy from the 1880s and argued that technology was never "made" by one inventor (despite what the hagiographic accounts of inventors imply) but instead was more akin to a "continuum" and "accumulation" (130). David linked hysteresis to positive feedback loops in a system to show how social agents gather momentum in times of technical change (135). More recently, and following Bertrand Gille and Bernard Stiegler, Guillaume Carnino hinted at hysteresis to envision how technologies can produce effects that are not simultaneous to their material existence (7). Better yet, Carnino rightly suggested that the time lag between the emergence of a new technology and its effects on a given social context may well represent a condition for its adoption (8).

As we have shown, the operationalisation of hysteresis in social sciences, from sociology to philosophy, aims to name the imbalance between phenomena or events or artefacts and their contexts of emergence. In most cases, the discrepancy arises when something resists—and indeed persists—despite a changing contemporary context (political, technological, economical, or otherwise). Neither a linear succession nor a cyclical return, hysteresis rather points to continuity through change. The magnetic tape is not just a medium for recording music: it bears witness to the recording process itself. It is a testimony to the presence of the magnetic heads used by the recording device. Don Quixote's adventures illustrate what Fredric Jameson has called, after Ernst Bloch, the "simultaneity of the non-simultaneous" (307). As Simondon noted, the friction between past and present and resistance to changing contexts more often than not causes some form of grinding or shock. This is true not just for mechanical devices with backlashes, but also when a culture appears to be lagging behind sudden technological revolutions, a sentiment that is often felt across generations of users.

Media Hysteresis

Reading Gille's work, Bernard Stiegler wondered what it would mean to consider that "technics evolves *more quickly* than culture" (15; emphasis in original). He noted that the "temporal relation between the two is a tension in which there is both advance and delay, a tension characteristic of the extending [*étirement*] that makes up any process of temporalization" (15). That is not to say, of course, that technics and culture constitute two distinct entities evolving at their own pace. For anthropogenetic theories, technics *is* culture (and vice versa). However, Stiegler noted that temporal disharmony is found in the rhythms of biological evolution on the one hand, and technical evolution on the other.

One of the reasons behind this imbalance may well be that media technology populating daily life is increasingly opaque. Since the Industrial Revolution, the transition from tools to complex and autonomous machines has made the genesis, functioning, and potentialities of machines ever more obscure. This lack of basic knowledge about technology is further exacerbated by the design strategy we discussed in the Introduction, which aims to highlight the new and closet the old. As a result, our increasing inability to *recognise* technical objects may lead to us experiencing such an encounter as traumatic (with its variations of wonderful, fearful, magical, shocking, and so on). We could therefore think of moments in the initial encounter with technology where users are actively seeking to recognise something that is familiar to them, exactly the way the memory of past events attenuates the uncertainty of novel situations, such as a crisis. Users, for instance, may actively look for something familiar in the new; they might attribute, as Simondon noted, past models of knowledge to newer media; they might resist the prescribed usages in favour of older practices that they have become accustomed to; or they may cling to obsolete vocabulary to describe new technics.

The fact that persistence of a cultural effect after the technical relevance of a particular design becomes obsolete suggests that hysteresis can serve a deflective function, allowing us to cling to the experience of what is known and familiar in order to confront the permanent flux of innovation that has come to characterise our lives. Such a resistance to the new could be read as a lag between technology and culture (later overcome through familiarisation) where users are either conservative or ill prepared for the march of progress. But we could also view resistance, and in fact the persistence of the past, as a political tactic used to temper the acceleration of technological evolution. What if, in fact, hysteresis was a defence mechanism that is put in place (consciously or not) by users to be more in tune with the rhythm of technical evolution? When the longing for the familiar in the new is taken as a tactical coping mechanism, media hysteresis can be one of the strategies users employ against the commodification of the new. It forces the old to reappear on the scene of the new. A similar concern has likely inspired recent discussions around anachronism in relation to art history. Various authors have proposed conceptualising anachronism in order to think about how works of art can operate in various temporalities (Bal; Didi-Huberman; Nagel and Wood). Based on that perspective, the relevance of a particular aesthetic reveals a striking contemporaneity long after the production of the artwork. As Keith Moxey stated, these artworks manifest "the capacity to escape the temporal circumstances of their creation in order to create meaning in very different moments and places" (153).

By "media hysteresis", then, we mean the persistence at the cultural level of effects for which the causes have disappeared at the technical level. It can be the persistence of media forms, functions, and configurations, or media discourses, imaginaries or otherwise. Instead of focusing on media objects, hysteresis allows us to locate the processes that never become obsolete, but simply exist, latent, *across* media. This is where media hysteresis breaks from other models. For instance, it diverges from the linear model that supposes new media are finite objects radically different from their predecessors (media 1, media 2, media 3, etc.). Such was the case for traditional media history. It also departs from the circular model, which can be found in the concept of remediation or taxonomical analyses of media, that looks for the genealogical features that have been passed down from one generation to the next (media 3 = media 1 + media 2). In contrast to these, the hysteretic model identifies and analyses the persistence in media of a given process, be it a form, a function, a discourse, and so on (mediation A in media 1, media 2,

media 3). It focuses on persistence at the same time as it recognises discontinuity. Indeed, media hysteresis always involves more than one media and more than one temporality. As such, it aligns well with the epistemology of media archaeology, an emerging field of research in media theory that has rejected historical linearity. The work by Huhtamo ("From Kaleidoscomaniac to Cybernerd"; *Illusions in Motion*), for instance, is exemplary of the study of recursions in media cultures, and his analytic framework could likely accommodate a concept like hysteresis.

A few examples will help to illustrate how users seek the familiar in new devices and how resistance to change can be a motor of continuity. When Bell Systems (now AT&T) planned to introduce push-button phones to its customers in the early 1960s, the state of technical evolution allowed them to use any arrangement of keys they wished. The technical functions of the rotary design were no longer required for these new, modern phones, and engineers perceived the old arrangement of numbers as a deterrent to finding new usages (including data processing) for phones. They knew the innovation would potentially upset customers' well-established familiarity with the communication technology, so the engineers at Bell surveyed a sample of its employees to test eighteen different configurations (Figure 1).

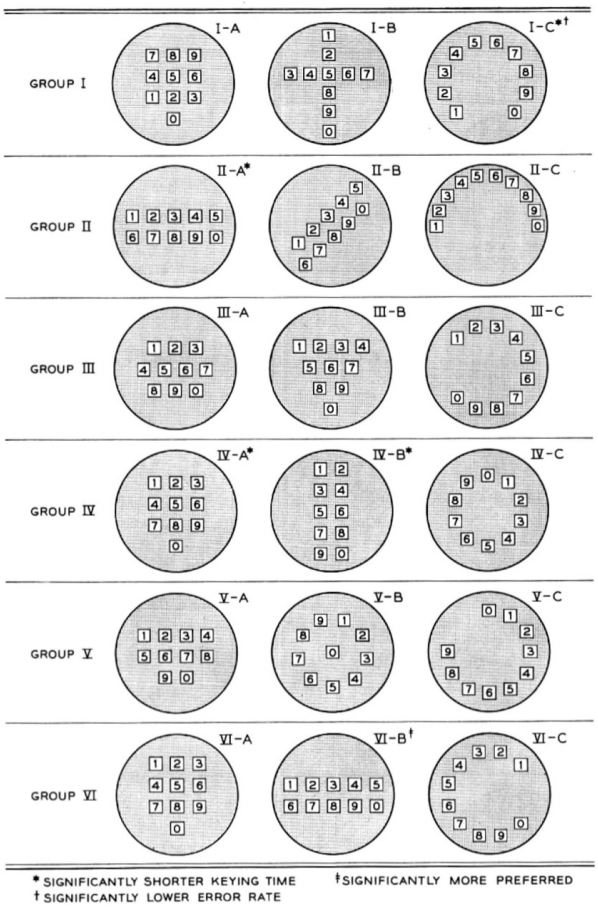


Fig. 3 — The 16 arrangements used in the first study, grouped as they were compared. Two of the arrangements used earlier were compared again in the last group. Although not shown in the figure, the letter groups usually associated with the numbers on a telephone dial were also on the button tops. The tops were ¾ inch square with $\frac{5}{64}$-inch-high black letters and numbers on a white background. The circles shown were 1¼ inches in diameter.

Figure 1: Numeric keypad configuration choices for the new technology of push-button phones. Source: Deininger (999).

The arrangement still currently used on all telephones is that of three columns of ascending numbers from one to nine with zero on the fourth line, and it was ranked as the least preferred by the sample group out of all proposed designs. In contrast, the design that matched the rotary phone orientation of numbers was desired by the majority, and also had the shortest key-in time and one of the lowest percentage of errors. Ultimately Bell decided to move ahead with one of the least efficient and least preferred configurations, likely convinced that users would eventually learn to navigate the new interface. Interestingly for us, the author of the report concluded that the engineers at Bell still had some latitude with the design when looking at performance, but that "considerably less latitude exists if preferences are considered" (Deninger 1012). Regardless, users preferred a configuration they knew, even if technically the communication technology did not require such a configuration; perhaps this was a pre-emptive measure to address the anxiety related to upcoming change or, to put it more lightly, provided a comforting sense of déjà vu. Just like the rotary design before it, it is the keypad on our current smartphones, dating back to this 1963 design, has now entered the realm of the familiar and ubiquitous. The technical reasons behind the 1963 design—transforming the number keypad on a phone into a data-punching interface—have also disappeared, but its effects here again remain.

The QWERTY keyboard is another example of a "media function" that persists across media objects. As we noted in the Introduction, designers hoping to portray media as utterly new will often hide the parts that belong to a previous technological system. However, any given technology is never utterly new, as theoretical debates about the distinction between invention (radical) and innovation (ameliorative) show. Bits and pieces of older technological systems are inevitably required to produce new ones. Despite the possibilities (often romanticised) of reinventing the textual interface for human-computer interactions, the long-time standard keyboard configuration has systematically persisted. From manual to electric typewriters, and later from electromechanical computers to a wide variety of digital devices, the QWERTY keyboard has proven, so far, to be timeless. Even if the superior productivity attributed to other configurations (like DVORAK) has never been demonstrated, media historians tend to agree that the persistence of the QWERTY configuration is attributable to deep-rooted cultural standards. Through typing schools, competitions, learning guides, and a general comfort with the keyboard, the QWERTY configuration became black-boxed and almost irreversible. The rationale behind this configuration of the keys was specific to the then-new media of the typewriter: key placement was chosen in part to slow down typists to circumvent a common mechanical problem, the jamming of the type bars (Liebowitz and Margolis). New generations of typewriters, especially the electric ones, no longer posed this problem, yet the effect on users (slower typing) has persisted up until today.

Skeumorphism is another example of media hysteresis. The concept was coined by archaeologists to describe the presence of certain materials in a newer generation of objects that serve no purpose; their integration in the new object is simply a relic of the previous design it is replacing. Cars known as "woodies" (with real or simulated wood panels on the doors) designed in the 1930s are an example of the persistence of a media aesthetic across objects. In the 1920s, critics of industrial designers who were enthusiasts about streamlining called designs that used old materials in new objects "mongrels". The term "mongrel", as Christina Cogdell explained (*Eugenic Design* 211), referred to design that did not embody the pure geometric forms and lines of the new movement. It also referred to the use of new, modern, materials (plastic, aluminium)

that simulated and mimicked older ones, like wood. In these cases the design did not have a technical function but a cultural one. The visual recognition of something that connotes the familiar compensates for what is radically new. The debate about skeuomorphic design was reignited in 2013 when Apple replaced its long-time skeumorphic approach to a user interface with a new "flat design". Some observers accurately suggested that replacing real buttons with flat ones hardly represented a move away from skeumorphism (Greif). Even so, the criticism Apple faced demonstrates how the grip of media hysteresis is hard to shake.

Cinema and Hysteresis

How can media hysteresis address the major changes in cinema? Let us consider for a moment the introduction of computer-generated lens flares in digital cinema. The practice is well known: when composing a scene digitally—whether it was shot with a camera or entirely created by computer artists—lens flares are often introduced in scenes as an optical effect. It is an aesthetic choice; one that American filmmaker J.J. Abrams has become notorious for in movies such as *Super 8* (2011) and *Star Trek: Into Darkness* (2013). The flares are not a result of digital technologies: they are primarily an aesthetic effect of analogue technologies, namely the scattering of light in a lens system. Artificially reproduced with digital technologies, they do nothing to simulate reality, as many have rightly pointed out. Rather, they simulate the photographic medium itself: that is, the aesthetic realism associated with analogue movie making (Prince; Manovich, *Language* 200). There are plenty of these aesthetic conventions making use of what Manovich calls the indexical nature of analogue cinema (*Language* 306): motion blurs, emulsion grain, depth of focus, handheld camera movements, and so on. And what works for digital cinema also works for digital photography. Smartphone apps like Instagram and Hipstamatic have been developed specifically to reproduce the aestheticism of analogue photography onto digital images.

This aesthetic in cinema and photography is associated with a sense of nostalgia (Tudor; Chandler and Livingston; Caoduro; Bartholeyns; Sperb). It can be seen as the expression of a longing for the familiar, especially when the familiar seems to be constantly overwhelmed by novelties. This could serve as an explanation for why the "retro" or "faux-vintage" aesthetic is flourishing (Jurgenson; Renaningtyas, Rizky Mutiaz, and Syarief; Baschiera and Caoduro). The persistence of obsolete forms in digital images, a manifestation of media hysteresis, is the exact opposite of avant-garde. While avant-garde anticipates the future and folds it onto the present, the retro look actualises the past and presents it as new again.

Don Quixote's application of medieval chivalric code to early modern society, the flowers inscribed on typewriters, or the wood on car doors in the 1930s can also be portrayed as highly ironic anachronisms: trying to unceremoniously force the integration of a new technology by conjuring the ideals and symbols of passing cultural systems. Commentators have made such remarks about the so-called revival of celluloid, calling the release of the film *Interstellar* (Christopher Nolan, 2014) on 70mm a "nostalgic marketing coup" (Sperling Reich). This was what Baudrillard said in *The System of Objects* about the connotation of authenticity attached to "natural" materials (like wood) in modern objects: "Naturalization, concealment, superimposition, décor—we are surrounded by objects whose form comes into play as a false

answer to the self-contradictory manner in which the object is experienced" (66). Confronted with the overwhelming rise of digital media, the celluloid material itself acquires just such an aura of "naturalness".

When it comes to the persistence of an aesthetic that belongs to analogue technologies in digital cinema, the process of media hysteresis suggests that those aesthetic conventions can be productive. Instead of being an expression of a pathological sentimentality for the past, those aesthetic conventions can be read as a constructive function. In fact, the persistence of vision that allows the cinematographic experience in the first place is itself a process of visual hysteresis: the persistence of an image as it outlasts its stimulus (Crick and Koch 122). In this context, the persistence of an "old" image (old in regard to its stimulus when it has vanished) is a feature of vision that allows for the perception of continuity in a context where visual stimuli are constantly changing. For the viewers, the recognition of familiar elements may also offer a sort of buffer for the cinematic experience as it advances and transitions into all types of different regimes of filmmaking. When *The Hobbit: An Unexpected Journey* (Peter Jackson, 2012) was screened in theatres using the relatively new "higher frame rate" technology (48 frames per second instead of 24), reactions were mixed. Audience members complained that the film looked awkward, like a badly televised soap opera. Peter Jackson acknowledged the problem and worked on the sequel in order to "soften the image and make it look a bit more filmic" (Child; Turnock). Thus instead of being a regression or deficiency, media hysteresis smoothens the experience of novelty.

Another contribution of the concept of hysteresis has to do with the way it weaves aesthetic and technological innovation. The persistence of one media into another is not limited to aesthetic conventions. It is rather made manifest in the irreducible intricacy of form and function. When it comes to cinema, this is clearly manifest in the way the persistence of analogue, far from being limited to the aesthetic of movies, is also found outside the frame. This is one way to revisit the so-called celluloid revival we are currently witnessing. Even though it experienced rough times back in 2012, the technology company Kodak emerged from bankruptcy one year later and announced their return to the production line (Cohen). With preeminent directors promising Kodak they would order motion picture film, the company was able to make a comeback (Fritz). By early 2016, Kodak claimed to be profitable again and launched the Super 8 Revival Initiative with the introduction of a new 8mm movie camera (Giardana; Sax). Despite the widely publicised "death" of 35mm a few years ago—the cover of the November 2011 issue of *Cahiers du Cinéma* emphatically read "*Adieu 35*"—a number of films were shot and released in 70mm, a "nearly obsolete technology" as maintained by *The New York Times* (Kenigsberg). According to *Filmmaker Magazine*, thirty-nine films shot in 2014 were released in 35mm (Rizov). The stubborn persistence of analogue media in a "digital era" inspired one observer to write of a "celluloid backlash" (Dixon). These celebrations may appear awkward and even anachronistic, as if everyone was waiting for celluloid to be declared dead in order to appreciate it anew. Suddenly, spectators who never really cared about the way films were projected are rushing to revival festivals and filling theatres where 70mm shows are featured. In that sense, the special roadshow feature built around Quentin Tarantino's *The Hateful Eight* (2016) is less about a revival than it is about the persistence of cinema as a cultural happening. Cinema becomes a noticeable event when it ceases to be absorbed in the usual and banal. When digital cinema first came out, audiences flocked to see it even in old movie theatres. Now that digital has become banal, celluloid films are given the opportunity to stand out again.

Such is media hysteresis. It is not only the lagging behind of an obsolete technology, but the degree of dislocation that nonetheless bounds together a set of practices with a technological context in a process of continuous but asynchronous change. As we have already pointed out, in Bourdieu's work it marks a "disruption between *habitus* and *field*" (Hardy 132). Bourdieu often wrote about hysteresis as an expression of missed opportunities: where the field changes, new opportunities arise, but *habitus* may fail to grasp them, trapped in a disposition more suited for a context long gone. But hysteresis is also about the emergence of new opportunities. In the case at hand, hysteresis allows for a given media (celluloid film and what it can tell us about audience behaviour) to happen as a salient event even when what supported it—indeed, an entire industry—seems to have receded into the past. The now-stabilised structure of digital cinema production, distribution, and exhibition allows for celluloid film to acquire a renewed value.

Conclusion

We have argued that hysteresis accounts for what persists in spite of change that is at times radical. Hysteresis is not useful to explain the linear succession of cause and events, no more than Don Quixote's tale is reducible to the transition between the medieval period and the dawn of modernity. Neither is hysteresis about eternal returns. When the cause disappears, the effects remain but the cause does not return. Don Quixote riding his horse to tilt at windmills does not announce the reappearance of the values associated with chivalry. In fact, it does quite the contrary: his anachronistic presence marks, in a tragicomic way, their disappearance.

The concept of hysteresis is thus especially useful in the study of media, particularly in a historical moment where changes, ruptures, and revolutions are legion. In the context of major changes, as is the case with the emergence of digital media, media hysteresis reformulates the problem in a new light: it helps to locate continuity through rupture. In his essay "The Paradox of Digital Photography", Manovich contends that "while digital imaging promises to completely replace the techniques of filmmaking, it at the same time finds new roles and brings new value to the cinematic apparatus, the classic films, and the photographic look" (58–9). He characterises the dominance of such an aesthetic as the "the first paradox of digital imaging" and later, as the "paradox of digital visual culture" (*Language* 180). Instead of pointing to a contradiction, the hysteresis of an analogue look in digital media can be read as the very property of the ongoing process in which media constantly evolves. Lens flares in CGI shots are not a metaphor, but a function of mediation. If there is a metaphor, it is rather to be found in the narrative that artificially separates media into "old" and "new" types or "pre-" and "post-media", the former silently or epically succumbing as soon as the latter emerges. The process we call media hysteresis does not rely on a system of dichotomies. What it allows for instead is to meet the so-called ruptures, crises, or changes from the perspective of continuity. From this standpoint, the relationship between analogue and digital is not that of a clash, divide, or replacement, but of a necessary coevolution.

This has implications for media studies in general. In our view, so-called obsolete media inform more recent ones not just as a reminder of the past, but as familiar references capable of guiding our march toward unknown novelties. Lens flares (used and abused), grain, and depth of field in CGI animations support the introduction of a technology (here, digital cinema) while it is

progressively making its way into the experience of our lives. Media hysteresis is thus not media specific. It is rather media processes, or "mediations": the unfolding of a familiar form onto novel function, or familiar function onto novel forms, and so forth. The persistence of such mediations on functions, configurations, designs, and aesthetics across media objects appears as a condition for continuous innovation rather than an obstacle to it. This persistence may even be in part how, when it comes to our own experience of ever-changing media environments, we are able to cope without being overwhelmed by a feeling of estrangement.

References

Acland, Charles R., editor. *Residual Media*. U of Minnesota P, 2007.

Bal, Mieke. *Quoting Caravaggio: Contemporary Art, Preposterous History*. U of Chicago P, 1999.

Bartholeyns, Gil. "The Instant Past: Nostalgia and Digital Retro Photography." *Media and Nostalgia*, edited by Katharina Niemeyer, Palgrave Macmillan, 2014, pp. 51–69.

Baschiera, Stefano, and Elena Caoduro. "Retro, Faux-Vintage, and Anachronism: When Cinema Looks Back." *NECSUS: European Journal of Media Studies,* 2015, www.necsus-ejms.org/retro-faux-vintage-and-anachronism-when-cinema-looks-back/. Accessed 17 Nov. 2016.

Baudrillard, Jean. *The Illusion of the End*. Translated by Chris Turner, Stanford UP, 1994.

---. *The System of Objects*. Translated by James Benedict, Verso, 1996.

---. *The Transparency of Evil: Essays on Extreme Phenomena*. Translated by James Benedict, Verso, 1993.

Bolter, Jay, and Richard Grusin. "Remediation." *Configurations,* vol. 4, no. 3, 1996, pp. 311–58.

Bourdieu, Pierre. *The Logic of Practice*. Stanford UP, 1990.

Caoduro, Elena. "Photo Filter Apps: Understanding Analogue Nostalgia in the New Media Ecology." *Networking Knowledge: Journal of the MeCCSA Postgraduate Network,* vol. 7 no. 2, 2014, ojs.meccsa.org.uk/index.php/netknow/article/view/338. Accessed 17 Nov. 2016.

Carnino, Guillaume. "Vers une épistémotechnique." *SHS Web of Conferences,* edited by A. Bernard et al., vol. 13, 2014, pp. 1–17, http://dx.doi.org/10.1051/shsconf/20141305002. Accessed 24 Nov. 2016.

Cervantes Saavedra, Miguel de. *Don Quixote*. Translated by Edith Grossman, Ecco, 2003.

Chandler, Lisa, and Debra Livingston. "Reframing the Authentic: Photography, Mobile Technologies and the Visual Language of Imperfection." *6th Global Conference, Visual Literacies: Exploring Critical Issues*, 2012, www.inter-disciplinary.net/at-the-interface/wp-content/uploads/2012/05/chandlervlpaper.pdf. Accessed 17 Nov. 2016.

Child, Ben. "Peter Jackson Admits to 'Softening' HD Version of *The Desolation of Smaug*." *The Guardian,* 13 Dec. 2013, www.theguardian.com/film/2013/dec/13/peter-jackson-48fps-tone-down-hobbit-desolation-smaug-hd. Accessed 24 Nov. 2016.

Chun, Wendy Hui Kyong. "Introduction: Did Somebody Say New Media?" *New Media, Old Media: A History and Theory Reader*, edited by Wendy Hui Kyong Chun and Thomas Keenan. Routledge, 2006, pp. 1–10.

Cogdell, Christina. *Eugenic Design: Streamlining America in the 1930s*. U of Pennsylvania P, 2010.

Cohen, David S. "Kodak Emerges From Bankruptcy." *Variety*, 3 Sept. 2013, variety.com/2013/biz/news/kodak-emerges-from-bankruptcy-1200597234/. Accessed 17 Nov. 2016.

Crick, Francis, and Christof Koch. "A Framework for Consciousness." *Nature Neuroscience,* vol. 6, 2003, pp. 119–26.

David, Paul A. "Heroes, Herds and Hysteresis in Technological History: Thomas Edison and the 'Battle of the Systems' Reconsidered." *Industrial and Corporate Change*, vol. 1, no. 1, 1992, pp. 129–80.

Deininger, R. L. "Human Factors Engineering Studies of the Design and Use of Pushbutton Telephone Sets." *The Bell System Technical Journal,* vol. 39, no. 4, 1962, pp. 995–1012.

Didi-Huberman, Georges. "Before the Image, Before Time: The Sovereignty of Anachronism." *Compelling Visuality: The Work of Art In and Out of History*, edited by Claire Farago and Robert Zwijnenberg, U of Minnesota P, 2003, pp. 31–44.

Dixon, Wheeler Winston. "The Celluloid Backlash: Film Versus Digital Once More." *Quarterly Review of Film and Video*, vol. 33, no. 2, 2016, pp. 122–30.

Ewing, J. A. "On the Production of Transient Electric Currents in Iron and Steel Conductors by Twisting Them When Magnetised or by Magnetising Them When Twisted." *Proceedings of the Royal Society of London*, vol. 33, no. 216–19, 1881, pp. 21–3, rspl.royalsocietypublishing.org/content/33/216-219/21.full.pdf+html. Accessed 17 Nov. 2016.

Fritz, Ben. "Movie Film, at Death's Door, Gets a Reprieve." *Wall Street Journal,* 29 July 2014, www.wsj.com/articles/kodak-movie-film-at-deaths-door-gets-a-reprieve-1406674752. Accessed 17 Nov. 2016.

Giardina, Caroline. "With Help From 'Star Wars,' Kodak CEO Says Its Film Business Will Return to Profitability." *The Hollywood Reporter*, www.hollywoodreporter.com/behind-screen/help-star-wars-kodak-ceo-848593. Accessed 17 Nov. 2016.

Greif, Sacha. "Flat Pixels: The Battle Between Flat Design And Skeuomorphism." *Sacha Greif*, n.d., sachagreif.com/flat-pixels/. Accessed 17 Nov. 2016.

Hardy, Cheryl. "Hysteresis." *Pierre Bourdieu*: *Key Concepts*, edited by Michael Grenfell, Acumen, 2008, pp. 131–48.

Hertz, Garnet, and Jussi Parikka. "Zombie Media: Circuit Bending Media Archaeology into an Art Method." *Leonardo*, vol. 45, no. 5, 2012, pp. 424–30.

The Hobbit: An Unexpected Journey. Directed by Peter Jackson, New Line Cinema, 2012.

Hugo, Victor. *Notre Dame de Paris*. Translated by Jessie Haynes. P.F. Collier & Son, 1917.

Huhtamo, Erkki. "From Kaleidoscomaniac to Cybernerd: Notes toward an Archaeology of the Media." *Leonardo*, vol. 30, no. 3, 1997, pp. 221–4.

---. *Illusions in Motion: Media Archaeology of the Moving Panorama and Related Spectacles*. MIT P, 2013.

Jameson, Fredric. *Postmodernism, Or, The Cultural Logic of Late Capitalism*. Duke UP, 1991.

Jurgenson, Nathan. "The Faux-Vintage Photo: Full Essay (Parts I, II and III)." *Cyborgology*, 14 May 2011, thesocietypages.org/cyborgology/2011/05/14/the-faux-vintage-photo-full-essay-parts-i-ii-and-iii/. Accessed 24 Nov. 2016.

Kenigsberg, Ben. "Tarantino's *The Hateful Eight* Resurrects Nearly Obsolete Technology." *The New York Times,* 11 Nov. 2015, http://nyti.ms/1RP1hDn. Accessed 24 Nov. 2016.

Kirschenbaum, Matthew G. *Mechanisms: New Media and the Forensic Imagination*. MIT P, 2008.

Lee, E. W. *Magnetism; An Introductory Survey*. Dover Publications, 1970.

Liebowitz, S. J., and Stephen E. Margolis. "The Fable of the Keys." *Journal of Law and Economics,* vol. 33, no. 1, 1990, pp. 1–25.

"The Magnetic Force of Charles Proteus Steinmetz." *IEEE Power Engineering Review,* vol. 16, no. 9, 1996, n. p.

Manovich, Lev. *The Language of New Media*. MIT P, 2001.

---."The Paradoxes of Digital Photography." *Photography after Photography: Memory and Representation in the Digital Age*, edited by Hubertus von Amelunxen et al., G+B Arts International, 1996.

Marx, Karl. *Capital: Volume 1: A Critique of Political Economy.* Translated by Ben Fowkes, Penguin, 1976.

McLuhan, Marshall. *Understanding Media: The Extensions of Man*. 1964. MIT P, 1994.

Moxey, Keith. "Review: *Anachronic Renaissance* by Alexander Nagel and Christopher Wood." *Contemporaneity: Historical Presence in Visual Culture*, vol. 1, 2011, pp. 152–6, contemporaneity.pitt.edu/ojs/index.php/contemporaneity/article/view/35.

Nagel, Alexander, and Christopher S Wood. *Anachronic Renaissance*. Zone Books / MIT P, 2010.

Natale, Simone, and Gabriele Balbi. "Media and the Imaginary in History." *Media History*, vol. 20, no. 2, 2014, pp. 203–18.

Prince, Stephen. "True Lies: Perceptual Realism, Digital Images, and Film Theory." *Film Quarterly*, vol. 49, no. 3, 1996, pp. 27–37.

Renaningtyas, Luri, Intan Rizky Mutiaz, and Achmad Syarief. "Nostalgia and Authenticity of Faux Vintage Photo in Instagram Through Digital Filters." *Bandung Creative Movement International Seminar*, Petra Christian University, 2014, repository.petra.ac.id/16699/.

Rizov, Vadim. "39 Movies Released in 2014 Shot on 35mm." *Filmmaker Magazine*, filmmakermagazine.com/88971-39-movies-released-in-2014-shot-on-35mm/. Accessed 17 Nov. 2016.

Sartre, Jean Paul. *Search for a Method.* Translated by Hazel Estella Barnes, Knopf, 1963.

Sax, David. "Kodak's Old-School Response to Disruption." *The New Yorker,* 27 Jan. 2016, www.newyorker.com/business/currency/kodak-and-the-analog-response-to-disruption. Accessed 17 Nov. 2016.

Simondon, Gilbert, and Jean Le Moyne. "Entretien sur la mécanologie (1968)." *Revue de Synthèse*, vol. 130, no. 6–1, 2009, pp. 103–32.

Sperb, Jason. *Flickers of Film: Nostalgia in the Time of Digital Cinema*. Rutgers UP, 2016.

Star Trek: Into Darkness. Directed by J. J. Abrams, Bad Robot Productions, 2013.

Sperling Reich, J. "Early Release of *Interstellar* on Film Is a Nostalgic Marketing Coup." *Celluloid Junkie*, 7 Oct. 2014, celluloidjunkie.com/2014/10/07/early-release-interstellar-film-nostalgic-marketing-coup/.

Stiegler, Bernard. *Technics and Time: The Fault of Epimetheus*. Translated by Richard Beardsworth and George Collins, Stanford UP, 1998.

Super 8. Directed by J. J. Abrams, Bad Robot Productions, 2011.

Tudor, Deborah. "Light Bouncing: Digital Processes Illuminate the Cultural Past." *Jump Cut: A Review of Contemporary Media,* vol. 52, 2010, ejumpcut.org/archive/jc52.2010/dee DigitalCinematog/index.html. Accessed 17 Nov. 2016.

Turnock, Julie. "Removing the Pane of Glass: *The Hobbit*, 3D High Frame Rate Filmmaking, and the Rhetoric of Digital Convergence." *Film Criticism,* vol. 37/38, no. 3/1, 2013, pp. 30–59.

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