PERVASIVE ANIMATION

EDITED BY

SUZANNE BUCHAN

AFI FILM READERS

ROUTLEDGE

Pervasive Animation

This new addition to the AFI Film Readers series brings together original scholarship on animation in moving image culture, from classic, experimental and independent shorts to digital animation and installation. The collection aims to foreground new critical perspectives on animation, connect them to historical and contemporary philosophical and theoretical contexts and production practice, and expand the existing canon. Throughout, contributors offer an interdisciplinary roadmap of new directions in film and animation studies, discussing animation in relationship to aesthetics, ideology, philosophy, historiography, visualization, genealogies, spectatorship, representation, technologies, and material culture.

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Dedicated to Dick Arnall in memoriam

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I face an impossible task: how to thank the dozens, hundreds of people who have contributed in many ways to this book? It is the result of a testing of ideas, discussions and debates with many, many thinkers and makers, and, with skeptics, enjoyable arguments about the value of animation in moving image culture. We, and our students, have collectively profited from a community of ideas shared across nations, disciplines and forms of practice. Because of the sheer numbers of scholars, students, filmmakers, artists, and curators, many of whom are both co-conspirators and friends, they will remain unnamed here: they know who they are. I will mention only a few individuals who were incisive in this book's development. Gratitude is due to all authors for engaging with the concept of 'pervasive animation' to apply their intellects, political sensitivity, and (inter)disciplinary expertise to an area of image-making that is beginning to garner academic attention to match its popularity and, indeed, its pervasiveness across many platforms. Stuart Comer gave me the opportunity to explore initial concepts at Tate Modern, London, in 2007, and his untiring curatorial efforts to screen experimental and animation film is unmatched internationally. Dick Arnall was a champion of independent and experimental animation, and his vision (and polemics) improved regard for animation: he is deeply missed. For their commitment, advice and constant encouragement throughout I thank AFI Film Reader Series Editors, Edward Branigan and Charles Wolfe. At Routlege, Editor Erica Wetter's support has been invaluable, and I thank the Production team, Margo Irvin and Apurupa Mallik, especially for the extensive work on this book's many images. I am grateful to the University for the Creative Arts who provided funding for a sabbatical, for color images and part of the indexing. And finally, I thank the animation filmmakers, whose gifts are stored in the thousands of films in my own memory's visual archive.

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introduction: pervasive animation

suzanne buchan

Animation is pervasive in contemporary moving image culture. It is transforming cinema, is the basis for computer games, is used throughout the web, and advertising and propaganda learned early on of its power to astonish, influence and coerce. Animation has many formal, aesthetic and critical intersections with 'experimental' film and digitally rendered features, it is figuring in changing 'high/low' art economies and dominating information technology interfaces. Especially since the digital shift, animation is implemented in many ways in many disciplines and on multiple platforms. Alongside 'pure' pre-digital (celluloid) and digital animation shorts and features, artists increasingly incorporate animation in installations and exhibitions, and it has myriad applications across a wide band of creative, scientific and professional practice and industrial implementation. As screens become part of everyday life—phones, laptops, pads, and future technologies to come—animation will increasingly influence our understanding of how we see and experience the world visually.

What remains distinctive about animation in its over 100 years of celluloid-based production, is its unlimited potential to visually represent events, scenarios and forms that have little or no relation to our experience of the 'real' world. This has not changed; on the contrary, CGI digital tools are enabling filmmakers to create a whole new experience of on-screen 'realism' that is increasingly gaining on photo-indexicality, until now the exclusive domain of photochemical celluloid. Yet, while artists have been quick to embed the techniques, scholars are only beginning to deeply engage with a cinematic form that can have more to do with sculpture, algorithms or painting than with the genres of narrative live-action cinema. The expansion of animation in visual culture and its cultural difference and distinctiveness puts into question whether we can be 'purists' with regard to what is deemed a subject for critical evaluation and analysis for film studies. Animation, after all, is as much a cinematic and digital technology as it is an art form and artistic medium. An effective approach to this complexity is to use pluralist and interdisciplinary methods in a similar way that film studies did in its formative years and, to develop approaches that take into account the differences between celluloid and digital film experience and the platforms these technologies and techniques use.

Scholars working on animation in the early years often did so as a tangent to their disciplines, more often than not through cultural studies, literary theory, or art and film history, and there were few research-specific or theoretical book-length publications on animation. Until the 1990s, its integration into film studies was slow, not least because of its close relations with fine arts practice, and many authors writing about it were practitioners without formal academic training or awareness of scholarly contexts. Academic texts on animation were scattered in film and experimental cinema anthologies and journals, or published in non-cinema journals and collections. The 1990s saw a rash of animation anthologies and popular books, including a few that theorized animation. Many articles relating to animation film can be found in the FIAF *Index to Film Periodicals*, and in academic journals in disciplines of architecture, art history, graphic design, literature, performance, and others. Pre-digital experimental animation film enjoyed critical attention in experimental film theory. Some books from the 1970s to 1990s explore aesthetic implications of techniques other than planar (painted and drawn) animation, intersections with the avant-garde and experimentation in animation by fine-art practitioners. Many were solidly grounded in film theory and focused on perception, aesthetics and artistic practice, and often reflect on the personal experience of watching these films. Remarkable is that most of these books were written over a particularly productive period of experimental filmmaking, and that many authors took the opportunity to historicize animation's genealogies.

the 'problem' of animation, canons and genres

In an earlier essay discussing the 'problem' of animation as a category and its definitions, I commented that it is, "much like the term 'experimental film' … an unsatisfying, fuzzy 'catch-all' that heaps an enormous, historically far-reaching and artistically diverse body of works into one pot" (Buchan 2010: 175). Such ambiguity is symptomatic: animation's widely divergent pro-filmic materials (objects, drawings, sand, painting, puppets), can be allocated to almost all film genres; besides shared use of animation techniques, determining a unifying feature applicable to all it forms is questionable.[1] The Library of Congress Moving Image Genre-form Guide allocates animation to a sublist, as one of three appendices (the others are experimental and advertising), that is classified in 10 subdivisions solely according to techniques and technologies. Other genres are described with historical, ideological, aesthetic, or content-based terminologies.[2] In libraries, titles on animation are often cataloged under 'Genre', sharing shelves with the western, the horror film and film noir. Others classify these texts within film studies, while still others allocate them to sections on graphic design, illustration or comics. This indicates another symptom of the problem of definition (both of genres themselves and of animation film): Is animation a genre?—A technique?—A mode of film?—An art form? What, if any, characteristics does it share with other types of film besides its distinct technical and material aspects? Can the conventional definitions of genre apply to individual sets of films based on their ideologies, iconography and narrative content?

As a visual experience, animation has a history that precedes photographic film and its cinematic forms developed concurrently with moving image photography. Writing on pre-cinema and early cinema techniques in *Animated Pictures*, Charles Francis Jenkins notes the relationship between the historical context of animation and developing technologies: "To give life to inanimate things has been the dream of philosophers for ages, but to paint pictures and imbue them with animation, is the ambition of more practical investigators, and the evidence of the success of such endeavors is their daily accomplishment" (1898: 1). Like many of his contemporaries, Jenkins makes no distinction between trick effects and live-action, as the novelty of cinema had not yet distinguished the Méliès/Lumiére, fantasy/reality, stop-motion/continuous shooting dichotomies that differentiated into myriad genres and sub-genres of contemporary cinema studies in film content, genre and production methods. His idea that cinema is 'painting pictures' gives a sense of the newness of visual cinematic experiences of the time. With some exceptions, dominant contemporary cinema theory originated in early texts on aesthetics, ideology and genre classification and analysis of classic narrative cinema. These theories have been developed and modified to accommodate other forms, modes and genres, such as

experimental or *auteur* films. While live-action film eventually differentiated into different genres, and critics began engaging with it as an art form, as Kristin Thompson has noted, animation was eventually sidelined in the service of Hollywood film. Anticipating Lev Manovich's 2002 polemic on reversing the hierarchies of (digital) animation and cinema (298–300), in *Implications of the Cel Animation Technique*, Thompson suggests that "[i]f technology were the only factor determining the creation of motion pictures, animated films would logically share a prominence equal to that of live-action films in the history of cinema" (1980: 106). She argues that an "ideology of realism" led to the "decline of the novelty effect in live-action films" as narrative cinema developed, and wishing to conceal its own constructedness from audiences, that the magical novelty and the foregrounding of techniques in animation that disrupted, "an ideological view of cartoons as comics developed" (108–111).

While animation has received some attention in film studies, until recently it has rarely been the main topic of book-length studies; more often than not, authors have expressed puzzlement, rarely delving deeply into it. One example is in realism debates about the ontology and truth of film, and I will briefly discuss three major contributions here. As Stanley Cavell famously wrote:

> [T]here is one whole region of film which seems to satisfy my concerns with understanding the special powers of film but which explicitly has nothing to do with projections of the real world – the region of animated cartoons... If this region of film counters my insistence upon the projection of reality as essential to the medium of the movies, then it counters it completely. (Cavell 1979: 167).[3]

D. N. Rodowick, in his exploration of the "philosophical consequences of the disappearance of a photographic ontology for the art of film and the future of cinema studies" (2007: vii), discusses animation in the context of the celluloid film strip. He observes that "succession means that fundamentally every film is an animated film as the automated reconstitution of movement from a succession of still images" (53). In a note, he states that his "position [on animation] does not vary greatly from Cavell's own distinction of animation in *The World Viewed* 167–174" (53 FN 12). There is a missed opportunity here: echoing Jenkins, Rodowick acknowledges the shared fundamental frame-by-frame basis of animation and of film, but he does not engage in why his position is similar to Cavell's.

In *What Cinema Is!*, Dudley Andrew engages occasionally with animation and describes (cel) animation thus:

> Cel animation has always amounted to a camera-less cinema anyway. Designed on two-dimensional surfaces, thousands of pictures are then manipulated and sequenced

> to appear alive and moving in three-dimensional space when presented full-speed on screen. This is one reason, though not the most essential, that Sean Cubitt has declared all cinema to be fundamentally a version of animation, rather than the reverse. (Andrew 2010: 2–3).[4]

Andrew then writes that "[i]f until recently cameras were required for the fabrication of animated as well as standard films, it was merely to conveniently render the artist's handiwork on celluloid for projection" (3). Andrew later suggests "[f]ilms exhibit tension between the human (imagination, intention) and the recalcitrant chunks of recorded reality; the type or quality of that tension defines the styles, genres, and periods of film history" (30). Animation removes this tension. The 'ideology of realism' disavows the viewer's other creative modes of perception and mental activity, such as pre- and non-verbal thought, inner speech, dreams and the ability to engage with non-indexical mimetic and abstract art forms that are understood co-creatively. Andrew notes however that:

> [a]nimation is one ascendant category, promoted by some to the top of the hierarchy of film styles today. As it was put to me not long ago: 'animation is cinema in its purest form,'[5] for unencumbered images outrun photographically generated shots, which are held back by the drag of ordinary space and time. Under the new [digital] regime, all films, not just animated ones, should be viewed and assessed as efforts to respond to the imagination, liberated from mundane constraints. (Andrew 2010: 30)

Referring to Edgar Morin, Andrew notes his insistence that "while all the arts project our dreams and desires, cinema is unique in doing so through the material world itself, or, more precisely, through a double of that world" (xviii–xix). Animation uses almost all the arts, and their materials, and has long responded to the searching the world of imagination and of dreams and desires.

Both Andrew and Rodowick raise the issue of photo-indexicality. Andrew asks "[d]oes not cinema require a source or referent in the world?" (3). Whether, cels drawings, or objects or puppets (that require complex pro-filmic mise-en-scène in miniature), that are all 'in the world', pre-digital animation frame-by-frame photography records these referents, as 'stuff' from the material world to visually represent artistic interpretations of *inner worlds* not otherwise perceived by sensory modalities used in the physical world (sight, touch, etc.). Regardless of the technique used, animation has also long been liberated from the 'mundane constraints' of ordinary space and time, realism, and depictions of the natural world, but its photographic celluloid works belong in the ontology of the photographic image that Rodowick and Andrew are interested in. Rodowick also raises a

pervasive debate in animation studies about differences between animation and live-action. He suggests "a distinction between realistic and fantastic uses of the filmed image [is misleading]" (121). Rodowick then rightly points out that:

> Regardless of the wonderfully imaginative uses to which they are put, and the spatial plasticity they record, cell [sic] animations obviously have a strong indexical quality. Simply speaking, each photographed frame records an event and its result: the succession of hand-drawn images and cells reproduced as artificial movement through the automatism of succession. Here, as in all other cases, the camera records and documents a past process that took place in the physical world. (Rodowick 2007: 121)

While all three of these important works are epistemological investigations of an ontology of cinema with an emphasis on realism, they seem ambivalent about animation as a mode and a cinematic form, including and excluding it from photo-indexical representations of the physical world as the defining quality of cinema; note they also concentrate exclusively on planar, cel and drawn animation.

The hegemony under which animation has been theorized is not limited to problems of material specificity; it is determined also through canon-making practices, still too often governed by unquestioned, reductionist orthodoxies. As Tom Gunning observes: "The history of cinema, like the history of the cinema generally, has been written and theorized under the hegemony of narrative films" (1986: 64). The largely exclusive focus on commercial narrative cel animation, and some so-called 'experimental' and avant-garde animation, has led to the omission of independent and non-commercial animation production and determined what is written about and taught.[6] The naming of genres, 'schools' and styles of animation was concurrently a canon-forming exercise. And again, the concentration on graphic animation— cel, drawn, cartoons—leaves out a multitude of other styles and techniques. Inclusion of animated films by women in canons is still a serious problem today, and is a dilemma this publication cannot resolve. While there is now digital and online ease of access to a wide variety of animation films, canons are still dominated by male, white Western directors. The same problem appertains to many academic syllabi, where it is common to find Cohl, Fleischer, Disney, MacLaren, UPA, Pixar, but not Ruth Lingford, Marie Menken, Janie Geiser or Mary Ellen Bute, all award-winning animators who have been screened internationally, but have received modest critical attention outside festival publications.[7]

In the past 30 years, digital technologies have increasingly encroached upon traditional forms of non-representational moving image-making, and the introduction of (animated) digital cinema has engendered

significant debates, some about the potential of this technology, others raising concerns about the dissolution of celluloid. Because much of digital cinema's technology and styles originates in animation practice, in my view, animation belongs at the heart of these debates. But this is rarely the case, and it is often erroneously conflated with digital techniques that aspire to 'the projection of the real world', to realism. The digital also informs the current crisis in film studies around the loss of its object of study (celluloid) and truth values of the photochemical index. As early as 1998, Thomas Elsaesser suggested that:

> [a]ny technology that materially affects [the status of indexicality], and digitization would seem to be such a technology, thus puts in crisis deeply-held beliefs about representation and visualization, and many of the discourses – critical, scientific or aesthetic – based on, or formulated in the name of the indexical in our culture, need to be re-examined. (Elsaesser 1998: 202)

Responses to this 'crisis' are manifold in Film Studies and are provoking valuable debates that aim to move on from Manovich's polemic that deems cinema a subset of (digital) animation (see Rodowick and Andrew). Andrew states that "the academic profession appears disoriented, at least momentarily, as questions of new media and of digital processes have sidelined or pre-empted other theoretical topics in journals and at conferences … [and calls for us] to use the occasion of cinema's undeniable digital inflection to rethink the art's past and its potential" (xvii–xviii). Yet, writings on pre-digital animation have been eclipsed by this emphasis on digital technologies. What is at stake here is the critical revaluation of the limitations of animation histories and canonization, and the illumination of animation's formal and aesthetic characteristics beyond reduction to concerns of medium specificity. It is essential to fill the several significant gaps in our understanding, a few of which I have outlined here, as well as to how pre-digital animation, in terms of its development and its relationships to other art forms, is part of an ongoing continuum that includes, but is not reduced to, digital animation production.

re-positioning animation

The uneasy positioning of animation within film studies, therefore, needs urgent, critical re-examination. What qualities or aesthetic possibilities do animation films present that transcend or subvert those of live-action film? How does animation film affect the difficult concept of 'cinematic reality'? And what is the attraction of these films for an audience on the whole more accustomed to fictional or documentary representations of external reality, of the world they inhabit physically? Such questions touch on the

aesthetics of cinema as a whole, and on discourses around reality and perception, and as formal queries, take us into fields of philosophy, narratology, critical and fine-art theory. In a discussion about the auteur in commercial and creative cinema, Gilles Deleuze suggests a way to distinguish between them, that is useful when thinking about the art of animation:

> A work of art always entails the creation of new spaces and times (it's not a question of recounting a story in a well-determined space and time; rather, it is the rhythms, the lighting, and the space-times themselves that must become the true characters.... A work of art is a new syntax, one that is much more important than vocabulary and that excavates a foreign language in language. (Deleuze, in Flaxman 2000: 370)

Deleuze sees a value of creative works in their multiplying, liberating and inventing new emotions (ibid). Many non-conventional, hyperrealist animation films create visual neologisms in the particular animated space-time that are the true 'characters' of the films. In the critical language used to describe such works, theorists need to develop a 'new syntax', in other words, new ways of writing about animation that reflect on the very different perceptual and emotional experiences the form elicits and even constructs. This can be encouraged by considering what Noël Carroll regards as central activities of criticizing artworks: description, classification, contextualization, elucidation, interpretation, and analysis (2009: 13), and he emphasizes artistic evaluation as the *primus inter pares* (9) central to the critic's role. Since animation can pose an aesthetic puzzle not fully solved by live-action based film studies approaches and methodologies, and because animation films also develop intimate relations with fine art, literature and other creative practices, besides cinema theory, this means also exploring other avenues that produce hybrid approaches for a hybrid form. Scholars and practitioners are increasingly using inter- and cross-disciplinary methods in their writing and creative work, and animation is a fecund object through which to explore and expand the effectiveness of other disciplines when applied to the moving image in general.

Until quite recently, 'animation studies' was rarely taught at university levels. Now, due to changing university skill and knowledge requirements, and with the push to 'multiversities', traditionally practice-based animation courses are increasingly offering a theoretical component to study programs and vice-versa.[8] Beside practice-based programs, animation studies is usually a component of film studies and media studies programs, although it is included in curricula as diverse as comparative literature or contemporary history. There is also an observed growth in animation-based PhD projects, both practice and theory-led, that embrace concepts with wider spectral implications and interdisciplinary methods of investigation.

The study of animation is thriving with potential opportunities for diversifying its methods and approaches, analogous to how film studies developed an enormous range of academic expression by drawing on related disciplines. This is one of the editorial strategies of this AFI reader. Its genesis began in 2007 with the 'Pervasive Animation' symposium held at the Tate Modern, London.[9] A collaboration between myself and Stuart Comer, the name of the symposium and of this publication originated in a larger research project I was then developing, that continues: the next project is an exhibition at the Museum for Design Zurich. Only a handful of theoretical collections have been published in the last 15 years, and as demand from higher education for new and critical writing on animation grows, a new reader of animation theory is long overdue. While readers versed in animation studies will recognize some names, many of this AFI reader's authors are not nominally known as animation scholars.[10] They were invited to contribute to this volume based on their expertise in film studies and in other disciplines and thematic fields, as well as for their interest in animation outside the dominant canons; many of the works they examine have rarely been discussed in animation studies writings. Their contributions will help to further differentiate and articulate what is meant by 'animation', and provide new ways of thinking about the form as well as its impact and effect on contemporary audiences. This is in keeping with my concept of 'pervasive animation', that aims to increase and embed critical reflection on the pervasive impact of animation in visual culture, including ethical responsibility of its makers, distributors and consumers. The writings in this collection may offer models for scholars as to how to apply their own particular intellectual engagement to their interest in animation: to widen their 'visual radar', so to speak.

pervasive animation: an overview

One of the challenges of planning this book was preparing its cover; how to choose one single image to represent 'animation'? In lively e-mail discussions with some of the authors about options I selected, we decided on Cathy Joritz's *Negative Man* (1979), a film virtually unknown in film studies, but one that electrifies audiences when it is screened. Working with a piece of found footage, an instructional film from the 1950s for social workers, Joritz used the direct animation technique—scratching the film strip—to add visual information that embellishes the speaker with stark white and vibrating appendages: devil's horns, a punk Mohican haircut, steam, a penis placed in a suggestive gesture of the speaker's hand, an atomic bomb blasting out of his head, or ray-gun eyes that scan a paper. Joritz created a witty, polysemic cinematic text, adding visual commentary that expands what the original material rather dully communicates. We felt that this image worked for a number of reasons: it suggests some of the

main issues raised by the notion of 'pervasive animation'; potential readers may recognize themselves in the image for how they feel when they encounter compelling writing; it has sociocritical and political content; it is a brilliant example of creative economy of means; it complicates live-action film with invasive animation, and like many of the works discussed in this book, it is also outside the typical canons.

The book is mainly structured according to a chronological timeline—from animation pre-history to current exhibition practice—and investigates the aesthetic, stylistic and technical diversity of animation film in research, commercial, independent, avant-garde communities around the world. Most of its contributors are widely renowned and respected scholars from cinema and media studies and animation studies, others are new and strong voices in the intellectual community. Before introducing each contribution in the next section, I will comment on the main themes of the book that address and expand prevailing topics and themes in writing on animation, and while section names are a roadmap, I will suggest further thematic interlinking between the authors that may be helpful to readers. There are chapters on precursors and alternatives to cinematic animation and their cultural, scientific and philosophical concepts and impact (Zielinski, Gunning, Griffin). The troubled notion of the illusion of life in animation is thematized, and alternate approaches offered (Zielinski, Lamarre, Buchan), as are investigations of photo-indexicality and of documentary (Gunning, Skoller, Bartlett, Ehrlich). Some authors take a notably political or cultural stance to challenge hegemonies of technology and culture (Zielinski, Cubitt, Kim), comment on sociocritical and ecocritical aspects of power, technology, labor, death and war (Leslie, Cubitt, Skoller, Ehrlich, Ward), or question systems of history and historiography (Zielinski, Bartlett, Skoller). There are contributions concerned with the effects of stillness, duration and movement (Leslie, Lamarre), and the perceptual and aesthetic experience of these in both theatrical and alternate settings (Buchan, Skoller, Griffin, Carels). The materials of animation are examined (Cubitt, Buchan, Griffin, Carels) as are graphic cinema and the line (Cubitt, Leslie, Lamarre), as well as animation technologies and medium specificity (Lamarre, Bartlett, Griffin) and animation as process (Ward, Griffin). Almost all engage with the viewer/observer/spectator, often with an interest in the non/post/contemporary human condition. Some refer to existing methodologies, others offer new exemplars or introduce new concepts, terms and approaches. Readers will notice that authors' references augment both film and animation studies with writings from a wide range of related disciplines.

section one: 'mechanics and magic'

The history of animation before photography has a tendency to focus on laterna magica and nineteenth century Victorian/European optical 'toys'.

In "Expanded Animation: A Short Genealogy in Words and Images", media archaeologist Siegfried Zielinski discursively expands this notionally Occidental pre-history to include a range of examples from around the world (which is a strategy of his inclusive and corrective concept of 'Variantology'). His interest here is in "the sensational phenomenon of animation [in] the broader context of the deep time relations of arts, sciences, and technologies" (26). Zielinski demonstrates prismatically how philosophy, theology, media theory, engineering, natural sciences, and histories of technology meet and overlap in animation and automatons, where the animating principle is fulfilled not through cinematic techniques, but rather through hydraulics, pneumatics, mechanics, electricity, gravity. With this richly illustrated illustrated chapter Zielinski's 'deep time' of animation effectively expands the received pre-histories of cinematic animation and challenges the hubris of the West as the main inventor of non-cinematic animated forms.

In "The Transforming Image: the Roots of Animation in Metamorphosis and Motion", Tom Gunning also addresses non-cinematic objects. He starts by proposing a rethinking of questions about the hierarchies of animation and photographic cinematography, and raises a pervasive debate in animation studies, namely the expressive possibilities available in drawn or painted animation, compared to the photo-indexical 'constraints' of photography (and film). After discussing the transformative powers of animation and metamorphosis, he moves from this macro-debate to a micro-focus on two particular 'devices of wonder': the blow or flick book and the flipbook (*aka* thumb book). Contextualized with Pre-Enlightenment and later scientific texts and other Philosophical Toys (also known as Victorian optical toys), Gunning demonstrates the pre-photographic flipbook as belonging to a lineage of animated drawings, rather than to pre-cinematography, as is usually the case in writings on the flipbook. He argues that these and other philosophical toys manipulated perception, and that they have a place in thinking about animation now. Ending with a discourse on George Méliès' trick films, Gunning shows the relevance of the magic of transformation in the realistic representation of motion and the transformative power of the single frame in today's digital image making.

section two: 'material culture'

Following on from Zielinski and Gunning's innovations and precursors to photographic cinema, this section specifically treats the technologies, matter and materialities of animation within political, aesthetic and eco-critical frameworks. Esther Leslie's "Animation's Petrified Unrest" considers early animation as a form of production–consumption. She investigates the closely bound relations between stillness—the single frame, and movement—the illusion of projection—and how animation reverses the

process of things that once moved becoming petrified: in animation, unmoving things become mobilized. Worked through in the theories of visual perception are notions of empathetic projection and kinesthetic vision, which segue with the new experiences brought about by optical technologies of leisure. She then turns to the line, one of the most central elements of any drawn animated film. As Vivian Sobchack writes, "the single line … foregrounds animation's own internal metaphysics and paradoxes, its own ontology (however qualified in terms of cinema), its own sufficient conditions for being the 'what' that it is" (2008: 252–253).[11] Leslie examines the line in the swirling curves of a drawing of Loïe Fuller (*The Serpentine Dance*) and the shape-shifting of Early Cinema, to then discuss how animated drawings create this through drawing. She shows how movement and stasis is apparent in chronophotography, and how Marey's use of dots would be taken on in *Felix the Cat* cartoons. Leslie introduces a Marxist interpretation to draw an analogy between the freedom of these forms in cartoons and a freedom of movement in labor collectives. She ultimately shows how the labor world of flowing and punctuation, or stopping and starting, is taken up or worked through in the animated culture of the early years of twentieth century.

Sean Cubitt's "Ecocritique and the Materialities of Animation" posits how technologies and techniques of animation express social constructions of the human–natural relation. Reminding us of the ecological and industrial impact of animation's materiality, Cubitt then proposes three modes of animation as evolving, related forms: direct, profilmic and vector. He sees direct animation in a continuum with animation's earliest forms and describes a shared coincidence of temporalities and artisanal faithfulness to materials that results in a mediation of the human–environment relation. Cubitt's next object is pro-filmic animation: he draws out a relation between production modes and methods in the differences between the individual artist and industrial, studio-based labor. Then he shifts to his third mode: vector animation, and through a contemporary interactive artwork by Daniel Rozin, Cubitt shows how the digital pixel and the pinscreen use similar principles as the two previous modes. After a helpful, brief introduction to the physics and math of vectors, Cubitt quickly moves to locate the aesthetics and technology of this mode in early animation (Émile Cohl) and William Hogarths' 'line of beauty'. He then evaluates how lines and vectors create human gesture and allow additional freedoms with subjects' relationships to environments, and concludes with how these three modes influence new, interactive and exterior environments. His contribution gives pause for thought about an ecological and historical approach to the materials of animation as crucial for the development of an ecocritical tradition. Cubitt provides a useful ecocritical and political methodology for approaching these works as they become more and more pervasive in visual culture.

section three: 'life and non-life'

The 'illusion of life' is defined variously in many writings on animation, but it is and remains a somewhat vague notion, especially with regard to the variety of techniques and materials used. The three authors in this section take on how life, and non-life, are represented, thematized and technically created in animation filmmaking. In "Coming to Life: Cartoon Animals and Natural Philosophy", Thomas Lamarre reiterates a number of concepts of 'bringing to life' in animation. Making clear he is not engaging with essentialist, medium-specific debates, he focuses on a wider problematic of movement-as-life through two lines of inquiry: cel animation and natural philosophy. Using 1930s Japanese cartoons as his examples, Lamarre highlights the relation between non-localized movement (compositing) and localized or embodied movement (character animation), a defining feature of full or classic cel animation. He asks questions about the relation between these two types of movement, and the tendential privileging of the effects of characterization. Lamarre's second line of enquiry explores how localized non-movement is the key to understanding the tendency to see an animistic or vitalist worldview in animation. He suggests the movement-as-life problematic resonates with a natural philosophy approach rejecting dualism and substantialism that refuses a divide between matter and energy, body and mind, space and time. Lamarre's biopolitical discussion of this 'reality/fantasy divide' reflects on natural and artificial perception of cartoon animals. Lamarre applies this to a discussion of animation and how its 'species' creates values of empire, and how, through contemporary digital compositing, animation breaks out of its medium specificity. He ends with a biopolitical critique of the genealogy of contemporary media politics and claims that we must address cartoon animals as forms of life rather than deceptive illusions.

My own contribution concentrates on puppet and object (stop motion) animation, a technique that receives less investigative attention than cel or drawn planar animation. In "A Cinema of Apprehension: A Third Entelechy of the Vitalist Machine", I develop four proposals. The first takes into account the materiality of the animated object and develops a typology of the Quay Brothers' non-anthropomorphic 'vitalist machines'. It is informed by vitalist principles and Bruno Schulz's concept of *generatio aequivoca* (spontaneous generation or self-reproduction), a main inspiration for *Street of Crocodiles* (1986) and later films. Working with Aristotle's philosophical concepts of entelechy, I then sketch out an ontology of these animated objects as a category of *soulless* being that is rooted in a material objecthood, to offer an alternative to the prevalent concept of animism. The third proposal deals with how the viewer engages with features of the Quay Brother's constructed puppets and objects, and I suggest how these portmanteau objects are visual metaphors that engage the viewer co-creatively.

Fourth, I develop a somatic, epistemological and aesthetic proposal for the viewer's reaction to these vitalist machines: what I call 'a cinema of apprehension', a performative and actively engaged paradigm of spectatorship for puppet animation distinct from live-action cinema, and animistic animation. I conclude with how naïvety and enchantment can be useful to understand our perception of animated matter.

Continuing the section theme of life and non-life, in "The East Asian Post-human Prometheus: Animated Mechanical 'Others'", Joon Yang Kim takes an anti-Orientalist/postcolonial approach to dealing with animated texts produced in East Asian countries. Kim starts with a politically informed analysis of the unfavorable representation of East Asian military in Western cartoons made in the 1930s and 40s, noting the predominance of repetitive, mechanical movement. He works with Rey Chow's conception of E. T. A. Hoffman's mechanical doll Olympia as a cultural metaphor for Orientalist discourse, applying this to the West's first reactions to *anime* and Japan's instrumentalization of these. Kim then addresses his main topic: the figure of the android, robot and cyborg in East Asian animation, through stylistic, philosophical and literary frameworks. He effectively analyzes genders and stereotypes and their origins in Korean and Japanese cultures, industries, and ideologies, linking these to the films' Lamettrian machine-based figures' ontological dilemma: they strive to be human, in other words, East Asian 'robots', or 'Others', that want to be accepted by the West. Kim provides insights into Eastern poly/pantheistic traditions that offer alternate concepts of humanity and post-humanism. His final section considers ethics and the android 'commodity' as a post-human, mechanical 'Other' to draw comparison with the situation of Korean migrant and female workers in South Korea. Kim concludes by asking if we have the empathetic capacity to hear the 'voices' and understand the injustice these animated and real-world figures experience.

section four: 'history, documentary and truth'

Although rarely invoked in animation studies, the notion of blending media is pervasive in animation filmmaking as it has always been a collaborative part of the interdisciplinary contagion and hybridity that defines so much of our visual culture. This section features three authors working with distinct forms of animated documentary; they analyze a range of documents 'blended' and hybridized with animation, to disentangle histories, documentary 'truth' and aesthetics to demonstrate political and philosophical agendas. In "Socialimagestics and Cinemasymbiosis: The Materiality of A-Realism", Mark Bartlett develops a philosophy of animation that aims to circumvent the ideological dualisms and reductive humanism inherent to established cinema theories and discourses. Bartlett provides an alternative, binocular perspective of historiography/historicity

and materiality/technicity through an intersectional reading of Hayden White, Paul de Man, Walter Benjamin, and Stan VanDerBeek. He offers White's concept of figural realism as a mediator between the binaries of what he calls hybrid states of fictional-facts and factual-fictions. He aligns these to de Man's radical interpretation of Kant's aesthetic judgment in order to argue for a non-dualist conception of materialism that opposes the cinematic humanism that the discourse network he cites brought under radical critique. Bartlett shows how de Man's conception of materialism is a performative, formal force and 'technological will' historically determined first by modernist cinema, then by information and computing technologies, that produced a radical historical break with auratic pre-cinematic aesthetic states of subjectivity. Asking what epistemological work does *some* animation do, he explains that *some* animated films (e.g., Brett Morgen's *Chicago 10*, which hybridized indexical live-action and animation's phantasmic imaginary), produce an aesthetic state constituted by fictional-facts and factual-fictions that is completely consistent with a figural realism grounded in de Man's performative materialism that Bartlett calls 'a-realism'. He concludes by demonstrating that VanDerBeek's neologistic theory of socialimagestics and practice of cinemasymbiosis, as exemplified by the latter's drawing of the "TV-Information Jacket" and his computer-generated film series, *Poemfields 1–8*, also squares perfectly with the philosophy of a-realism. Animated audiovisuality articulated with indexical, live-action visuality, in his view, is potentially its best post-humanist and political exemplar, most in sync with today's historicity and technicity.

The relationship between history, indexicality and the ideological potentialities of animated digital technologies are the subject of Jeffrey Skoller's chapter, that concentrates on a filmmaker who works with and reworks artifacts from Early Cinema. "ReAnimator: Embodied History, and the Post-Cinema Trace in Ken Jacobs' 'Digital Composites'" explores the ways in which digitalization can complicate notions of photographic indexicality as historical trace. Skoller begins with examining the traditional symptomatic divide between the politically engaged film and animation, arguing for the latter's 'radical promise' in a context of Modernism, and he asks pertinent question about how the digital is transforming what we think animation is. Skoller then explains why Jacobs is an exemplary film maker to discuss animation aesthetics and radical media practice. Working beautifully with Walter Benjamin's figure of 'the brooder' (1999), Skoller locates Jacobs' concerns, that are deeply bound to a respect of images from the past, in a wider historical urgency. He then discusses (re-)animation of imagery in a range of Jacobs' works, working here and later with the Deleuzian concept of 'the fold'. Skoller then explains Jacobs' recent engagement with digital, to then raise questions about the current reconsideration of animation in film studies and practice.

He introduces a new term, the 'digital temporal composite' (that he also calls a fold), to clarify a distinction to other terms used to describe analog or digital temporal multiplicities. He then shows us in detail how Jacobs' films demand a rethinking of the photo-index. In his analyses Skoller articulates a powerful mix of technical perspicacity, aesthetic evaluation and political contextualization that enhance the term 'animation' with new meaning beyond a technique. Skoller's proposition of re-animation thorough a continuum of analog and digital techniques and technologies opens up radical ways of thinking about animation beyond traditional frame-by-frame shooting.

Animation has long been used in documentary film, often as an inserted graphic, cut-out or digitally modelled 3D sequence.[12] Animated documentary has many uses, including creating imagery for unrecorded events and for depicting human experience that take place outside our geographic limitations, and it is receiving increased attention in film studies.[13] In "Animated Documentaries: Aesthetics, Politics and Viewer Engagement", Nea Ehrlich begins by considering a number of important factors for any documentary film, and proposes others that are specific to the animated form: degrees of agency and representation, the effects of aestheticization, questions of realism and indexicality, correlation of the animated images with source materials, and the consequences of these on a work's sociopolitical intent. Ehrlich concentrates on identity politics and the 'other', authenticity, and the aesthetic/political ramifications of animation when used to create a documentary film. She then shifts her attention to online communities and 'serious' games demonstrating how games can satisfy Michael Renov's functions of documentary and Vivian Sobchack's notions of empathetic recognition. Ehrlich argues how engaged participation in games can enhance and intensify the user's sociopolitical engagement, and how this is in part achieved through the game's animated graphic simplicity. She proposes a holistic approach to the avatar/player connection, and that the consequences of losing promote identification with and ethical responsibility for the 'here and now' situation of the 'other' in the game. Ehrlich's contribution embeds animated documentary and games in the wider debates around political film documentary. It also draws attention to the millions of online users around the world (and the victims of war depicted in the games) who are rarely considered in these debates.

section five: 'display, process and practice'

This final Section concentrates on alternate displays and creative processes of animation as a practice and an art form. In the arts economies, museum and gallery exhibition and installations of mainly conventional and commercial work persists. Curation of independent and non-commercial animation, that provides alternatives to popular canons, and enhances the

public's understanding of animation as *process*, is relatively rare.[14] Himself a pioneer of animation installation, in "Take the B Train: Reconstructing the Proto-cinematic Apparatus" artist and filmmaker George Griffin further develops his notion of "concrete animation"[15] in non-theatrical and site-specific animation installation. Griffin elegantly works with a New York transport system analogy; he invites us to step off the 'A Train' of popular animation film to take the 'B Train' to the alternate territory of an emerging artistic practice. Discerning between kinetic sculpture, performance and urban installation, Griffin describes how different technologies result in different, unmediated temporal and physical experiences distinct from time-based animation projection. He begins with Gregory Barsamian, emphasizing the materiality and labor of Barsamian's work, explaining how non-cinematic moving sculpture is animated by a carefully timed strobe light. His next subject is Eric Dyer, a film experimentalist whose non-filmic cinetropes and sculptures rely on light rather than projection. Dyer also creates standalone films for projection based on his installations. Returning to the B Train, this time literally, Griffin's third and final subject is Bill Brand, who created the kinetic concrete animation installation *Masstransiscope* in an unused station in the New York subway system's B Train route.[16] Griffin places Brand in a lineage with Eadweard Muybridge and pre-cinema optical apparatus, as well as in recent public art canons. Griffin's conclusion gives us pause for thought on how academia has focused overtly on cinematic and screen-based animation, and by providing valuable insights into these artists' philosophical concepts and creative processes, he generates new thinking about the notion of the 'in-between'.

The production process of most pre-digital animation requires a material base: drawing, paintings, cels, objects and other artistic media are used to create the films. There is an opportunity for physical proximity to the material base of pro-filmic materials used to craft animation, and this has featured in a number of more recent exhibitions.[17] In "Spaces of Wonder: Animation and Museology", Edwin Carels' understanding of animation as both technology and metaphor for curation is applied to the museal 'white cube' and its staging of a spatial and temporal agency for manipulation of intervals in four artists' works. First, he locates the Quay Brothers' film set displays in a contemporary dialectic based in the tradition of seventeenth century *Wunderkammer* and Norman Klein's notion of 'scripting space' (2004: 2). He then considers sculpture and animation through Robert Breer's minimalist aesthetics and preference for so-called 'primitive' animation techniques. A discourse around Marcel Duchamp questions the dissociation of animation from twentieth century art, and Carels shows how Breer's works are in a lineage with 1920s avant-garde. His third subject is Phillipe Parreno and Pierre Huyghe's installation works, and Carels usurps the animation term of 'in-betweening' to explain the temporal, spatial and art world mediation in the artist's curation

of their works. Here, as elsewhere, Carels points out how museological codes are addressed by these artists. He then discusses Anthony McCall's light projections as para-cinematic animations, showing how the artist's structuralist alignment and theoretical aims demand a rethinking of these codes. Again, Carels expands the canons, this time by introducing McCall into pre-cinematic magic lantern and other ephemeral, non-cinematic nineteenth century projection techniques. He embeds McCalls' 'solid light sculpture' in historical debates around the apparatus and its resulting immaterial *dispositif*, noting the recent revival of interest for artists' cinema. Carels' question throughout is to what extent the practice of animation brings in its own set of paradigms, and whether these are really new, or rather rooted in the past.

Animation production is now a significant industry worldwide, and this raises questions about practice and training at art schools and universities, as many are developing strong relations with studios and industry. With this economic and cultural impact in mind, and supported by a range of cultural, pedagogical and social theorists, in "Animation Studies as an Interdisciplinary Teaching Field", Paul Ward undertakes an enquiry into pedagogical methods and strategies for teaching practice and theory at university level. He begins with some observations on relations between animation and other disciplines, introducing a number of uses of interdisciplinarity put forth by other authors. He suggests that animation theory and practice itself has emerged from a disparity of disciplines, developing into nodes of enquiry with relations to other fields, and that it should not be regarded as a discipline. Ward explores a variety of epistemological models to develop a set of problems for knowledge production in animation, proposing this can be resolved through a critical and discursive dimension. Through a comparative framework of performance studies, he suggests how animation can be understood in dynamic and dialogic relations between theory and practice. With an emphasis on practice, Ward raises the innate differences between 'classical' and vocational training, registering a stronger tendency for the latter. He then reviews teaching strategies of a number of animation programs, and of other disciplines make use of animation in courses, to then suggest how recontextualization of animation can make a contribution to other discipline-specific knowledge. Ward concludes that courses offering animation theory and practice should not enthral themselves to satisfying only industry needs, and rather be aware of how the interdisciplinarity of animation impacts a range of knowledge, cultures and practices.

Pervasive Animation is a contribution towards bridging the enormous gap in dialogues between burgeoning animation film production and its critical counterparts. It responds to existing theoretical stances, investigates radical contemporary practice and creative innovations and foregrounds specific disciplines and their interrelations with animation. We hope that this

anthology of new writing—that is also a philosophy of animation—provides a holistic set of tools and resources for students and researchers; it aims to be forward-looking, in that it proposes a wide range of exemplary approaches and critical methodologies to build upon for future research. The book also challenges Western and commercial hegemonies and clichéd conceptions about animation, to widen the scope of our creative and intellectual capital to a larger cultural mediation. We hope to stimulate much-needed dialogue and new perspectives centered on the pervasive and multidisciplinary nature of animation, its future development and its ethical responsibilities for spatial politics and moving image culture.

notes

1. Exceptions include any genre that is exclusively based on live-action shooting, for instance direct cinema or theater performance.
2. *The Moving Image Genre-form Guide*, http://www.loc.gov/rr/mopic/migsub.html#Animation (Accessed November 27, 2012).
3. For an extended discussion of Cavell, that includes Alfred Sesonske's response to Cavell's comments on cartoons, see Buchan 2006: 16–18.
4. Note 2 in Andrew: Sean Cubitt, *The Cinema Effect*. Cambridge MA: MIT Press, 2004: 97.
5. Note 6 in Andrew: "This point was well made and well defended by Adam Rosadiuk in a symposium at Concordia University in Montreal, organized by Martin Lefebvre, March 2005." (Andrew, 61)
6. For an extended discussion of this, see Buchan, "Animation, in Theory", in *Animating Film Theory*, Karen Beckman (ed). Durham NC: Duke University Press, forthcoming.
7. The editor of this book sought authors to write about women in animation, but unfortunately was not able to confirm them as contributors.
8. Animation World Network Schools directory lists over 900 animation courses worldwide, 399 with a theoretical component, 324 undergraduate, 197 masters and 60 PhD programs. Animation World Network Schools Directory, http://schools.awn.com/ (Accessed December 9, 2012).
9. The full 3-day symposium webcast can be watched on the Tate Channel, http://www.tate.org.uk/search/Pervasive%20animation
10. Nine of this book's authors have published in *animation: an interdisciplinary journal*, nine are members of the journal's Editorial Board, and 10 have been speakers at symposia and conferences the editor organized.
11. See also Vivian Sobchack's talk at the Pervasive Animation symposium, http://www.tate.org.uk/context-comment/video/pervasive-animation-part-3
12. Examples include development political or battle situations on a map, visualizing the biochemical functions of cellular DNA or mitochondria, transporting the viewer from macro-spatial organization of galaxies to demonstrating how nanoworlds work.
13. In 2011, *animation: an interdisciplinary journal* published a Special Issue on the topic, guest edited by Jeffrey Skoller.
14. Alternatives to cinematic projection and to the 'white cube' include public art; installations in other environments include projections on buildings (Blinkenlights, Rose Bond, Marina Zurkow), or animation and performance (Miwa Matreyek, Cathy Rose).

15. See Griffin's essay, "The Anxious Pencil", in *Trickraum:Spacetricks*, 2005: 14–19.
16. A version of the work can be seen on Brand's website, http://www.bboptics.com/. Over the years, the installation was damaged by graffiti and was restored by Brand in 2008.
17. Examples are *Trickraum:Spacetricks* (Suzanne Buchan and Andres Janser: Zurich and touring 2005–6); *Watch Me Move* (Greg Hilty and associate curators: Barbican, London 2011 and touring); *Borderline Behaviour* and *Graphology* (both Edwin Carels, Rotterdam and London respectively), and *The Quay Brothers: On Deciphering the Pharmacists Prescription for Lipreading Puppets* (Ron Magliozzi: MOMA, New York 2012–13).

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