



Introduction [indefinite Visions]

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Introduction

In the beginning, technology has no rules.
Then we teach it how to speak.¹
Jean-Luc Godard

Étienne-Jules Marey's first chronophotographic film, shot in 1891, was entitled *La Vague* ('The Wave'). It shows the sea crashing against a pontoon, the raised water disappearing in a whirlpool of foam. Marey planned to use the film as a basis for creating a precise graph of the movement of a wave. He could see little point in showing the original images in public, such as they were. The Lumière brothers, on the other hand, realised the moving image's spectacular quality and its power to fascinate; they valued it and set out to exploit it, to great success. Writing in 1896 about the first public projection of the Lumière brothers' films, journalist Henri de Parville attempted to put into words his experience of cinema's extraordinary rendering of detailed movement. In response to the 1895 films *L'Arrivée d'un train à La Ciotat* ('The Arrival of a Train'), *La Baignade en mer* ('Bathing in the sea'), and *Le Repas de bébé* ('Baby's Meal'), De Parville marvels at having been able 'to distinguish all the details, the rising swirls of smoke, the waves that come crashing on the beach, the leaves quivering in the wind'.² Many a historian of the cinema has pondered on De Parville's observations and choice of terms; how, in the same sentence, he exclaims that cinema can 'distinguish all the details', before he proceeds to emphasise those elements that most resist stability and definition: quivering leaves, swirling smoke, crashing waves.³

These early films were not depicting anything that could not be seen by the spectators without the aid of cinema. What De Parville found remarkable was the specifically cinematic quality of the rendering – that is, film's ability to capture *everything in movement*, and therefore *to bring to our attention* the presence of all the detail that we do not normally consciously acknowledge.

It does not follow, however, that cinema's mediation makes perception more accurate or definite. Appearing as a shifting combination of separate yet indistinct elements, a spectacle of multifaceted, gaseous, or liquid matter in perpetual movement, the leaves, the smoke, the waves remain too



dispersed and confused to be grasped fully and definitely. Rather, then, as the journalist immediately intuitively, for all its photographic objectivity, cinematographic vision allows for the indefinite to surface: it is a unique means of recording as well as expressing the world's natural state of confusion.⁴

Vague, indefinite, yet full of detail: De Parville's description echoes Gottfried Wilhelm Leibniz's classic concept of the 'clear but confused'. According to Leibniz's well-known critique of the Cartesian concept of knowledge, although only scientific, fully rationalised knowledge is both *clear* and *distinct*, it does not follow that it is the only legitimate form of consciousness of the world. Whether knowledge gained from our senses is obscure (when you can simply not identify that which you are perceiving), or *clear and confused*, it is valuable nonetheless. One of Leibniz's favoured examples of clear and confused perception is that of the sea, which we identify although we cannot distinctively perceive it: we hear the roar of the sea, made of all the crashing waves, writes Leibniz, and we identify it as the sound of the sea even though we cannot distinguish the sound of each individual wave. As expressed in De Parville's paradoxical observation, what goes for sound is equally true of vision.

The French terminology gives additional force to the manifestation of the clear and confused as captured by the spectacle of the crashing waves, for in French, the word *vague* has a double meaning: as an adjective it means vague (synonymous, as in English, with 'indefinite' and 'uncertain'), and as a noun – *la vague* – it translates as 'the wave'.

Figure I.1 *Bathing in the Sea (Baignade en Mer)*, Auguste and Louis Lumière (1895).

Though their etymologies are different, the meaning of the two words overlaps from the start: the adjective comes from the Latin *vagus*, meaning something random, in perpetual motion, something indefinite or indecisive. The noun has an Indo-European etymology that refers it to the random, ceaseless movement of liquid matter. Writing about it in the context of literary creation, Georges Didi-Huberman observes that *la vague*, the wave, hovers between form and formlessness, and, because it is the very manifestation of incessant motion and constant transformation, it can only ever be grasped fleetingly. *La vague* is, therefore, the favoured stuff of poetic creation.⁵ Didi-Huberman's bringing together of poetry, the wave, and the *vague* echoes the connection between sensory perception and artistic creation observed by Leibniz and his disciple and founder of the study of aesthetics, Alexander Gottlieb Baumgarten: art explores and cultivates the indefinite part of perception or experience, the '*je ne sais quoi*';⁶ it is only in the realm of the clear and confused that it can thrive. Artistic intuition and vision thus stem from the incompleteness and constant variation of the perceived, the impossibility of a full and perfect knowledge of the world.⁷

As a medium and as a *dispositif*, cinema appears uniquely predisposed to the capture and the expression of the 'clear and confused': on the one hand, incessant motion and the confusion of parts necessary to create the whole, characterises the way projected images fuse into movement. In the projection of analogue film, we see the image change in front of us, without separately perceiving each of the photograms which, in the unravelling of their subtle differences, constitute its variations. Though the shift from analogue to digital has radically altered the basis of the projected image, the blending of separate images still arguably takes place in the movie theatre, where digital projection still relies on 'frames' and frame rates. On the other hand, as we just saw, film's mechanical eye has the ability to capture everything, the multitude and dispersion of movements recorded in its simultaneity and in duration, as it unfolds in time. But crucially, cinema as a medium also has the means to explore, alter and *intensify* our experience of the world's constant transformation, its constitutive indeterminacy.

In the silent era, a broad range of techniques were elaborated by filmmakers who, striving to establish cinema as an art form, sought to emphasise this particular quality of the medium, be it at the recording or at the developing stage. The confusion of details was creatively exploited with techniques such as superimposition, where several layered photograms appeared simultaneously, their content separate yet fused; it was accentuated through acceleration and slow motion (the dissolving forms of speeding objects or the vacillating outlines and ghostly doubling of moving figures captured in slow motion). Alternatively, definition could be deliberately attenuated:

through intentional defocusing or by selecting particular film formats or film stocks; similarly, the use of filters and specific developing techniques altered the quality of the image, bringing out the whole at the expense of the parts, drawing film towards painterly forms.

Although experiments with the capture and expression of the ‘clear and confused’ have remained, as method and as object, a key concern of experimental film and art cinema, the advent of sound – or, rather, the advent of synchronised sound and image – has worked to marginalise such practices: sharp contours and the constancy of figures became the norm, necessary to make dialogue and other sounds immediately intelligible as well as readily assignable to identified sources.⁸ Favouring clear and ‘effective’ storytelling and communication, the grammar of mainstream cinema established a range of camera movements and framing choices, and devised a strict management of focus and depth of field, with the corresponding careful guidance of the spectator’s gaze arguably applying not only to 2-D film but also, with renewed techniques and efficiency, to 3-D. High definition (HD), Paula Cardoso Pereira and Joaquín Zerené Harcha conclude, is the epitome of ‘visual capitalism’: ‘Fetishized not only by advertising, graphic design, HD television, 3-D cinema and 4K resolution, but also by military and scientific devices, high definition is attractive, seductive, impressive and accurate’.⁹

Even if one still recognises cinema’s unmatched capacity for expressing the disorderly exuberance of the real, the historical roots of the drive to control this particular predisposition are much older than the medium and far more pervasive than the effect of the advent of sound film. The conception of knowledge that founds the ideal of utmost precision, and which prompted Leibniz’s initial defence of the ‘clear and confused’, remains the classic Cartesian model of thought, its central tenet already expressed in the form of an analogy with sound or vision: knowledge and progress belong to the realm of the ‘clear and distinct’. Though the critique of the Cartesian model was continued throughout the nineteenth century, and was pursued to the point of becoming a truism of the recent history and theory of visibility, the advent of the digital and the need to offer alternatives to the drive towards an ever greater definition and legibility of the film image gives it a new impetus.

There is, nowadays, talk of ‘fuzzy logic’ to describe modes of reasoning that develop without strictly established categories of judgement.¹⁰ In art and media studies, the corresponding ‘phenomenological turn’, with its emphasis on haptic visibility and synaesthesia, has led to the reappraisal of the indefinite as key to perceptual and artistic experience.¹¹ Yet obscurity, lack of definition and blurring remain associated, in common understanding, with the irrational and the faulty, or, at the very least, with the absence of an essential quality.¹² Given technological thinking’s grounding in ideals of precision, this collap-

ing together of the indefinite with lack is particularly in evidence in conventional discourses connected with technology.

The history of audiovisual technical developments, including the increase in the scope and precision of lenses and the increasing sensitivity of film stocks, as well as the range of precisely calibrated post-production tools, all ostensibly reflect, and participate in, the narrative that fuses together the notion of progress and that of a better legibility of the audio-visual field. Born out of a machine, the child of an industrial and technological modernity – the advent of which, for Jean-Louis Comolli, inaugurated an era of the ‘frenzy of the visible’ – cinema’s evolution is aligned, from the beginning,¹³ with the logic that today extends to mainstream discourses on and practices of high-definition digital media.

At first glance, with the advent of the electronic, then digital, moving image media, the drive towards the eradication of confusion appears to have intensified. After all, digitally captured and stored moving images are ultimately reducible to the variations of a continuous binary coding (of zeros and ones) that one struggles to conceive of as confusion.¹⁴ The size of the screens and the resulting changes to the perceived quality of the image challenges even more tangibly our appreciation of the cinema image as a ‘clear but confused’ depiction of the world. Whereas the image projected in large scale, even the most carefully constructed image, allowed the gaze of the spectator to wander and even lose herself in the composite space of a shot, the display of the image in reduced formats (from television to computer to mobile phone screens) not only heightens the resolution (in relative terms, at least) but encourages us to seize the image at once, as a cohesive whole.¹⁵ Smaller screens thus foster a regime of the glance that does not seem well predisposed to an imaginative investment in images’ inherent incompleteness. The displacement of the mechanical by computing processes is equally significant in the way it subsumes the subjective to automatic systems: at its worst, when it was first integrated into recording devices coupled with small sensors, the automatic focus and light function were responsible for a generation of dull, flat images where, for the sake of maximum readability, the whole of the field of vision, from foreground to background, was subjected to the same, indiscriminate focus. Finally, there is the lingering issue of the unequalled quality of celluloid film, of the unique effect of its fine and irregular layer of silver salts. If digital film can theoretically emulate the fine unevenness of celluloid film (including in post-production, through the addition of ‘noise’ to the initial recording), common discourses on media technology align with the retailers’ in the way they uphold the argument for an ever greater definition and constancy, the insufficiently questioned ideal and future goal for the moving image remaining one of utmost clarity and precision – clear and distinct.

Though we have arguably never known a broader range of possibilities in moving image capture and treatment,¹⁶ today's mainstream aesthetic of the moving image privileges that which is controlled, stable and instantly 'readable': high definition, with its attendant well-contoured image, immediately identifiable face and perfectly synchronised sound. In commercial exploitations of the moving image, the creative exploration of cinema's ability to convey reality's inherent instability and confusion tends to be safely grounded in narrative or generic rationales (which include the incorporation of obscured, shaky, blurred images as a token of authenticity) or attached to clearly signposted sensational effects.

And yet, Gaston Bachelard reminds us: 'The value of an image can be measured by the extent of its imaginary aura [. . .]. Hence a stable and fully completed image effectively clips imagination's wings'.¹⁷ It is well known that the indefinite and the incomplete are an essential part of the spectator's experience. As Leonardo da Vinci famously proposed, a few stains on a decrepit wall might be the best stimulation for the imagination. Similarly, Ernst Gombrich argued that the extent of the spectator's 'share', of her active engagement in perceiving and interpreting the image, depends on its partial legibility or incompleteness.¹⁸

While new technologies offer a wealth of alternative modes of recording, however, as well as producing images that often disregard the 'clear and distinct' imperative, the still prevalent search for the ideal of the perfectly defined image pulls contemporary cinema back to its uncertain beginnings as an art form. Experiments with high definition contour algorithms and high frame rate (HFR) seem destined to reawaken the spectre of the soulless copy and rekindle the Baudelairian debate on the impossibility of a photographically based artistic medium. Moreover, where the latest trends in digital imaging overlap with the fuzzy or the unreadable, advertising and scientific imagery are quick to exploit or occupy the field: whether it aims to channel the viewer's gaze into a consumerist logic by isolating and putting emphasis on a product, or to subject access to the interpretation of the visible to exclusive (and therefore seemingly authoritative) scientific knowledge, these strategies do not seek to challenge perception nor to address the viewer's imagination. Remarking that the imagination is also 'absent from current discourse on images and imagery', Bernd Huppauf and Christof Wulf ask, 'will it be possible to reclaim the imagination under the adverse conditions created by digital technologies and an overpowering market?'.¹⁹

As far as film is concerned, and as the contributions to this volume eloquently testify, the answer is yes: confusion and indefinition, as the stimulants to imagination, are not easily eliminated. If the dominant discourse places the immediately legible and perfectly defined image at the top of the visual

hierarchy, the recognition that film is in fact, and in essential ways, ill-suited to the expression of the fixed, complete and clear-cut, continues nonetheless to inflect the medium's evolution, practices and theorisations. Accordingly, the essays included in this volume offer themselves as alternative narratives on the nature and vocation of film. They consider moving images and sounds in their more indefinite, ungraspable manifestations, where film hovers on the threshold of representation and legibility and challenges the way we look and listen. Three of the chapters included in the volume address the formal as well as conceptual question of definition applied to the visual (Erika Balsom, Martin Jay) and to sound (Giusy Pisano) respectively, and outline the historical, philosophical and aesthetic theorisation that founds the understanding and embracing of film as a medium of the indefinite. A number of the contributions further explore key aspects of the cinematic that determine its relationship to the uncertainty of vision, and encourage an active and imaginative spectatorial engagement: pitched at the border of art and technique, Jacques Aumont, Richard Misek and Tom Gunning's reflections take light, darkness and the flicker, and the experience and significance of the blinding and the obscure, as their subjects. Michel Chion and Julian Hanich, in their examination of framing and montage, focus on the play on scale and mirror reflections respectively, emphasising the complexity of the relationship between on- and off-screen (*champ* and *hors champ*) and cinema's articulation of the visible through ellipsis.

If mainstream cinema can be considered the 'flagship store' in a 'class society of images'²⁰ that values sharpness, high resolution and stability above all, the great diversity of the corpus addressed in the volume shows that the obscure and the 'clear and confused' nonetheless permeates all cinematic forms, demanding a renewed engagement from viewers of experimental cinema and video art, but also blockbuster film. 'Cinematic indeterminacy', precisely analysed in Christa Blümlinger's piece on Peter Tscherkassky, and advocated as the essence of filmmaking and theorising practices by David N. Rodowick, remains a staple of experimental cinema's innovative and critical (anti-illusionist and anti-consumerist) strategies. Kim Knowles draws attention to an array of experimental practices that foreground process and the partly uncontrolled alteration of celluloid, and reinstates the ethical import of the 'performative power of materiality'²¹ in the era of digital dematerialisation. Turning to video art, Catherine Fowler and Kriss Ravetto concentrate on the ways in which contemporary artists adopt the long take and slow motion as a means to challenge perceptual habits and current viewing regimes. At the other end of the spectrum, the high production values of contemporary Hollywood are the focus of Carol Vernallis' chapter, where she evokes an excess of visual information that defeat attempts at fully grasping the content of a shot.

Even in the digital era of optical and sound precision, the medium's aptitude for the vague, the confused and the obscure endures, producing new forms of indefinite visions. Enhancing the possibilities offered by the overabundance of detail and precision, or, on the contrary, encouraging the products of low definition, error-prone media, new technology breeds new types of indefinite sounds and images (interestingly, the etymology of the word error is strikingly close to that of the word vague: a wandering, a straying or meandering; the roots of the term also connect it to doubt or uncertainty). The explosion of software and hardware that produce, disseminate and display moving images coincided with the dawn of a new era for glitch and noise. Increased accessibility, intensified reproduction and manipulation, compression and circulation, as well as the ubiquity of fully automatic recording devices, also ushered in the age of the 'poor image'. The 'poor' variants of moving images, their reduced definition often further marred by low resolution, glitches and noise, have an ambiguous status: on the one hand, they are a product of the advanced commodification of image production and circulation. In some of their low definition forms, stripped of details, they suit an economy of attention that encourages the regime of the quick glance; in others, as with CCTV images, they are associated with surveillance and control. On the other hand, in a culture of 'neoliberal media production' that fetishises 'pristine visuality',²² poor image platforms such as YouTube offer an outlet to marginalised non-commercial imagery, including experimental films. More generally, as Cardoso Pereira and Zerené Harcha emphasise, 'the growing presence of these "precarious images" in daily life has changed the ways of appreciating images and their dynamics'.²³ Just as glitches and noise disturb mimetic transparency, the poor image – re-filmed, ripped, squeezed, zipped and unzipped – calls attention to the processes that led to its degraded look. Not only do such phenomena, whether they emerge as accidental or deliberate interruption, create points of resistance to the regime of the hypervisible, but they make us aware of communication as mediation, and conscious again of the labour that goes into the production and display of images and sounds. Artists and filmmakers that appropriate and develop these dimensions of the electronic and digital technologies in their work thus extend the tradition of avant-garde and experimental cinema that embraces the possibilities of chance – of intentional and non-intentional effects – turning errors into productive formal and critical strategies. In both cases, unstable, obscured images foreground the process that goes into their appearance, lending material presence and gravitas to immaterial media. These questions are addressed in the contributions of Sean Cubitt, Steven Shaviro and Allan Cameron, who look at the aesthetics and politics of glitch and noise in fiction cinema and art video. They show how, as interruptions

and alterations of the image and sound flow, glitch and noise make manifest and disturb a logic of enmeshed representation-as-communication specific to the era of the electronic and digital image, while pointing to the uncanny sense of increasing self-sufficiency associated with twenty-first-century technology.

What kind of cinema emerges out of such technological mutations, where radical changes in the techniques and protocols of production and dissemination generate new forms of uncertainty regarding the authorship, point of view and modes of circulation and reception of film images? Emmanuelle André envisages cinema's recent transformations as an annexation of the visual by the manual (the thumbing through images required by tactile devices) and of flatness by 3-D, that has antecedents, however, in earlier modes of display and superimposition. Raymond Bellour's intervention tracks the emergence of animal presence as the unexpected result of film technology's growing autonomy from human agency. In both cases, the authors look at the work of filmmakers who appropriate emerging modes of imaging to probe and extend the territories of cinematic representation.

A historian and theorist of the development of modern techniques and practices, Vilém Flusser argued that creativity was dependent on the practitioner's ability to become more than an operator (even an excellent operator, able to activate and apply to the full the machine's functions) and to seek instead to counter the effect of automatism (the camera's in-built functions). The history of film, and of ensuing audio-visual forms of expression, is made up of such alternative practices: the drive to align the image with a readily legible regime of representation and efficient medium for communication is woven together with the conscious (as advocated by Flusser) and continuing exploration but also the unplanned appearance, of imprecise, obscure audio-visual forms that run counter to or alongside the dominant practices.²⁴

Accordingly, in the contributions that make up this book, indefinite visions born out of blur, glitches, de-framing, darkness or blinding light, the erasure or excess of detail, that surface on our screens or invade the films' soundtrack as the results of artistic strategies or of technology's 'defects' are not, or not primarily, explored in comparative fashion – as transitory states of the image, a step towards greater definition and clarity – but in and of themselves. As such, the general outlook of the volume might be envisaged in terms of potentiality. In his reworking of Aristotle's concept of potential and actual, Giorgio Agamben circumvents the issue of actualisation: potentiality, he proposes, is not reducible to this process. Indeed, the value of potentiality in itself is derived from the resistance to actualisation; it resides instead in states of non-being or non-perceiving (as opposed to defined, complete, fully identified objects).²⁵ In implicit contrast with the Cartesian model, Agamben illustrates his reflection with a discussion of darkness, pointing out that we do

not experience darkness merely as a lack of, or as the opposite of light, but in and of itself. Accordingly, in *Indefinite Visions* the moving image is valued as a manifestation of the vague, the obscure, the fragmentary and confused – as a site of potentiality or endless becoming.

The advent of the digital has not reduced film's capacity for capturing and expressing the world's incompleteness. In his description of new media as 'not something fixed once and for all', but as 'mutable' and 'liquid', Lev Manovich echoes theorist and filmmaker Jean Epstein and his advocacy of film as the medium of flux.²⁶ Writing from the 1920s onwards, Epstein ceaselessly stressed the need to cultivate what he called cinema's *photogénie*, that is, the medium's inclination towards the indeterminate and permanently changing. In his conception of cinema as indefinite vision, it is not just the instability of the figure that is at stake, but all references and spatio-temporal anchors that are cut adrift. It comes as no surprise that Epstein was particularly drawn to seascapes and shot some of his most striking works about the sea. For him, cinema was thought in motion, and as such, it contradicted all knowledge systems based on the establishment of stable rules:

Cinema is, *par excellence*, a machine for the detection and representation of movement, that is, of the variation of all spatial and temporal relations, the relativity of all measurement, the instability of all points of reference, the fluidity of the universe. Cinematographic culture is thus profoundly opposed to all systems that suppose fixed standards and set values; opposed to currently received conceptions of a stable and solid world that are alien to cinematographic experience; [...] opposed to classical rationalisms that have the pretension to reduce to an invariable set of rules the ceaseless fluctuation of feeling.²⁷

While images have become 'predominant vehicles in the circulation of knowledge and key to the shaping of power relations',²⁸ so have simplistic messages proliferated, threatening to reduce our view of the world to a set of preconceived, immediately graspable affirmations and one-dimensional oppositions. Film's indefinite visions form potential points of resistance,²⁹ more precious than ever in their capacity to make us doubt and reconsider the world and its representations not as givens, but as complex, vague and unfixed: if film images excel in capturing the world in its fluidity and open-endedness, it is because each frame contains an ocean of variables.³⁰

Notes

1. Jean-Luc Godard, 'La technique, au tout début, elle n'a pas de règles. Après, on lui apprend à parler.' Interview (2014), http://cpn.canon-europe.com/content/Jean-Luc_Godard.do (accessed 12 November 2016).

2. Henri de Parville, 'Le cinématographe', *Les annales politiques et littéraires* (26 April 1896).
3. Nicole Vedrès, 'Les feuilles bougent', *Paris le . . .*, Paris: *Mercur de France* (1958), pp. 51–62. Robert Bonamy, *Le fond cinématographique* (Paris: l'Harmattan, 2013), pp. 11–16.
4. See Siegfried Kracauer's discussion of the Lumière films in the introduction to his *Theory of Film*, and his description of 'camera-life', the 'flow of Life' and the 'indeterminate' as intrinsic qualities of film. *Theory of Film: The Redemption of Physical Reality* (Oxford: Oxford University Press, 1960).
5. Georges Didi-Huberman, 'Aesthetic Immanence', in B. Huppau and C. Wulf (eds), *Dynamics and Performativity of Imagination: The Image between the Visible and the Invisible* (London: Routledge, 2009), pp. 49–50.
6. Alexander Gottlieb Baumgarten, *Aesthetica scripta, 1750*. On modern aesthetics and the *je ne sais quoi*, see Richard Scholar's *The Je-Ne-Sais-Quoi in Early Modern Europe: Encounters with a Certain Something* (Oxford: Oxford University Press, 2005).
7. For an analytical survey of the contrasted philosophical discourses that established or critiqued the 'theoretical framework that defined sharpness as an epistemological ideal associated with value judgements', see Bernd Huppau: 'Between Imitation and Simulation: Towards an Aesthetics of Fuzzy Images', and Gottfried Boehm, 'Indeterminacy: On the Logic of the Image', in Huppau and Wulf (eds), *Dynamics and Performativity*, pp. 230–54 and 219–30 respectively.
8. See Dominique Païni's introduction to *Silenzio!*, an exhibition catalogue of François Fontaine's photographs (Paris: Les Editions de l'Oeil, 2012).
9. Paula Cardoso Pereira and Joaquín Zerené Harcha, 'Revolutions of Resolution: About the Fluxes of Poor Images in Visual Capitalism', *TripleC*, 12:1 (2014), pp. 315–27, p. 320.
10. See Martin Jay's 'Genres of Blur' included in this volume, pp. 000–000.
11. See Vivian Sobchack, *Carnal Thoughts: Embodiment and Moving Image Culture* (Berkeley: University of California Press, 2004); Laura U. Marks, *The Skin of the Film: Intercultural Cinema, Embodiment, and the Senses* (Durham, NC: Duke University Press, 2000); Jennifer Barker, *The Tactile Eye: Touch and the Cinematic Experience* (Berkeley: University of California Press, 2009); Martine Beugnet, *Cinema and Sensations: French Film and the Art of Transgression* (Edinburgh: Edinburgh University Press, 2007).
12. Bernd Huppau, 'Between Imitation and Simulation: Towards an Aesthetics of Fuzzy Images', in Huppau and Wulf, *Dynamics and Performativity*, p. 231.
13. On the parallel development of military and cinema technology, see Paul Virilio 'A Travelling Shot over Eighty Years', in John Orr and Olga Taxidou (eds), *Post-war cinema and modernity: a film reader* (New York: New York University Press, 2001), pp. 145–60. Note also that Eadweard Muybridge is often described as the precursor of 'bullet time'.
14. Attacks and subversions of digital coding represent a growing dimension of artistic practice. See for instance the practice of datamoshing, based on the

- alteration or corruption of media files data, and in particular the work of artist Jacques Perconte.
15. See Martine Beugnet, 'Miniature Pleasures: On Watching Films on an iPhone', in Jeffrey Geiger and Karin Littau (eds), *Cinematicity in Media History* (Edinburgh: Edinburgh University Press, 2013), pp. 196–210.
 16. Director of photography Jean-Pierre Beauviala describes this transitional period as offering a 'colossal' range of options. Benjamin Bergery, Diane Baratier and Caroline Champetier, 'L'Avenir de l'image cinématographique. Entretien avec Jean-Pierre Beauviala', in *Lumières, les Cahiers de l'AFC*, no. 1 (2006), pp. 85–101.
 17. Gaston Bachelard, *L'Air et les songes* (Paris: Librairie José Corti, 1943), pp. 5–6.
 18. Leonardo da Vinci, *Traité de la peinture* (Paris: Calmann-Lévy, 2003), p. 216 (first published in 1651 as *Trattato della pittura*); E. H. Gombrich, *Art and Illusion: A Study in the Psychology of Pictorial Representation* (Princeton: Princeton University Press, 1960). See also Georges Didi-Huberman on the spectator's productive 'épreuve du non-savoir' (the trial of not-knowing) in *Devant l'image* (Paris: Editions de Minuit, 1990). For a discussion of precariousness and the effect of 'precarious aesthetics' on the spectator's experience, see Christine Ross's introduction to Johanne Lamoureux, Christine Ross and Olivier Asselin (eds), *Precarious Visualities: New Perspectives on Identification in Contemporary Art and Visual Culture* (Montreal: McGill-Queen's University Press, 2008), as well as Arlindo Machado, *El paisaje mediático. Sobre el desafío de las poéticas* (Buenos Aires: Nueva Librería, 2009).
 19. Huppauf and Wulf, *Dynamics and Performativity*, pp.1–3.
 20. Hito Steyerl, 'In Defense of the Poor Image', *e-flux journal* (10 November 2009), <http://www.e-flux.com/journal/in-defense-of-the-poor-image/> (accessed 28 November 2016).
 21. Barbara Bolt, 'Introduction: Towards a New Materialism Through the Arts', in Estelle Barrett and Barbara Bolt (eds), *Carnal Knowledge: Towards a New Materialism through the Arts* (London & New York: I.B. Tauris, 2012), p. 6.
 22. Steyerl, 'In Defense of the Poor Image'.
 23. For Cardoso Pereira and Zerené Harcha, taking their cue from Arlindo Machado, the proliferation of 'precarious' images, and the emergence of forms of 'precarious aesthetics' is an upshot of the unreliable technical conditions in which the images are produced, circulated and archived (or not), and their 'allegedly inferior representational quality' should not obscure 'their great potential'. Pereira and Harcha, 'Revolutions of Resolution', pp. 319–20; Machado, *El paisaje mediático*, p. 316. See also Lamoureux et al. (eds), *Precarious Visualities* and Arild Fetveit, 'Death, beauty, and iconoclastic nostalgia: Precarious aesthetics and Lana Del Rey', in *NECSUS* (Autumn 2015 special issue on Vintage), <http://www.necsus-cjms.org/death-beauty-and-iconoclastic-nostalgia-precarious-aesthetics-and-lana-del-rey> (accessed 24 November 2016).
 24. Vilém Flusser, *Pour une philosophie de la photographie* (Paris: Circé, 2004).
 25. Giorgio Agamben, *Potentialities: Collected Essays in Philosophy* (Stanford: Stanford University Press, 1999), pp. 183–5.

26. Lev Manovich, *The Language of New Media* (Cambridge, MA: MIT Press, 2001), p. 56.
27. 'Le cinéma est, par excellence, l'appareil de détection et de représentation du mouvement, c'est-à-dire de la variance de toutes les relations dans l'espace et le temps, de la relativité de toute mesure, de l'instabilité de tous les repères, de la fluidité de l'univers. Profondément, la culture cinématographique sera donc ennemie de tous les systèmes qui supposent des étalons absolus, des valeurs fixes; ennemie de toutes les conceptions encore actuellement en vigueur, qui se fondent sur l'expérience extra-cinématographique, cent fois millénaire, d'un monde stable et solide; (...) ennemie encore des rationalismes classiques, qui prétendent saisir dans une invariable règle la perpétuelle mobilité du sentiment.' Jean Epstein, *Ecrits sur le cinéma*, Vol. 2 (Paris : Cinéma Club/Seghers, 1975), p. 18. Author's translation.
28. Pereira and Harcha, 'Revolutions of Resolution', p. 315.
29. As the video works included in *Soulèvements*, an exhibition curated by George Didi-Huberman on the theme of the notion of revolution, rebellion, and revolt (on show at the Gallery Jeu de Paume in Paris from November to February 2016), amply demonstrate.
30. My thanks to Kriss Ravetto-Biagioli for her careful reading and her comments on this text.

